

The Effect of Corporate Social Responsibility Disclosure, Profitability, and Leverage on Firm Value in Energy-Sector Companies Transitioning to Renewable Energy and Listed on the Indonesia Stock Exchange, 2021–2024

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ABSTRACT

Objective: This study examines the effect of Corporate Social Responsibility (CSR) Disclosure, Profitability, and Leverage on Firm Value in eight energy-sector companies transitioning to renewable energy and listed on the Indonesia Stock Exchange during 2021–2024, yielding 32 observations. **Method:** Firm value is measured using Tobin's Q, CSR Disclosure using a disclosure index based on Financial Services Authority Regulation No. 51/POJK.03/2017, profitability using Return on Equity (ROE), and leverage using the Debt-to-Equity Ratio (DER). **Results:** Panel-data regression using the Random Effects Model (REM) shows that CSR Disclosure, Profitability, and Leverage do not have a statistically significant effect on Firm Value, either partially or simultaneously, and the model produces a negative adjusted R-squared. The limited sample size and the low variability of CSR Disclosure are likely to be major factors behind these findings. **Novelty:** The results indicate that the relationships between CSR Disclosure, Profitability, Leverage, and Firm Value are context-dependent and may vary across samples and research periods.

INTRODUCTION

Indonesia's energy sector has undergone a substantial structural transformation driven by changes in global energy policy, commodity-price dynamics, and increasing sustainability demands. Indonesia Stock Exchange market statistics indicate that the market capitalization and performance of energy-sector issuers fluctuated considerably during 2021–2024, reflecting the sector's sensitivity to commodity cycles and changing investor expectations [1]. During the post-pandemic recovery, stronger commodity prices supported energy-sector valuations, while subsequent weakening in coal prices and the growing reallocation of capital toward sustainable energy placed pressure on conventional energy business models.

These changing investor perceptions are closely related to the accelerating energy transition. Indonesia is a party to the Paris Agreement, which provides the global framework for reducing greenhouse-gas emissions and strengthening climate action [2]. Indonesia's domestic transition agenda is further reinforced by Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply [3]. In the capital-market context, Financial Services Authority Regulation No. 51/POJK.03/2017 requires financial institutions, issuers, and public companies to implement and report sustainable-finance practices [4]. Investor

attention to sustainability has also intensified; PwC's Global Investor Survey 2023 reported that sustainability is important to a substantial proportion of investors when making investment decisions [5]. These developments indicate that investors may assess energy companies not only through financial performance but also through environmental and social commitments, including the credibility of their transition toward renewable energy.

Empirical evidence concerning the determinants of firm value in Indonesia's energy sector remains inconsistent, particularly for CSR Disclosure, profitability, and leverage. The different directions and levels of statistical significance reported in prior studies indicate that no clear empirical consensus has been reached. This inconsistency constitutes the research gap addressed in this study.

First, with respect to CSR Disclosure, theory suggests that broader and more transparent disclosure can strengthen perceptions of corporate accountability and thereby increase investor confidence. Elisyah and Hambali found that CSR had a positive and significant effect on firm value among energy-sector companies listed on the Indonesia Stock Exchange [6]. In contrast, Intihanah, Yusuf, and Putri reported that CSR disclosure did not significantly affect firm value among listed mining companies [7]. Wulandari and Hwihanus reported a negative relationship between CSR disclosure and firm value in coal-mining companies, illustrating that the direction of the relationship may vary across samples and research settings [8]. These contrasting findings indicate that the effect of CSR Disclosure on firm value in the energy sector remains empirically unsettled.

Second, profitability is generally expected to enhance firm value because stronger earnings performance can signal managerial effectiveness and improve investor expectations. Alifian and Susilo found that profitability had a positive and significant effect on firm value in Indonesian energy-sector companies [9]. Febriana, Aryanta, and Rohmiyanti also reported a positive and significant profitability effect in energy-related mining companies [10]. Salsabillah, Gultom, Napitupulu, Safrida, and Nofianna similarly found a significant profitability effect in energy-sector firms [11]. However, Wijaya, Hadi, and Irman found that profitability did not significantly affect firm value in energy companies listed on the Indonesia Stock Exchange [12]. The mixed findings suggest that profitability may not be uniformly reflected in market valuation across periods and company characteristics.

Third, leverage can have two opposing effects on firm value. Debt may generate tax-shield benefits, but excessive borrowing can also increase financial-distress risk. Empirically, Salsabillah et al. reported that leverage did not significantly affect firm value in the energy sector [11]. Wijaya et al. reached a similar conclusion [12]. By contrast, Febriana et al. found a negative and significant effect of leverage on firm value [10]. These inconsistencies are particularly relevant for energy companies because renewable-energy projects are capital intensive and often require substantial external financing.

The three variables can be explained through complementary theoretical perspectives. Legitimacy theory explains why companies disclose social and environmental activities to obtain, maintain, or restore social acceptance, particularly in industries with significant environmental impacts [13]. Signaling theory explains how profitability and credible sustainability disclosure may reduce information asymmetry by conveying favorable information to investors [14]. Trade-off theory explains capital-structure decisions as a balance between the tax benefits of debt and the expected costs of financial distress [15]. Together, these perspectives provide the theoretical basis for examining how CSR Disclosure, profitability, and leverage may influence firm value.

The research gap is especially relevant during 2021–2024, a period characterized by post-pandemic recovery, major commodity-price fluctuations, stronger sustainability regulation, and accelerated attention to ESG and renewable-energy investment. These conditions may have altered the relationships among CSR Disclosure, profitability, leverage, and firm value compared with earlier periods. Accordingly, this study examines those relationships specifically among energy-sector companies that are transitioning toward renewable energy.

RESEARCH METHOD

This study applies a quantitative explanatory-research design to test the effects of CSR Disclosure, profitability, and leverage on firm value. The data are panel data, combining cross-sectional observations across firms with time-series observations across years. Panel-data regression is appropriate for analyzing such data structures because it allows the researcher to account for both cross-sectional and temporal variation [16].

The population comprises all energy-sector companies listed on the Indonesia Stock Exchange during 2021–2024. The energy sector was selected because it is undergoing structural transition, CSR disclosure is highly relevant to its environmental impacts, and previous empirical findings remain inconsistent. The sample was selected through purposive sampling based on predefined criteria aligned with the study objectives, consistent with established business-research methodology [17]. The final sample consists of eight companies observed over four years, producing 32 firm-year observations.

The study uses panel-data regression to examine the simultaneous and partial effects of CSR Disclosure Index (CSRDI), Return on Equity (ROE), and Debt-to-Equity Ratio (DER) on Tobin's Q. Tobin's Q is widely used as a market-based proxy for firm value because it relates the market value of the firm to the value of its assets [18]. Data processing was conducted in EViews through descriptive-statistics analysis, classical-assumption assessment where applicable, model-selection procedures, regression estimation, and hypothesis testing.

RESULTS AND DISCUSSION

Result

The study uses 32 panel-data observations from eight energy-sector companies transitioning to renewable energy and listed on the Indonesia Stock Exchange during 2021–2024. Descriptive statistics are presented in Table 1.

Table 1. Descriptive Statistics of Research Variables

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness
Y (Tobin's Q)	1.216562	0.980000	2.690000	0.710000	0.560050	1.395473
X1 (CSRDI)	0.993125	1.000000	1.000000	0.900000	0.021317	-3.339349
X2 (ROE)	0.174688	0.160000	0.430000	0.020000	0.119055	0.615879
X3 (DER)	1.368750	1.085000	3.620000	0.250000	0.878730	1.167334

Table 1 shows that the mean Tobin's Q is 1.22, indicating that, on average, the market values the sampled companies above the book value of their assets. CSRDI (X1) has a mean of 0.99 and a very small standard deviation of 0.021, indicating that most sampled companies disclose nearly all relevant CSR items and that cross-company variation in this variable is limited. ROE (X2) and DER (X3) show substantially greater variation, reflecting heterogeneity in profitability and capital structure among the sampled firms.

The hypothesis-testing results are summarized in Table 2.

Table 2. Summary of Hypothesis-Testing Results

Hypothesis	t-Test Result	Decision
H1: CSR Disclosure has a positive effect on Y	Coefficient = -0.836768; Prob. = 0.6532	Rejected
H2: Profitability has a positive effect on Y	Coefficient = 0.119250; Prob. = 0.7606	Rejected
H3: Leverage has a negative effect on Y	Coefficient = -0.038245; Prob. = 0.6374	Rejected

The t-test results show that CSRDI has a negative coefficient of -0.836768 with a probability of 0.6532 (> 0.05); therefore, H1 is rejected. CSR Disclosure is not shown to have a significant effect on firm value, and the coefficient direction is opposite to the hypothesized positive direction. ROE has a positive coefficient of 0.119250 with a probability of 0.7606 (> 0.05); therefore, H2 is rejected. DER has a negative coefficient of -

0.038245 with a probability of 0.6374 (> 0.05). Although the coefficient direction is consistent with the hypothesis, the probability is well above 0.05, so H3 is also rejected.

Discussion

1. Effect of CSR Disclosure on Firm Value

The results show that CSR Disclosure does not have a significant effect on firm value; therefore, H1 is rejected. This finding is not consistent with the expected implications of legitimacy theory and signaling theory, but it is consistent with Intihanah et al., who also found that CSR disclosure did not significantly affect firm value [7]. One statistical explanation is the very low variation in CSRDI within the sample. As reported in Table 1, CSRDI has a standard deviation of only 0.021, and most observations are close to 1. A variable with very limited variation has less statistical power to explain variation in a dependent variable because regression estimates rely on meaningful cross-sectional and temporal dispersion [19]. The near-uniform disclosure level may reflect compliance with Financial Services Authority Regulation No. 51/POJK.03/2017 rather than strategic differentiation among firms.

The insignificant CSR effect can also be explained by several additional considerations. First, a checklist-based CSRDI captures whether an item is disclosed but does not necessarily measure the quality, depth, credibility, or materiality of the disclosure. Second, investors may discount highly standardized sustainability reporting when they perceive a risk of greenwashing or when disclosures are not independently assured. Third, concentrated ownership structures in many Indonesian energy companies may weaken the marginal market response to CSR information because valuation can be more strongly affected by controlling shareholders, government policy, commodity cycles, and project pipelines. Fourth, the effect of CSR Disclosure may be lagged and may require a longer observation horizon before it is fully reflected in market valuation.

2. Effect of Profitability on Firm Value

Profitability also does not have a statistically significant effect on firm value, and H2 is therefore rejected. This finding differs from Alifian and Susilo [9]. It also differs from Febriana et al. [10]. Salsabillah et al. likewise reported a significant profitability effect [11]. However, the present result is consistent with Wijaya et al., who found no significant profitability effect among Indonesian energy-sector companies [12]. The lack of significance may reflect the turbulent market environment during 2021–2024, when investors may have placed greater weight on long-term energy-transition prospects, commodity-price expectations, and ESG-related risks than on historical profitability alone. PwC's investor survey also indicates that sustainability considerations have become increasingly important in investment decisions [5].

Several additional explanations are possible. First, ROE is backward-looking because it summarizes realized accounting performance, whereas Tobin's Q is more forward-looking because it embeds market expectations about future cash flows and growth opportunities. This time-horizon mismatch may weaken the statistical

relationship between the two variables. Second, commodity-price volatility during 2021–2024 caused earnings and ROE to fluctuate substantially, making annual profitability a relatively noisy signal. Third, investors evaluating companies that are transitioning toward renewable energy may focus more strongly on forward-looking non-financial indicators, such as renewable-generation capacity, capital-expenditure commitments, technology portfolios, and decarbonization road maps.

The data characteristics reinforce this interpretation. ROE ranges from 0.02 to 0.43, with a standard deviation of 0.119, indicating that firms with very low profitability and firms with much stronger profitability are estimated within the same model. With only 32 observations, a wide dispersion can make coefficient estimates more sensitive to extreme values and can increase standard errors relative to the estimated coefficient. Consequently, even a positive coefficient may remain statistically insignificant.

3. Effect of Leverage on Firm Value

Leverage does not have a statistically significant effect on firm value; therefore, H3 is rejected, although the coefficient is negative and thus consistent with the hypothesized direction. The result is consistent with Salsabillah et al. [11]. It is also consistent with Wijaya et al. [12]. One explanation is that energy companies commonly depend on external financing for large infrastructure and transition projects, so differences in DER may not be interpreted uniformly by investors as differences in financial risk.

The insignificant leverage effect may also reflect characteristics of energy-sector financing. First, some debt can be associated with project-financing structures tied to specific infrastructure assets, which may separate project risk from the overall corporate risk profile. Second, investors may evaluate leverage according to the purpose of the borrowing; debt used to finance a credible renewable-energy project may be interpreted differently from debt used to cover operating deficits. These opposing interpretations can create an offsetting effect across firms. Third, the limited number of observations reduces the statistical power to identify a potentially non-linear leverage–value relationship, even though trade-off theory suggests that the costs and benefits of debt need not be linear [15].

The descriptive data further support this interpretation. DER ranges from 0.25 to 3.62, with a standard deviation of 0.879, showing substantial variation in capital structures from relatively conservative financing to strong reliance on debt. This variation may reflect different investment-cycle stages among companies. Firms actively constructing renewable-energy infrastructure can temporarily carry higher leverage than firms with more mature asset bases. When capital-structure differences primarily reflect differing investment stages rather than a common level of financial risk, DER may lose explanatory power as a single proxy for financial risk in relation to firm value.

Evidence from previous research also indicates that the leverage–firm-value relationship is not stable across periods. Salsabillah et al. found no significant leverage effect in energy-sector firms [11]. Wijaya et al. reached a similar conclusion for the 2017–2021 period [12]. In contrast, Febriana et al. reported a negative and significant effect for

2021–2023 [10]. The divergence suggests that the market interpretation of leverage in the energy sector may shift over time as financing conditions, commodity prices, and the intensity of the energy transition change.

CONCLUSION

Fundamental Finding: CSR Disclosure does not have a statistically significant effect on Firm Value (Tobin's Q); therefore, H1 is rejected. Profitability, proxied by ROE, does not have a statistically significant effect on Firm Value; therefore, H2 is rejected. Leverage, proxied by DER, does not have a statistically significant effect on Firm Value; therefore, H3 is rejected. **Implication:** These findings do not invalidate legitimacy theory, signaling theory, or trade-off theory. Instead, they indicate that the strength of the relationships among CSR Disclosure, profitability, leverage, and firm value depends on the research context, sample characteristics, period of observation, and variation in the underlying data. **Limitation:** Simultaneously, CSR Disclosure, Profitability, and Leverage do not significantly affect Firm Value (Prob. F-statistic = 0.927566), and the negative adjusted R-squared indicates that the estimated model has weak explanatory power for this sample. **Future Research:** Future studies should employ larger samples, longer observation periods, richer measures of sustainability-disclosure quality, and additional explanatory variables relevant to the energy transition.

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