



OPERATIONAL EFFICIENCY AS A MODERATOR OF THE IMPACT OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) ON FINANCIAL PERFORMANCE: AN EMPIRICAL STUDY OF NON-FINANCIAL COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE FROM 2014 TO 2023

EFISIENSI OPERASIONAL SEBAGAI PEMODERATOR PENGARUH ENVIROMENTAL, SOCIAL, DAN GOVERNANCE (ESG) TERHADAP KINERJA KEUANGAN: STUDI EMPIRIS PADA PERUSAHAAN NON-KEUANGAN DI BURSA EFEK INDONESIA TAHUN 2014-2023

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Abstract

This study aims to analyze the influence of Environmental, Social, and Governance (ESG) on the company's financial performance, as well as test the role of operational efficiency as a moderation variable in this relationship. The research object includes non-financial companies listed on the Indonesia Stock Exchange (IDX) during the period 2014–2023. ESG variables are measured using Bloomberg's ESG score which includes environmental, social, and governance dimensions, while operational efficiency is proxied by the Total Asset Turnover ratio. Financial performance is proxied by Return on Assets. The research method uses a quantitative approach with panel data regression analysis. The research sample consisted of 80 companies with a total of 711 observations. The results of the study show that ESG has a significant negative effect on financial performance. However, operational efficiency has been shown to play a role as a moderation variable that strengthens the relationship between ESG and financial performance. This research makes a theoretical contribution by enriching the literature on the relationship between ESG and financial performance, especially in the context of emerging markets. From a practical perspective, the results indicate that the implementation of ESG will only create financial value if integrated with internal efficiency strategies. Thus, companies are advised to not only focus on compliance with ESG aspects, but also ensure efficient management of resources to increase long-term profitability.

Keywords: ESG, Operational Efficiency, Financial Performance, Panel Regression.

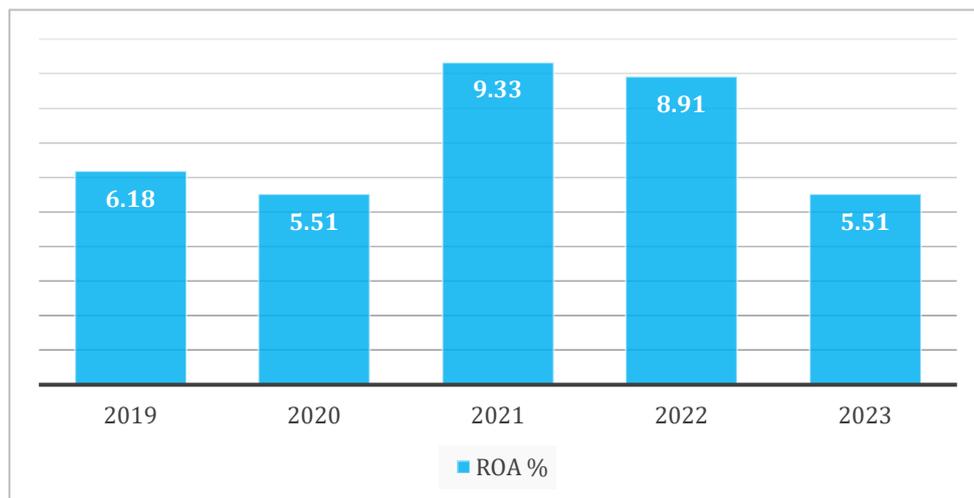


1. INTRODUCTION

Financial performance is one of the main indicators in assessing the success of a company in managing resources to create profits and maintain business sustainability. These indicators include profitability, liquidity, solvency, and operational efficiency, which collectively reflect the company's competitiveness and value in the eyes of investors (Atrill & McLaney, 2019). One of the most widely used measures is Return on Assets (ROA), as it can demonstrate management's effectiveness in optimizing the assets it owns to generate profits (Brigham & Houston, 2021).

In Indonesia, the trend of ROA for public companies has fluctuated quite sharply in recent years. The Indonesia Stock Exchange's Annual Report (2025) noted that the company's ROA decreased from 6.18% in 2019 to 5.51% in 2023, although it had reached a high of 9.33% in 2021 due to the post-pandemic recovery. This phenomenon indicates external and internal dynamics that affect the company's competitiveness in the domestic market.

Figure 1 Development of Return on Assets (ROA) of the Indonesia Stock Exchange in 2019–2023



Source: Indonesia Stock Exchange Annual Report 2024

These fluctuations in financial performance encourage attention to non-financial factors that have the potential to affect long-term profitability, one of which is Environmental, Social, and Governance (ESG). ESG has developed into a global strategic framework that is not only oriented towards regulatory compliance, but also as a strategy to maintain long-term competitiveness (Saputra, 2023).

According to the Global Sustainable Investment Alliance (2022), the value of sustainable investments has reached USD 30.3 trillion globally, reflecting the increasing interest of investors in companies that pay attention to sustainability issues. This is in line with the tendency of institutional and retail investors to make ESG as one of the indicators of company quality.

In Indonesia, the implementation of ESG has become increasingly relevant since the issuance of POJK No. 51/POJK.03/2017 on the implementation of sustainable finance. This regulation requires public companies to prepare sustainability reports and integrate environmental, social, and governance aspects into their operations. Until the end of 2024,



there are 882 issuers or around 94% of companies on the IDX that have issued sustainability reports (Indonesia Stock Exchange, 2025).

However, the effectiveness of ESG in improving a company's financial performance is still a debate. A number of studies have shown that ESG can improve reputation and attract investors (Duan et al., 2023), but other studies have found the opposite result, where ESG actually burdens company profitability due to high implementation costs (Prabawati & Rahmawati, 2022; Duque-Grisales & Aguilera-Caracuel, 2020).

The inconsistency of these findings shows that the relationship between ESG and financial performance is not simple, but rather influenced by internal factors that mediate or moderate the relationship. One of the key factors that is suspected to play a role is operational efficiency.

Operational efficiency reflects a company's ability to manage assets to generate revenue, which is generally measured by Total Asset Turnover (TAT). Companies with high efficiency are believed to be better able to absorb the additional costs of ESG implementation without sacrificing profitability (Sahlan & Abdi, 2022). Thus, operational efficiency has the potential to strengthen the relationship between ESG and financial performance.

Based on this background, this research is focused on two main things. First, to test the influence of ESG on the financial performance of non-financial companies on the Indonesia Stock Exchange. Second, analyzing the role of operational efficiency as a moderation variable in the relationship between ESG and financial performance.

Academically, this research contributes to the literature on ESG and financial performance by emphasizing the context of developing countries, which are relatively less given attention than developed countries. From a practical perspective, the results of this study can provide insights for company management to integrate internal efficiency strategies with ESG implementation, so as to not only meet sustainability regulations but also create long-term financial value.

Literature Review

ESG and Financial Performance

Environmental, Social, and Governance (ESG) is a framework for assessing the non-financial performance of companies that is gaining attention as one of the main strategic elements in creating sustainable value. In the last five years, ESG has not only been seen as a form of moral compliance, but as an integrated business strategy with increasing competitiveness and strengthening financial performance (Broadstock et al., 2021; Duan et al., 2023). ESG plays a crucial role in shaping reputations, improving operational efficiency, and attracting sustainability-minded investors.

The influence of ESG on financial performance can be explained through the Theory of the Firm, which places companies as rational entities that aim to maximize their economic value through internal efficiency and optimal resource management. Within this framework, ESG is seen as a strategic mechanism that strengthens implicit contracts between companies and stakeholders, reduces transaction costs, and lowers long-term operational risks (Truong et al., 2025). ESG also increases the company's ability to adapt to external environmental pressures such as regulations and social expectations. Signaling Theory strengthens this view by emphasizing that ESG disclosure is a signal of management's credibility in running the company in a transparent and ethical manner. Research by Rahmadini and Hartanti (2025) shows that companies that have consistent ESG disclosures tend to have a higher market value, because they are considered more accountable and have low risk. In this context, ESG is not



just a sustainability report, but also a strategic communication tool between companies and markets. From the perspective of the Resource-Based View (RBV), ESG is classified as a part of intangible resources that are unique, difficult to replicate, and can be a source of competitive advantage (Duan et al., 2023). If implemented with high efficiency, ESG can reduce operational costs, strengthen productivity, and improve a company's profitability in the long run.

However, the empirical findings show mixed results. Studies by Broadstock et al. (2021) show that ESG has a positive impact on profitability and cost efficiency, especially during times of crisis such as the COVID-19 pandemic. However, Truong et al. (2025) report that in Southeast Asia, ESG tends to negatively impact ROA and financing cash flow due to high implementation costs and lack of internal efficiency. Meanwhile, Xaviera and Rahman (2023) found that only the governance pillar in ESG has a positive effect on company value in Indonesia, while the environmental dimension even has a negative impact. Salimatusyadiah et al. (2025) show that ESG has a negative influence on company value if it is not supported by a healthy capital structure and operational efficiency strategy. This shows that the influence of ESG on financial performance is highly dependent on the managerial context and internal ability to manage resources.

H1: ESG has a negative effect on the company's financial performance.

The Effect of Operational Efficiency on the Relationship Between ESG and Financial Performance

Based on the Theory of the Firm, efficiency is the essence of achieving the company's economic goals. ESG will contribute to profitability only if implemented in an efficient internal system, which is able to absorb costs, reduce waste, and integrate sustainability principles into the company's operational activities (Truong et al., 2025). Operational efficiency is the company's ability to optimize the use of resources to produce output at the lowest possible cost. In the context of ESG (Environmental, Social, and Governance), efficiency not only serves as a moderator, but also as an independent determinant that reinforces and clarifies the effectiveness of ESG on overall financial performance. This is confirmed by Duan et al. (2023) who found that cost efficiency plays an important mediating role in the relationship between sustainability practices and profitability in manufacturing companies. Ridwan and Alghifari (2025) also stated that operational efficiency strengthens the influence of ESG on reducing financial risks and increasing Return on Assets (ROA). In an efficient company, ESG practices can be better internalized into core business strategies, thereby creating more significant financial value than companies that have suboptimal operational structures.

Ridwan and Alghifari (2025) revealed that the positive relationship between ESG and Return on Assets (ROA) is only significant when the company's efficiency is in the high range. This is in line with Salimatusyadiah et al. (2025) who show that efficiency is a key factor in maximizing the benefits of ESG on firm value. Without efficiency, ESG tends to have only a symbolic impact or even financially detrimental. Research by Rahmadini and Hartanti (2025) also supports that ESG will affect financial performance if companies have an efficient cost structure and processes. Companies with low efficiency show a negative or insignificant relationship between ESG scores and profitability, due to high administrative costs and inadequate internal systems.

Thus, operational efficiency not only serves as a moderation between ESG dimensions, but can be positioned as a key variable that strengthens the causal relationship between ESG in



aggregate and the company's financial achievements. Therefore, the following hypotheses are proposed:

H2: Operational efficiency has a positive effect on the relationship between ESG and financial performance.

2. RESEARCH METHOD

This study uses a quantitative approach with the panel data regression method. The object of the research is a non-financial company listed on the Indonesia Stock Exchange (IDX) during the 2014–2023 period. The sample selection was carried out using the purposive sampling method based on the availability of ESG data and financial statements, so that 80 companies were obtained with a total of 711 observations.

Research Variables and Their Measurement

Dependent Variables: Financial Performance

Financial performance reflects a company's ability to generate profits through the use of assets, capital, and other resources. According to Brigham and Houston (2021), one of the most relevant indicators is Return on Assets (ROA), as it shows how efficiently management manages assets to generate profits. In this study, ROA is calculated by comparing net profit with total assets

Independent Variables: Environmental, Social, and Governance (ESG)

ESG is a framework that assesses a company's performance from environmental, social, and governance aspects. According to Friede, Busch, and Bassen (2015), ESG has become an important factor in assessing a company's sustainability and competitiveness. Bloomberg (2023) stated that the ESG score was obtained through the combination of three main pillars, namely environmental, social, and governance (ESG). The Global Reporting Initiative (2021) explains that environmental, social, and governance (ESG) is a framework that is designed to facilitate organizations in identifying and communicating the impacts they have on economic, environmental, and social aspects. In this study, ESG was measured using the Bloomberg ESG score, which is a composite index that directly describes the level of ESG adoption of a company without the need for manual calculations.

Operational Efficiency Moderation Variable

Operational efficiency reflects a company's ability to utilize its assets to generate revenue. According to Sahlan and Abdi (2022), operational efficiency shows how well a company uses its total assets to generate sales. In this study, efficiency was measured using Total Asset Turnover (TAT), with the formula for net sales divided by total assets.

Control Variables

- Company Size

Company size is often used as a control variable because it can affect a company's ability to implement sustainability strategies and generate profits. Recent research shows that companies with larger assets have wider access to resources and diversification opportunities so that they tend to be more stable in generating financial performance (Nuryana & Surjandari, 2020; Rahman & Widyasari, 2021). This variable is measured by the natural logarithm of total assets, in order to normalize the data and reduce scale bias.

- Capital Structure



The capital structure reflects the company's funding composition derived from debt and equity. According to Myers (2001), the debt-to-equity ratio affects the risk and profitability of the company. This variable is proxied by the Debt to Equity Ratio (DER), which is total debt divided by total equity.

Research Model

To test the hypothesis, panel data regression analysis was used. The first model tests the influence of ESG on financial performance with the formula:

$$ROA_{it} = \alpha + \beta_1 \cdot ESG_{it} + \beta_2 \cdot TAT_{it} + \beta_3 \cdot SIZE_{it} + \beta_4 \cdot DER_{it} + \mu_i + \epsilon_{it}$$

The second model adds the interaction between ESG and operational efficiency to see the effect of moderation. Control variables in the form of company size (SIZE) and capital structure (DER) were also included to increase the validity of the research results.

$$ROA_{it} = \alpha + \beta_1 \cdot ESG_{it} + \beta_2 \cdot TAT_{it} + \beta_3 \cdot (ESG_{it} \times TAT_{it}) + \beta_4 \cdot SIZE_{it} + \beta_5 \cdot DER_{it} + \mu_i + \epsilon_{it}$$

3. RESULTS AND DISCUSSION

Descriptive Analysis

	ROA_	ESG_	TAT_	SIZE_	DER_
Mean	0.062947	38.69470	0.778141	30.81014	0.785754
Median	0.047200	38.70000	0.580000	30.88403	0.465900
Maximum	0.557300	75.76000	4.220000	33.73062	12.33830
Minimum	-0.223000	12.52000	0.000000	26.86519	0.000000
Std. Dev.	0.086451	13.35344	0.656867	1.118421	1.179236
Skewness	1.605780	0.205918	2.072828	-0.389917	4.642406
Kurtosis	8.849054	2.246242	8.508329	3.450614	35.64574
Jarque-Bera	1319.069	21.85618	1408.022	24.03165	34126.57
Probability	0.000000	0.000018	0.000000	0.000006	0.000000
Sum	44.75530	27511.93	553.2585	21906.01	558.6708
Sum Sq. Dev.	5.306371	126603.3	306.3465	888.1152	987.3238
Observations	711	711	711	711	711

Descriptive analysis was used to provide an overview of the characteristics of the research data consisting of financial performance variables (Return on Assets / ROA), Environmental, Social, and Governance (ESG), operational efficiency (Total Asset Turnover/TAT), company size (SIZE), and capital structure (Debt to Equity Ratio / DER)). Table 1 presents the mean, median, maximum, minimum, and standard deviation values of each variable based on 711 observations.

The average ROA of 0.0629 or 6.29% indicates that the sample company is generally able to generate a net profit of around 6% of total assets. The maximum value of ROA reached 55.7%, while the minimum value of -22.3% indicated that there were companies that suffered



losses. The standard deviation of 0.086 indicates that there is a fairly high variation between companies in utilizing assets to generate profits.

The average ESG score was recorded at 38.69, with a high score of 75.76 and a low of 12.52. This reflects that most companies are still at a mid-level in implementing sustainability practices. The standard deviation of 13.35 shows that there is a fairly wide difference between companies that have high and low ESG performance.

The operational efficiency proxied with TAT has an average of 0.778, meaning that every one unit of assets owned generates an average of 0.77 units of sales. A maximum TAT value of 4.22 indicates a company with high efficiency, while a minimum value of 0 indicates that there are companies that do not generate sales in a certain period.

Company size (SIZE) has an average value of 30.81 obtained from the natural logarithm of total assets, with relatively low variation (standard deviation of 1.118). This shows that most of the sample consists of large companies that tend to be homogeneous.

The capital structure proxied with DER shows an average of 0.785, meaning that most companies fund their assets with a debt ratio of 78% to equity. However, a very high maximum value of DER (12.33) indicates that there are companies with extreme leverage, while a minimum value of 0 indicates that there is a company without the use of debt. The high standard deviation (1.179) also supports the large variation between companies regarding funding structures.

In addition, the normality test with Jarque-Bera showed that all variables had a probability value of < 0.05 , so the data was not normally distributed. This is common in panel financial data and can be handled with appropriate estimation techniques such as panel regression with a fixed effect or random effect approach.

Overall, the results of the descriptive analysis show that there is considerable diversity between companies in terms of financial performance, ESG implementation, operational efficiency, size, and capital structure. This variation provides an empirical justification that further testing through panel regression analysis is needed to find out the relationships between variables.

Chow Test

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistics	D.F.	Prob.
Cross-section F	12.056234	(79,627)	0.0000
Cross-section Chi-square	656.879153	79	0.0000

Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistics	Chi-Sq. D.F.	Prob.



Cross-section random	18.044196	4	0.0012
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The results of Chow's test showed a Cross-section value of F of 12.056 with a probability of 0.0000, and a Cross-section value of Chi-square of 656.879 with a probability of 0.0000. Both probability values smaller than 0.05 indicate that the null hypothesis is rejected. Thus, the panel regression model is more accurately estimated using the Fixed Effect Model (FEM) than the Common Effect Model (CEM). This implies that there are differences in company-specific characteristics between companies in the sample that affect the relationship between ESG, operational efficiency, and financial performance, so that the use of FEM is able to capture these variations more accurately.

The results of Hausman's test showed a Chi-Square value of 18.044 with a probability of 0.0012, which is smaller than the significance level of 0.05. Thus, the zero hypothesis is rejected and the most suitable model is the Fixed Effect Model (FEM) rather than the Random Effect Model (REM). These results indicate that differences in characteristics between firms in the sample correlate with the independent variables used, so the FEM approach is more appropriate to capture these variations in the analysis of the relationship between ESG, operational efficiency, and financial performance.

Multicollinearity Test

	ESG_	TAT_	SIZE_	DER_
ESG_	1.000000	-0.017560	0.388766	0.012036
TAT_	-0.017560	1.000000	-0.259759	-0.187057
SIZE_	0.388766	-0.259759	1.000000	0.204631
DER_	0.012036	-0.187057	0.204631	1.000000

The multicollinearity test aims to find out if there is a strong linear relationship between independent variables in the regression model. From the results of the intervariable correlation test, the highest correlation value between SIZE and ESG was 0.388, while the lowest correlation value was found between ESG and TAT of -0.0175. Overall, the entire correlation value was below 0.80.

This relatively low correlation value suggests that there is no indication of serious multicollinearity between independent variables. Thus, all independent and control variables, namely ESG, TAT, SIZE, and DER, can be used simultaneously in a panel regression model without causing estimation distortion.

Heteroscedasticity Test

Model 1

F-statistic	33.78939 Prob. F(4,706)	0.0000
Obs*R-squared	114.2438 Prob. Chi-Square(4)	0.0000
Scaled explained SS	342.5955 Prob. Chi-Square(4)	0.0000



Model 2

F-statistic	24.41681 Prob. F(5,705)	0.0000
Obs*R-squared	104.9491 Prob. Chi-Square(5)	0.0000
Scaled explained SS	316.8830 Prob. Chi-Square(5)	0.0000

The Heteroscedasticity test was carried out with the Breusch-Pagan-Godfrey test, Model 1 tested the influence of ESG on financial performance, while Model 2 added operational efficiency interaction as a moderation variable. The results of the heteroscedasticity test in Model 1 showed a probability of Obs*R-squared of 0.000 and the results of the heteroscedasticity test in Model 2 showed a probability of Obs*R-squared of 0.000, both of which were below the significance level of 0.05. This identified that both models underwent heteroscedasticity tests. Based on the Breusch-Pagan-Godfrey test, all regression models show an indication of heteroscedasticity indicated by a probability value of less than 0.05. To overcome this problem, the study used the Generalized Least Square (GLS) method with cross-section weight in the regression of the main approach. The purpose of using GLS is to obtain parameter estimation that remains efficient and unbiased even though the residual variance is not constant. By taking into account the inequality of error variance, GLS allows regression models to produce reliable coefficients and valid statistical tests, so that the relationships between variables can be analyzed more accurately.

Hypothesis Test

Model 1

$$ROA_{it} = \alpha + \beta_1 \cdot ESG_{it} + \beta_2 \cdot TAT_{it} + \beta_3 \cdot SIZE_{it} + \beta_4 \cdot DER_{it} + \mu_i + \epsilon_{it}$$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.464143	0.131941	-3.517805	0.0005
ESG_	-0.000664	0.000135	-4.907277	0.0000
TAT_	0.064566	0.007240	8.918273	0.0000
SIZE_	0.016645	0.004331	3.843468	0.0001
DER_	-0.013118	0.002090	-6.277100	0.0000

Model 2

$$ROA_{it} = \alpha + \beta_1 \cdot ESG_{it} + \beta_2 \cdot TAT_{it} + \beta_3 \cdot (ESG_{it} \times TAT_{it}) + \beta_4 \cdot SIZE_{it} + \beta_5 \cdot DER_{it} + \mu_i + \epsilon_{it}$$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.436845	0.130608	-3.344700	0.0009
ESG_	-0.001034	0.000169	-6.103378	0.0000
TAT_	0.045240	0.008593	5.264653	0.0000
ESG__TAT_	0.000603	0.000150	4.032536	0.0001



SIZE_	0.016097	0.004290	3.752204	0.0002
DER_	-0.011954	0.002063	-5.793367	0.0000

The results of the Model 1 regression showed that the ESG variable had a significant negative effect on financial performance with a coefficient of -0.000664 and a probability value of 0.0000 (<0.05). This means that the higher the ESG score, the company's financial performance decreases. These findings indicate that ESG implementation still has cost consequences, for example for environmental compliance, social programs, and governance, which in the short term suppress profitability. These findings are in line with Truong et al. (2025) who found that ESG negatively impacts ROA due to high implementation costs, especially in areas with low internal efficiency. The study explains that companies that improve their ESG scores often face rising costs in the early stages, such as the cost of green technologies, sustainable social programs, and strengthening governance mechanisms, all of which can reduce short-term profits. Furthermore, these results are also consistent with the findings of Salimatusyadiah et al. (2025) which affirm that ESG can reduce the value of a company if it is not balanced with a healthy operational efficiency strategy and capital structure. According to them, ESG practices without efficiency support will only increase the cost burden without generating comparable financial benefits. Thus, the findings of this study reinforce the empirical evidence that the implementation of ESG does have the potential as a source of competitive advantage, but in reality it is more often perceived as a burden that suppresses financial performance if the company has not been able to integrate it effectively in business strategy and operational efficiency.

The results of the Model 2 regression showed that the interaction variable between ESG and operational efficiency (ESG*TAT) had a significant positive effect on financial performance with a coefficient of 0.000603 and a probability of 0.0001 (<0.05). This indicates that operational efficiency plays an important role as a moderator that is able to weaken the negative impact of ESG on financial performance. In other words, while ESG directly has a significant negative impact on profitability, companies that are able to efficiently manage their assets can reduce the cost burden of ESG implementation, so that the influence of ESG on financial performance turns out to be more profitable. These findings show that ESG's success in providing financial added value is inseparable from a company's ability to optimize internal efficiency. These findings support Truong et al. (2025) who explain that ESG can only contribute positively to profitability if it is internalized into efficient operational systems, and with Ridwan and Alghifari (2025) who found that the positive relationship between ESG and ROA is only significant in companies with high levels of efficiency. In addition, this result is also strengthened by Salimatusyadiah et al. (2025) who show that efficiency is a key factor in maximizing ESG benefits on company value. Thus, this study emphasizes that operational efficiency does not only play a role as a technical factor, but also as a strategic variable that ensures that investments in ESG practices can be translated into improved financial performance.

4. CONCLUSION

This study aims to analyze the effect of Environmental, Social, and Governance (ESG) on financial performance and to examine the role of operational efficiency as a moderating variable. Based on panel data regression of 80 non-financial companies listed on the Indonesia



Stock Exchange during the period 2014–2023 with a total of 711 observations, several key findings were obtained.

First, ESG was found to have a significant negative effect on financial performance as measured by Return on Assets (ROA). This finding indicates that the implementation of ESG still entails substantial costs, such as environmental compliance, green technology investment, social programs, and governance mechanisms, which in the short term reduce profitability. This result is consistent with previous studies showing that ESG may decrease financial performance if not supported by internal efficiency and a healthy capital structure.

Second, the analysis shows that operational efficiency, measured by Total Asset Turnover (TAT), plays a significant role in moderating the relationship between ESG and financial performance. The interaction variable ESG*TAT has a significant positive effect on ROA, meaning that operational efficiency is able to mitigate the negative impact of ESG and even transform it into a positive contribution to profitability. Thus, companies that manage their assets more efficiently are more capable of absorbing the additional costs of ESG implementation without sacrificing financial performance.

These findings highlight that the success of ESG in delivering financial value does not merely depend on sustainability commitment but also on internal strategies to optimize efficiency. Essentially, ESG has the potential to create competitive advantage, but such benefits can only be realized if companies are able to integrate it into effective and efficient operational practices.

Theoretically, this study contributes to the literature by enriching empirical evidence on the relationship between ESG and financial performance in the context of emerging markets, particularly Indonesia. Practically, the results provide important implications for corporate management, suggesting that adopting ESG policies for regulatory compliance alone is insufficient. Companies must also ensure internal efficiency in resource management so as to maximize long-term financial value and strengthen competitiveness in the market.

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