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The Role of Financial Flexibility: ESG Performance, ROA and Firm Value

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Abstract: The purpose of this study was to determine and analyze the effect of ESG performance (ESG), ROA, and whether financial flexibility as a moderating or mediating variable on Firm Value. The population in this study are energy and mineral companies listed on the IDX for the period 2018-2022. Purposive sampling method was used to determine the number of samples that met the criteria and resulted in 12 companies as samples in the study. The research data uses secondary data obtained from the company's annual financial report, sustainability report and Thomson Reuter (Refinitiv) report. This study uses several tests, namely classical assumption testing, panel data regression, sobel test and Moderated Regression Analysis (MRA) using Eviews 13 statistical tools. ESG, ROA and Financial Flexibility simultaneously affect firm value with Leverage as control variables. Financial flexibility and ROA do not mediate ESG on Firm Value. Financial flexibility moderates ESG on firm value, but ROA does not moderate on firm value. It is proven that financial flexibility is a moderating variable for the influence of ESG on firm value where the role of the moderating variable of financial flexibility strengthens the influence of ESG on firm value. There are two main findings in the study, namely the role of financial flexibility can strengthen the influence of ESG performance on firm value and the joint role of ESG, ROA and financial flexibility with leverage as a control variable can increase firm value.

Keywords: ESG, ROA, Financial Flexibility and Firm Value

INTRODUCTION

ESG considerations provide a fresh perspective to business assessment and are gradually being integrated into the process of research and investment decision-making. Furthermore, a number of national securities exchanges and authorities have created policies and guidelines dictating that listed businesses must either report ESG-related information on a voluntary or mandatory basis. Establishing a robust ESG system would help firms become more sustainable in the long run and create new growth prospects. It is evident that ESG is critical to businesses' performance in today's globalized world (Deng et al., 2023; Ning & Zhang, 2023). The bulk of countries adopt a low-carbon growth strategy as a policy-oriented approach to economic recovery and development, emphasizing sustainable and eco-friendly

practices. On the green, low-carbon, and sustainable development contexts, the idea of environmental, social responsibility, and governance (ESG) based on sustainability development has drawn a lot of attention from a range of domains (Kluza et al., 2021).

Previous research on the relationship between firm worth and ESG performance has been conducted, but the findings have been inconsistent. Most people believe that there is a positive relationship between firm value and ESG performance (Gamba & Triantis, 2008; Li et al., 2021). Companies that demonstrate more commitment to sustainable development are more appealing to investors and have higher levels of competition. Furthermore, organizations with good ESG performance typically show strong profitability as well as risk management abilities, which boosts the value of the company. The majority of emerging market countries, according to (Engelhardt et al., 2021), deal with serious problems like a lack of materials, environmental contamination, poor governance, and insufficient regulation, all of which raise the risk associated with ESG. Thus, especially in emerging markets, taking into account ESG factors when making investment decisions can significantly improve investment performance.

On the other hand, most developed market economies have almost perfect organizations, extensive ESG investment policies, and low ESG risks. As a result, when making investment decisions within developed markets, both non-ESG and ESG investments perform well, and ESG investments have no distinct advantages. Investing in environmental, social, and governance (ESG) carries higher costs, and when resources are transferred from investors to stakeholders, the traditional profit maximization theory is violated, potentially lowering the profitability of a business and market value (Artiach et al., 2010; Friedman, 2007). Management may participate in ESG initiatives to enhance their personal image at the expense of shareholders; this will raise agency conflicts and reduce the firm's market value (Bae et al., 2021; Krüger, 2015). George et al. and Waddock and Graves (Ionescu et al., 2019) claim that an organization's reputation is directly impacted by its social rating and that there are benefits and drawbacks to ESG implementation that are similar to those of advertising campaigns. Therefore, increasing the firm's value and market valuation while strengthening ESG investments can reduce financing costs (Guido Giese, Linda-Eling Lee, Dimitris Melas, Zoltan Nagy, 2017).

The ability of a business to turn a profit while leveraging its capital, assets, and sales is defined as profitability. This ability is used for influencing investors' opinions of the business and its prospects for growth in the future. Because profitability gives an overview of the profits that a company can generate by using its assets, capital, and sales activities, it is an indicator that must be carefully considered and examined by the company in order to maintain business continuity. The more profitable a company is, the more interested investors will be in making investments, raising the company's worth. In this study, return on assets (ROA) is used as a proxy for profitability. The ability of the business to use its assets to produce profits for the business is referred to as ROA. In another means, return on assets (ROA) is a determine of how well a company uses its resources to turn a profit is referred to as profitability. The degree to which the management of the business is successful in realizing the maximum profits for the business is a good indicator of good financial performance. The profit that can be produced could be higher or as expected if the management is able to operate the business effectively and lower expenses to be smaller or more efficient while maintaining operational activities. The amount acquired, no matter how little, will impact the company's worth.

There is a marked increase in uncertainty in the business environment, and firms must overcome formidable obstacles to ensure sustainable development. It is recommended that companies improve their financial flexibility in order to manage progressively uncertain environments, avert negative consequences, and achieve sustainable development. Therefore, in order to minimize risks, businesses should be proactive and adaptable in their financial decisions, recognize and seize short-lived opportunities for growth in unpredictable contexts,

and modify their business plans. The ability to integrate financial resources, deal with system uncertainties, actively adapt to changes in the environment, and make the best financial behavior decisions is known as financial flexibility (Golden & Powell, 2000).

Environment, social responsibility, and the corporate governance are the main topics of environmental, social, and governance (ESG) performance, an assessment tool and concept for investments. It evaluates a company's environment, social responsibility, and the corporate governance, performance in detail. By giving stakeholders more non-financial data, it helps them evaluate the advantages and disadvantages of investments and make a clearer determination of the firm's investment worth (Li et al., 2021). Global non-ESG equity funds saw cumulative outflows of \$700 billion through February 2021, compared to cumulative inflows of \$450 billion for ESG equity funds, according to MSCI's 2021 Global Institutional Investor Survey. The primary forces behind global equity inflows are now ESG investment themes and strategies, and companies that perform well in this area are the top destinations for inflows. It demonstrates how crucial it is now to know a company's ESG performance in order to draw in customers and potentially alter investors' investment plans. When a company's good ESG performance data is gathered, understood, and assessed by the market, more creditors or investors might become aware of it and decide to invest in it. As a result, positive ESG performance data attracts capital to the company, boosting its internal cash reserves and financing capacity and, ultimately, its financial flexibility. As a result, there is some relationship between ESG performance and financial flexibility.

The ability to integrate financial resources, deal with system uncertainties, actively adapt to changes in the environment, and make the best financial behavior decisions is known as financial flexibility (Golden & Powell, 2000). Firms with adequate financial flexibility have three advantages when faced with significant adverse shocks: (1) They can quickly raise funds at a low cost to adjust to the capital structure and prevent financial distress (Ferrando et al., 2017); (2) they can better adapt to the external dynamic environment, minimize the negative effects of environmental uncertainty, increase the efficiency of innovation, and strengthen their core competitive advantages (HAO et al., 2022); and (3) they can reserve enough resources and capabilities, improve development potential, proactively create conditions, seize development opportunities, and achieve innovative economic development. As a result, businesses with financial flexibility are better equipped to manage risks in an unpredictable environment and accomplish sustainable development. Stated differently, companies that possess the ability to adjust to unfavorable circumstances and maintain stability in their operations are in fact financially flexible, as evidenced by the slight variations in stock returns observed in the capital market. Businesses must have sufficient financial resources in order to manage environmental uncertainties. According to (Gamba & Triantis, 2008), it is possible to preserve financial flexibility through raising internal cash reserves, strengthening debt financing capacity, and strengthening equity financing capacity.

The relationship between ESG, ROA and firm value has been the subject of numerous studies, but the results and perspectives presented in the literature are inconsistent. This paper suggests two research questions in an effort to fill in these gaps: (1) How does ESG affect the firm's value? (2) How does ROA affect the firm's value? What impact does financial flexibility have on the correlation between ESG, ROA and firm value?

This study makes the following contributions to the literature. First, it conducts an empirical analysis by selecting the data of ESG performance and ROA of listed companies in Indonesia's energy and mineral industry to offer reference suggestions for the entities. Furthermore, our analysis highlights the need for other factors to be taken into account in order to fully utilize market assets, such as the organization's internal capacity (e.g., financial flexibility). Secondly, as a mediating or moderating variable, financial flexibility is introduced in this study. The study's goal is to clarify the underlying mechanisms of the financial flexibility

constraint's role in the relationship between ESG performance, ROA and firm value through a mechanism of action analysis. This is an area that has received little attention from ESG and ROA research, but the study's findings highlight the importance of financial flexibility as one of the strategies' key organizational capabilities. Third, this paper aims to investigate the relationship between organizational financial factors (ROA) and ESG, strengthens our understanding of the integration of various business functions of organizations, and verifies this integration further. Ultimately, this paper conducts a heterogeneity analysis to improve comprehension of ESG investment and ROA profitability in Mineral and Energy companies. This analysis provides insights into how ESG performance and ROA can be strengthened in various settings by accounting for the various firm characteristics and contexts.

LITERATURE REVIEW

Environment, Social and Governance

An organization's approach to environmental, social, and governance (ESG) concerns demonstrates its sustainable performance. In the relevant literature, "ESG" is frequently used as an acronym. An organization's approach to environmental, social, and governance (ESG) concerns demonstrates its sustainable performance. In the relevant literature, "ESG" is frequently used as an acronym (Fatemi et al., 2018). The environmental component pertains to the viewpoint of the company regarding resource management. This encompasses energy efficiency, water disposal, circular economy, biodiversity maintenance, natural environment preservation, climate change mitigation, and greenhouse gas emissions. In order to establish and preserve social relationships, a company engages in a variety of activities aimed at its customers, employees, and human rights-related issues. These activities are all included in the social component of the business. Lastly, the corporate governance processes of a company that support the proper application of laws addressing social and environmental issues are referred to as the governance component.

We utilize Refinitiv's ESG score to measure sustainable performance. Different metrics for a company's sustainable performance have been employed in the literature that is currently in existence. The ESG ratings from Refinitiv (formerly Thomson Reuters) are being applied to proxy firms' sustainable performance in an increasing number of recent studies.

Return on Assets

An overview of the amount of profit the business has made while operating by making use of its financial resources is defined as profitability. Profit after taxes and interest are subtracted will be given to shareholders (stockholders) as a portion of the profit. A company's capacity to optimize the use of its assets is directly correlated with its profit margin. The other could argue that a high profit margin indicates strong management, which in turn indicates favorable future prospects for the business. Return on assets serves as a stand-in for the profitability ratio in this study. As explained by Heri (2016: 106), return on assets is a ratio that illustrates how assets contribute to net income. Return on assets, according to Harrison Jr., et al. (2013: 30), measures how well a company uses its resources to produce profits for its two primary sources of funding—its shareholders, who own shares in the company, and its creditors, to whom it owes money. This ratio is meant to show how much net profit is made for each rupiah that is included in total assets.

The greater the profits made from each embedded fund, the higher the rate of return on assets. On the other hand, each embedded fund can yield a smaller profit the lower the rate of return on assets. A high return on assets will impact a company's worth because investors' capital is influenced by the profit margin the business provides. A high return on assets indicates strong growth potential, which may encourage investors and potential investors to buy more shares. An improvement in firm value can be attributed to an increase in stock demand.

strengthened by earlier studies by (Nurhayati, 2013) and (Frederik et al., 2015), firm value is positively impacted by profitability (ROA).

Financial Flexibility

Financial flexibility can be described as "the ability of a firm to access and restructure its financing at a low cost" (Gamba & Triantis, 2008). It is "the ability of a firm to react effectively to unexpected modifications to its cash flows or its investment opportunities" (Bancel & Mittoo, 2011). More specifically, financial flexibility is the ability of an organization to maximize the value of the business, take advantage of investment opportunities, quickly obtain or modify resources, and provide resilience when faced with unforeseen future events (Bates et al., 2009; Beguin et al., 1999; Cherkasova & Kuzmin, 2018; DeAngelo et al., 2011; Denis & McKeon, 2012; Graham & Harvey, 2001; He et al., 2020; Ma & Jin, 2016; Zhang et al., 2020). After reviewing the literature, (Gryko, 2018) concluded that financial flexibility is important for businesses, but that how effective it is depends on the goals and capacity of the business to achieve and sustain financial flexibility. Financial flexibility is important for businesses in two main ways: first, it helps them avoid the costs of financial distress during a crisis, and second, it helps them minimize the problems brought on by underinvestment (Rashid & Abbas, 2011). Businesses these days must take more risks due to the complexity of the business markets they operate in. Enterprises with financial flexibility have various options to handle erratic future financing and investment demands.

According to (Gamba & Triantis, 2008), a company's financial flexibility is its capacity to seize unanticipated opportunities and handle unforeseen circumstances affordably. Firms with strong financial flexibility can withstand adverse shocks and quickly raise capital when lucrative prospects present themselves. As a result, we think that financially flexible firms ought to perform better and more steadily than other firms.

Firm Value

According to (Meehan et al., 2015), firm value is a multifaceted and expansive concept that is difficult to measure due to the lack of widely recognized and uniform methodologies. Various approaches employ disparate techniques to understand how businesses manage to generate value for both their stakeholders and shareholders. The concept of firm value is difficult to analyze because researchers have offered a number of theoretical explanations for it, but each has been shown to have flaws (Meehan et al., 2015). As a result, the concepts offered are only approximations of firm value and do not reveal a workable, universal method for calculating it. Despite this, various theories have been developed in an attempt to explain firm value from various perspectives. Firm value is traditionally believed to be solely correlated with the value of its shareholders, and increasing shareholder value is necessary to increase firm value. However, researchers have recently been criticizing this conventional idea of maximizing shareholders' value, arguing that a company's value should consider all stakeholders, not just shareholders (Lonkani, 2018).

The market value of outstanding shares is the firm's value. Firm value is the opinion that investors have of a company and is always correlated with stock prices; a high stock price indicates that investors believe the company is performing well, which can be a signal for investors (Ogolmagai, 2018). The amount that potential purchasers will pay to purchase the business is known as the firm value (Susilo, 2022). Thus, investors have higher expectations of a company based on its stock price and the amount of money they have invested.

Tobin's Q is what we use to stand in for Firm Value. Tobin's Q measures the ratio of a company's value to its total assets, with market capitalization and total liabilities making up the company's value. (Cherkasova & Kuzmin, 2018) Tobin's Q also gets frequently utilized,

particularly in studies concerning to firm value. Three factors are displayed by Tobin's Q score: the state of the company's shares (undervalued, average, or overvalued), the management team's asset management skills, and the potential for investment growth. Table 2 provides an interpretation of Tobin's Q score. (Hadiati & Muhammad Brilian Wahyudyatmika, 2023)

Table 2. Tobin's Q Score Interpretation

Tobin's Q Score	Interpretation
Tobin's $Q < 1$	Undervalued stock conditions, management failed to manage assets, and low investment growth potential.
Tobin's $Q = 1$	Average stock conditions, stagnant management in managing assets, and investment growth potential is not growing.
Tobin's $Q > 1$	The stock is overvalued, the management is successful in managing assets, and the investment growth potential is high.

Source:

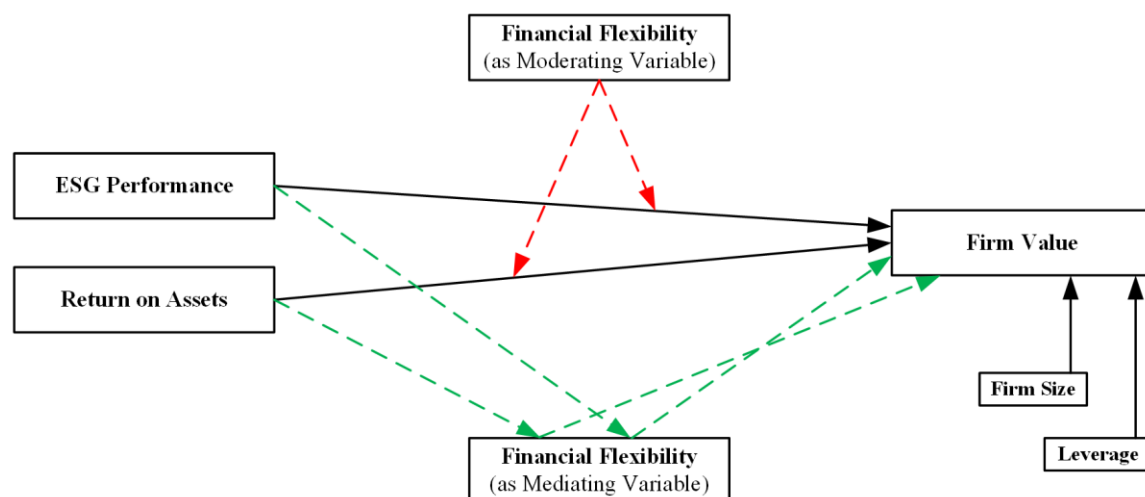
Firm Size

According to (Kim & Meivitananli, 2022), firm value and financial performance can be influenced by firm size. The firm's size is determined by its nominal dimensions, which include the amount of its assets or sales value.

Leverage

Leverage is a useful tool for determining a company's level of debt financing. When a company uses debt, it runs the risk of accruing interest costs, which will become a cost that the company must pay. A company's value declines in proportion to its leverage value because higher leverage means higher debt interest payments for the company to make (Etty et al., 2020).

Hypothesis Development



Source: Research Results

Figure 2. Research Framework and Hypothesis Development

Figure 2 illustrates the relationship between ESG performance ROA and firm value in the research framework and hypothesis development. It also shows how the presence of financial flexibility mediates or moderates this relationship. Firm Size and Leverage as control variables are also used in the framework. The analysis presented above leads this paper to suggest the following hypothesis.

Hypothesis 1 (H1) ESG effect Firm Value.

Hypothesis 2 (H2) ROA effect Firm Value.

Hypothesis 3 (H3) ESG effect Financial Flexibility.

Hypothesis 4 (H4) ROA effect Financial Flexibility.

Hypothesis 5 (H5) ESG, ROA, Financial Flexibility simultaneously affect Firm Value.

Hypothesis 6 (H6a) Financial Flexibility mediating ESG and Firm Value.

Hypothesis 6 (H6b) Financial Flexibility mediating ROA and Firm Value.

Hypothesis 7 (H7a) Financial Flexibility moderating ESG to Firm Value.

Hypothesis 7 (H7b) Financial Flexibility moderating ROA to Firm Value.

RESEARCH METHOD

Sample and Data Collection

The exchange-listed energy and mineral companies on the Indonesia Stock Exchange (IDX) are the subject of this study. Information will be gathered from Thomson Reuters, IDX, and the websites of the individual companies. Panel data from the five-year research period of 2018 to 2022 is used in the study. This study's sample was chosen using a purposive sampling technique, with specific criteria being taken into account. The following criteria must be met: companies that are publicly traded on the Indonesian stock exchange; companies that have consecutive annual reports; companies that have ESG Score data for five years running from 2018 to 2022; and companies that have all the data they require. The statistical program EViews 13 will be used to process the data and display regression analysis, classical assumption tests, and descriptive statistics.

Variable Measurement

Table 3. Measurement of Variable

Variable	Proxy	Scale of Measurement	Formula
Firm Value (Y)	TQ	Ratio	Tobin's Q = $\frac{\text{Total Asset} + \text{Total Liabilities}}{\text{Market Value}}$
ESG Score (X1)	ESG	Score	-
ROA(X2)	ROA	Ratio	$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$
Financial Flexibility (M/Mod)	FF	Percentage	FF = Cash Flexibility + Debt Flexibility
Firm Size	FS	Ratio	FS = Ln (Total Asset)
Leverage	Lev	Ratio	$\text{Lev} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$

Source:

Population and Sample

Research population: Companies in the energy and mineral sectors listed between 2018 and 2022 on the Indonesia Stock Exchange. To choose the sample for this study, purposeful sampling was used, which involves selecting samples based on a set of systematic and specific criteria. The requirements are:

Table 4. Sample Selection Criteria

No.	Criteria	Total
	All Energy and Mineral companies listed on the IDX until 2023	74
1	Energy and Mineral Companies that still listed on the IDX in the period 2018 - 2022	74
2	Energy and Mineral Companies that published their financial statements during the 2018 – 2022 period with complete data of ESG Score	12
Selected Samples		12

Source:

Based on the criteria, 12 companies were selected. The 12 Energy and Mineral Companies are:

Table 5. Samples of Energy and Mineral Companies

No.	Stock Name	Company Name
1	ADRO	Adaro Energy Tbk.
2	AKRA	AKR Corporindo Tbk.
3	BUMI	Bumi Resource Tbk.
4	ITMG	Indo Tambangraya Megah Tbk.
5	PGAS	Perusahaan Gas Negara (Persero) Tbk.
6	PTBA	Bukit Asam Tbk.
7	ANTM	Aneka Tambang (Persero) Tbk.
8	INCO	Vale Indonesia Tbk.
9	INKP	PT Indah Kiat Pulp & Paper Tbk.
10	INTP	Indocement Tunggul Prakarsa Tbk
11	SMGR	Semen Indonesia (Persero) Tbk.
12	TKIM	Pabrik Kertas Tjiwi Kimia Tbk.

Source:

Data Analysis Method

In order to determine the direct and indirect effects of a set of independent, moderated, or mediation and control variables on the dependent variable, the path analysis method is applied using EViews 13 to examine the pattern of relationship between variables. The following structural equation describes the path analysis model that was applied:

Model 1:

$$FF_{i,t} = \alpha + \beta_1 ESG_{i,t} + \beta_2 ROA_{i,t} + \varepsilon_{i,t}$$

Model 3

$$TQ_{i,t} = \alpha + \beta_1 ESG_{i,t} + \beta_2 ROA + \beta_3 FF_{i,t} + \beta_4 FS_{i,t} + \beta_5 Lev_{i,t} + \varepsilon_{i,t}$$

Model 2:

$$TQ_{i,t} = \alpha + \beta_1 ESG_{i,t} + \beta_2 ROA_{i,t} + \beta_3 FF_{i,t} + \beta_4 (ESG_{i,t} \times FF_{i,t}) + \beta_5 (ROA_{i,t} \times FF_{i,t}) + \beta_6 FS_{i,t} + \beta_7 Lev_{i,t} + \varepsilon_{i,t}$$

Information:

α	=	Constant
TQ	=	Tobin's Q
ESG	=	Environmental Social Governance
ROA	=	Return on Asset
FF	=	Financial Flexibility
FS	=	Firm Size

Lev = Leverage
 ε = Error Term

Hypothesis Test

Determination Coefficient Analysis (R^2)

In the purpose of this research, the determination test is conducted using adjusted R^2 . The findings are explained as follows:

1. When the Adjusted R^2 value nears 1, it indicates that the influence of the independent variables provides nearly all of the data required to calculate the variation of the dependent variable.
2. A decreasing contribution from the independent factors to the dependent variable is shown by an Adjusted R^2 value that comes toward zero.

F Test (simultaneous)

If every independent variable in the model affects the dependent variable at the same time, it can be determined using the F test. A significance level of 0.05 ($\alpha = 5\%$) has been set. With these requirements, the hypothesis can be accepted or rejected:

1. If the regression coefficient is not significant ($F > 0.05$) or the significance value $F < F$ table indicates that H_0 is accepted, then H_a is rejected. This indicates that no independent variable has a statistically significant impact on the dependent variable at the same time.
2. If the regression coefficient is significant ($F \leq 0.05$) or the F value $> F$ table indicates that H_0 is rejected, then H_a is accepted. This indicates that every independent variable has a substantial impact on the dependent variable at the same time.

T Test (partial)

The T test indicates the extent to which a single independent variable can account for a variation in the dependent variable. A significance level of 0.05 ($\alpha = 5\%$) has been set. With these conditions, the hypothesis will be accepted or rejected:

1. If the $t > 0.05$ indicates that H_0 is accepted, then H_a is rejected (meaning the regression coefficient is not significant). This indicates that there is a partial lack of meaningful relationship between the independent and dependent variables.
2. If the regression coefficient is significant ($t < 0.05$), then H_a is accepted and H_0 is rejected. This indicates that the independent variable significantly influences the dependent variable to some extent.

Sobel Test

Financial flexibility becomes the mediating/intervening variable selected for this research. The Sobel Test measures the degree of the indirect effects X on Y through mediation M in order to evaluate the mediation hypothesis. The path is multiplied to complete the equation:

1. $X \rightarrow M(a)$
 $M \rightarrow Y(b)$

Standard error $a = S_a$; Standard error $b = S_b$.

Standard error indirect effect $ab = S_{ab}$. The formula is:

$$S_{ab} = \sqrt{b^2 S_a^2 + a^2 S_b^2 + S_a^2 S_b^2}$$

t value for the coefficients ab the formula is:

$$t = \frac{ab}{S_{ab}}$$

In summary, a mediating impact can be identified when the t value be higher than the t table.

Moderated Regression Analysis

The Moderated Regression Analysis test has been applied to examine the effect of variable independent of the dependent variable on the moderation variable, financial flexibility. The dependent and independent variables get multiplied through this test, and the interaction value can be determined. In the research table, an interaction value is symbolized by Mod. This value will be useful in determining how far which independent variable, in the presence of moderating variable, influence dependent variable. The next step is estimated using a fixed effect data panel regression model, and the projected value of Mod is used to determine the moderation variable's significance.

RESEARCH RESULT AND DISCUSSION

Path Analysis

Calculation of Path Coefficient

$$\text{Equation 1: } FF = 47.48177 + 0.139363 \text{ ESG} + 0.371153 \text{ ROA}$$

$$\text{Equation 2: } TQ = -151.0629 - 0.001930 \text{ ESG} - 0.008688 \text{ ROA} + 1.584209 \text{ FF} - 0.186628 \text{ FS} + 157.7758 \text{ LEV}$$

$$\text{Equation 3: } TQ = 9.237706 + 0.023962 \text{ ESG} + 0.035685 \text{ ROA} + -0.397898 \text{ LOG(FF)} - 0.000485 \text{ ESG*FF} - 0.000480 \text{ ROA*FF} - 0.119760 \text{ FS} - 5.780564 \text{ LEV}$$

Calculation Results for Equation 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	47.48177	8.970640	5.293020	0.0000
ESG	0.139363	0.142292	0.979420	0.3315
ROA	0.371153	0.269822	1.375548	0.1743
R-squared	0.055465	Mean dependent var		59.51878
Adjusted R-squared	0.022323	S.D. dependent var		20.05896
S.E. of regression	19.83381	Akaike info criterion		8.861360
Sum squared resid	22422.66	Schwarz criterion		8.966077
Log likelihood	-262.8408	Hannan-Quinn criter.		8.902321
F-statistic	1.673566	Durbin-Watson stat		0.281451
Prob(F-statistic)	0.196661			

Calculation Results for Equation 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-151.0629	74.49043	-2.027950	0.0475
ESG	-0.001930	0.002974	-0.648916	0.5191
ROA	-0.008688	0.006618	-1.312725	0.1948
FF	1.584209	0.747560	2.119173	0.0387
FS	-0.186628	0.090033	-2.072887	0.0430
LEV	157.7758	74.91244	2.106136	0.0399
R-squared	0.351487	Mean dependent var		1.255252
Adjusted R-squared	0.291439	S.D. dependent var		0.460597
S.E. of regression	0.387712	Akaike info criterion		1.037532
Sum squared resid	8.117313	Schwarz criterion		1.246966
Log likelihood	-25.12595	Hannan-Quinn criter.		1.119453

F-statistic	5.853471	Durbin-Watson stat	0.656471
Prob(F-statistic)	0.000217		

Calculation Results for Equation 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.237706	2.873616	3.214663	0.0022
ESG	0.023962	0.011194	2.140587	0.0370
ROA	0.035685	0.033571	1.062957	0.2927
LOG(FF)	-0.397898	0.289040	-1.376619	0.1745
ESG_FF	-0.000485	0.000192	-2.522048	0.0148
ROA_FF	-0.000480	0.000482	-0.997315	0.3232
FS	-0.119760	0.087058	-1.375638	0.1748
LEV	-5.780564	1.482870	-3.898228	0.0003
R-squared	0.424844	Mean dependent var	1.255252	
Adjusted R-squared	0.347419	S.D. dependent var	0.460597	
S.E. of regression	0.372081	Akaike info criterion	0.984157	
Sum squared resid	7.199111	Schwarz criterion	1.263403	
Log likelihood	-21.52470	Hannan-Quinn criter.	1.093385	
F-statistic	5.487182	Durbin-Watson stat	1.035661	
Prob(F-statistic)	0.000092			

Hypothesis Test

T Test (Partial)

According to Calculation Results of t Test for Equation 1 and 2

Significance Level = 0.05

H	t value	Significance	Conclusion
1	-0.648916	0.5191	H1 Rejected (ESG has no significant effect on Firm Value)
2	-1.312725	0.1948	H2 Rejected (ROA has no significant effect on Firm Value)
3	0.979420	0.3315	H3 Rejected (ESG has no significant effect on Financial Flexibility)
4	1.375548	0.1743	H4 Rejected (ROA has no significant effect on Financial Flexibility)

F Test (Simultaneous)

According to Calculation Result for Equation 2

Significance Level = 0.05

H	t value	Significance	Conclusion
5	5.853471	0.000217	H5 accepted (ESG, ROA, Financial Flexibility simultaneously have a significant effect on Firm Value)

Sobel Test

According to Calculation result for equation 1 and 2 to test hypothesis H6a and H6b

H	t value	t table	Conclusion
6a	0,891	1,96	H6a Rejected (Financial Flexibility does not mediate the effect of ESG on Firm Value)
6b	0,841	1,96	H6b Rejected (Financial Flexibility does not mediate the effect of ROA on Firm Value)

Moderated Reggression Analysis Test

According to calculation result for equation 3 to test Hypothesis H7a and H7b

H	t value	t table	Conclusion
7a	2.522048	0.0148	H7a Accepted (Financial Flexibility has moderation effect on ESG to Firm Value)

7b	0.997315	0.3232	H7b Rejected (Financial Flexibility has no moderation effect on ROA to Firm Value)
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Determination Coefficient Analysis

Model	R ²	Conclusion
Equation 1	0.055465	The Financial Flexibility variable can be explained by the variable of ESG and ROA by 5,5% and the remaining 94,5% is explain by other factors outside the model.
Equation 2	0.351487	The Firm Value Variable can be explained by the variable ESG, ROA, Financial Flexibility and controlled with Firm Size and Leverage by 35,1% and the remaining 64,9% is explain by other factors outside the model.
Equation 3	0.424844	The Firm Value variable can be explained by the variable ESG, ROA, Financial Flexibility, mediated and moderated Financial Flexibility, controlled by Firm Size and Leverage by 42,5% and the remaining 57,5% is explain by other factors outside the model.

Discussion

The effect of ESG on Firm Value.

According to the t test the firm value (TQ) is not significantly influenced by the ESG Performance (ESG), the in line with this result of not significance effect are follow the researcher before (Fatemi et al., 2018).

The effect of ROA on Firm Value.

According to t Value and Significance there is not significant influenced by ROA to Firm Value. This result not consistent with the reseach with the results showed that company growth and profitability had a positive effect on the firm value (Sudiyatno et al., 2021).

ESG affect Financial Flexibility.

The result indicates no significant effect of ESG and Financial flexibility. The result are in line with the output research from (Giese et al., 2019).

ROA affects Financial Flexibility.

The result does not support the result of Companies with relatively large financial flexibility having relatively greater profitability (Cai & Wu, 2019).

ESG, ROA, Financial Flexibility affect Firm Value.

The results are supports as combines research (Quirós & Hernández, 2019), (Aggarwal & Padhan, 2017) and (Wang et al., 2015).

Financial Flexibility mediating ESG and Firm Value.

Research implying that corporate reputation can mediate the relationship between the influence of ESG on firm value does not support the study's findings (Qonita et al., 2022).

Financial Flexibility mediating ROA and Firm Value.

The result are in line or support that CSR cannot mediate the connection between liquidity to company cost and profitability to company cost (Hidayah & Khasanah, 2022).

Financial Flexibility moderating ESG and Firm Value.

The result is supported that financial flexibility significantly reduce the negative correlation between ESG and Tobin's Q (Guo et al., 2020).

Financial Flexibility moderating ROA and Firm Value.

The result is not supported that financial flexibility significantly moderates the correlation of ROA to firm value (Guo et al., 2020).

CONCLUSION

Conclusions

Based on analysis of the results, this research has the following conclusions are obtained:

1. ESG has no significant effect on Firm Value.
2. ROA no significant effect on Firm Value.
3. ESG has no significant effect on Financial Flexibility.
4. ROA has no significant effect on Financial Flexibility Profitability.
5. ESG, ROA and FF simultaneously effect on Firm Value.
6. Financial Flexibility has no mediating effect on ESG to Firm Value.
7. Financial Flexibility has no mediating on ROA to Firm Value.
8. Financial Flexibility moderate on ESG to Firm Value.
9. Financial Flexibility has no moderate on ESG to Firm Value.

Suggestions

In based on the findings, the following recommendations are made:

1. For Businesses:
 - a. Businesses should combine financial flexibility, return on assets (ROA), and environmental sustainability to maximize the value of the company.
 - b. Financial flexibility must be implemented by businesses in order to moderate and increase the firm's value while implementing ESG practices.
2. Related recommendations for investors based on this research: When analyzing the performance of a company, investors find that the firm value has become crucial. The company's high performance is consistent with the high firm value. When the market value of the stock exceeds the book value, a good Tobin's Q, which serves as a stand-in for the firm value, is typically > 1 . According to this research, in Energy and Mineral company's financial flexibility, ROA, and ESG all have a major impact on its value. In order to make wise investment decisions and generate profits down the road, investors interested in investing in energy with mineral companies should carefully consider these three factors.
3. Suggestions related to this research for future Researchers.
 - a. Financial flexibility is selected as a moderating and intervening factor in this study, while ESG and ROA are selected as the independent variables. The inclusion of the independent variable is a recommendation for additional study to advance this field or to alter the moderating, intervening variable that may have a major impact on the firm value.
 - b. Extend the study period to include more than five years or include more businesses from different industries, like real estate, mining, and property, as case studies.

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