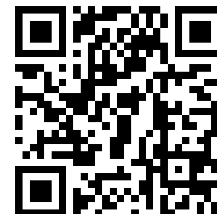


Analysis of Sustainability Performance and its Impact on the Firm Value of LQ-45 Low Carbon Leaders Indexed Companies with Profitability as a Moderating Variable



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ABSTRACT: The shift in awareness of the importance of business sustainability requires companies not only to maintain business continuity but also to play a role in sustainable development. A Sustainability Report is a disclosure document provided by a regarding its performance in economic, environmental, and social aspects of its operations. The purpose of this research is to determine whether the GRI topic standards disclosed by companies affect the firm value, moderated by profitability.

This study examines the impact of economic disclosure, environmental disclosure, and social disclosure on firm value, with profitability as a moderating variable. The research was conducted on LQ-45 Low Carbon Leaders index companies during the period from 2020 to 2022. The study was conducted by performing a content analysis of sustainability reports and subsequently conducting a regression test using EViews version 12.

The results of the study indicate that 1) economic disclosure has a significant impact on firm value, 2) environmental disclosure does not have a significant impact on firm value, 3) social disclosure does not have an impact on firm value, and 4) profitability only moderates the impact of environmental disclosure on firm value.

KEYWORDS: Sustainability, Content Analysis, Firm Value, Profitability

I. INTRODUCTION

"The only duty of the corporation is to make a profit," is a classic theory formulated by Adam Smith which, in the current context, slowly begins to fade along with the emergence of collective awareness that business growth contingency is a concern that must also be considered by companies. This shift in awareness requires companies not only to maintain business continuity but also to take a role in sustainable development. This is a consequence of scientific advances and technological developments that affect all aspects of human life towards a dynamic balance. Elkington (1997) introduced the concept of the Triple Bottom Line (TBL) as a breakthrough that evoked academic and practical interest, and it then became a reference for companies to carry out their operational activities. TBL is closely related to three important propositions: economic prosperity, environmental quality, and social justice. The main substance of this concept is often shortened to 3P (Profit, People, Planet). The balance between people, planet, and profit has come to be known as sustainability in the Triple Bottom Line (TBL) concept. Sustainability lies in the confluence of three aspects: people-social, planet-environment, and profit-economic, so companies must be responsible for the impact caused by economic, environmental, and social aspects.

Freeman (2010) revealed three interconnected problems related to business, namely: Value Creation and Trade, the Ethics of Capitalism, and Managerial Mindset. The best way to solve all three problems is to use stakeholder theory in a mindset about the business. Business from the point of view of stakeholders can be understood as a set of relationships between groups that have interests in it. It is about how customers, suppliers, employees, financiers (shareholders, bondholders, banks, etc.), communities, and managers interact to co-create and trade value. Stakeholder theory illustrates that companies are not only responsible for maximizing profits for owners and investors, who can be called shareholders, but also responsible for providing benefits to society, the social environment, and the government, which can be called stakeholders.

The needs of stakeholders related to company performance information continue to develop along with business changes and progress. One of the developments is the company's obligation related to the disclosure of its business sustainability in the form of a Sustainability Report (SR). This is a form of implementation of Law No. 40 of 2007 concerning Limited Liability Companies,

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which requires companies going public to disclose the accountability report. A Sustainability Report is a practice of measuring and revealing company activities as a responsibility to internal and external stakeholders regarding organizational performance in realizing sustainable development goals. A company's Sustainability Report demonstrates a commitment to a sustainable global economy and can assist organizations in measuring, understanding, and communicating economic, environmental, and social performance, setting goals, and managing change more effectively. Sustainability reports disclosed by companies must be aligned with standardized reporting guidelines. A popular reference for many companies in Indonesia is a guideline developed by the Global Reporting Initiative (GRI).

The Indonesia Stock Exchange (IDX), as one of the three institutions incorporated in Self-Regulatory Organizations that regulate capital markets in Indonesia, formed the LQ45 Low Carbon Leaders Index on November 11, 2022, to reduce carbon emission intensity exposure on portfolios by at least 50% compared to the LQ45 Index as the parent index. There are 28 out of 45 companies listed in the LQ45 Low Carbon Leaders Index. The calculation of the IDX LQ45 Low Carbon Leaders Index uses the Adjusted Market Capitalization Weighted method, which is adjusted based on the free float ratio and carbon emission intensity by applying a maximum stock weight restriction (cap) of 15% adjusted at the time of evaluation. Based on IDX statistical data for 2022, the 28 companies listed in the LQ45 Low Carbon Leaders Index control IDR 4,499 trillion out of IDR 9,499 trillion in the JCI market cap, or 47.37%. The market cap growth of LQ45 Low Carbon Leaders indexed companies is described as follows:

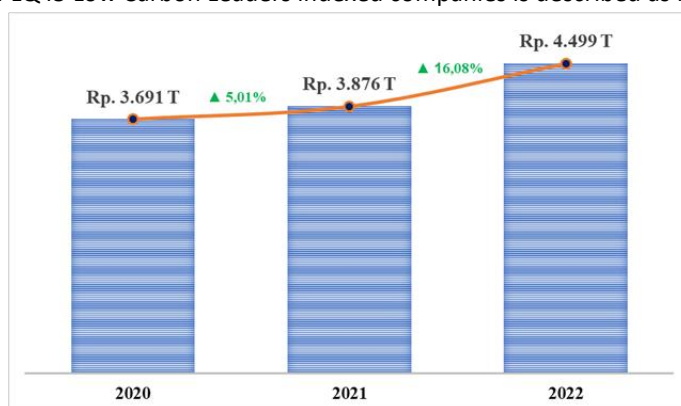


Figure 1. Market Cap Growth of LQ45 Low Carbon Leaders company

Source: Data Processed 2024

Figure 1 shows a graph of a significant increase in market cap in LQ45 Low Carbon Leaders indexed companies. Market cap growth occurred at IDR 808 trillion or 21.89% during 2020-2022. The increase in the market cap of LQ45 Low Carbon Leaders indexed companies needs further investigation into whether the increase, which is an important factor in firm value, is a positive response from investors to the sustainability performance expressed by the companies through their sustainability reports. This research is important considering that these companies are members of an index formed to reduce exposure to carbon emission intensity in their portfolios.

II. LITERATURE REVIEW

A. Stakeholder Theory

The stakeholder concept was first introduced in 1963 by the Stanford Research Institute (SRI) to challenge the notion that shareholders are the only parties to whom management must respond. Stakeholders are defined as groups that can provide support for the existence of an organization. Stakeholders are groups or individuals who can influence or be influenced by the process of achieving the goals of an organization. Ghozali and Chariri (2007) state that companies are not entities that operate solely for their own benefit, but must provide benefits to their stakeholders. Companies are not only responsible to their owners (shareholders) as has been the case up to now, but are shifting to a broader scope, namely in the social realm (stakeholders). Stakeholders are all parties, both internal and external, who have a relationship that either influences or is influenced, directly or indirectly, by the company. Business sustainability and success can be achieved by fostering good relationships between management and stakeholders.

Gibson (2000) differentiates stakeholders into two categories: primary stakeholders and secondary stakeholders. Primary stakeholders refer to groups that have a close formal or official relationship with the company, and the company may have special obligations towards them, similar to its obligations towards shareholders. Secondary stakeholders have no formal claim on the company, and management has no specific obligations towards them, but the company may have moral obligations to secondary

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stakeholders. Stakeholder theory complements resource-based theory by addressing two general criticisms: providing guidance on how companies should manage resources to achieve competitive advantage, and discussing how economic profits are distributed when they are created (Barney and Arikan, 2001: 175).

Stakeholder theory explicitly considers the impact of company disclosure policies when there are different stakeholder groups within a company. Disclosure of information by companies is used as a management tool to address the information needs of various groups (stakeholders). Therefore, management discloses social and environmental responsibility information to manage stakeholders and secure their support. This support can influence the company's survival (Gray et al., 1995). Consequently, the company's survival depends on support from stakeholders. The strategy that companies can use to maintain relationships with stakeholders involves revealing aspects of activities that support company sustainability, including economic, social, and environmental aspects contained in the sustainability report.

B. Signaling Theory

Michael Spence (1973) put forward signaling theory, which explains that the sender (owner of information) provides a signal in the form of information that reflects the condition of a company, which is beneficial for the recipient (investor). Brigham and Houston (2011) stated that signaling theory explains management's perception of the company's future growth, which will influence the response of potential investors to the company. This signal is in the form of information that explains management's efforts to realize the owner's wishes. This information is considered an important indicator for investors and business people in making investment decisions.

Information conveyed by the company and received by investors will first be interpreted and analyzed to determine whether it is considered a positive signal (good news) or a negative signal (bad news) (Jogiyanto, 2010). If the information is positive, investors will respond positively and be able to differentiate between quality companies and those that are not, leading to higher share prices and increased firm value. However, if investors interpret the information as a negative signal, it indicates a decreasing desire to invest, which will affect the decline in firm value. Signaling theory can also be seen from a business risk perspective, where higher business risks are considered negative by potential investors and influence their desire to invest. The company's activity in publishing a sustainability report is seen as a signal given by the company as the owner of the information to external parties, in this case, investors, as material for investor analysis in determining their investment policies.

C. Sustainability Report

According to the Global Reporting Initiative (GRI), sustainability reporting is a general overview of a company's economic, environmental and social impacts caused by daily activities. The company's Sustainability Report shows the company's commitment to a sustainable global economy and can help organizations measure, understand and communicate economic, environmental, social and corporate governance performance, then set goals and manage change more effectively. Sustainability report is a general term that is considered to have similarities with other terms such as triple bottom line report. This term was first popularized by Elkington (1997) who explained that companies that want to be sustainable must pay attention to the 3Ps. Apart from pursuing profits, companies must be involved in fulfilling the welfare of society (people), and contribute to preserving the environment (planet). Disclosure of sustainability reports requires principles to ensure the quality of the information in the report. These principles are fundamental to achieving transparency. The quality of information is important to enable stakeholders to make logical and reasonable performance assessments, and take appropriate action.

GRI standards are a global best practice for publicly reporting various economic, environmental, and social impacts. The Topic Standards in the 2016 GRI Foundation contain 33 topics divided into 3 categories with 86 disclosures, while the 2021 GRI Foundation contains 31 topics divided into 3 categories with 84 disclosures. Topic Standards in GRI are used by organizations to report their impact regarding a topic and how the organization manages this impact. This approach to identifying and reporting material topics helps companies create reports that focus on the impact of their activities and operations and meet their stakeholders' information requests. Companies listed on the capital market generally disclose general standards and topic standards in non-financial reporting in the form of a sustainability report, which is published annually on each company's investor relations website. The topics and disclosures in this research are as follows:

Table 2. Topics and Indicators of GRI Standards Disclosure

No	GRI Topic Standards	2016 Standards		2021 Standards	
		Topics	Disclosure	Topics	Disclosure
1	Economic	7	17	7	17
2	Environmental	8	32	7	31

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3	Social	18	37	17	36
Total		33	86	31	84

This research will measure the effect of the level of disclosure of the three disclosures on firm value with profitability as a moderator. The framework of thinking in this research is described as follows:

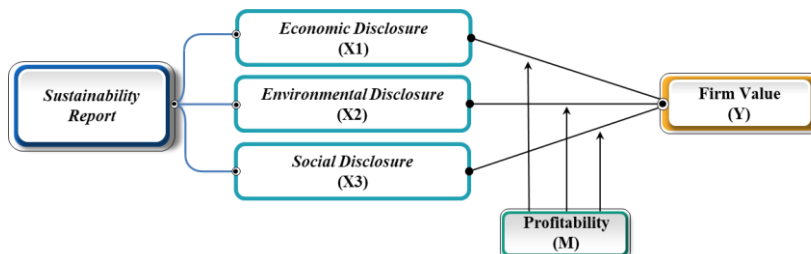


Figure 2. Conceptual Framework

- H1 : The effect of economic disclosure on firm value
- H2 : The effect of environmental disclosure on firm value
- H3 : The effect of social disclosure on firm value
- H4-6 : The moderating effect of profitability on the effect

III. RESEACH METHODE

This research method uses associative causality to determine causal relationships between research variables. The associative approach formulates a research problem that examines the relationship between two or more variables. The objective of this study is to test the hypothesis that explains the cause-and-effect relationship between two or more variables. In this context, sustainability reports (economic disclosure, environmental disclosure, and social disclosure) serve as independent variables influencing the dependent variable, firm value, which is measured by Tobin's Q with profitability as a moderator.

A. Data Types & Sources

This research utilizes secondary data, specifically data that is officially published through the investor relations websites of LQ45 Low Carbon Leaders indexed issuers. Additionally, this study collects official data published by institutions related to this study, such as the Indonesia Stock Exchange (IDX) and independent international organizations (GRI), which develop sustainability reporting standards, as well as from the official websites of companies indexed by LQ45 Low Carbon Leaders on the IDX.

B. Research Population & Sample

The population of this research comprises all issuers listed on the Indonesian capital market (IDX) and included in the LQ45 Low Carbon Leaders index in 2022. Sampling is conducted using a purposive sampling method, which involves selecting samples based on specific considerations and criteria to obtain a representative sample. The sample criteria for this study are outlined in the following table:

Table 3. Samples Criteria

No.	Samples Criteria	Total
1.	Companies indexed as LQ45 Low Carbon Leaders according to IDX publication 2023	28
2.	Using GRI Standard in published Sustainability Report documents	28
3.	Publish Sustainability Report documents during the research period (2020-2022)	(2)
4.	The published SR is an activity of the same business entity during 2020-2022	(1)
	Number of samples of manufacturing companies	25
	Number of samples of manufacturing companies in 3 years / during 2020-2022	25 x 3 = 75

The sample size for this research is 25 companies with a reporting period of 3 years (2020 to 2022).

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C. Research Variables

This study utilized five variables, comprising three dependent variables, independent variables, and moderation variables. The description of these variables is provided below:

Table 4. Research Variables

Notation	Variable	Scale	Unit
Y	Firm Value (Tobin's Q)	Ratio	Percentage (%)
X1	Economic Disclosure	Ratio	Percentage (%)
X2	Environment Disclosure	Ratio	Percentage (%)
X3	Social Disclosure	Ratio	Percentage (%)
M	Profitability	Ratio	Percentage (%)

D. Procedure Methodology

This research employs two analysis processes: content analysis of sustainability reports from the companies under study, followed by the utilization of the results of the content analysis to gauge their impact on firm value through descriptive statistical analysis and multiple regression, using EViews program version 12. Content analysis is a research technique for objectively, systematically, and quantitatively describing the manifest content of communication, as defined by Berelson (1952). It is a qualitatively oriented technique wherein standard measures applied to specific units are typically employed to ascertain document characteristics or make comparisons. The procedures employed in content analysis for economic, environmental, and social disclosures within sustainability reports are as follows:

1. Coding: provides a checklist of 33 topics with 86 disclosure indicators that comply with the 2016 & 2021 GRI disclosure standard with code 0 for non-disclosure and code 1 for disclosure.
2. Scoring: The level of disclosure in the sustainability report that has gone through the coding process is then scored to quantify the percentage of disclosure using EcDI, EnDI, and SoDI with the following formula:

$$\text{Disclosure Rate} = \frac{\text{Number of Disclosure Items Fulfilled}}{\text{Maximum Number of}} \times 100\%$$

Panel Regression Model Estimation. The estimation method using panel data regression techniques can be done with three alternative processing approaches: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) as per the Ghazali (2016) method. To determine the best model for panel data analysis, several tests need to be conducted, namely the Chow Test, Hausman Test, and Lagrange Multiplier Test. Moderation regression can be performed using Moderated Regression Analysis (MRA) or an interaction test, which is a special application of linear multiple regression where the regression equation contains interaction elements (multiplication of two or more independent variables). The modeling is stated as follows:

$$Y1 = \alpha + \beta1X1 + \beta2X2 + \beta3X3 + e$$

$$Y2 = \alpha + \beta1X1 + \beta2X2 + \beta3X3 + \beta4M + e$$

$$Y3 = \alpha + \beta1X1 + \beta2X2 + \beta3X3 + \beta4M + \beta5X1M + \beta6X2M + \beta7X3M$$

Where: Y = Firm Value (Tobin's Q) α = Constant $\beta1-7$ = Variable Coefficient X1 = Economic Disclosure (ECO) X2 = Environment Disclosure (ENV) X3 = Social Disclosure (SOC) M = Profitability (ROA) e = error

Classical Assumptions Test. This test is conducted to ensure the OLS model meets the BLUE (Best Linear Unbiased Estimator) criteria. Regression models that meet the BLUE criteria can be used as reliable estimators, which are normally distributed, unbiased, consistent, and efficient, thereby making the T-test and F-test valid. The series of tests carried out includes the Normality Test, Multicollinearity Test, Heteroscedasticity Test, and Autocorrelation Test.

Hypothesis Test. The F-Test is utilized to determine whether the regression coefficient is significant, indicating a notable difference. A significant regression coefficient is one that is statistically different from zero. The T-test, on the other hand, assesses the significance of the individual influence of the independent variables in the model on the dependent variable. The coefficient of determination, or R-Square, quantifies the proportion of variation in the dependent variable that can be explained by the independent variables collectively.

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IV. RESULT

The results of the content analysis show that disclosures in the sustainability reports of LQ-45 Low Carbon Leaders indexed companies have increased from 2020 to 2022 across all topics. The mean economic disclosure increased from 34% in 2020 to 56% in 2022, a rise of 22%. Environmental disclosure increased from 31% in 2020 to 57% in 2022, an increase of 26%. Social disclosure increased from 40% in 2020 to 61% in 2022, an increase of 21%. This increased information disclosure indicates that sustainability reports are being used by company management as a tool to address information needs, reflecting company conditions beneficial to stakeholders. The trend of disclosure in sustainability reports of LQ-45 Low Carbon Leaders indexed companies is shown in the following figure:

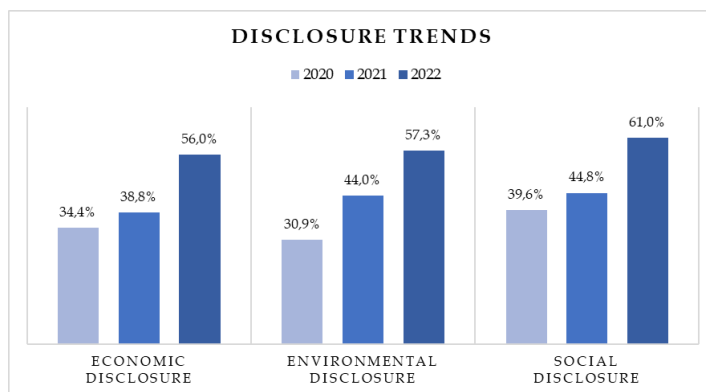


Figure 3. Disclosure Trends
Source: Data Processed 2024

The classification based on the 2016 and 2021 GRI topic standard disclosure scores reported by LQ-45 Low Carbon Leaders indexed companies in their sustainability reports shows an increase in the number of companies in the Partially Applied and Well Applied categories. The classification is illustrated in the following table:

Table 5. Research Variables

% Disclosure	Category	2020 Classification	2021 Classification	2022 Classification
0%	Not Applied	0	0	0
1% - 40%	Limited Disclose	19	12	4
41% - 75%	Partially Applied	5	12	14
76% - 99%	Well Applied	1	1	7
100%	Fully Applied	0	0	0
Total		25	25	25

Source: Dataz Processed 2024

The table above shows that all companies indexed by LQ-45 Low Carbon Leaders have disclosed their sustainability performance based on GRI topic standards. The improvement in the quality of disclosures from 2020 to 2022 is evidenced by a decrease in the number of companies in the Limited Disclosure classification (1%-40%) from 19 companies in 2020 to 4 in 2022. The number of companies in the Partially Applied category (41%-75%) increased from 5 in 2020 to 14 in 2022, a rise of 9 companies. The Well Applied category (76%-99%) saw an increase from 1 company in 2020 to 7 companies in 2022, a rise of 6 companies. However, no companies indexed by LQ-45 Low Carbon Leaders have achieved 100% disclosure of the GRI topic standards for the 2016 and 2021 foundations, and therefore none are categorized as Fully Applied.

Descriptive Statistics: Descriptive statistics provide an overview of the data under study, including the number of samples, minimum value (smallest value), maximum value (largest value), average value, and standard deviation. The variables in this study are firm value (Y: Tobin's Q), Economic Disclosure (X1: ECO), Environmental Disclosure (X2: ENV), Social Disclosure (X3: SOC), and profitability (M: ROA). Descriptive statistical testing was conducted using the E-Views application version 12. The results of the descriptive statistical testing are presented in the following table:

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Table 6. Descriptive Statistics

	Y	X1	X2	X3	M
Mean	2.220328	0.430588	0.440551	0.484414	0.074468
Median	1.521316	0.411765	0.387097	0.444444	0.051489
Maximum	14.41466	0.941176	1.000000	1.000000	0.862682
Minimum	0.873658	0.000000	0.000000	0.081081	-0.030305
Std. Dev.	2.337840	0.246960	0.253746	0.217821	0.115311
Skewness	3.264519	0.543706	0.519465	0.396182	4.664695
Kurtosis	14.47056	2.850919	2.354257	2.673405	30.80465
Jarque-Bera	544.3817	3.764650	4.676122	2.295333	2687.925
Probability	0.000000	0.152236	0.096515	0.317377	0.000000
Sum	166.5246	32.29412	33.04133	36.33108	5.585128
Sum Sq. Dev.	404.4467	4.513218	4.764639	3.511003	0.983950
Observations	75	75	75	75	75

Source: E-views Output 2024

The table above shows that from 75 observations, the minimum value of the variable Y (Tobin's Q) is 0.873658, indicating that the book value of the asset is greater than the market value of the company (undervalued). The maximum value of the variable Y (Tobin's Q) is 14.41466, suggesting that the company has a higher market value than the book value of its assets, indicating high growth potential (overvalued). The median value of the variable Y (Tobin's Q) is 1.521316. The mean value indicates that LQ-45 Low Carbon Leaders indexed companies have good growth prospects, as evidenced by a Tobin's Q value greater than 1, meaning the market value is higher than the company's book value. The standard deviation of the variable (Tobin's Q) is 2.337840, indicating considerable variability in the data, as the standard deviation is greater than the mean value.

Based on the Chow Test, the value of Cross-section F and Chi-square is less than Alpha 0.05, indicating that the best model to use is the Fixed Effect Model (FEM). However, the Hausman Test shows that the Probability Cross-section random value is greater than Alpha 0.05, suggesting that the best model to use is the Random Effect Model (REM). Additionally, the Lagrange Multiplier Test indicates that the cross-section Breusch-Pagan value is less than Alpha 0.05, also suggesting that the best model to use is the Random Effect Model (REM). Therefore, based on the results of the model testing, the best model choice for this research is the Random Effect Model (REM).

Classical Assumptions Test. The normality test was conducted by looking at the Jarque-Bera values in the three equations. The conclusion from the normality test is that the null hypothesis regarding the normality of the distribution of residuals is accepted at a significance level of 5%, which means that the residuals are normally distributed. The regression model meets the assumptions of normality. This research looks at the Variance Inflation Factor (VIF) value to detect multicollinearity in regression analysis. There are no symptoms of multicollinearity between the independent variables in equations 1 and 2 as indicated by a VIF value < 10. Model 3 shows the moderating variables and interactions of the independent variables and the moderating variable has a VIF value > 10. Interaction between independent variables (ECO, ENV, and SOC) with the moderating variable (ROA) being the cause of multicollinearity problems. Regression with Moderated Regression Analysis (MRA) will cause high multicollinearity problems in the interaction between the independent variables and the moderating variable. The issue of multicollinearity is not serious, if the aim of the research model is only to determine the response of the moderating variable to the relationship between the independent and dependent variables (Nazaruddin and Basuki, 2015). This research uses White's general heteroscedasticity test to determine whether there is heteroscedasticity. The null hypothesis in White's test is homoscedasticity, meaning that the variance is the same between groups or periods. White's test results show the p-value is greater than the significance level (0.05). The Obs*R-squared probability is greater than the significance level (0.05) which indicates there is no strong evidence of heteroscedasticity. Thus, the White test results show that there is no significant heteroscedasticity in the model, which means that the assumption of homoscedasticity is not violated. The autocorrelation assumption in this study was carried out by detection using the Durbin-Watson (DW) test. The statistical value of the Durbin-Watson (DW) test for the three equations ranges from 1 to 3, which means that the non-autocorrelation assumption is met, in other words, there are no symptoms of high autocorrelation in the residuals.

Hypothesis Testing. Based on the results of statistical calculations with the Random Effects Model (REM) on equation 1 using the Eviews 12th version program, the following outcomes were obtained:

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Table 7. Multiple Linear Regression Test Results Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.173277	0.179498	6.536430	0.0000
ECO	-0.867290	0.396923	-2.185036	0.0322
ENV	0.238381	0.366057	0.651213	0.5170
SOC	0.328110	0.504507	0.650356	0.5176
R-squared	0.069047	Mean dependent var		0.379359
Adjusted R-squared	0.029711	S.D. dependent var		0.370483
S.E. of regression	0.364938	Sum squared resid		9.455744
F-statistic	1.755301	Durbin-Watson stat		1.733876
Prob(F-statistic)	0.163559			

Source: Data Processed 2024

Table 8. Multiple Linear Regression Test Results Model 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.131848	0.169076	6.694321	0.0000
ECO	-0.879257	0.382774	-2.297069	0.0246
ENV	0.156690	0.360879	0.434189	0.6655
SOC	0.425612	0.492053	0.864972	0.3900
ROA	0.474566	0.502840	0.943772	0.3485
R-squared	0.078029	Mean dependent var		0.444456
Adjusted R-squared	0.025345	S.D. dependent var		0.391853
S.E. of regression	0.386856	Sum squared resid		10.47602
F-statistic	1.481075	Durbin-Watson stat		1.625448
Prob(F-statistic)	0.217235			

Source: Data Processed 2024

Table 9. Multiple Linear Regression Test Results Model 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.819519	0.185946	4.407293	0.0000
ECO	-0.614247	0.486503	-1.262575	0.2111
ENV	1.244808	0.405612	3.068966	0.0031
SOC	-0.718178	0.594467	-1.208104	0.2313
ROA	6.567083	2.088761	3.144009	0.0025
ROAXECO	-0.287263	6.675259	-0.043034	0.9658
ROAXENV	-12.98257	2.585996	-5.020336	0.0000
ROXSOC	7.887397	5.482494	1.438651	0.1549
R-squared	0.345532	Mean dependent var		0.538921
Adjusted R-squared	0.277155	S.D. dependent var		0.426344
S.E. of regression	0.362479	Sum squared resid		8.803215
F-statistic	5.053322	Durbin-Watson stat		1.648456
Prob(F-statistic)	0.000122			

Source: Data Processed 2024

According to regression results, the following summarizes the findings based on the statistical analysis:

F-test (Overall Model Significance): The calculated F-statistic is 1.755301, which is less than the critical F-value (F-table) of 2.731807. Interpretation: The null hypothesis (Ho), which states that economic disclosure (ECO), environmental disclosure (ENV), and social disclosure (SOC) together do not significantly affect firm value (Tobin's Q), is accepted. Hence, the alternative hypothesis

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(Ha), which suggests a significant effect, is rejected. This means that collectively, these variables do not have a statistically significant impact on Tobin's Q for issuers in the LQ-45 Low Carbon Leaders index during the 2020-2022 period.

T-tests (Individual Variables): ECO variable: The T-test for economic disclosure shows a probability value (Prob.) of $0.0322 < 0.05$. Interpretation: The null hypothesis (Ho) that economic disclosure does not affect Tobin's Q is rejected. This implies that economic disclosure in sustainability reports has a significant negative effect on firm value (Tobin's Q), with a beta coefficient of -0.867290 . Specifically, a 1% increase in economic disclosure is associated with a decrease in firm value by approximately 0.867290%. **ENV variable:** The T-test for environmental disclosure shows a probability value of $0.5170 > 0.05$. Interpretation: The null hypothesis (Ho) that environmental disclosure does not affect Tobin's Q is accepted. Therefore, environmental disclosure in sustainability reports does not have a significant impact on firm value during the observed period, with a beta coefficient of 0.238381 . **SOC variable:** The T-test for social disclosure shows a probability value of $0.5176 > 0.05$. Interpretation: The null hypothesis (Ho) that social disclosure does not affect Tobin's Q is accepted. This indicates that social disclosure in sustainability reports also does not significantly affect firm value, with a beta coefficient of 0.328110 . **Interaction variable X1M:** The T-test for interaction ECOxROA can be seen in the regression results of Model 3. The regression results indicate that profitability does not moderate the effect of economic disclosure (ECO) on firm value (Tobin's Q) for issuers in the LQ-45 Low Carbon Leaders index during the observation period from 2020 to 2022, with a probability value of $0.9658 > 0.05$ and a beta coefficient of the interaction variable X1M (ECOROA) of -0.287263 . The conclusion from the T-test on interaction X1M (ECO*ROA) is that Ho is accepted and Ha is rejected. **Interaction variable X2M:** The T-test for interaction ENVxROA can be seen in the regression results of Model 3. The regression results show that profitability moderates the effect of environmental disclosure (ENV) on firm value (Tobin's Q) for issuers in the LQ-45 Low Carbon Leaders index during the observation period from 2020 to 2022, with a probability value of $0.0000 < 0.05$ and a beta coefficient of the interaction variable X2M (ENVROA) of -12.98257 . The conclusion from the T-test on interaction X2M (ENV*ROA) is that Ho is rejected and Ha is accepted. **Interaction variable X3M:** The T-test for interaction SOCxROA can be seen in the regression results of Model 3. The regression results indicate that profitability does not moderate the effect of social disclosure (SOC) on firm value (Tobin's Q) for issuers in the LQ-45 Low Carbon Leaders index during the observation period from 2020 to 2022, with a probability value of $0.1549 > 0.05$ and a beta coefficient of the interaction variable X3M (SOCROA) of 7.887397 . The conclusion from the T-test on interaction X3M (SOC*ROA) is that Ho is accepted and Ha is rejected.

Coefficient of Determination (R-squared): The R-squared value for Model 1 is 0.069047 . Interpretation: This indicates that economic disclosure (ECO), environmental disclosure (ENV), and social disclosure (SOC) together explain approximately 6.9047% of the variation in firm value (Tobin's Q). The remaining 93.0953% of the variation is explained by other factors or variables not included in the model. In summary, while economic disclosure shows a significant negative impact on firm value (Tobin's Q), environmental and social disclosures do not demonstrate significant effects according to the T-tests. The overall model (F-test) suggests that collectively, these disclosures do not have a statistically significant influence on Tobin's Q for issuers in the specified index during the observed period.

V. DISCUSSION

Disclosure of information by companies serves as a management tool to meet the information needs of various stakeholder groups (stakeholder theory). The percentage of economic disclosure by issuers in the LQ-45 Low Carbon Leaders index in their sustainability reports is relatively low, as indicated by a mean disclosure rate of 43.06% and a median of 41.18%. This suggests that issuers in the LQ-45 Low Carbon Leaders index have not fully disclosed economic information in accordance with applicable GRI standards. The low percentage of economic disclosure in this content analysis indicates that the presentation of economic performance in sustainability reports has not been positively received by stakeholders or investors to optimize firm value. These research findings are inconsistent with stakeholder theory, which posits that companies operate to benefit their stakeholders. Additionally, they do not align with signaling theory, which suggests that non-financial reports (such as sustainability reports) have not sufficiently signaled positive efforts by companies to support sustainability through economic performance disclosure.

Activities carried out by companies have environmental impacts, both significant and minor. The environmental performance presented in the sustainability report demonstrates the firm's responsibility to enhance its surrounding environmental conditions. Disclosure of environmental performance contributes to enhancing the firm's reputation in society. A favorable reputation can confer a competitive advantage to the firm and potentially increase its value. However, the results of this research indicate that environmental disclosure in the sustainability report does not significantly affect firm value.

The primary focus of social work is the treatment of human resources within a firm, which can serve as a competitive advantage. Companies with strong social performance tend to receive positive responses from investors. However, in this research, social performance does not appear to affect firm value. Social disclosure in sustainability reports indicates that

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stakeholders, such as employees and consumers, may not directly align with investors' interests. Disclosure of information by companies serves as a management tool to address the information needs of various groups (stakeholder theory). The percentage of social disclosures made by issuers indexed in the LQ-45 Low Carbon Leaders in sustainability reports remains relatively low. These issuers have not fully disclosed social performance according to the 2016 and 2021 GRI standards, with an average disclosure rate of 48.44%. The low percentage of social disclosure observed in this content analysis suggests that companies have not fully communicated their social performance, potentially leading to stakeholders not recognizing its impact on firm value. These research findings diverge from stakeholder theory, which asserts that companies should benefit their stakeholders. Similarly, they do not align with signaling theory, which suggests that social disclosure in non-financial reports (like sustainability reports) should positively signal firm sustainability efforts through social performance disclosures.

VI. CONCLUSIONS

This research aimed to investigate the impact of economic disclosure, environmental disclosure, and social disclosure on company value through content analysis of sustainability reports and multiple linear regression. The findings of this study conclude four main points. Firstly, all 25 companies comprising the research sample indexed in LQ-45 Low Carbon Leaders actively disclosed their sustainability performance during the study period using standard GRI topics in sustainability report documents, indicating high disclosure quality. Secondly, simultaneous economic disclosure, environmental disclosure, and social disclosure did not significantly affect firm value in companies indexed in LQ-45 Low Carbon Leaders. Thirdly, only economic disclosure had a significant negative effect on firm value among companies indexed in LQ-45 Low Carbon Leaders during the research period. Lastly, profitability was found to moderate the relationship between environmental disclosure and firm value.

VII. FUTURE RESEARCH DIRECTIONS

Based on the study results and conclusions, several pertinent suggestions arise for future research. Firstly, future studies could consider employing more sophisticated standards encompassing general, topic-specific, and sector-specific criteria, focusing on sectors particularly sensitive to sustainability issues in their operations. Secondly, future research might delve into case studies of companies that have successfully enhanced their value through sustainability practices, offering practical and actionable insights. Thirdly, companies are encouraged to prioritize sustainability aspects when formulating business strategies and conducting operational activities to enhance resource efficiency and promote long-term sustainability. It is recommended that companies enhance their reporting on economic, environmental, and social performance using globally recognized standards such as GRI. This strategic approach aligns with increasing awareness of sustainability practices. Lastly, investors are advised to scrutinize companies' sustainability practices as crucial indicators in their investment decision-making processes. Robust sustainability practices demonstrate a company's commitment to economic, environmental, and social responsibilities, which can bolster its reputation and long-term performance.

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