JRAK
Jurnal Riset Akuntansi Kontemporer

THE RECIPROCAL RELATIONSHIP BETWEEN PROFITABILITY AND CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE

https://journal.unpas.ac.id/index.php/jrak/index

Arum Prastiwi ✉[1], **Sari Atmini**[2], **Devy Pusposari**[3], **Yetri Martika Sari**[4], **Ferica Christinawati Putri**[5]
[1,2,3,4,5]Department of Accounting, Faculty of Economics and Business, Universitas Brawijaya, Malang, Indonesia
Corresponding Author: arum@ub.ac.id ✉[1]
Jl. Veteran, Ketawanggede, Malang, East Java, Indonesia

Article Info

History of Article
Received: 4/7/2025
Revised: 15/9/2025
Accepted: 23/9/2025
Available Online: 13/10/2025

Jurnal Riset Akuntansi Kontemporer
Volume 17, No. 2, October 2025,
Page 414-427
ISSN 2088-5091 (Print)
ISSN 2597-6826 (Online)

https://doi.org/10.23969/jrak.v17i2.29561

Keywords: corporate social responsibility; mining companies; profitability; reciprocal effect; stock market

Abstract

The relationship between CSR disclosure and financial performance remains contentious, particularly in emerging market resource sectors. This study examined the bidirectional relationship between CSR disclosure and profitability in Indonesian oil and gas mining companies from 2012 to 2019 using panel data regression on nine listed firms, yielding 69 observations. CSR disclosure was measured using GRI-G4 indicators, while profitability was assessed through ROA, ROE, NPM, and EPS, with firm size and leverage as controls. The analysis revealed significant reciprocal relationships with contrasting patterns. ROA and NPM showed negative bidirectional relationships with CSR disclosure, suggesting trade-offs between operational efficiency and social transparency. Conversely, ROE and EPS demonstrated positive reciprocal relationships, indicating CSR alignment with shareholder returns. These findings suggest companies should view CSR as a strategic investment, while regulators need stronger frameworks to promote synergy between financial sustainability and responsible disclosure.

INTRODUCTION

Corporate Social Responsibility (CSR) disclosure has become a fundamental element in contemporary business practices, especially for oil and gas mining companies that face strict regulatory pressures and high public expectations for environmental and social accountability (Purbawangsa et al.,

2019). The Indonesian government reinforces the importance of CSR implementation through Law No. 40 of 2007 and Government Regulation No. 47 of 2012, which require companies to implement and report social and environmental responsibility activities.

The urgency of CSR disclosure has increased due to numerous cases of environmental pollution by oil and gas companies in Indonesia, which, over the last two years, resulted in hazardous waste management costs exceeding US$12 million and directly impacted company profitability. This phenomenon indicates the complexity of the relationship between profitability and CSR disclosure, which shows a contradictory pattern in the literature. Some studies identified a positive impact of CSR on profitability (Aji et al., 2021; Ahmad et al., 2024), while other studies demonstrated adverse or insignificant effects (Xue et al., 2022) The differences in research results were due to different industry and geographical contexts, as Xue et al. analyzed the Chinese general market that viewed CSR as a cost burden, while Ahmad focused on the halal industry in Malaysia (Hidthiir et al., 2024).

The relationship between CSR and performance can be explained theoretically through Stakeholder Theory, Legitimacy Theory, and Agency Theory, but this framework is insufficient to address the dynamics of developing markets. Stakeholder Theory emphasized meeting expectations to maintain reputation and increase financial value (Freeman, 2017; Hațegan et al., 2018), Legitimacy Theory viewed CSR as a social legitimacy strategy (Miller et al., 2018; Jaisinghani et al., 2020), and Agency Theory placed governance as a moderator that strengthened the CSR and performance relationship. However, this framework assumes institutional stability and resource availability characteristic of advanced markets, which is inadequate for addressing the context of emerging markets, where institutional voids create a performance-contingent approach that challenges Western-based assumptions about consistent stakeholder responsiveness. Therefore, this theoretical framework needs to be complemented with a methodological approach capable of testing bidirectional relationships between CSR and profitability.

Methodological gaps exacerbate theoretical limitations. Most prior studies adopted a unidirectional approach, either testing CSR's effect on profitability or vice versa, thereby overlooking reciprocal feedback mechanisms that may shape corporate strategies (Christi et al., 2025). This gap created an incomplete understanding of CSR and profitability causality, particularly in emerging markets, where reciprocal feedback determines strategic CSR allocation under resource constraints.

This study aims at examining the reciprocal relationship between CSR disclosure and profitability in Indonesia's oil and gas sector using a bidirectional panel data model. CSR was measured through comprehensive GRI-G4 indicators, while profitability was assessed by ROA, ROE, NPM, and EPS, allowing for a more holistic evaluation than studies limited to single measures. The 2012–2019 observation period covered the commodity boom, oil price crisis, and recovery phase, providing a contextualized view of CSR and profitability dynamics under volatile conditions. By doing so, the study contributed methodologically by applying a reciprocal design often overlooked in prior research, and empirically by clarifying inconsistent findings on how CSR created or constrained value in resource-intensive industries.

Based on a combination of theoretical perspectives and empirical findings, the following hypotheses are proposed to capture the reciprocal relationship between CSR disclosure and each profitability indicator. In this context, the bidirectional relationship between CSR disclosure and Return on Assets (ROA) has strategic significance that needs to be tested in depth, particularly in industries facing high social and regulatory pressures. This relationship is increasingly relevant as public and regulatory expectations toward corporate social responsibility continue to rise, making an understanding of this mechanism crucial for ensuring corporate sustainability and legitimacy.

This study synthesizes Legitimacy Theory, Stakeholder Theory, and Agency Theory to examine the nexus between corporate social responsibility (CSR) and corporate profitability, specifically within Indonesia's oil and gas industry. These theoretical frameworks work in tandem to explain the CSR-profitability dynamics, offering a unified analytical lens that provides comprehensive insights into how CSR influences corporate financial outcomes in emerging market settings. Legitimacy Theory argued that financially robust companies, as reflected by Return on Assets (ROA), perceived their strong financial performance as conferring adequate social legitimacy, making them hesitant to enhance CSR

disclosures due to apprehensions about elevating stakeholder expectations that might compromise operational concentration and asset utilization efficiency (Zhang et al., 2020). Consequently, CSR disclosure is anticipated to exhibit a negative bidirectional relationship with ROA, as evidenced in ASEAN mining infrastructure sectors, where both studies demonstrated that CSR disclosure provided limited financial benefits in asset-intensive industries (Otero-González et al., 2021).

Conversely, Stakeholder Theory proposed that CSR may positively influence Return on Equity (ROE), as organizations with superior ROE possess the financial capacity to allocate resources toward CSR initiatives. Heightened stakeholder pressures motivated companies to proactively enhance CSR disclosures to preserve investor confidence and satisfy shareholder expectations (Gowsalya et al., 2024; Rashid et al., 2020). Accordingly, CSR is anticipated to demonstrate a positive bidirectional relationship with ROE, given its function as a governance quality indicator in markets emphasizing ESG (Environmental, Social, and Governance) criteria.

Within the Agency Theory framework, CSR disclosure represented an agency cost that redirected resources away from primary business operations, potentially diminishing operational effectiveness and Net Profit Margin (NPM). Organizations with elevated NPM tended to eschew CSR disclosures that increased expenditures, particularly when such costs failed to directly enhance sales revenue. Therefore, CSR disclosure is expected to maintain a negative bidirectional relationship with NPM, illustrating how CSR compromises cost-effectiveness in industries emphasizing immediate profitability, supported by multiple studies that demonstrated limited CSR-profitability benefits in capital-intensive sectors (Otero-González *et al.*, 2021).

Earnings per Share (EPS), as a market-based measure, plays a unique role in the CSR-profitability relationship. Within Legitimacy Theory, companies with high EPS faced greater pressure from stakeholders to fulfill their social responsibilities, as superior financial results increased their social expectations (Ali, et al., 2024). Conversely, Stakeholder Theory posits that broader CSR can enhance investor confidence and drive equity premiums, leading to increased EPS. Therefore, CSR can have a positive impact on EPS through mechanisms of reputation strengthening and enhanced investor confidence.

This study's distinctive contribution lies in contextualizing established theories within an emerging market framework, specifically Indonesia. The country's oil and gas sector, characterized by substantial commodity price fluctuations and regulatory ambiguity, provides a unique vantage point for understanding CSR perception and implementation in developing economies. This research not only examined established relationships but also addressed the literature gap by synthesizing theories within an underexplored contextual framework. This approach contributed novel perspectives to CSR theory in industries confronting significant economic and social complexities.

Based on the above theoretical discussion, the hypotheses of this study are formulated as follows:

H1a: There is a negative reciprocal relationship between Return on Assets (ROA) and Corporate Social Responsibility (CSR) disclosure in Indonesian oil and gas companies.

H1b: There is a positive reciprocal relationship between Return on Equity (ROE) and Corporate Social Responsibility (CSR) disclosure in Indonesian oil and gas companies.

H1c: There is a negative reciprocal relationship between Net Profit Margin (NPM) and Corporate Social Responsibility (CSR) disclosure in Indonesian oil and gas companies.

H1d: There is a positive reciprocal relationship between Earnings Per Share (EPS) and Corporate Social Responsibility (CSR) disclosure in Indonesian oil and gas companies.

These hypotheses aim at addressing the existing literature gap by applying a comprehensive theoretical framework and examining the dynamics within the context of Indonesia's oil and gas industry. Within this framework, Corporate Social Responsibility (CSR) is positioned not merely as social compliance but as an integral component of strategic management, carrying direct implications for corporate financial performance. To ensure rigorous empirical testing of these theoretical relationships, several control variables need to be incorporated into the analytical model.

Drawing upon the theoretical foundations and prior empirical findings, along with the analytical framework and hypotheses developed earlier, the research model was formulated accordingly. Figure 1 presents the conceptual framework, which illustrates the reciprocal relationships examined in this study.

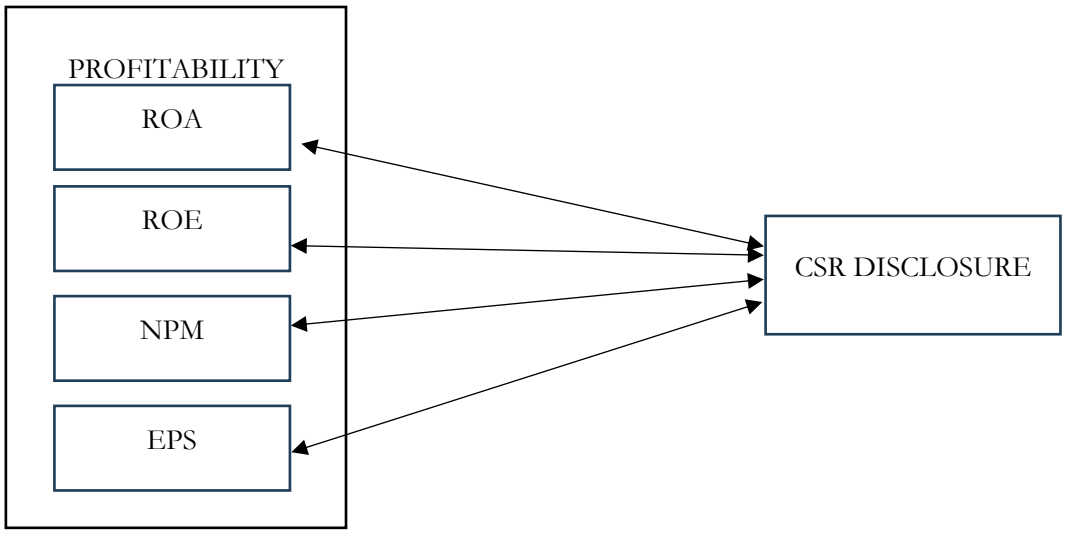

Figure 1. Research Model

The inclusion of firm size and leverage as control variables is theoretically anchored in both Legitimacy Theory and Stakeholder Theory. Larger firms are subject to greater public visibility and legitimacy pressures, making strategic CSR engagement essential for maintaining social acceptance (D'Amato & Falivena, 2019; Schreck & Raithel, 2018). Similarly, firms with high leverage may intensify CSR activities to restore legitimacy when perceived as financially vulnerable (Chedrawi et al., 2020; Huang et al., 2025). From a stakeholder perspective, firm size reflects the complexity and diversity of stakeholder demands (Kuzey et al., 2025). while leverage introduces creditors as influential stakeholders who shape CSR allocation through monitoring mechanisms and debt covenants (Hamrouni et al., 2019; Saad et al., 2024). Within Indonesia's capital-intensive oil and gas industry, controlling for these variables is particularly crucial to disentangle the authentic CSR-profitability relationship while accounting for legitimacy pressures and stakeholder dynamics.

METHOD

This study employs a quantitative explanatory design with a longitudinal panel data approach to examine the reciprocal relationship between corporate social responsibility (CSR) disclosure and profitability in oil and gas companies listed on the Indonesia Stock Exchange (IDX) during the period 2012–2019. A bidirectional causal analysis framework is adopted to capture the complex interdependencies between CSR practices and financial performance. The selected observation period aligns with the implementation of mandatory CSR regulations under Law No. 40/2007, operationalized through Government Regulation No. 47/2012. It also provides coverage of normal business conditions before the COVID-19 disruption and accounts for commodity price fluctuations characteristic of Indonesia's extractive sector.

The research population consisted of all nine oil and gas companies listed on the Indonesia Stock Exchange (IDX), thereby achieving complete sectoral coverage. Purposive sampling criteria were applied, including continuous listing throughout the observation period, availability of complete annual reports, disclosure based on the GRI-G4 framework, and comprehensive financial data. Based on these criteria, all nine companies were retained in the sample, with no exclusions (see Table 1). This resulted in 69 usable firm-year observations out of 72 potential data points, with three observations excluded due to missing company-year records. Although the sample size imposes limitations on the detection of small effects and constrains generalizability beyond Indonesia's oil and gas sector, full population coverage enhances representativeness and eliminates potential sampling bias.

Table 1. Criteria Sampling

	Criteria	Number of Observations
1.	Population (9 listed companies × 8 years)	72
2.	Oil and gas companies delisting during 2012-2019	(0)
3.	Number of observation years with incomplete data in 2012-2019	(3)
	Total	69

Building upon this robust sampling foundation, this study incorporates three main categories of variables: independent variables, dependent variables, and control variables. Within the reciprocal design framework, the roles of independent and dependent variables are interchangeable depending on the specific causal direction under investigation. To capture this dynamic interdependence, the study employs eight panel regression models. The first set of four models investigates the impact of firm profitability indicators on the extent of CSR disclosure, and is specified as follows:

$$CSR = \alpha_0 + \alpha_1 ROA_{it} + \alpha_2 LEV_{it} + \alpha_3 SIZE_{it} + \varepsilon_{1it} \quad (1)$$

$$CSR = \alpha_0 + \alpha_1 ROE_{it} + \alpha_2 LEV_{it} + \alpha_3 SIZE_{it} + \varepsilon_{2it} \quad (3)$$

$$CSR = \alpha_0 + \alpha_1 NPM_{it} + \alpha_2 LEV_{it} + \alpha_3 SIZE_{it} + \varepsilon_{3it} \quad (5)$$

$$CSR = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 LEV_{it} + \alpha_3 SIZE_{it} + \varepsilon_{4it} \quad (7)$$

In contrast, the next four models test the effect of CSR disclosure on each profitability indicator:

$$ROA = \beta_0 + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \varepsilon_{5it} \quad (2)$$

$$ROE = \beta_0 + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \varepsilon_{6it} \quad (4)$$

$$NPM = \beta_0 + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \varepsilon_{7it} \quad (6)$$

$$EPS = \beta_0 + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \varepsilon_{8it} \quad (8)$$

In this equation, CSR denotes the Corporate Social Responsibility disclosure index based on GRI-G4 indicators; ROA is Return on Assets; ROE is Return on Equity; NPM is Net Profit Margin; EPS is Earnings per Share; LEV represents the leverage ratio; and SIZE is the natural logarithm of total assets. The parameters α and β are regression coefficients, while ε denotes the error term. This model structure enables a comprehensive analysis of the reciprocal relationship by incorporating firm size and leverage as control variables. The inclusion of these controls helps reduce potential bias stemming from external firm-level characteristics, thereby isolating the genuine effect of CSR and profitability. Table 2 provides a detailed description of all variables employed in this study.

Table 2. Definition Operational Variable

Variable	Operational Definition	Indikator / Proxy	Measurement	Scale
CSR Disclosure	The level of social responsibility disclosure based on GRI-G4 items	CSR Index (GRI-G4)	Index = (Number of disclosed items / Total GRI-G4 items) × 100	Ratio
ROA	The ability to generate profit from total assets	Return on Assets (ROA)	ROA = Net Income / Total Assets	Ratio
ROE	The ability to generate profit from total equity	Return on Equity (ROE)	ROE = Net Income / Equity	Ratio
NPM	The ability to generate net profit from net sales	Net Profit Margin (NPM)	NPM = Net Income / Net Sales	Ratio
EPS	The ability to generate net profit per share	Earnings per Share (EPS)	EPS = Net Income / Number of Outstanding Shares	Ratio
Size	The size of the company is based on total assets	Size	Size = Ln (Total Assets)	Ratio
Leverage	The extent of debt usage compared to equity	Debt-to-Equity Ratio (DER)	DER = Total Debt / Total Equity	Ratio

Based on Table 2, CSR disclosure is measured using the Global Reporting Initiative G4 (GRI-G4) framework with a binary scoring system (1 = disclosed, 0 = not disclosed) across 91 comprehensive indicators, calculated as (items disclosed/total items) × 100. This binary approach enhances objectivity

and replicability of measurement, although it does not capture differences in disclosure quality or depth. The inter-rater reliability test yielded a Cohen's Kappa of 0.847 during the initial coding stage, which improved to 0.923 after discussion and resolution of discrepancies, thereby exceeding the 0.80 threshold generally required for research reliability.

Four profitability indicators were selected to capture different dimensions of financial performance: Return on Assets/ROA (Net Income/Total Assets), Return on Equity/ROE (Net Income/Total Equity), Net Profit Margin/NPM (Net Income/Net Sales), and Earnings per Share/EPS (Net Income/Outstanding Shares). Control variables included company size (natural logarithm of total assets) and leverage (Total Debt/Total Equity). The inclusion of these controls was grounded in Legitimacy Theory and Stakeholder Theory, whereby larger firms face greater legitimacy pressures and more complex stakeholder demands, while higher leverage introduces creditors as influential stakeholders in CSR-related decisions.

To analyze these variables effectively, eight panel regression models were tested to capture bidirectional relationships. Model selection followed a hierarchical procedure. First, the Chow Test was employed to compare Pooled OLS with Fixed Effects, where a significance level of $p < 0.05$ indicated the presence of individual effects. Second, the Lagrange Multiplier Test assessed Pooled OLS versus Random Effects to determine the existence of random individual effects. Finally, the Hausman Test was applied to choose between Fixed Effects and Random Effects, with a p-value > 0.05 supporting the use of Random Effects, as firm-specific effects were not correlated with the explanatory variables. After model selection, a series of diagnostic tests was conducted to verify the robustness and validity of the chosen models.

Classical assumption testing includes assessment of multicollinearity through the correlation matrix ($r < 0.80$), heteroscedasticity via residual plots, autocorrelation using Durbin–Watson statistics (1.5–2.5), and residual normality with the Kolmogorov–Smirnov test ($p > 0.05$). Since the Random Effects Model (REM) was selected, only multicollinearity was tested, as REM controls for heteroscedasticity, autocorrelation, and normality through firm-specific effects. Endogeneity was addressed through systematic model selection procedures and bidirectional modeling that acknowledge reverse causality. While instrumental variables could provide stronger controls, this approach provides sufficient protection against bias for exploratory analysis of Indonesia's oil and gas sector.

To ensure research quality, content validity was established through the GRI-G4 framework for CSR measurement and standard accounting ratios for financial performance. Internal validity was strengthened through control variables, bidirectional modeling, and systematic model selection. External validity allowed generalization to the Indonesian oil and gas sector and similar emerging market resource extraction industries. The analysis was conducted using EViews 13 with a 5% significance level, and t-tests were used to assess individual parameters.

RESULTS

Table 3 presents summary statistics for the study variables. The average CSR disclosure is 0.304 (sd = 0.111), showing moderate variation across firms. Mean ROA and ROE are 0.011 and 0.018, respectively. Net Profit Margin (NPM) shows wide dispersion (mean −96.210; median 4.713), reflecting a positively skewed distribution influenced by a few loss-making firms.

Table 3. Descriptive Analysis

Variable	N	Mean	Max	Min	Deviation standards
CSR	69	0,304	0,659	0,088	0,111
ROA	69	0,011	0,149	-0,326	0,075
ROE	69	0,018	2,182	-4,008	0,595
NPM	69	-96,21	1.183,64	-7.418,74	907,67
EPS	69	12,088	104,800	-18,206	22,103
LEV	69	2,741	28,187	-13,291	5,207
SIZE	69	22,252	28,621	15,248	4,016

The Net Profit Margin (NPM) of the sample companies varies widely, with a negative mean of −96.209 and a median of 4.713. This reflects the impact of several firms recording substantial losses, which depresses the average, although most firms maintain a positive margin. Earnings per Share (EPS) also shows considerable variation, with a mean of 12,088 and a high standard deviation, indicating notable differences in firms' capacity to generate earnings per share.

The Net Profit Margin (NPM) of the sample companies varies widely, with a negative mean of −96.209 and a median of 4.713. This suggests that several firms recorded substantial losses, which depressed the average, although most firms maintained positive margins. Earnings per Share (EPS) also exhibits considerable variation, with a mean of 12,088 and a high standard deviation, indicating notable differences in firms' capacity to generate earnings per share.

The Net Profit Margin (NPM) of the sample companies shows wide variation, with a negative mean of −96.209 and a median of 4.713. This indicates that several companies incurred substantial losses, which lowered the average, although most firms maintained positive margins. Earnings per Share (EPS) likewise displays considerable dispersion, with a mean of 12,088 and a high standard deviation, reflecting notable differences in the ability of firms to generate earnings per share.

Table 4. Model Test

Model	Chow Test (p-value)	Chow Test Result	Follow-up Tes	p-value	Selected Model
1. CSR – ROA	0.0004	FEM	Hausman	0.7691	Random Effect
2. ROA – CSR	0.2917	CEM	LM	0,0000	Random Effect
3. CSR – ROE	0.0003	FEM	Hausman	0.4196	Random Effect
4. ROE – CSR	0.8911	CEM	LM	0,000	Random Effect
5. CSR – NPM	0.0006	FEM	Hausman	0.5497	Random Effect
6. NPM – CSR	0.2318	CEM	LM	0,0000	Random Effect
7. CSR – EPS	0,0000	FEM	Hausman	0.0796	Random Effect
8. EPS – CSR	0,0000	FEM	Hausman	0.5447	Random Effect

Table 4 summarizes the model tests. Following the Chow, Hausman, and LM sequence, the Random Effects (RE) specification is retained in all eight model pairs. Coefficient estimates are reported with standard errors and 95% confidence intervals. The Chow Test produces a p-value < 0.05 in Models 1, 3, 5, 7, and 8, indicating that Fixed Effects is worth considering, while the rest accept CEM as feasible. The Hausman Test results (p-value > 0.05) and the LM Test (p-value < 0.05) indicate that the Random Effects model is more appropriate for analyzing the relationship between CSR disclosure and profitability.

Since the REM model was selected, a multicollinearity test was conducted. The results of the multicollinearity test for all models are presented in Table 5.

Table 5. Multicollinearity Test

	CSR	ROA	ROE	NPM	EPS	LEV	SIZE
CSR	1	-0.199	0.401	-0.338	0.106	0.012	-0.771
ROA	-0.199	1	-0.257	-0.052	-0.089	-0.257	-0.026
ROE	0.401	-0.257	1	-0.204	0.065	-0.204	-0.261
NPM	-0.338	-0.052	-0.204	1	-0.093	-0.052	0.179
EPS	0.106	-0.089	0.065	-0.093	1	-0.089	-0.074
LEV	0.012	-0.257	-0.204	-0.052	-0.089	1	-0.068
SIZE	-0.771	-0.026	-0.261	0.179	-0.074	-0.068	1

Based on the correlation matrix in Table 5, all absolute correlation values between independent variables, including main and control variables, were well below the critical threshold of 0.80. No variable pairs exhibited high correlations that could cause serious multicollinearity. Therefore, the panel regression model used in this study is free from multicollinearity issues, allowing the resulting coefficient estimates to be interpreted as valid and reliable. Hypothesis testing was then conducted on the eight research models to answer the research questions.

Table 6. Result of Hypothesis 1a Test

Variables	Model 1 (CSR Dependent)			Model 2 (ROA Dependent)		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
(Constant)	0.775	8.245	0	0.351	2.982	0.004
ROA	-0.305	-3.007	0.0037			
CSR				-0.396	-3.087	0.003
LEV	-0.0019	-1.279	0.2055	-0.0041	-2.51	0.0146
SIZE	-0.0208	-5.036	0	-0.0094	-2.421	0.0183
R Square	0.3448			0.193		
Prob(F-Stat)	0.000004			0.00285		

The hypothesis test in Table 6 confirms a negative relationship between ROA and CSR disclosure. As ROA increases, companies tend to reduce CSR disclosure, evidenced by a coefficient of -0.305 and a t-statistic of -3.007 (p = 0.0037). The model is statistically robust, with an R-squared of 34% and a highly significant Prob(F-statistic), supporting its validity in describing this relationship.

Conversely, the effect of CSR on ROA is also negative and significant. Higher CSR disclosure corresponds to lower ROA, as indicated by a coefficient of -0.396, a t-statistic of -3.087, and a p-value of 0.0030. This model is valid, with an R-squared of 19% and a Prob(F-statistic) of 0.002850.

The test results of the two models demonstrate a significant negative correlation between CSR disclosure and ROA. Therefore, the hypothesis of a reciprocal relationship between ROA and CSR disclosure is statistically supported for the sample companies.

Table 7. Result of Hypothesis 1b Test

Variables	Model 3 (CSR Dependent)			Model 4 (ROE Dependent)		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
(Constant)	0.726	8.048	0	-0.979	-1.155	0.2523
ROE	0.033	2.584	0.012			
CSR				2.526	2.623	0.0108
LEV	0.0001	0.078	0.938	-0.0232	-1.767	0.082
SIZE	-0.019	-4.799	0	0.0132	0.494	0.6229
R Square	0.3415			0.2074		
Prob(F-Stat)	0.000005			0.001634		

Table 7 presents the hypothesis test results for H1b, showing a positive relationship between ROE and CSR disclosure. The findings indicate that as ROE increases, companies tend to disclose more CSR, reflected in the positive coefficient of 0.033, t-statistic of 2.584, and p-value of 0.0120. The model is statistically robust, with an R-squared of 0.34 and a highly significant Prob(F-statistic).

Conversely, CSR disclosure positively influences ROE. The coefficient of CSR (2.526), t-statistic 2.623, and p-value 0.0108 confirm this effect. The regression model is robust, with an R-squared of 0.21 and a significant Prob(F-statistic).

Thus, the reciprocal model test confirms a positive and significant relationship between CSR disclosure and ROE. Therefore, the hypothesis of a reciprocal influence between ROE and CSR disclosure is statistically supported for the sampled companies.

Table 8. Result of Hypothesis 1c Test

Variables	Model 5 (CSR Dependent)			Model 6 (NPM Dependent)		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
(Constant)	0.769	8.625	0	14.382	2.455	0.0168
NPM	-0.0046	-2.318	0.0236			
CSR				-17.274	-2.642	0.0103
LEV	-0.0011	-0.762	0.449	-0.061	-0.706	0.4826
SIZE	-0.0198	-5.053	0	-0.2035	-1.082	0.2832
R Square	0.3376			0.1216		
Prob(F-Stat)	0.000006			0.036933		

Table 8 presents the results for hypothesis H1c, showing that NPM has a significant negative effect on CSR disclosure. The NPM coefficient of -0.0046, t-statistic of -2.318, and p-value of 0.0236 indicate that higher net profit margins are associated with lower CSR disclosure. The model is statistically valid, with an R-squared of 0.34 and a highly significant Prob(F-statistic) of 0.000006.

Conversely, CSR disclosure has a significant negative effect on NPM. The CSR coefficient of -17.274, t-statistic of -2.642, and p-value of 0.0103 indicate that higher CSR disclosure corresponds with lower net profit margins. The regression model is statistically valid, with an R-squared of 0.12 and a Prob(F-statistic) of 0.036933.

In conclusion, the hypothesis of a reciprocal relationship between NPM and CSR disclosure is statistically supported, but the relationship is negative. This indicates that increases in NPM and CSR disclosure tend to be mutually exclusive in the sampled companies.

Table 9. Result of Hypothesis 1d Test

Variables	**Model 7 (CSR Dependent)**			**Model 8 (EPS Dependent)**		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
(Constant)	0.713	6.915	0	-40.466	-0.967	0.3372
EPS	0.0015	3.139	0.0026			
CSR				93.693	3.661	0.0005
LEV	-0.0006	-0.465	0.6434	0.0608	0.202	0.8404
SIZE	-0.0191	-4.227	0.0001	1.0604	0.615	0.5405
R Square	0.2994			0.1743		
Prob(F-Stat)	0.000035			0.005735		

Table 9 presents the hypothesis test results for H1d, establishing a significant positive relationship between EPS and CSR disclosure. The CSR coefficient of 0.009, t-statistic 2.941, and p-value 0.0040 indicate that higher CSR disclosure corresponds with higher EPS. The regression model is statistically robust, with an R-squared of 0.20 and a significant Prob(F-statistic).

On the other hand, CSR also had a significant positive effect on EPS. The CSR coefficient of 93.693, t-statistic 3.661, and p-value 0.0005 indicated that companies with more transparent CSR disclosures tended to generate higher earnings per share. The model was statistically significant, with an R-squared of 0.17 and a Prob(F-statistic) of 0.005735. Thus, the reciprocal hypothesis between EPS and CSR disclosure was statistically proven, and the relationship was positive in both directions.

DISCUSSION

This study reveals significant reciprocal negative ROA–CSR relationships in Indonesian oil and gas companies, where higher asset efficiency correlates with lower CSR disclosure due to resource allocation trade-offs (Kukreja et al., 2020), contrasting with positive ROE–CSR and EPS–CSR relationships in the same sample. The negative ROA–CSR relationship operates through budget constraints, in which CSR investments directly compete with productive assets, creating zero-sum dynamics (Chen, 2025), management attention allocation, diverting cognitive resources from operational efficiency (Z. Zhang & Ren, 2024), operational complexity, adding layers that slow production; and a legitimacy paradox, whereby high-ROA companies adopt performance-based legitimacy, reducing the incentive for CSR.

The ROA–CSR negative relationship contrasts with the positive ROE–CSR and EPS–CSR relationships due to ROA's sensitivity to the asset base, where CSR investments increase total assets without generating immediate income. In contrast, ROE benefits from debt-financed CSR assets, and EPS reflects ESG premiums and temporal differences, as ROA captures immediate costs while ROE and EPS incorporate forward-looking expectations. From a theoretical perspective, Legitimacy Theory suggests that companies with high asset efficiency perceive a lower need for social legitimacy, since superior financial performance already provides economic legitimacy (Kukreja et al., 2020). Agency Theory emphasizes that management views CSR disclosure as an additional cost that reduces asset

efficiency, leading firms to prioritize activities that directly contribute to ROA. These findings align with previous studies (Hamdan & Alareeni, 2020; Kukreja et al., 2020) but contrast with other research (Aji & Částek, 2021), which can be explained by contextual variations in industry, stakeholder pressures, and differing regulatory and corporate cultural characteristics.

This study reveals significant positive reciprocal relationships between Return on Equity (ROE) and Corporate Social Responsibility (CSR) disclosure in Indonesian oil and gas companies. High ROE encourages greater CSR disclosure as a social legitimacy strategy, while comprehensive CSR activities enhance equity utilization efficiency, contrasting sharply with the negative ROA–CSR relationships in the same sample. This positive relationship operates through several mechanisms. The equity efficiency mechanism shows that CSR activities funded through optimal capital structure decisions improve ROE by enhancing equity utilization without diluting the equity base, particularly when debt financing enables CSR investments that generate future cash flows benefiting equity holders (Khedker et al., 2025; Sapingi et al., 2025). The investor confidence mechanism demonstrates that comprehensive CSR disclosure attracts ESG-conscious institutional investors and reduces the cost of equity capital through enhanced credibility and improved risk perception, directly boosting ROE via lower financing costs and premium valuations reflecting market recognition of sustainability commitments (Khedker et al., 2025; Sapingi et al., 2025). The reputation-driven revenue mechanism illustrates how CSR activities generate intangible assets, including brand value, stakeholder trust, and regulatory goodwill, which translate into sustainable competitive advantages (Khedker et al., 2025), Finally, the risk mitigation mechanism reveals that CSR disclosure reduces regulatory, environmental, and reputational risks that could otherwise impose costs on equity holders, creating value through risk-adjusted return improvements and reduced volatility in equity performance.

Findings align with services and banking studies showing positive ROE–CSR relationships (Khedker et al., 2025; Sapingi et al., 2025) but contrast with manufacturing research demonstrating negative relationships (Dadhich et al., 2021; Olorunnisola & Usman, 2023), explained by sector dynamics in which reputation-sensitive industries benefit from CSR through customer relationships and brand value. Theoretically, stakeholder theory emphasizes that CSR enhances stakeholder support, thereby influencing ROE through increased consumer loyalty and investor trust (Kukreja et al., 2020), while signaling theory explains CSR disclosure as a positive signal from management that increases market confidence and company value (Khedker et al., 2025). The reciprocal positive relationship between ROE and CSR disclosure confirms that the two variables reinforce each other, creating a sustainable positive cycle for the performance of Indonesian oil and gas companies.

This study reveals significant negative reciprocal relationships between NPM and CSR in Indonesian oil and gas companies, where higher profit margins are correlated with lower CSR disclosure, and vice versa, as high-profitability companies tend to avoid allocating CSR resources, while low-profitability companies increase CSR disclosure to enhance legitimacy (Aji & Částek, 2021) This negative relationship operates through cost absorption, as CSR disclosure requires operational expenses, including reporting systems and specialized personnel, which directly reduce margins without generating revenue benefits; pricing constraints, since oil and gas companies cannot transfer CSR costs to customers through premium pricing, forcing margin compression; and competitive pressure, where margin competition motivates CSR minimization to preserve market positioning relative to cost-focused competitors.

Findings align with a previous study (Aji & Částek, 2021), while positive relationships reported in other research (Anyanwu et al., 2024) can be explained by measurement differences, as this study focuses on CSR disclosure reflecting transparency burdens. According to legitimacy theory and stakeholder theory, companies increase CSR disclosure to gain social legitimacy, particularly when profitability declines, to maintain public and stakeholder trust. From a resource-based view perspective, when CSR is considered solely a compliance cost rather than a strategic investment, companies with high profitability tend to be reluctant to increase CSR disclosure because the activity does not provide direct added value to net profit (Aji & Částek, 2021). This compliance-oriented perspective is reinforced by CEOs' poverty experiences in emerging markets, where cultural attitudes toward poverty shape CSR motivations, as CEOs who escaped poverty may prioritize firm survival over social responsibility

during crisis periods (Rudyanto et al., 2024). Indonesia's oil and gas sector intensifies these negative relationships through cost pressures, competition, and commodity volatility, prioritizing margin preservation in regulatory environments where CSR mandates lack strict enforcement.

This study reveals significant positive reciprocal EPS-CSR relationships in Indonesian oil and gas companies, where high EPS increases CSR disclosure as a social responsibility strategy, while comprehensive CSR disclosure strengthens investor confidence and increases EPS (Din & Waris, 2023), differing from the negative ROA-CSR and NPM-CSR relationships due to EPS's market-based characteristics. This positive relationship operates through investor attraction, where CSR disclosure draws ESG-conscious institutional investors, creating demand premiums and increasing EPS through enhanced valuations; risk premium reduction, where CSR signals strong governance, reducing investment risks and required returns, benefiting EPS through improved multiples; market signaling, where CSR demonstrates management competence, reducing information asymmetry and enhancing investor trust reflected in higher share prices (Z. Zhang & Ren, 2024); and sustainability premium capture, where strong CSR performance receives market valuations reflecting future benefits from reputation and stakeholder relationships, translating into sustained EPS growth (Zerbini, 2017).

The positive relationship is pronounced in high-profile sectors, including oil and gas, which face intensive scrutiny and ESG demands, where investor expectations create market premiums for CSR disclosure and penalties for poor sustainability performance (Hanson et al., 2025). Theoretically, legitimacy theory shows that high-EPS companies face greater stakeholder expectations, motivating CSR disclosure, while stakeholder theory emphasizes that CSR satisfies investor stakeholders focused on ESG factors, directly influencing EPS through improved confidence and reduced capital costs (Hațegan et al., 2018; Otero-González et al., 2021). Signaling theory explains CSR as a positive management signal that reduces information asymmetry, and market-based theory positions CSR as the creation of intangible assets, including reputation and stakeholder relationships, which generate competitive advantages reflected in market valuations and EPS performance (Zerbini, 2017).

CONCLUSION

This study demonstrates a significant reciprocal relationship between Corporate Social Responsibility (CSR) disclosure and profitability in Indonesian oil and gas mining companies for the period 2012–2019, with patterns varying across profitability indicators. Key findings reveal a significant negative relationship between ROA and NPM with CSR disclosure, indicating a trade-off between short-term operational efficiency and social transparency commitments (Komara & Bangun, 2025; Kukreja et al., 2020). In contrast, a significant positive relationship was observed between ROE and EPS and CSR disclosure, suggesting a synergy between shareholder performance and sustainability activities (Khedker et al., 2025).

This research contributes to CSR literature by (1) methodologically advancing the field through bidirectional analysis that captures dynamic feedback mechanisms overlooked in unidirectional studies, (2) theoretically clarifying contradictory CSR-profitability findings by demonstrating that the relationship direction depends on the type of performance measure, and (3) empirically addressing emerging market gaps by providing comprehensive evidence from environmentally sensitive industries. These contributions extend theoretical understanding through the integration of Legitimacy and Stakeholder Theory (Hațegan et al., 2018; Otero-González et al., 2021).

Practically, these findings allow Indonesian oil and gas companies to implement differentiated CSR strategies: adopting cost-neutral initiatives (such as digital reporting and stakeholder engagement) during periods of high ROA or NPM to preserve margins, while investing in visible programs (such as community development and environmental projects) during periods of strong ROE or EPS to capture market premiums. Companies should establish performance-contingent CSR budgeting that adjusts resource allocation according to profitability patterns, optimizing both financial performance and stakeholder value creation in Indonesia's volatile oil and gas market.

These strategic approaches are particularly relevant given the characteristics of Indonesia's oil and gas sector, where commodity price volatility during the 2014–2016 oil crisis intensified the ROA–

NPM trade-offs with CSR disclosure, while the capital-intensive and environmentally sensitive nature of oil extraction explains why market-based measures (ROE, EPS) respond more positively to sustainability transparency than operational efficiency measures. While these practical insights offer actionable guidance, several methodological considerations warrant acknowledgment.

The limitations of this study include the absence of formal endogeneity testing, leaving the possibility of bias from the two-way relationship (reverse causality). Nonetheless, the research contributes to the development of CSR-profitability literature in developing countries by confirming the reciprocal relationship model in a high-profile sector.

Future research should aim to develop a more comprehensive model by incorporating mediating variables such as corporate governance and environmental performance, expanding the sample across sectors and periods, and applying advanced methodologies, including GMM (Generalized Method of Moments) or dynamic panel data, to address endogeneity concerns (Gujarati & Porter, 2009). Additionally, mixed-method approaches and comparative studies across emerging market countries can provide a more holistic understanding of how to optimize the CSR-profitability relationship.

REFERENCES

Ahmad, Z., Hidthiir, M.H. Bin and Rahman, M.M. 2024. Impact of CSR Disclosure on Profitability and Firm Performance of Malaysian Halal Food Companies. *Discover Sustainability* [Preprint]. Available at: https://doi.org/10.1007/s43621-024-00189-3

Aji, S. S. B., & Částek, O. (2021). *The Relationship Between CSR Disclosure and Company Profitability in Indonesia*. https://doi.org/10.2991/aebmr.k.210616.010

Ali, W., Frynas, J., & Wilson, J. (2024). Corporate–NGO collaboration and CSR disclosure – the moderating role of corporate profitability. *Journal of Applied Accounting Research*. https://doi.org/10.1108/jaar-08-2023-0238

Anyanwu, H., Uchegbu, B., & Chima, A. (2024). Impact of Corporate Social Responsibility (CSR) on the Financial Performance of Quoted Manufacturing Firms in Nigeria. *International Journal of Advanced Research in Public Policy, Social Development and Enterprise Studies*. https://doi.org/10.48028/iiprds/ijarppsdes.v5.i1.17

Chedrawi, C., Osta, A., & Osta, S. (2020). CSR in the Lebanese banking sector: a neo-institutional approach to stakeholders' legitimacy. *Journal of Asia Business Studies*, *14*, 143–157. https://doi.org/10.1108/jabs-03-2018-0093

Chen, J. (2025). Profitability Analysis of Gree Electric Appliances. *Advances in Economics Management and Political Sciences*. https://doi.org/10.54254/2754-1169/2025.22761

Christi, C. Y., Suganda, T., & Cahyadi, R. T. (2025). Does Profitability Influence the CSR-Firm Value Relationship? Evidence from Indonesia Stock Exchange. *Accounting and Finance Studies*. https://doi.org/10.47153/afs51.13032025

D'Amato, A., & Falivena, C. (2019). Corporate social responsibility and firm value: Do firm size and age matter? Empirical evidence from European listed companies. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.1855

Dadhich, J., Sharma, A., Sharma, R., & Ali, S. (2021). Corporate Social Responsibility and Financial Performance: Evidence from Manufacturing and Service Industry. *Academic Journal of Interdisciplinary Studies*. https://doi.org/10.36941/AJIS-2021-0085

Din, B., & Waris, M. (2023). Nexus of the CSR disclosures and corporate financial performance: evidence from Asian countries climate policy uncertainty. *Environmental Science and Pollution Research*, 1–14. https://doi.org/10.1007/s11356-023-31307-9

Freeman, R. (2017). *Five Challenges to Stakeholder Theory: A Report on Research in Progress*. *1*. https://doi.org/10.1108/S2514-175920170000001

Gowsalya, & Ekanayake. (2024). The Role of Ownership Structures In Driving CSR Transparency: Insights From Frontier Market Insurance Companies. *Journal of Accountancy & Finance*, *11*(II), 126–143. https://doi.org/10.57075/jaf1122407

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). McGraw-Hill.

Hamdan, A., & Alareeni, B. (2020). ESG impact on performance of US S&P 500-listed firms. *Corporate Governance*, *20*, 1409–1428. https://doi.org/10.1108/cg-06-2020-0258

Hamrouni, A., Boussaada, R., & Toumi, N. (2019). Corporate social responsibility disclosure and debt financing. *Journal of Applied Accounting Research*. https://doi.org/10.1108/JAAR-01-2018-0020

Hanson, S., Aronson, O., & LaFont, M. (2025). Innovative organizations' CSR signaling: Consumer perceptions, expectations, and outcomes. *Journal of Business Research*. https://doi.org/10.1016/j.jbusres.2024.115041

Hațegan, C., Sîrghi, N., Curea-Pitorac, R.-I., & Hațegan, V. (2018). Doing Well or Doing Good: The Relationship between Corporate Social Responsibility and Profit in Romanian Companies. *Sustainability*, *10*, 1041. https://doi.org/10.3390/SU10041041

Hidthiir, M. H. Bin, Ahmad, Z., & Rahman, M. M. (2024). Impact of CSR disclosure on profitability and firm performance of Malaysian halal food companies. *Discover Sustainability*. https://doi.org/10.1007/s43621-024-00189-3

Huang, G., Li, J., & Shen, L. (2025). With higher leverage comes greater responsibility? Excess leverage and corporate social responsibility in China: the moderating role of CEO characteristics. *Asia Pacific Journal of Management*. https://doi.org/10.1007/s10490-025-10011-x

Jaisinghani, D., & Sekhon, A. K. (2020). CSR disclosures and profit persistence: evidence from India. *International Journal of Emerging Markets*. https://doi.org/10.1108/ijoem-03-2020-0246

Khedker, A. M., Gupta, R., Yadav, R., & Prakash, M. V. (2025). Aligning Corporate Social Responsibility with Sustainable Development Goals: A Regression-Based Analysis of BSE30 Companies in India. *Economic Sciences*. https://doi.org/10.69889/z0a2ya15

Komara, E., & Bangun, P. M. U. (2025). The Impact of Green Accounting and Corporate Social Responsibility on the Profitability of LQ-45 Firms. *Research of Business and Management*. https://doi.org/10.58777/rbm.v3i1.368

Kukreja, G., Hamdan, A., Aldhaen, E., Mubarak, M. Al, & Buallay, A. (2020). Corporate social responsibility disclosure and firms' performance in Mediterranean countries: a stakeholders' perspective. *EuroMed Journal of Business*. https://doi.org/10.1108/emjb-05-2019-0066

Kuzey, C., Uyar, A., Al-Shaer, H., & Karaman, A. (2025). Do firms with more powerful CEOs and greater visibility have better social reputation? *International Journal of Accounting & Information Management*. https://doi.org/10.1108/ijaim-06-2024-0214

Miller, S., Eden, L., & Li, D. (2018). CSR Reputation and Firm Performance: A Dynamic Approach. *Journal of Business Ethics*, *163*, 619–636. https://doi.org/10.1007/S10551-018-4057-1

Olorunnisola, A., & Usman, O. (2023). The Effect of Corporate Social Responsibility Disclosure Index on Firm Performance of Selected Sectoral Industries in Nigeria. *European Journal of Accounting, Auditing and Finance Research*. https://doi.org/10.37745/ejaafr.2013/vol11n23661

Otero-González, L., Durán-Santomil, P., Rodríguez-Gil, L., & Lado-Sestayo, R. (2021). Does a Company's Profitability Influence the Level of CSR Development? *Sustainability*. https://doi.org/10.3390/SU13063304

Purbawangsa, I., Solimun, S., Fernandes, A., & Rahayu, S. (2019). Corporate governance, corporate profitability toward corporate social responsibility disclosure and corporate value (comparative study in Indonesia, China and India stock exchange in 2013-2016). *Social Responsibility Journal*. https://doi.org/10.1108/SRJ-08-2017-0160

Rashid, A., Shams, S., Bose, S., & Khan, H. (2020). CEO Power and Corporate Social Responsibility (CSR) Disclosure: Does Stakeholder Influence Matter? *Corporate Governance & Accounting EJournal*. https://doi.org/10.2139/ssrn.3671139

Rudyanto, A., Sintya, S., & Program, U. A. (2024). *Ceo Poverty Experience And Corporate Social Responsibility : Analysis In Covid-19 Period For*. *19*(2007).

Saad, S. Ben, Laouiti, M., & Ajina, A. (2024). Corporate social responsibility and credit rating: evidence from French companies. *Review of Accounting and Finance*. https://doi.org/10.1108/raf-03-2023-0106

Sapingi, R., Kadir, M. R. A., Al-Dalaien, A., Alarabeyyat, A. A. A. A., & Kamarudin, K. (2025). The effect of CSR on the financial performance of Islamic banks in the Middle East: The moderating role of ownership concentration and type. *Edelweiss Applied Science and Technology*. https://doi.org/10.55214/25768484.v9i2.4907

Schreck, P., & Raithel, S. (2018). Corporate Social Performance, Firm Size, and Organizational Visibility: Distinct and Joint Effects on Voluntary Sustainability Reporting. *Business & Society*, *57*, 742–778. https://doi.org/10.1177/0007650315613120

Xue, S., Chang, Q., & Xu, J. (2022). The effect of voluntary and mandatory corporate social responsibility disclosure on firm profitability: Evidence from China. *Pacific-Basin Finance Journal*. https://doi.org/10.1016/j.pacfin.2022.101919

Zerbini, F. (2017). CSR Initiatives as Market Signals: A Review and Research Agenda. *Journal of Business Ethics*, *146*, 1–23. https://doi.org/10.1007/S10551-015-2922-8

Zhang, L., Shan, Y., & Chang, M. (2020). Can CSR Disclosure Protect Firm Reputation During Financial Restatements? *Journal of Business Ethics*, 1–28. https://doi.org/10.1007/s10551-020-04527-z

Zhang, Z., & Ren, X. (2024). *A Study on the Impact of Corporate Social Responsibility on Financial Performance From a Multidimensional Perspective*. https://doi.org/10.4108/eai.27-10-2023.2341969