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"Evaluating the Impact of Environmental, Social, and Governance Factors on Firm Value and Firm Performance"

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ABSTRACT

This paper evaluates the effect of individual ESG factors on Firm Value and Firm Performance. ESG-compliant companies are sustainable in the long term since they are seen as more resilient, ethical, and better positioned for long-term success. We find that Social and Governance Performance effect the Firm Performance negatively, while the Environmental Performance has an insignificant impact. This research has evaluated the effect of each of the ESG factors, while most of the previous studies focus the ESG's combined effect. This study is limited in the aspect that it only looks at the mediation impact between individual scores and Firm Value while combined ESG is not explored here which may give different results. Future researchers can incorporate the combined ESG Performance and investigate how mediation of Firm Performance interacts with total score and Firm Value.

Key words: ESG, Firm Value, Firm Performance, ROA

1. INTRODUCTION

The significant growth in the sustainable development has highlighted the need for deeper understanding into the Environmental, Social, and Governance (ESG) activities, for their impact on their value. Environmental Activities refer to the way a company manages its emissions, focuses on innovation, spending on R&D, and the use of resources. Social Activities refer to a company's involvement in community, its focus on human rights, the way it manages product responsibility, and its interaction with the workforce. Governance Activities refer to the firm's management, attitude towards shareholders, and CSR (Refinitiv, 2021). Firm Value refers to the amount that a buyer would be prepared to offer for the business in the event of a sale (Zhou et. al., 2022). Firm Performance is an indicator of a business's capability to generate profits in relation to its sales, equity, and assets (Xie et. al., 2019).

Shareholder theory supports that ESG activities characterized by corporate social responsibility (CSR), are against the shareholders' interest of wealth maximization (Barnea & Rubin, 2010). The stakeholder theory, on the other hand, emphasizes the importance of stakeholders to the firm and recommends that corporations should try to produce value for all stakeholders rather than just shareholders (Parmar et. al., 2010). ESG disclosure collectively affects business performance and value, but each of the ESG factor may impact contrarily, may be inconsequential or even detrimental (Pu, 2023).

Despite the fact that several research have discovered a positive relationship between ESG performance, corporate valuation, and company performance (Zhao et. al., 2018), many demonstrate a negative or neutral association (Atan et. al., 2018; Velte, 2017). Hence, the results are inconclusive and need further research and evidence.

Furthermore, the mediating role of Firm Performance need more deliberation in the emerging markets' financial sector, while it is evident that strong Firm Performance indicates promising business possibilities, which encourage investors to react favorably and drive up the Firm's Value (Husna & Satria, 2019).

2. ESG PERFORMANCE

The firms are in process of knowing the costs and benefits of the ESG initiatives (Alareeni & Hamdan, 2020). Varying degrees of positive, negative, or nonlinear relationships concerning the performance of ESG and Firm Value are observable in the literature (Friede et. al., 2015), and the association remains inconclusive (Brogi & Lagasio, 2019). Whelan et. al., (2021) review the relevant literature, and find that 58% of the publications show a favorable association between ESG and financial performance, 8% show a negative correlation, 13% show no correlation, and 21% show mixed findings, requiring deeper understanding of the phenomenon. Zhao et. al., (2018) analyzed China's energy sector to conclude firms' financial performance are positively impacted by enhanced ESG performance. Dalal & Thaker (2019) asserted that the ESG performance enhances financial performance. Naeem et. al., (2022) demonstrated a strong and positive link between profitability proxied through ROA and firm value as proxied through Tobin's Q. Bhaskaran et. al., (2020) investigated the role of ESG in influencing the financial performance, and found a positive relation ESG compliance and firm value.

Landi & Sciarelli's (2018) find a negative association among the companies' ESG rankings and financial performance. Duque-Grisales & Aguilera-Caracue (2021) find a negative correlation firm value and their ESG scores. Garcia & Orsato (2020) found a negative correlation between financial performance and ESG rankings. Giannopoulos et. al., (2022) found conflicting results, demonstrating a positive link with Tobin's Q proxy for corporate worth, and a negative correlation between ROA and ESG ratings. Behl et. al., (2022) studied the connection among ESG reporting and the valuations of Indian energy industry enterprises yielded a variety of conclusions. Lopez-de-Silanes et. al., (2020) established that there is no correlation amid corporate financial success and ESG ratings. Plumlee et. Al., (2015) learned that voluntary disclosure had a significant positive affect on corporate value. Nguyen et. Al., (2022) found ESG increased business productivity. ESG and firm value on banks in developing countries, governance has no influence on the market value of banks in certain regions, while environmental and social performance have a positive link with firm value (Shakil et. al., 2019).

Lu et. al., (2018) provide evidence for CSR's negative impact on the firms' short-term financial success. Xiao et. al., (2013) discovered that sustainable investment did not have a significant effect on portfolio return. Haryono & Iskandar (2015) found similar results asserting that firm social performance has little effect on firm value. The majority

of successful businesses have adopted a sustainability strategy and are primarily concerned with long-term objectives. It is envisaged that incorporating ESG into corporate operations would increase investors appeal. Firm value is expected to increase as a result of ESG quality (Fatemi et. al., 2018). However, Handini (2022) demonstrates that the social component has a favorable impact on business value, while the environmental and governance components have no effect. Velte (2017) and Safriani & Utomo (2020) argue that ESG disclosure has insignificant impact on business value. Despite the premise that they have a positive impact, several research studies show a negative relationship amongst ESG activities and business value.

3. RESEARCH DESIGN

This section provides an overview of the study strategy and hypotheses used in our inquiry, as well as the relevant literature. The first objective is to determine whether a company's performance in environmental, social, and governance (ESG) issues might impact its overall worth. It is assumed that all companies prioritize maximizing the potential of their firm's value.

3.1 Environmental Performance

Muhlis & Gultom (2021) find environmental indicators positively and significantly affect firm value in Indonesia, supporting the findings of Budiharjo (2019). Nakamura (2011) discovered that in the long term, the environmental investments boost company value in Japan, while Martin & Moser (2016) found that the reaction of investors is more positive if a firm aggressively communicates its influence on environmental governance compared to the investment cost. Sarumpaet et. al., (2017) found that environmental performance significantly and favorably affects corporate value. Similar findings were shared by Utomo et. al., (2020) for non-financial sector.

3.1.1 Environmental Performance and Firm Value

Pekovic et. al., (2018) found that the connection involving environmental performance and firm value is inverted U-shaped. Hoepner et. al., 2020 found that firms that focus on ESG performance with a higher focus on environmental performance can significantly reduce their downside risks at the time of crisis, while Gerged et. al., (2021) found a strong connection linking a company's environmental disclosure and corporate value. In light of the argument presented above, the following is hypothecated:

H_{1a}: Environmental Performance has a positive impact on Firm Value.

3.1.2 Environmental Performance and Firm Performance

The intricate connection between environmental performance and the overall success of businesses has been found by many studies (Ramanathan, 2018). Return on Equity (ROE) and Return on Assets (ROA) are considerably positively impacted by environmental performance (Kalash, 2021). Organizational eco-innovation has the most

impact on business performance (Hizarci-Payne, 2021). Performance of the firm is positively and significantly influenced by environmental sustainability (Gupta & Gupta, 2020). Environmental performance has a beneficial effect on firm performance in the hotel business (Tan, 2017). The three components of green supply chain management which are environmental selection, supplier collaboration, are also positively correlated with firm performance (Bu et. al., 2020). Muhammad et. al., (2015) find that before the global financial crisis, environmental performance positively impacted financial performance and business value; however, this relationship did not hold true during the crisis. On the basis of argument presented above the following hypothesis may be derived.

H_{1b}: Environmental Performance has a positive impact on Firm Performance.

3.2 Social performance

Corporate Social Performance (CSP) measured by the information disclosure index has least impact on firm value directly measured by Price to Book Value and Tobin's Q by Haryono & Iskandar (2015). CSP is linked to a larger persistence in anomalous earnings (Gregory et al. 2016). According to Mishra & Modi (2013), CSR practices aid in the reduction of non-systemic hazards. Mervelskemper & Streit (2017) discovered that when ESG reports are published, ESG performance is deemed more desirable.

3.2.1 Social Performance and Firm Value

ESG strengths raise company value while shortcomings diminish it Fatemi et. al., (2018). ESG disclosure has a moderating function as it minimizes the negative impression of shortcomings and amplifies the good impression of strengths. Albuquerque et. al., (2019) find that when a firm uses social responsibility investment to increase product differentiation then the systemic risk of the company falls as the social responsibility investment increases, thus firm value increases.

H_{2a}: Social Performance has a positive impact on Firm Value.

3.2.2 Social Performance and Firm Performance

Research conducted on Indian firms using Credit Rating Information Services of India Limited (CRISIL) scores for the social performance score and ROA as a proxy for firm performance found a positive relationship between them (Maji & Lohia, 2023). Bissoondoyal-Bheenick et. al., (2023) studied the link between business performance and the three ESG score and found mixed results based on different sectors. Narula et. al., (2024) find no connection amid social performance and firm performance. In light of the conversation above, the following is hypothecated:

H_{2b}: Social Performance has positive impact on Firm Performance.

3.3 Governance Performance

Kyle & Vila (1991) find that the firms' market value falls when the chairman of board of directors of that firm is also part of the senior management. Karamanou & Vafeas (2005) and Petersen (2009) find that the firm value is negatively affected, provided there is high ownership ratio of significant shareholders. Drakos & Bwkiris (2010) uncovered that organization ownership has a significant positive on market value. Strong corporate governance structures improve company worth and earning quality while providing actual earning management control (Shahzad et. al., 2023). Additionally, the results imply that the business value and board independence have a negligible correlation and insignificant related (Ben Fatma & Chouaibi, 2023). Qureshi et. al., (2019) discovered that firm value is positively influenced by board gender diversity and sustainability disclosure.

3.3.1 Governance Performance and Firm Value

Nekhili et. al., (2019) study how employee nominations to boards of directors' influence opinions of ESG performance in the market. Nekhili et. al., (2021) find the labor board representatives operate contrary to the manner of employee shareholders board representatives, as they focus solely on decreasing governance and environmental performance while boosting social performance. Keeping the contradictory views in the literature, following hypothesis is proposed:

H_{3a}: Governance Performance has positive impact on Firm Value.

3.3.2 Governance Performance and Firm Performance

Corporate governance and bank financial performance were shown to be significantly positively correlated by Esteban-Sanchez et. al., (2017). The financial and operational performance measured by Return on Assets and Return on Equity respectively are negatively impacted by corporate governance transparency (Buallay, 2019). Wen et. al., (2021) discovered that a company's performance is positively impacted by effective corporate governance standards, which are driven by international orientation. Wendry et. al., (2023) find that good corporate governance significantly affects a company's success. Quality of Audit Committee and Board of Director effects firms' financial performance in a significantly negative manner, while the impact of CEO duality is not statistically significant (Abdullah & Tursoy, 2023). Based on the divergence of views the following hypothesis is proposed:

H_{3b}: Governance Performance positively and significantly impacts Firm Performance.

3.4 Mediation of Firm Performance

Many studies have used current market value or stock price directly, while others utilize Tobin's Q as a reliable index (Wernerfelt & Montgomery, 1988). Haryono & Iskandar (2015) found that corporate social performance did not directly impact firm

value but indirectly had a positive impact through firm performance as a mediating variable, which is consistent with Servaes & Tamayo (2013). The correlation between firm value and profitability may be observed by examining each company's primary goal, which is to maximize profit as a rise in profit is indicative of a company's increasing profitability hence increasing value (Lumoly et al., 2018). Madanoglu et. al., (2018), Bhagat & Bolton (2019), and Liu et. al., (2015) found a positive and substantial link between good corporate governance practices and firm performance. Ery (2018), cited by Huang & Chen (2014) contend that firm value is positively and significantly impacted by company performance. ESG performance increases the business value (Putri, 2022; Fatemi et al., 2018). However, Safriani & Utomo (2020), Velte (2017), Dewi & Praptoyo (2022), and Jaya (2020) revealed a nil relationship between ESG disclosure and business value. Hafidzi & Qomariah (2022) demonstrate that ROA could mediate the relationship between stock returns and CSR, and contending that a greater ROA corresponds to a larger allocation in CSR disclosure, consistent with findings of Afiani & Bernawati (2019).

It may be concluded that a market value of a firm is influenced by its ESG performance in a number of ways, while financial performance serves as a mediator between the two. Based on the discussion above the following hypotheses are proposed:

H_{4a}: Environmental performance positively affects firm value through firm performance.

H_{4b}: Social performance positively affects firm value through firm performance.

H_{4c}: Governance performance positively affects firm value through firm performance.

3.5 Firm Performance and Firm Value

Profitability is one of the important indicators of the firms' performance (Gunadi et al., 2020). The firms' profitability has a direct and substantial impact on the its value (Hermuningsih, 2013). Takaful et.al., (2021) found favorable correlation between ROE and stock prices. Same finding is shared by Sari (2021). A good firm performance sends a positive signal to investors which is displayed in increased value of the firm (Ningrum & Hadi, 2020). Therefore, the greater the contribution of assets to profit-making, the higher the amount of investor return which is measured by the ROA. Faizah & Ediraras (2021) found that firm performance proxied by ROE had a significant and positive impact on firm value. Hafidzi & Qomariah (2022) find that ROA positively affects stock return. Dewi & Praptoyo (2022) state that firm performance measured by ROA had a noteworthy favorable effect on firm value. Afiani & Bernawati (2019) also gives similar finding that firm performance has a substantial impact on company value. Sucuahi & Cambarihan (2016) found that firm performance proxied by ROA had a significant and positive impact on the value of firm. In light of the views presented above, the following hypothesis is presented:

H_5: Firm Performance has a positive effect on Firm Value.

4. DATA SOURCES AND EMPIRICAL RESULTS

4.1 Data Sources and Sample Selection

This study has been conducted on the financial sector of the emerging markets which includes 29 countries categorized by the Refinitiv Eikon DataStream. Data from a total of 466 firms over a period of 10 years i.e., 2013 to 2022 making it a total of 4660 observations has been used as a representative sample for analysis. Data around the study variables i.e., Return on Assets (ROA), Tobin's Q (TBQ), including the two control variables (Firm Size and Firm Leverage) and a control variable (GDP growth rate) has been collected from DataStream. The research sample was selected based on the lack of research on the financial sector of the global emerging markets. EViews software was used to assess the data while Sobel test was used for mediation analysis.

4.1.1 Variable Measurement

Environmental Performance, Governance Performance, and Social Performance are taken as independent variables. All the independent variables are evaluated using the Refinitiv scoring system. These ratings are scores given to companies based on their performance in the three ESG components i.e., Environmental, Social, and Governance. Most of these ratings are presented by organizations like Bloomberg (Xie et al. 2019; Wang & Sarkis 2017), Refinitiv Eikon DataStream (previously Thomson Reuters Eikon) (Kaiser 2020; Abdi 2021), or MSCI (Ruan and Liu 2021). The ESG score from the Refinitiv has been frequently utilized in academic articles (Reber et al., 2022; Shakil, 2021).

4.1.2 Dependent Variables

Firm Value (operationalized using Tobin's Q TBQ), and Firm Performance (operationalized using Return on Assets ROA) are the two dependent variables for this study. TBQ has been previously utilized by many researchers to operationalize Firm Value (Serban et al., 2022; Afiani & Bernawati, 2019; William, 2015; Marvadi, 2015). Firm value is the amount that a buyer would be prepared to offer for the business in the event of a sale (Zhou et. al., 2022). The formula for Tobin's Q as used in previous researches to assess Firm Value is as follows (Afiani & Bernawati, 2019; William, 2015):

$$\text{TBQ} = \frac{\text{Market Value of Equity + Book Value of Total Debt}}{\text{Asset Replacement Value}}$$

The formula for ROA as used in previous research to assess Firm Value is as follows (Xie et al. 2019):

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

4.1.3 Control Variables

Firm Size, Leverage, and Economic Growth are three control variables for this study. These variables have an established affect in the firm value (Awaysheh et. al., 2020; Zhou et. al., 2022). Zhou et. al., (2022) defined Firm Size as the total value of the firm's assets,

which may be used to calculate the company's worth. Abbas et. al., (2020) argue that investors would be more confident in large organizations with a large number of assets since large companies are perceived as being able to continuously enhance their company performance and continually seek to increase the quality of profits. Therefore, firm size is a determining factor in generating profits (Saragih, 2021). The following formula is used to measure Firm Size:

Firm Size = Log (Average Annual Total Assets)

Debt-to-Equity Ratio, which measures the proportion of a firm's debt and equity indicates the ability of the firm to repay all of its debts (Ramadani & Jumono, 2020). Additionally, it may be used to gauge how well the company's capital and liabilities are balanced. Zuhroh (2019) asserts that using debt might have benefits, costs, and risks. The following formula is used to measure Leverage:

$$\text{Leverage} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Empirical findings from several models revealed a strong positive link between Economic Growth measured by GDP Growth Rate and business performance and value (Pu, 2023; Yuen et. al., 2022). An increase in a country's GDP increases its citizens' purchasing power which typically encourages consumers to spend more on products and services (Candradewi & Rahyuda, 2023). When a business becomes more profitable, investors become more interested in purchasing its shares, which raises the firm's value (Sartika et al., 2019). Economic Growth proxied by GDP Growth is measured using the following formula:

$$\text{GDP Growth Rate} = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}}$$

Table 4.1: Research Variables and Formulas

Variables	Measurement	Code	Formulas	References
Independent				
Environmental	Refinitiv Score	E	Scoring by Refinitiv	(Refinitiv, 2021)
Social	Refinitiv Score	S	Scoring by Refinitiv	(Refinitiv, 2021)
Governance	Refinitiv Score	G	Scoring by Refinitiv	(Refinitiv, 2021)
Dependent				
Firm Value	Tobin's Q	TBQ	(Market value of equity + book value of debt)/asset replacement value	(Afiani & Bernawati, 2019)
Firm	Return on	ROA	Net income/Average	(Dawood et.

Performance	Assets		total assets	al., 2023).
Mediating				
Firm Performance	Return on Assets	ROA	Net income/Average total assets	(Dawood et. al., 2023).
Control				
Firm Size	Firm Size	SIZE	Natural log (Average annual total assets)	(Awaysheh . al., 2020)
Leverage	Debt ratio	LEV	Total Debt/Total Equity	(Pu, 2023)
Economic Growth	GDP Growth Rate	GDP	(Current year GDP-Previous year GDP)/ Previous year GDP	(Yuen et. al., 2022; Pu, 2023)

4.2 Model Specification

4.2.1 ESG components and Firm Value

$$TBQ_{it} = \alpha_o + (\beta_1 E_{i,t}) + (\beta_2 SIZE_{i,t}) + (\beta_3 GDP_{i,t}) + (\beta_4 LEV_{i,t}) + \varepsilon_{it} \quad \textbf{M1}$$
$$TBQ_{it} = \alpha_o + (\beta_1 S_{i,t}) + (\beta_2 SIZE_{i,t}) + (\beta_3 GDP_{i,t}) + (\beta_4 LEV_{i,t}) + \varepsilon_{it} \quad \textbf{M2}$$
$$TBQ_{it} = \alpha_o + (\beta_1 G_{i,t}) + (\beta_2 SIZE_{i,t}) + (\beta_3 GDP_{i,t}) + (\beta_4 LEV_{i,t}) + \varepsilon_{it} \quad \textbf{M3}$$

4.2.2 ESG components and Firm Performance

$$ROA_{it} = \alpha_o + (\beta_1 E_{i,t}) + (\beta_2 SIZE_{i,t}) + (\beta_3 GDP_{i,t}) + (\beta_4 LEV_{i,t}) + \varepsilon_{it} \quad \textbf{M4}$$
$$ROA_{it} = \alpha_o + (\beta_1 S_{i,t}) + (\beta_2 SIZE_{i,t}) + (\beta_3 GDP_{i,t}) + (\beta_4 LEV_{i,t}) + \varepsilon_{it} \quad \textbf{M5}$$
$$ROA_{it} = \alpha_o + (\beta_1 G_{i,t}) + (\beta_2 SIZE_{i,t}) + (\beta_3 GDP_{i,t}) + (\beta_4 LEV_{i,t}) + \varepsilon_{it} \quad \textbf{M6}$$

4.2.3 Firm Performance and Firm Value

$$TBQ_{it} = \alpha_o + (\beta_1 ROA_{i,t}) + (\beta_2 SIZE_{i,t}) + (\beta_3 GDP_{i,t}) + (\beta_4 LEV_{i,t}) + \varepsilon_{it} \quad \textbf{M7}$$

4.2.4 Impact of Mediation

To test the indirect effect of individual ESG factors on Firm Value through Firm Performance as a mediating variable, we carried out Sobel test using the following formula:

$$z - value = \frac{a \times b}{\sqrt{(b^2 \times S_a^2 + a^2 \times S_b^2)}}$$

where **a** represents the regression coefficient from the impact of independent variable on the mediating variable, **b** represents the regression coefficient from the impact of mediating variable on the dependent variable, $\mathbf{S_a}$ represents the standard error of the relationship between the independent variable and the mediator, and $\mathbf{S_b}$ represents the standard error of the relationship between the mediator variable and the dependent variable (**Sobel, 1982**). Furthermore, we utilize the Baron and Kenney approach to

further analyze the impact of mediation and its magnitude (Baron & Kenney, 1986). This method has been utilized in previous studies (Thuy et. al., 2021).

4.3 Data Analysis and Findings

4.3.1 Descriptive Analysis

Table 4.2 below shows the descriptive analysis consisting of mean, standard deviation, minimum and maximum values for all the variables studied in this research.

Table 4.2: Descriptive Analysis

Variables	Mean	Std. Dev.	Min	Max
E	44.096	26.943	0	96.976
S	52.521	23.138	0.235	98.405
G	53.546	22.302	0.4659	96.041
TBQ	0.643	1.325	0.0137	29.728
ROA	0.0297	0.0598	-0.581	0.7882
LEV	1.554	2.094	0.1365	19.499
GDP	4.087	3.836	-14.546	11.737
SIZE	22.784	2.321	9.007	29.379

The Environmental Performance Score depicted that most of the companies lean towards the lower end of the scale. On the other hand, the Social Performance shows that the companies vary widely in their social performance, however most of the companies are on the higher end of the spectrum. Similarly, the Governance Performance indicates that while companies vary widely in their reporting on Governance performance, most are at the higher end. Tobin's Q shows that most companies have a positive ROA. Firms are effectively generating profit, but most companies are on the lower end of the spectrum. The results for Firm Leverage, GDP growth rate, and firm size depict that most of the companies are large in the dataset are large in size.

4.3.2 Correlation Analysis

The correlation matrix between the primary variables is shown in Table 4.3.

Table 4.3: Pearson's Correlation Analysis

	E	S	G	GDP	ROA	LEV	TBQ	SIZE
E	1							
S	651**	1						
G	.286**	.344**	1					

GDP	.069**	-.001	.048*	1				
ROA	-.144**	-.067**	-.109**	.002	1			
LEV	.017	.064**	.042*	.084**	-.130**	1		
TBQ	-.170**	-.045*	-.058**	.010	.401**	-.054**	1	
SIZE	.491**	.266**	.115**	.022	-.331**	.071**	-.324**	1

*** Significant at 0.01, ** Significant at 0.05, * Significant at 0.1

No multicollinearity is observable among the values reported in the table above, while moderate correlation is observed, meaning thereby that these scores are actually different form each other. Moreover, the statistical significance for each correlation coefficient at levels 0.001, 0.05, and 0.1 are given in table 4.2. Since the VIF of every variable in every equation is less than 10 as given in table 4.3, 4.4, and 4.5, multicollinearity is not an issue in this study. For autocorrelation, the DW values in all the models tested in table 4.3, 4.4, and 4.5 were found to be closer to 2 depicting that the autocorrelation in the residuals and multicollinearity among independent variables is not significant.

4.3.3 Regression Analysis

Before moving on to regression, we used the Hausman test to determine which test was better for this data. Since the Hausman test came out significant for all the models ($p<0,05$), we chose Fixed Effects method for this research. Moreover, the Durbin-Watson stat showed that there was no autocorrelation in the data as the values were closer to 2. Similarly, the Variance Inflation Factor for all the variables in all the models was below 10 showing multicollinearity was not an issue. To assess the impact of ESG factors on Firm Value proxied by TBQ as shown in table 4.4, this study has utilized fixed effects method for panel data analysis.

Table 4.4: Fixed Effects: Impact of ESG factors on Firm Value

	TBQ		
	M1	**M2**	**M3**
E	0.0046*** (0.002)		
S		0.0054*** (0.001)	
G			0.0028* (0.070)
LEV	-0.1211*** (0.000)	-0.1127*** (0.000)	-0.1193*** (0.000)
GDP	0.0186*** (0.001)	0.0201*** (0.000)	0.0196*** (0.000)
SIZE	0.4906*** (0.000)	0.4206*** (0.000)	0.5290*** (0.000)

Constant	-11.397*** (0.000)	-9.7999*** (0.000)	-12.279*** (0.000)
Hausman	133*** (0.000)	103*** (0.000)	132*** (0.000)
Fixed Effects	Yes	Yes	Yes
N	2106	2106	2106
R²	0.5644	0.5647	0.5628
F-stat	6.7750***	6.7830***	6.7309***
P-value	(0.000)	(0.000)	(0.000)
Durbin-Watson	1.81	1.81	1.81
VIF	Under 10 for all variables		

*** Significant at 0.01, ** Significant at 0.05, * Significant at 0.1

The individual factors of ESG were analyzed separately in three models, M1, M2, and M3 to check their effect on Firm Value measured by TBQ. M 1 finds that Environmental Performance has a positive and significant effect on TBQ ($p<0.01$) when controlling for Leverage, GDP growth, and Firm Size which are all found to have a significant impact on TBQ. This finding is consistent with (Muhlis & Gultom, 2021; Budiharjo, 2019, Nakamura, 2011; Martin & Moser, 2016; Sarumpaet al., 2017; Utomo et al., 2020). M 2 finds that Social Performance has a positive and significant influence on TBQ ($p<0.01$) when controlling for Leverage, GDP growth, and Firm Size which are all found to have a significant impact on TBQ. This finding is consistent with (Gregory et al., 2016; Mishra and Modi, 2013; Mervelskemper & Streit, 2017). M 3 finds that Governance Performance has a positive and significant effect on TBQ ($p<0.01$) when controlling for Leverage, GDP growth, and Firm Size which are all found to have a significant impact on TBQ. This finding is also consistent with previous findings (Shahzad et al., 2021, Qureshi et al. 2019; lonescu et. al., 2019).

4.3.4 Impact of ESG factors on Firm Performance

To assess the influence of ESG factors on Firm Performance proxied by ROA as shown in table 4.4, this study has utilized fixed effects method for panel data analysis. The individual factors of ESG were analyzed separately in three models, M4, M5, and M6 to check their effect on Firm Performance.

Table 4.5: Fixed Effects: Impact of ESG factors on Firm Performance

	ROA		
	M4	**M5**	**M6**
E	-0.00006 (0.271)		
S		-0.0002*** (0.010)	
G			0.0002*** (0.000)

LEV	-0.0038*** (0.000)	-0.004*** (0.000)	-0.00381*** (0.000)
GDP	0.0005** (0.014)	0.00051** (0.018)	0.00053** (0.012)
SIZE	0.0049* (0.095)	0.00772** (0.015)	0.00512* (0.072)
Constant	-0.0860 (0.217)	-0.14884** (0.046)	-0.0837*** (0.220)
Hausman	38*** (0.000)	38*** (0.000)	33*** (0.000)
Fixed Effects	Yes	Yes	Yes
N	2180	2180	2180
R^2	0.6716	0.6726	0.6736
F-stat	10.723***	10.769***	10.82***
P-value	0.000	0.000	0.000
Durbin-Watson	1.44	1.44	1.44
VIF	Under 10 for all variables.		

*** Significant at 0.01, ** Significant at 0.05, * Significant at 0.1

M 4 finds that Environmental Performance has a negative and insignificant effect on ROA (p>0.10). This result is in line with Lopez-de-Silanes et al. (2020) and with Handini (2022). M 5 exhibits that Social Performance has a significantly negative impact on Firm Performance. These findings are shared by Shi & Veenstra (2021), Friedman (2007), and Patten (2002). M 6 demonstrates a negative correlation between firm performance and governance performance, in line with the findings of Friedman (2007), Buallay (2019), and Abdullah & Tursoy (2023).

4.3.5 Impact of Firm Performance on Firm Value

Table 4.5 depicts that the Firm Performance influences the Firm Value.

Table 4.5: Fixed Effects: Impact of Firm Performance on Firm Value

	TBQ
	M8
ROA	3.01765*** (0.000)
LEV	-0.0713*** (0.000)
GDP	0.0089* (0.0674)
SIZE	0.1115** (0.0133)
Constant	-2.1496** (0.0372)
Hausman	240***

	(0.000)
Fixed Effects	Yes
N	4034
R²	0.4833
F-stat	7.1608***
P-value	0.000
Durbin-Watson	1.37
VIF	Under 10 for all variables.

***Significant at 0.01, ** Significant at 0.05, * Significant at 0.1

M 7 shows that ROA positively impacts TBQ, and R² accounts for the remaining variation in the dependent variable, while the model is overall fit. While the behavior of the control variables is same as in previous models, in line with Sari (2021) and Hafidzi & Qomariah (2022). It can be concluded that investors highly regard the performance of the firm when evaluating its value as good firm performance sends a positive signal to investors which is exhibited by an increase in Firm Value. This conclusion is in line with Ningrum & Hadi (2020), Hermuningsih (2013), and Gunadi et. al., (2020).

4.4 Mediation Analysis

Sobel test (Sobel, 1982) has been used for mediation analysis, in line with Thuy et. al., (2021), and as approached by Baron & Kenney (1986). The coefficients and p-values have been exhibited in table 4.6.

Table 4.6: Sobel Test: Mediation Analysis

Mediation (X>M>Y)	**Sobel**	**X > M (a)**	**M > Y (b)**	**X > Y (c)**	**Indirect Effect**	**Total Effect**	**RIT**
E>ROA>TBQ	0.96 (0.34)	-0.00 (0.27)	1.20** (0.04)	0.004** (0.00)	0.00007	0.005	1.6
S>ROA>TBQ	-1.6* (0.10)	-0.00*** (0.01)	1.30** (0.03)	0.005*** (0.00)	0.00021	0.005	3.8
G>ROA>TBQ	-1.8* (0.07)	-0.00*** (0.00)	1.30** (0.04)	0.00** (0.05)	0.00026	0.003	9.4

*** Significant at 0.01, ** Significant at 0.05, * Significant at 0.1

It may be noted that z-value of the Sobel test for the first path (E>ROA>TBQ) is insignificant and path a is also insignificant which means that effect of Environmental Performance on Firm Value (TBQ) is not mediated by Firm Performance (ROA). This finding is supported by Lopez-de-Silanes et. al., (2020) and Handini (2022). In the second path (S>ROA>TBQ), exhibit that the impact of Social Performance on Firm Value is mediated by Firm Performance, which is in line with Shi & Veenstra (2021), Gregory et. al., (2016), Mishra & Modi (2013), and Mervelskemper & Streit (2017). In the third

path (G>ROA> TBQ), it may be observed that the increase in Governance Performance decreases ROA which would ultimately decrease TBQ. This finding is in line with the findings of Buallay (2019), Abdullah & Tursoy (2023), Friedman (2007), and Patten (2002).

4.5 Discussion

This study finds that the individual ESG factors significantly and positively influence the firm value. This finding is in line with Muhlis & Gultom (2021), Gregory et. al., (2016), and Shahzad et. al., (2021), in addition for being consistent with the stakeholder theory. The results of this study indicate that investors are not only watchful of company's ESG activities, but view these in a positive manner, in addition of favoring companies that perform well in these aspects. Furthermore, the study finds that among all the factors, the investors are affected by Social Performance and least influenced by Governance Performance despite being significant in their impact. So, the hypothesis H_{1a}, H_{2a}, and H_{3a} are accepted. Further, the results related to the control variable used in this study are in line with Saragih (2021), Sihombing et. al., (2021), and Zuhroh (2019). High leverage signals towards the firms' higher bankruptcy risk of bankruptcy, consequently lowering the value of the firm. On the other hand, Firm Size has been found to have a positive impact on Firm Value, in line with Chabachib et. al., (2019), and Hirdinis (2019), and Saragih (2021).

As to the impact of ESG factors on ROA, except the Environment factor, the other two have a significantly negative impact on the ROA. The insignificance of the Environmental factors' impact on ROA is in line with Lopez-de-Silanes et. al., (2020). While the impact of Social, and Governance factors is in confirmation with Handini (2022), Buallay (2019), and Abdullah & Tursoy (2023), and also elaborated by the trade-off theory (Friedman, 2007). Therefore, ESG activities may negatively affect Firm Performance but can contribute to positive firm reputation, and risk mitigation over time (Patten, 2002), rejecting the hypothesis $H_{1b.}$ Moreover, the models M4, M5, and M6, exhibit that the leverage has a negative impact on ROA. These findings are consistent with Alarussi & Alhaderi (2018), Pardanawati (2021), and Widhiastuti et. al., (2020). Furthermore, the positive impact of Firm Size on ROA, as found in this study is in line with Chabachib et. al., (2019), Hirdinis (2019), and Khajar et. al., (2020). While, the GDP growth rate also favorably impacts both ROA and TBQ, standing in confirmation with Usman et. al., (2017).

ROA's significant positive impact on Firm Value, as concluded by this study, stands in confirmation with Sari (2021), Hafidzi & Qomariah (2022), Ningrum & Hadi (2020), Hermuningsih (2013), and Gunadi et. al., (2020), hence accepting the H_5. Furthermore, ROA has been found to be negatively and partially mediating the relationship between Social and Governance Performance, and firm value, which is in line with Shi & Veenstra (2021), Buallay (2019), and Abdullah & Tursoy (2023). While it does not mediate the relationship between Environmental Performance and Firm Vlaue, which is in line with Lopez-de-Silanes et. al., (2020), and Handini (2022). Therefore, investors may evaluate a company based on both their ESG activities and Firm Performance. Hence, we reject

the hypothesis H_{4a} because ROA does not mediate the relation between Environmental Performance and TBQ, while we reject the hypothesis H_{4b} and H_{4c} because despite finding significant ROA mediation between Social and Governance Performances and TBQ the mediation is negative and not positive as we had proposed. The results of this study are listed in table 4.7 together with the hypotheses.

Table 4.7: Research Hypothesis Results

Hypothesis	**Relationship**	**Impact**	**Result**
H_{1a}: Environmental Performance positively and significantly affects Firm Value.	Positive	Significant	Accepted
H_{1b}: Environmental Performance has a significant positive impact on Firm Performance.	Negative	Insignificant	Rejected
H_{2a}: Social Performance positively and significantly affects Firm Value.	Positive	Significant	Accepted
H_{2b}: Social Performance has a significant positive impact on Firm Performance.	Negative	Significant	Rejected
H_{3a}: Governance performance significantly and positively affects Firm Value.	Positive	Significant	Accepted
H_{3b}: Governance Performance positively and significantly affects Firm Performance.	Negative	Significant	Rejected
H_{4a}: Environmental Performance positively affects Firm Value through Firm Performance.	Negative	Significant	Rejected
H_{4b}: Social Performance positively affects Firm Value through Firm Performance.	Negative	Significant	Rejected
H_{4c}: Governance Performance positively affects Firm Value through Firm Performance.	Negative	Significant	Rejected
H_5: Firm Performance has a significant positive effect on Firm Value.	Positive	Significant	Accepted

5 CONCLUSION

The study concludes that all the ESG factors have a significant positive impact on Firm Value, confirmed by Muhlis & Gultom (2021), Gregory et. al., (2016), and Shahzad et. al., (2021), while the insignificant impact of Environmental Performance on Firm Performance supports the findings of Lopez-de-Silanes et. al., (2020). The significant negative impact of Social and Governance Performance warrants Handini (2022), Buallay (2019), and Abdullah & Tursoy (2023). The Firm Value being positively and significantly impacted by Firm Performance confirms the findings by Sari (2021), Hafidzi & Qomariah (2022). The study also discovered that Firm Performance does not mediate the

relationship between Environmental Performance and Firm Value but partially and negatively mediates the relationship between both Social and Governance Performance, confirming the findings by Shi & Veenstra (2021), Buallay (2019), and Abdullah & Tursoy (2023).

Corporate regulators may find use the findings of this study in creating benchmarks to group organizations based on their ESG performance so that the investors would be better informed, as supported earlier by Narula et. al., (2024) for findings of this stature and magnitude. Various initiatives can be taken, rules developed, and procedures laid down to help the industry in enhancing the sustainability standards, in addition of meeting the stakeholders' demand for incorporating the ESG performance in corporate disclosers. Financial institutions may consider incorporating the ESG factors into their risk management frameworks as comprehension and management of ESG-related risks such as violation of human rights, climate issues, resource scarcity, weak corporate governance, lack of board independence and so forth can contribute to long-term financial stability and resilience. Increasing the significance of the ESG performance rating and encouraging businesses to take an active approach to ESG management may be considered as the essential policy objectives for regulators and policymakers

This study is limited by its focus exclusively on examining the effects of selected ESG factors on Firm Value (measured by TBQ and MC) and Firm Performance (measured by ROA and ROE). The study confines its investigation to the mediation of Firm Performance solely within the context of these individual ESG factors. Consequently, the comprehensive impact of the aggregated, total, or overall ESG score on both Firm Value and Firm Performance remains unexplored within the scope of this research. Further this study refrains from investigating the mediation effect of Firm Performance between the combined ESG score and Firm Value, therefore combined effect of the total ESG score on Firm Value and Firm Performance, and mediation by Firm Performance for the combined ESG score and Firm Value, has marginally been carried out. Future studies may consider including the non-financial sector of the Global emerging markets, in addition of using the Firm Risk as a moderating variable. These studies may consider using unit of analysis more influenced by the ESG factors.

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