

Green Fund Ownership and Return on Assets on the Total Assets of Coal Mining Companies Listed on the Indonesia Stock Exchange

Firman Firman ¹ Heriswanto Heriswanto ² Mahfudnurnajamuddin Mahfudnurnajamuddin ^{3*}

^{1, 3*} Program Pascasarjana, Universitas Muslim Indonesia, Makassar, Indonesia

² Universitas Lakidende Unaaha, Konawe, Indonesia

Email: mahfud.nurnajamuddin@umi.ac.id

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ABSTRACT

Purpose: The study aims to determine the effect of green fund ownership and return on assets on total assets in coal companies listed on the Indonesia Stock Exchange. Green fund ownership is proxied by ESG ownership, while profitability is proxied by return on assets (ROA).

Research Method: This research used a quantitative approach using secondary data. The sample selection technique used purposive sampling, with 10 companies sampled at four-year intervals, resulting in a total sample of 40 companies. The data analysis methods used were descriptive analysis, classical assumption tests, normality tests, multicollinearity tests, heteroscedasticity tests, autocorrelation tests, multiple linear regression tests, T-tests, and F-tests using the Statistical Package for the Social Sciences (SPSS) application.

Results and Discussion: The findings of this study indicate that green fund ownership and return on assets each have a positive and significant effect on total assets in coal companies listed on the Indonesia Stock Exchange (IDX).

Implications: The results reinforce the argument that institutional investors with environmental, social, and governance (ESG) preferences may encourage firms to adopt sustainable business practices, thereby enhancing their ability to attract capital and expand their asset base.

Originality: This research contributes empirical evidence from an emerging economy, specifically Indonesia, where studies investigating the interaction between ESG-oriented ownership, financial performance, and corporate asset growth remain limited.

Keywords: green funds; return on assets; total assets; environmental, social, and governance; ESG.

1. Introduction

One of the Indonesian government's strategic initiatives to address environmental and social challenges is implementing the Environmental, Social, and Governance (ESG) framework through the issuance of various regulations supporting ESG adoption. According to the Ministry of Finance of the Republic of Indonesia (2022), green funds are measured by the amount of capital mobilized from multiple financing sources, including green sukuk, blended finance, and international climate funds, which are allocated to finance energy transition projects and climate change mitigation initiatives. Furthermore, Amidjaya and Widagdo (2020), as cited in Gresella and Nera (2025), argue that green funds can also be assessed based

on the effectiveness of their utilization in promoting green investment and achieving carbon emission reduction targets. Such effectiveness ultimately contributes to fiscal sustainability by improving government expenditure efficiency and increasing public revenue generated from the green energy sector. Quantitatively, green funds are commonly operationalized as the proportion of green financing relative to total investment or as the nominal value of green funds disbursed within a given period. These measures are subsequently analyzed in relation to fiscal sustainability indicators, such as the budget deficit ratio, debt-to-GDP ratio, and green tax revenue.

Peng and Zheng (2021) demonstrate that green finance, including green funds, has a positive impact on energy efficiency and the sustainability of the energy sector by supporting investments that foster environmentally friendly technological innovation and improve environmental management practices. Moreover, financing the energy transition through green funds creates new economic opportunities, including employment generation in renewable and low-carbon energy industries, while strengthening corporate commitment to sustainable business practices. Consequently, green funds have become an essential financial instrument for promoting both financial and environmental sustainability within the energy sector during the transition toward a low-carbon economy. These global environmental challenges have heightened awareness among both domestic and international investors regarding the importance of integrating Environmental, Social, and Governance (ESG) principles into corporate operations and long-term business development. This shift is largely driven by increasing public concern over global warming and the growing severity of climate change (Martha & Khomsiyah, 2023). ESG factors, encompassing environmental, social, and governance dimensions, serve as indicators of a firm's non-financial performance (Al-Amin *et al.*, 2022). The environmental dimension primarily addresses issues related to environmental protection, climate change mitigation, and the ecological impacts of business operations (Asbullah *et al.*, 2023).

The ESG framework has become a key consideration for both institutional and individual investors in evaluating corporate performance (Kim & Li, 2021). Similarly, the United Nations Principles for Responsible Investment (UN PRI) encourage investors to incorporate ESG considerations into investment decision-making and corporate performance assessments (Pandey, 2022). Beyond investors, stakeholders such as creditors, governments, and environmental regulatory authorities increasingly evaluate corporate contributions to sustainable development as evidence of a firm's commitment to balancing economic prosperity, social responsibility, and environmental stewardship, commonly referred to as the triple bottom line (Junius *et al.*, 2020). Investing in companies that actively implement ESG practices can enhance corporate reputation by strengthening stakeholder trust and generating positive perceptions among investors and the broader public (Wahyudi & Anggraini, 2022). The concept of Environmental, Social, and Governance (ESG) investing can be traced back to the 2004 report *Who Cares Wins*, published under the United Nations Global Compact, in which more than twenty of the world's leading financial institutions emphasized that the effective integration of ESG issues is fundamental to sound corporate management and long-term value creation (The Global Compact, 2004). Since then, ESG has evolved into a widely recognized investment paradigm and is frequently used to describe investment strategies that incorporate environmental and social considerations alongside traditional financial objectives (Hill, 2020). The mining sector plays a pivotal role in supporting national economic growth and sustainable development. Revenue generated from Indonesia's mineral and coal mining industry (Minerba) has made a substantial contribution to the national budget, exceeding IDR 127.9 trillion, or 301.88% of the government's target of IDR 42.37 trillion in 2022. Recognizing the

strategic importance of sustainable development, the Indonesian government, through its financial regulatory authority, issued Financial Services Authority (OJK) Regulation No. 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Service Institutions, Issuers, and Public Companies. This regulation encourages companies to integrate environmental, social, and governance (ESG) principles into their business operations and reporting practices.

A growing body of empirical evidence suggests that stronger ESG disclosure enhances corporate performance by improving corporate reputation, strengthening stakeholder confidence, and promoting ethical business practices (Kumar & Firoz, 2022). Similarly, studies by Triyani *et al.*, (2020) and Giannopoulos *et al.*, (2022) report a significant positive relationship between ESG disclosure and corporate financial performance. Makhdalena *et al.*, (2023) further argue that ESG disclosure reduces information asymmetry between firms and their stakeholders, thereby enhancing organizational performance. Likewise, Alareeni (2020) finds that higher levels of ESG disclosure contribute positively to corporate operational performance. These findings are particularly relevant to mining companies, whose operations have substantial environmental impacts and are therefore subject to increasing scrutiny from regulators, investors, and society. One of the most widely used indicators of corporate financial performance is Return on Assets (ROA). ROA is considered a comprehensive profitability ratio because it measures a company's ability to generate earnings from its total asset base (Wijaya, 2019). According to Khamisah *et al.*, (2020), ROA reflects the efficiency with which an organization utilizes its assets to generate profits. Furthermore, Alimah and Sihono (2024) argue that a higher ROA indicates superior corporate performance, as it demonstrates a greater capacity to produce earnings from available resources.

The present study is particularly relevant because it lies at the intersection of several contemporary issues, including global climate change, the increasing adoption of ESG principles, and the growing need for green financing to support the energy transition. These issues are especially significant within the energy and mining sectors, which make substantial contributions to national economic development while simultaneously posing considerable environmental challenges. Moreover, the implementation of sustainable finance regulations in Indonesia, together with the evolving preferences of investors who increasingly incorporate environmental, social, and governance considerations into investment decisions, highlights both the academic significance and practical relevance of this research. Consequently, examining the relationship between green fund ownership, financial performance, and corporate asset growth provides valuable insights into how sustainable investment can support long-term corporate development in environmentally sensitive industries.

The remainder of this paper is organized as follows. Section 2 provides a literature review and hypothesis development. Section 3 presents the research method and design. Section 4 provides the results and discussion. Section 5 presents Concluding Remarks and Recommendations.

2. Literature Review and Hypothesis Development

Stakeholder Theory, originally developed by R. Edward Freeman (1984), posits that a corporation's responsibilities extend beyond maximizing shareholder wealth to creating value for all stakeholders. These stakeholders include shareholders, investors, employees, creditors, customers, governments, local communities, and the natural environment. According to this theory, long-term organizational success depends on a firm's ability to balance and satisfy the diverse interests of these stakeholder groups.



Consequently, corporate decisions should be evaluated not only on their financial outcomes but also on their social, environmental, and governance impacts. Within the context of sustainable business practices, Stakeholder Theory provides a robust theoretical foundation for explaining why companies increasingly integrate Environmental, Social, and Governance (ESG) principles into their strategic decision-making and operational activities to strengthen stakeholder trust, legitimacy, and long-term corporate performance. This study examines the relationship between green fund ownership—represented by ESG ownership and ESG-oriented investors—and Return on Assets (ROA) as the independent variables, and Total Assets as the dependent variable, among coal mining companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. Green fund ownership refers to investment held by institutions or investors that prioritize Environmental, Social, and Governance (ESG) principles in their investment decisions. Such investors seek to allocate capital to companies that demonstrate strong environmental stewardship, social responsibility, and sound corporate governance, thereby promoting sustainable value creation and long-term corporate resilience.

Empirical evidence from previous studies supports the proposed relationship between these variables. Haq and Ramli (2024) found that green funds have a positive and significant effect on corporate financial performance, as measured by Return on Assets (ROA) and Total Assets. Their findings indicate that greater investment in environmentally oriented financial instruments enhances a firm's ability to generate profits from its asset base. The study further suggests that adopting sustainable investment practices produces not only environmental benefits but also tangible economic advantages, particularly through improved profitability and corporate growth.

Drawing upon the relevant theoretical foundations and prior empirical findings, this study develops a conceptual framework to examine the influence of the independent variables on the dependent variable. Specifically, green fund ownership (ESG ownership) and Return on Assets (ROA) are proposed as the independent variables, while Total Assets serve as the dependent variable. This framework is intended to explain how sustainable investment ownership and corporate profitability jointly contribute to asset growth within Indonesia's coal mining industry. Based on the theoretical framework and prior empirical evidence, two main hypotheses are proposed to examine the effects of green fund ownership and Return on Assets (ROA) on the total assets of coal mining companies listed on the Indonesia Stock Exchange (IDX). These hypotheses are formulated to assess the extent to which ESG-oriented ownership and corporate profitability contribute to corporate asset growth.

H1: *ESG ownership has a positive and significant effect on the total assets of coal mining companies listed on the Indonesia Stock Exchange (IDX).*

H2: *Return on Assets (ROA) has a positive and significant effect on the total assets of coal mining companies listed on the Indonesia Stock Exchange (IDX).*

3. Research Method

This study adopts a quantitative research approach using an associative research design to examine the relationships between the independent and dependent variables. The study utilizes secondary quantitative data obtained from the official website of the Indonesia Stock Exchange (IDX) (www.idx.co.id), particularly the Annual Reports and Sustainability Reports published by the sample companies. The dataset covers a four-year observation period from 2020 to 2023, while the research activities, including data collection, processing, and analysis, were conducted between October 2025

and March 2026. Data were collected through documentary analysis by accessing corporate Sustainability Reports and Annual Reports available on the Indonesia Stock Exchange (IDX) website and the IDX Investment Gallery of the Faculty of Economics and Business, Universitas Muslim Indonesia. These reports provide comprehensive information regarding ESG ownership, financial performance, and corporate assets, thereby serving as reliable sources for measuring the variables employed in this study.

The population consists of coal mining companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. The sample was selected using a purposive sampling technique based on predetermined selection criteria to ensure the availability and completeness of the required data throughout the observation period. Data analysis was conducted using panel data regression analysis, a statistical technique that examines the relationship between independent and dependent variables by combining cross-sectional and time-series observations. Panel data regression enables researchers to capture both differences across firms and changes within firms over time, thereby improving estimation efficiency, controlling for unobserved heterogeneity, and producing more robust and informative empirical results. To examine the effects of green fund ownership (ESG ownership) and Return on Assets (ROA) on Total Assets, the following panel regression model is specified:

$$\{Total\ Assets\} \{it\} = \alpha + \beta_1\{ESG\ Ownership\} \{it\} + \beta_2\{ROA\} \{it\} + \beta_3 \{Controls\} \{it\} + \epsilon_{it}$$

Where:

Total Assets = dependent variable representing firm size and asset accumulation.

ESG Ownership = proportion of ownership held by ESG-oriented or green fund investors.

ROA = Return on Assets, representing corporate profitability.

Controls = control variables included to reduce omitted-variable bias.

α = intercept (constant term).

β_1 – β_3 = estimated regression coefficients.

ϵ = error term.

i = individual firm.

t = observation year.

The control variables incorporated in the regression model include firm size, leverage, asset intensity, and firm growth, as these factors have been widely recognized in the literature as determinants of corporate asset growth and financial performance. Including these variables enhances the robustness of the empirical model by isolating the effects of ESG ownership and profitability on corporate total assets.

4. Results and Discussion

4.1 Analysis Results

This study addresses the research problem by interpreting the empirical findings. Multiple linear regression analysis was employed to examine the effects of the independent variables, namely Green Fund Ownership (X_1) and Return on Assets (ROA) (X_2), on the dependent variable, Total Assets (Y). This analytical approach enables the simultaneous assessment of the individual and combined contributions of the independent variables to variations in corporate total assets. Based on the results of the multiple linear regression analysis, the estimated regression equation is presented as follows:

$$Y = 1.025.587.990.078 + 25.366.978.959X_1 + 60X_2 \quad (1)$$

The estimated regression equation can be interpreted as follows. The constant term of 1,025,587,990.078 indicates that when Green Fund Ownership and Return on Assets (ROA) are assumed to be zero, the estimated value of Total Assets is 1,025,587,990.078, holding all other factors constant. The regression coefficient for Green Fund Ownership (X_1) is 25,366,978.959, indicating that a one-unit increase in Green Fund Ownership is associated with an increase of 25,366,978.959 units in Total Assets, assuming that all other variables remain constant. This positive coefficient suggests that greater ownership by ESG-oriented or green fund investors contributes to corporate asset growth. The regression coefficient for Return on Assets (ROA) (X_2) is 60, indicating that a one-unit increase in ROA is associated with an increase of 60 units in Total Assets, *ceteris paribus*. This positive relationship implies that higher profitability enhances a firm's capacity to accumulate assets through internally generated financial resources.

Tabel 1. Coefficients

Variable	B	Std Error	Beta	t	Sig
Constant	1.025.587.990.078	6.632.989.756		154.619	0.000
Green Funds (X1)	25.366.978.959	419.154.332	0.656	60.519	0.000
Return on Asset (X2)	60.000	0.865	0.752	69.354	0.000

4.1.1 T-Test (Partial test)

Partial significance test (t-test) was conducted to determine whether each independent variable individually exerts a statistically significant effect on the dependent variable.

4.1.1.1 Effect of Green Fund Ownership on Total Assets

The Green Fund Ownership (X_1) variable produced a t-statistic of 60.519 with a significance value (p-value) of 0.000. Since the p-value is lower than the conventional significance level of 0.05, the null hypothesis is rejected. Therefore, it can be concluded that Green Fund Ownership has a positive and statistically significant effect on Total Assets. This finding indicates that higher ownership by ESG-oriented or green fund investors is associated with greater corporate asset accumulation.

4.1.1.2 Effect of Return on Assets on Total Assets

The Return on Assets (ROA) (X_2) variable yielded a t-statistic of 69.354 with a p-value of 0.000. Because the p-value is below the 0.05 significance threshold, the null hypothesis is rejected. Accordingly, Return on Assets has a positive and statistically significant effect on Total Assets. This result suggests that firms with higher profitability tend to possess larger total assets, reflecting their greater ability to generate internal financial resources that support asset growth and long-term business expansion.

Table 2. T- Test

Variable	t calculated	Sig	Description
Green Funds Ownership	60.519	0.000	Significant effect
Return On Asset	69.354	0.000	Significant effect

4.1.2 Simultaneous Test (F-test)

The F-test was conducted to examine whether the independent variables jointly have a statistically significant effect on the dependent variable. Based on the Analysis of Variance (ANOVA) results, the model produced an F-statistic of 4.236.255 with a significance value (p-value) of 0.000. Since the p-value is below the conventional significance threshold of 0.05, the null hypothesis is rejected. Therefore, it can be concluded that Green Fund Ownership and Return on Assets (ROA) jointly exert a positive and statistically significant effect on Total Assets. These findings indicate that the regression model is statistically significant and that the two independent variables collectively explain a significant proportion of the variation in corporate total assets among coal mining companies listed on the Indonesia Stock Exchange (IDX).

Table 3. ANOVA (F-test)

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1.439E+19	2	7.198E+18	4236.255	0.000
Residual	6.287E+17	37	1.699E+16		
Total	1.446E+19	39			

4.1.3 Coefficient of Determination (R^2)

The coefficient of determination (R^2) was employed to assess the extent to which the independent variables explain the variation in the dependent variable. Based on the Model Summary results, the correlation coefficient (R) was 0.998, indicating a very strong relationship between the independent variables and the dependent variable. Furthermore, the coefficient of determination (R^2) was 0.996, suggesting that 99.6% of the variation in Total Assets is explained jointly by Green Fund Ownership and Return on Assets (ROA). The remaining 0.4% of the variation is attributable to other factors not included in the regression model. These findings demonstrate that the proposed model possesses very high explanatory power, indicating that Green Fund Ownership and ROA are the primary determinants of variations in Total Assets among the sampled coal mining companies listed on the Indonesia Stock Exchange (IDX).

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std Error	Durbin Watson
1	0.998	0.996	0.995	41.223.415.92	1.237

4.1.4 Dominant Variable

The dominant variable can be identified by comparing the standardized beta coefficients (Standardized Beta) obtained from the regression analysis. The independent variable with the largest standardized beta coefficient is considered to have the strongest relative influence on the dependent variable, after accounting for differences in the measurement scales of the variables. Based on Table 5, Return on Assets (ROA) is the most dominant variable influencing Total Assets, as it has the largest standardized beta coefficient ($\beta = 0.752$) among the independent variables. This finding indicates that ROA exerts the strongest relative effect on Total Assets after standardizing the measurement scales of all variables included in the regression model.

Table 5. Dominant Variable

Variable	Beta	Description
Return on Asset	0.752	Most Dominant
Green Funds Ownership	0.656	Dominant

4.2 Discussion

4.2.1 Effect of ESG Ownership on Total Assets

Green fund ownership, represented by ESG-oriented ownership, reflects the extent to which a company adopts Environmental, Social, and Governance (ESG) principles in its business strategy and investment practices—improved Access to Capital. The empirical results indicate that ESG ownership has a positive and statistically significant effect on Total Assets ($t = 60.519$, $p < 0.001$). This finding suggests that companies with a higher proportion of ESG-oriented investors tend to possess larger asset bases. As investors increasingly incorporate sustainability considerations into their investment decisions, firms demonstrating strong ESG performance are more likely to attract long-term capital. Sustainable investment inflows enhance corporate equity and expand the firm's financial capacity to acquire productive assets: competitive Advantage and Operational Efficiency. Investment supported by green funds frequently finances environmentally friendly technologies and sustainable operational improvements. Although such investments may require substantial initial expenditures, they enhance operational efficiency, reduce environmental risks, and strengthen long-term corporate competitiveness. Consequently, these investments contribute to the accumulation of modern productive assets and improve the company's overall financial position: corporate Reputation and Asset Expansion. Green fund ownership also serves as a positive market signal regarding a firm's commitment to sustainability. Enhanced stakeholder confidence increases corporate credibility and investor trust, thereby facilitating access to external financing and supporting both tangible and intangible asset growth, including investments in technology, intellectual property, and corporate goodwill.

4.2.2 Effect of Return on Assets on Total Assets

Return on Assets (ROA) measures the efficiency with which a company utilizes its assets to generate profits. The regression results reveal that ROA is the most influential independent variable affecting Total Assets, as indicated by the largest standardized beta coefficient ($\beta = 0.752$). Self-Sustaining Growth. The statistically significant relationship ($p < 0.001$) demonstrates that firms generating higher returns from existing assets possess greater internally generated cash flows. These financial resources can subsequently be reinvested into productive assets, enabling continuous corporate expansion. This finding supports the concept of self-sustaining growth, whereby profitability becomes the primary driver of long-term asset accumulation—economies of Scale. As the dominant explanatory variable, ROA highlights that managerial efficiency in generating profits has a stronger influence on firm size than investment ownership alone. Highly profitable companies generally enjoy greater access to external financing because creditors perceive them as financially sound and capable of meeting debt obligations. Consequently, profitable firms are better positioned to leverage additional capital to expand their asset base. Asset Quality. The positive association between ROA and Total Assets further indicates that the assets owned by the sampled firms are productive rather than idle. Efficient asset

utilization generates higher returns, which, in turn, facilitate further investment and organizational growth, creating a virtuous cycle of profitability and asset expansion.

4.2.3 Simultaneous Effect and Coefficient of Determination (R^2)

The regression model produced a remarkably high coefficient of determination ($R^2 = 0.996$), indicating that 99.6% of the variation in Total Assets is jointly explained by ESG Ownership and Return on Assets. A Highly Explanatory Model. This exceptionally high R^2 suggests that the combined effects of sustainable investment ownership and corporate profitability overwhelmingly explain fluctuations in corporate Total Assets. Only 0.4% of the variation remains attributable to factors outside the model, such as macroeconomic conditions, regulatory changes, industry competition, or other firm-specific characteristics. Strategic Synergy between ESG Investment and Profitability. The findings demonstrate that corporate growth is driven not only by financial performance but also by sustainable investment. Green fund ownership provides access to long-term capital and strengthens investor confidence, while ROA reflects management's effectiveness in utilizing available resources to generate profits. Together, these two factors create a complementary mechanism in which sustainable financing supplies the capital necessary for investment, and profitability ensures the efficient utilization of those resources. Therefore, companies seeking long-term asset growth should simultaneously strengthen ESG-oriented investment strategies and maintain high levels of operational profitability.

5. Concluding Remarks and Recommendation

This study demonstrates that Green Fund Ownership has a positive and statistically significant partial effect on the Total Assets of coal mining companies listed on the Indonesia Stock Exchange (IDX). The findings indicate that greater ownership by ESG-oriented investors enhances firms' ability to attract sustainable capital, thereby facilitating corporate asset expansion and supporting long-term business growth. Furthermore, Return on Assets (ROA) is found to have a positive and statistically significant partial effect on Total Assets. Among the independent variables examined, ROA emerges as the most influential determinant of corporate asset growth. This finding suggests that while green financial instruments play an increasingly important role in today's investment landscape, a firm's core operational performance and financial fundamentals remain the primary drivers of sustainable business expansion. The study also reveals that the combination of Green Fund Ownership and ROA explains almost all of the variation in corporate Total Assets, highlighting the strong explanatory power of the proposed model. This finding is particularly significant because it suggests that changes in corporate asset growth can be largely predicted by two key factors: a firm's profitability and its commitment to sustainable investment. Accordingly, integrating sound financial performance with environmental responsibility represents a strategic foundation for achieving long-term corporate growth in environmentally sensitive industries.

From a practical perspective, these findings emphasize that corporate managers should not rely solely on improving financial performance but should also strengthen ESG-oriented investment strategies to enhance investor confidence and expand access to sustainable financing. Likewise, investors may consider ESG ownership and corporate profitability as complementary indicators when evaluating firms' long-term growth potential.

For future research, comparative studies are recommended to examine differences between companies included in sustainability indices, such as the SRI-KEHATI Index, and conventional firms in order to determine whether the dominance of ROA in explaining asset growth differs across these groups. In addition, future studies are encouraged to employ more advanced analytical techniques, such as Path Analysis or Structural Equation Modeling (SEM), to investigate whether ROA serves as a mediating variable in the relationship between Green Fund Ownership and Total Assets. Such approaches would provide a deeper understanding of the causal mechanisms through which sustainable investment influences corporate growth.

Statement of Use of Generative AI

During the preparation of this work, the author used generative artificial intelligence tools to support the scientific writing process. Grammarly was used to check grammar, refine writing style, and improve clarity in scientific writing. All interpretations, analyses, and conclusions presented in this study are the sole responsibility of the author.

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Corresponding author

Mahfudnurnajamuddin can be contacted at: mahfud.nurnajamuddin@umi.ac.id