

The Impact of Environmental, Social, and Governance (ESG) Performance on Financial Performance across Different Periods; Evidence From Companies Listed on the Stock Exchange of Thailand

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Abstract

This study investigates the timing of ESG performance's effects on firm financial performance across different time periods by analyzing its impact in the same year (t), the one-year forward (t+1), and two-year forward (t+2) in companies listed on the Stock Exchange of Thailand (SET) during 2020–2024, using 401-557 firm-year observations. The independent variable is ESG score, collected from Refinitiv database. The independent variables for financial performance consisted of return on assets (ROA), return on equity (ROE), and Tobin's Q, all of which were collected from SETSMART database. Panel data regression, random and fixed-effects models were employed to test the hypotheses and were analyzed by STATA version 18. The result indicates that ESG performance has varying financial impacts depending on the timing. Especially, ESG performance has a positive effect on ROA in two-year forward (t+2), but has no significant relationship with ROA in the same year (t) and the one-year forward (t+1). For Tobin's Q, ESG performance exhibits a significantly negative effect in the one-year forward (t+1) and two-year forward (t+2), but it shows no statistical relationship in the same year (t). Nevertheless, this study shows a statistically insignificant relationship between ESG performance and ROE measure in the same year (t), one-year forward (t+1), and two-year forward (t+2).

Keywords: ESG performance, Financial performance, Stock Exchange of Thailand (SET)

Introduction

Sustainable investment or environmental, social, and governance (ESG) considerations have become central to business strategy and investment decisions globally. This shift reflects a move away from an exclusive focus on financial returns toward the pursuit of long-term sustainable value creation (Fatemi et al., 2015; Friede et al., 2015). In the case of Thailand, as an emerging market economy, ESG has also become a major focus. The Stock Exchange of Thailand (SET) has promoted ESG practices through initiatives such as the Thailand Sustainability Investment (THSI) since 2015 and the introduction of SET ESG Ratings in 2023. As illustrated in

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Figure 1, these initiatives have seen significant adoption, with the number of listed companies in the sustainability index growing consistently from 51 firms in 2015 to 228 firms in 2024. This growth highlights ESG as a critical performance indicator for listed firms and shows that these initiative have helped raise awareness and encourage Thai companies to adopt sustainability as part of their corporate strategy (The Stock Exchange of Thailand, 2023).

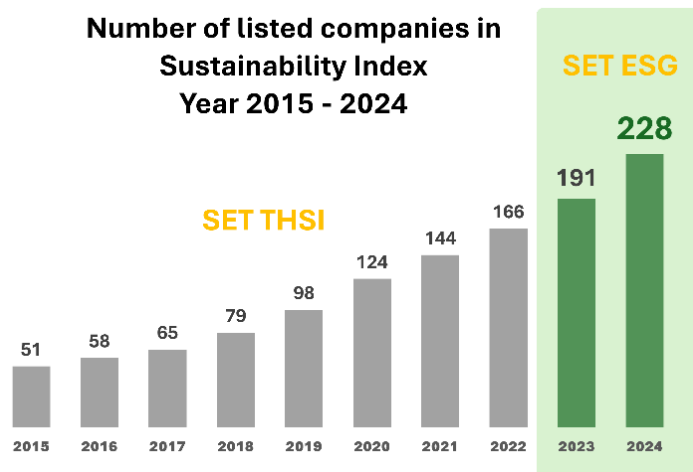


Figure 1. Number of listed Companies in Sustainability Index Year 2015-2024

However, empirical studies on the relationship between ESG performance and financial performance have produced mixed results. Some studies identified positive links (Alareeni & Hamdan, 2020; Velte, 2017, 2019), while others find negative (Zahid et al., 2022) or no relationships (Gutiérrez-Ponce & Wibowo, 2023). These inconclusive findings suggest that the ESG-financial performance relationship is context-dependent and influenced by various factors, such as differences in methodologies, data source, time lags, or the specific economic contexts (industry or country) being studied.

Moreover, much of the existing research focuses on contemporaneous effects, examining ESG's impact on firm performance within the same year. However, ESG should be understood as a long-term investment. Many ESG initiatives, especially those targeting environmental and social issues, often require time before yielding measurable financial returns (Eccles et al., 2012; Khan et al., 2016). These initiatives gradually deliver financial benefits by improving corporate reputation, stakeholder trust, and operational resilience over time (Whelan et al., 2021). Therefore, it is important to consider both immediate effects and lagged impact of ESG performance over subsequent years.

The objective of this study is to examine how ESG performance influences firm financial performance over three periods: the same year, one-year forward, and two-year forward. This research seeks to determine whether the financial benefits of ESG initiatives appear immediately

or over time thereby providing a more comprehensive understanding of the temporal dynamics of ESG performance in the capital market of Thailand.

Research Objectives

This study investigates the effect of ESG performance on the financial performance of firms listed on the Stock Exchange of Thailand across different time periods consists of same year period, one-year forward and two-year forward.

Literature Review and Hypotheses

ESG performance

The concept of environmental, social, and governance (ESG) practices was formally introduced in the Who Cares Wins report, a collaborative initiative between the United Nations Global Compact (UNGC) and the United Nations Environment Program Finance Initiative (UNEP FI). This report advocated for companies and investors to integrate environmental, social, and governance factors into their investment decision-making processes. It emphasized that ESG considerations can help mitigate risks, enhance transparency, and promote long-term sustainable growth (International Finance Corporation, 2004). Environmental, social, and governance (ESG) performance is a critical framework for modern organizations. Firms with strong ESG performance can enhance financial performance (Alareeni & Hamdan, 2020; Alshehhi et al., 2018; Whelan et al., 2021), particularly by increasing firm value and improving profitability (Aydoğmuş et al., 2022; Tahmid et al., 2022). ESG practices contribute to better management quality (Zumente & Bistrova, 2021), facilitate access to capital due to improved transparency and information disclosure, and reduce information asymmetry between firms and investors (Cheng et al., 2011). ESG also helps reduce business risk (Berg et al., 2020), particularly in sensitive industries where ESG factors impact firm reputation and performance (Chen et al., 2023; Yoon et al., 2018). Furthermore, ESG plays a key role in assessing long-term corporate sustainability (Berg et al., 2020; Chen et al., 2023; Zumente & Bistrova, 2021), assisting investors and stakeholders in better understanding corporate operations.

Stakeholder theory

The main objective of this study is to observe the relationship between ESG performance and financial performance over three periods. Stakeholder theory is a foundational concept in business ethics and corporate management that emphasizes that organizations should consider the interests of all stakeholder groups, not just shareholders, when making decisions (Freeman, 1994). Moreover, the theory promotes sustainable value creation and competitive advantage (Harrison & Wicks, 2013; Mahajan et al., 2023) through transparency and information disclosure, which enhances organizational efficiency (Henisz & McGlinch, 2019; Naeem et al., 2022) and reduce business risk (Broadstock et al., 2020), particularly in sensitive industries (Yan et al., 2024). Stakeholder theory is therefore highly relevant in the ESG context as it enables corporate

managers to address diverse stakeholder demands and promote long-term sustainability (Tahmid et al., 2022).

Financial performance

A review of related ESG performance indicates that financial performance indicators can be divided into two groups. The first group comprises accounting-based performance measures. This includes return on assets (ROA), which measures a firm's ability to generate profit from its total assets, indicating operational efficiency. Return on equity (ROE), which evaluates how effectively a firm uses shareholders' equity to generate profits, reflecting financial returns to investors. The second group comprises market performance, specifically Tobin's Q. Tobin's Q represents the ratio of the market value of a firm's assets to their replacement cost, serving as a proxy for market valuation and investor confidence. (Alareeni & Hamdan, 2020; Aqabna et al., 2023; Aydoğmuş et al., 2022; Duque-Grisales & Aguilera-Caracuel, 2019; Gutiérrez-Ponce & Wibowo, 2023; Naeem et al., 2022; Velte, 2017, 2019; Yoon et al., 2024; Yu & Xiao, 2022).

This study adopts a temporal perspective by investigating forward performance measures (t+1 and t+2), a decision strongly grounded in the literature. The rationale is that ESG is a long-term investment, especially in environment and social which often require significant capital and time before they translate into quantifiable financial returns (Eccles et al., 2012; Khan et al., 2016; Tahmid et al., 2022). In the contemporaneous period (t), these costs can even suppress profitability or firm value, leading to neutral or negative reported effects (Friede et al., 2015; Zahid et al., 2022). Empirical evidence supports this view. Studies utilizing lagged performance have often identified stronger or more significant relationships compared to contemporaneous analyses (Chairani & Siregar, 2021; Yoon et al., 2024). For instance, some research found a positive effect on accounting performance only in one-year (t+1) or two-year forward (t+2) (Naeem et al., 2022; Velte, 2017, 2019; Yu & Xiao, 2022). These initiatives gradually deliver financial benefits by improving corporate reputation, stakeholder trust, and operational resilience over time (Whelan et al., 2021)

Past findings

Studies with findings of a positive relationship between ESG performance and financial performance

Positive relationships have been reported in several studies. For example, Velte (2017) studied companies listed in Germany included in the DAX30, TecDAX, and MDAX index and found that ESG performance positively affected ROA in one-year forward (t+1) but it had no significant effect on Tobin's Q. Velte (2019) extended his study by including CEO power as a moderating variable and found that ESG performance positively affected ROA, ROE, Tobin's Q in one-year forward but it had no significant effect on Tobin's Q in two-year forward. Alareeni and Hamdan (2020) studied companies in S&P500 and reported a positive relationship between ESG performance and ROA, ROE and Tobin's Q. Albitar et al. (2020) investigated the effect of ESG disclosure on firm performance before and after the introduction of integrated reporting (IR) in

the UK and found that ESG disclosure positively and significantly affected Tobin's Q both before and after the introduction of IR. Rossi et al. (2021) studied firms and found that ESG performance positively affected ROA and showed that board characteristics, specifically board size and independence, positively moderated this relationship, enhancing the positive impact of ESG on firm performance. Aydoğmuş et al. (2022) conducted a global study and found that ESG performance had a positive effect on ROA and Tobin's Q. Naeem et al. (2022) examined firms in developed and emerging countries and found that, in the overall sample and in developed countries, ESG performance positively affected ROE and Tobin's Q with a one-year forward, but shows it showed no significant relationship with ROA. Chen et al. (2023) examined 3332 listed companies worldwide and found that ESG performance positively affected ROA. Furthermore, the positive association was significant for large firms and firms in developed countries, but insignificant for small firms and firms in developing countries.

In Asia studies, Sharawi et al. (2024) investigated companies listed on the Saudi Stock Exchange and found that ESG disclosure positively and significantly affected ROA and ROE, while its impact on earnings per share (EPS) was mixed. Specifically, environmental disclosures improved ROA, and a stronger positive effect was observed when boards exhibit higher ownership stakes, larger size, and greater independence.

Studies with findings of mixed relationships between ESG performance and financial performance

For a negative result, Chairani and Siregar (2021) examined listed companies in ASEAN-5 countries and found that ESG performance had a positive effect on ROA but a negative effect on Tobin's Q in the same year. In the one-year forward, ESG performance still had a positive effect on ROA, while it had no significant relationship with Tobin's Q. Aqabna et al. (2023) investigated in companies listed in the Middle East and North Africa (MENA), and found that ESG performance had a positive effect on Tobin's Q but no significant relationship with ROA and ROE. Gutiérrez-Ponce and Wibowo (2023) examined Indonesian listed firms and found that ESG performance had no significant impact on ROA and ROE, but negatively affected Tobin's Q. The study also revealed that the influence of ESG performance varied across sectors, with state-owned enterprises demonstrating stronger negative associations between ESG performance and firm value. Apiwatphokinkul and Chaikakul (2024) studied companies listed on the Stock Exchange of Thailand, their results showed that overall ESG performance had a statistically significant positive effect on Tobin's Q, while it had no significant relationship with ROA and ROE. Lerskullawat and Ungphakorn (2024) examined the relationship between ESG performance and firm value across ASEAN-5 countries: Thailand, Indonesia, Malaysia, the Philippines and Singapore. Their results showed that, overall, ESG performance positively affected firm value, but this positive relationship was statistically significant only in Indonesia and Malaysia. No significant relationship was found in Thailand, the Philippines, and Singapore.

Based on the above empirical studies and stakeholder theory, we can indicate the hypotheses of this study as follows:

- H1:** ESG performance has a significant effect on firm financial performance in year t .
H2: ESG performance has a significant effect on firm financial performance in year $t+1$.
H3: ESG performance has a significant effect on firm financial performance in year $t+2$.

Conceptual framework

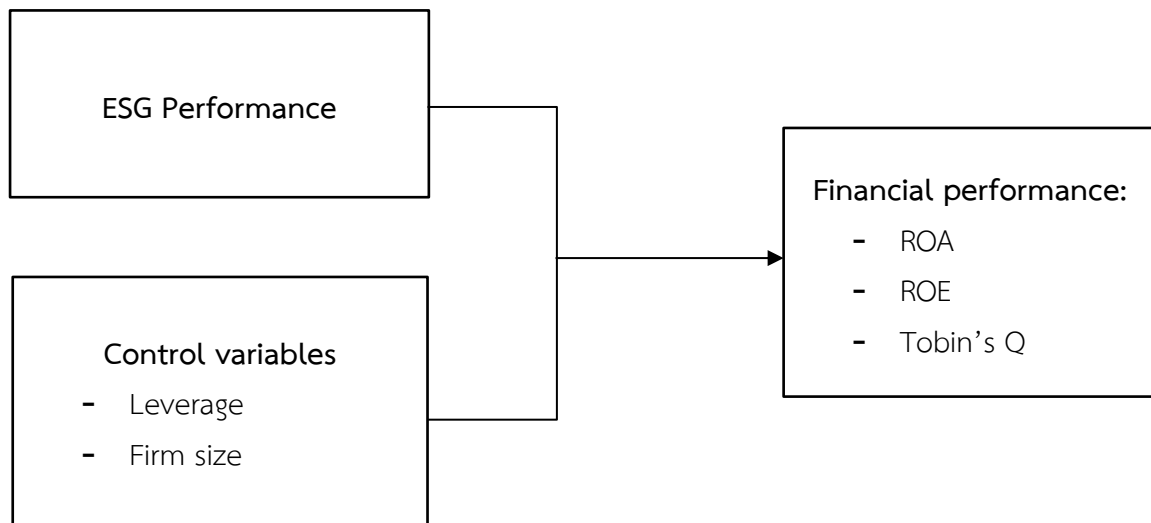


Figure 2. A conceptual framework

Methodology

Data

This study utilized secondary data source from non-financial companies listed on the Stock Exchange of Thailand (SET) from 2020 to 2024, which were filtered with ESG scores in Refinitiv database and financial data from SETSMART database (SET Market Analysis and Reporting Tool). Applying these criteria resulted in an initial total dataset of 589 firm-year observations.

Table 1 Sample data

GICS Code	Sector	Sampling	
		No.	%
10	Energies	40	7%
15	Materials	62	11%
20	Industries	79	13%
25	Consumer Discretionary	94	16%
30	Consumer Staples	85	14%

Table 1 Sample data (Cont.)

GICS Code	Sector	Sampling	
		No.	%
35	Health Care	32	5%
45	Information Technology	32	5%
50	Communication Services	38	6%
55	Utilities	63	11%
60	Real Estate	64	11%
Total		589	100%

However, the number of observations utilized in the actual regression analysis varies due to two key reasons: outlier treatment and data availability in subsequent years.

For same year analysis, both independent variables and dependent variables were derived the data sets of the year 2000 to 2023. For one-year analysis, independent variables were derived the data sets of the year 2000 to 2023, while dependent variables were derived the data sets of the year 2021 to 2024. For two-year forward, independent variables were derived the data sets of the year 2000 to 2022, while dependent variables were derived the data sets of the year from 2022 to 2024.

Firstly, to mitigate the influence of extreme values, we applied Winsorization at the 1% and 99% levels to reduce the extreme outliers in all financial variables. Following this outlier adjustment, the sample size used for analyzing firm performance was reduced to 577 observations for data in year t and in year $t+1$.

Then, due to the structure of the two-year forward ($t+2$) analysis, data from 2020 to 2024 were employed. However, some data from 2024 were not yet fully published for all firms. Consequently, the sample size for the regression analysis for year $t+2$ period further decreased to 401 observations. The data structure and variable collection periods are presented in Table 2.

Table 2 Data structure and variable collection periods

	Independent variables data	Dependent variables data	No. observation (firm-year observations)
Current year	2020 - 2023	2020 - 2023	577
One-year forward	2020 - 2023	2021 - 2024	577
Two-year forward	2020 - 2022	2022 - 2024	401

Study variables

The Independent variable is ESG performance, measured by the ESG_combine score from Refinitiv database for the period 2020 to 2023 (Aydoğmuş et al., 2022; Gutiérrez-Ponce & Wibowo, 2023; Manapteechedeert et al., 2024; Naeem et al., 2022; Velte, 2017, 2019).

For the dependent variables, financial performance is measured by three indicators during the period 2020 to 2024: return on assets (ROA) which represents the profitability of the firm from its total assets, return on equity (ROE) which represents the profitability of the firm from its shareholder equity and Tobin's Q which represents the market value of equity plus liabilities to book value of total assets (Alareeni & Hamdan, 2020; Aydoğmuş et al., 2022; Velte, 2017, 2019).

Lastly, we also considered two control variables: leverage (LEV) calculated by total debt to total assets and firm size (SIZE) calculated by the natural logarithm of total assets. (Aydoğmuş et al., 2022; Naeem et al., 2022; Velte, 2017, 2019; Zahid et al., 2022) and their explanations are summarized in **Table 3**.

Table 3 Variables of the study

Variables	Explanation
<i>Dependent variables</i>	
ROA	Return on Assets = $\frac{\text{Income before Tax and interest}}{\text{total assets}} \times 100$
ROE	Return on Equity = $\frac{\text{Net income}}{\text{total equity}} \times 100$
Tobin's Q	$\frac{\text{Market value of equity and liabilities}}{\text{Book value of total assets}}$
<i>Independent variables</i>	
ESG Performance	ESG_combine score collected from Refinitiv database
<i>Control variables</i>	
LEV	Total debt / total assets (Leverage)
SIZE	Natural logarithm of total assets (Firm size)

Study model

We use 3-panel regression models to investigate the study's objectives as follows:

$$ROA_{it+j} = \beta_0 + \beta_1 ESGScore_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \epsilon_{it} \quad (1)$$

$$ROE_{it+j} = \beta_0 + \beta_1 ESGScore_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \epsilon_{it} \quad (2)$$

$$TQ_{it+j} = \beta_0 + \beta_1 ESGScore_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \epsilon_{it} \quad (3)$$

Results

Table 4 Descriptive statistics

Variables	Mean	Median	Max.	Min	SD
ESG Score	52.51	53.28	91.98	2.28	16.87
ROA	7.45	6.63	44.30	-23.10	6.95
ROE	10.12	10.00	68.93	-45.02	14.82
Tobin's Q	1.56	1.20	5.23	0.63	0.94
LEV	0.48	0.49	0.96	0.09	0.18
SIZE	10.20	10.09	15.06	6.38	1.67

In **Table 4**, summarizes the descriptive statistics, providing an overview of the distribution and characteristics of the key variables in this study. The average ESG Score is 52.51, with a median of 53.28, with scores ranging from a minimum of 2.28 to a maximum of 91.98 and a standard deviation of 16.87. This indicates considerable variation in ESG performance among firms. ROA has a mean of 7.45, a median of 6.63, a maximum of 44.30, and a minimum of -23.10, with a standard deviation of 6.95. This reflected substantial differences in the firm's operational profitability. ROE reports a mean of 10.12 and a median of 10.00, with a wide range from -45.02 to 68.93 and a standard deviation of 14.82. This indicates significant variation in returns to shareholders. Tobin's Q records a mean of 1.56 and a median of 1.20, ranging from 0.63 to 5.23, with a standard deviation of 0.94. This suggests moderate dispersion in market valuation. Leverage (LEV) shows a mean of 0.48 and a median of 0.49, with values ranging between 0.09 and 0.96 and a standard deviation of 0.18. This indicates relatively consistent debt ratios among firms. Firm size (SIZE), measured as the natural logarithm of total assets, has a mean of 10.20, a median of 10.09, a minimum of 6.38, and a maximum of 15.06, with a standard deviation of 1.67. This reflects variation in the scale of firms included in the sample.

To test the effect of ESG performance on the financial performance of companies listed on the Stock Exchange of Thailand (SET), Panel Regression Analysis was applied in this study by controls for firm-specific heterogeneity (Firm Fixed Effects) and time-specific factors (Year Fixed Effects) by employing the Fixed Effects Model (FEM) and Random Effects Model (REM). The FEM is compared with the REM to evaluate model appropriateness and address potential endogeneity issues through the Hausman test (Hausman, 1978). If the p-value from the Hausman test is less

than 0.05, the FEM is selected; otherwise, the REM is preferred (Alareeni & Hamdan, 2020; Manapteechadeelert et al., 2024).

Before conducting the panel regression analysis, the validity and appropriateness of the data to produce reliable coefficient estimates and avoid violations of regression assumptions. All dependent variables are Winsorized at the 1% and 99% to reduce the extreme outliers (Chen et al., 2023; Liu et al., 2025; Treepongkaruna et al., 2024) and to prevent multicollinearity, the correlations among independent variables were checked using Pearson correlation coefficients. The analysis confirmed that no variables were correlated above 0.80, which could otherwise cause statistical problems.

Table 5 Correlation matrix of variables

Variables	ROA	ROE	Tobin's Q	ESG Score	LEV	SIZE
ROA	1.000					
ROE	0.882**	1.000				
Tobin's Q	0.332**	0.260**	1.000			
ESG Score	-0.0861*	-0.029	-0.065	1.000		
LEV	-0.356**	-0.097*	-0.186**	0.141**	1.000	
SIZE	-0.141**	-0.062	-0.143**	0.485**	0.424**	1.000

Note: significant at * $p < 0.05$, ** $p < 0.01$

Table 5 presents the Pearson's correlation outputs; all correlation coefficients on independent variables and control variables are less than 0.80 (Hair JR et al., 2010). These correlations do not indicate a multicollinearity problem; therefore, multiple regression analysis can be appropriately conducted.

Table 6 Regression outcomes for ESG performance and ROA

Variable	ROA (t)		ROA (t+1)		ROA (t+2)	
ESG	-0.019	0.399	-0.007	0.830	0.057*	0.091
LEV	-10.214***	0.000	16.544***	0.000	14.017***	0.001
SIZE	0.0534	0.857	-6.097***	0.000	-6.458***	0.000

Table 6 Regression outcomes for ESG performance and ROA (Cont.)

Variable	ROA (t)		ROA (t+1)		ROA (t+2)	
Constant	12.749***	0.000	62.204***	0.000	63.878***	0.000
Wald Chi ² / F-value	25.62***	0.000	10.06***	0.000	8.55***	0.000
Hausman Chi ² (P-value)	1.19 (0.754)		31.16 (0.000)		27.82 (0.000)	
R-Squared	0.08		0.07		0.10	
Observation	577		577		401	
Model	Random Effect		Fixed Effect		Fixed Effect	

Note: significant at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6 shows the regression results of Model 1. The result of ESG performance has a statistically significant positive influence on return on assets (ROA) ($\beta = 0.057$, $p < 0.1$) in two-year forward (t+2), but no statistically significant influence was observed in the same year (t). These findings are consistent with the studies of Apiwatphokinkul and Chaikyul (2024); Manapteechadeelert et al. (2024) which studied the relationship between ESG performance and ROA in Thailand. Similar results were reported by Aqabna et al. (2023) which investigated this relationship in Middle Eastern and North African (MENA) countries, and Gutiérrez-Ponce and Wibowo (2023), which conducted their study in Indonesia. Furthermore, the results align with Naeem et al. (2022), which compared developed and developing countries and also found significant relationships in the one-year forward (t+1).

Regarding the control variables, leverage (LEV) has a negative and statistically significant effect on ROA ($\beta = -10.214$, $p < 0.01$) in the current year (t+0), which is consistent with the findings of Chairani and Siregar (2021) studied in ASEAN5 countries, as well as the study by Aqabna et al. (2023) in MENA countries. However, leverage (LEV) showed a positive and significant effect on ROA ($\beta = 16.544$, $p < 0.01$) in the one-year forward (t+1) and ($\beta = 14.017$, $p < 0.01$) two-year forward (t+2). In terms of firm size (SIZE), there was a negative and significant effect on ROA ($\beta = -6.097$, $p < 0.01$) in the one-year forward (t+1) and ($\beta = -6.458$, $p < 0.01$) two-year forward (t+2), consistent with Naeem et al. (2022) in developing countries. But firm size (SIZE) has no significant effect on ROA in the same year (t), which is similar to the findings of Chancharat and Chancharat (2019) in Thailand, Ntim et al. (2015) in South Africa, Rossi et al. (2021) in Europe, and Gutiérrez-Ponce and Wibowo (2023) in Indonesia.

Table 7 Regression outcomes for ESG performance and ROE

Variable	ROE (t)		ROE (t+1)		ROE (t+2)	
ESG	-0.012	0.127	-0.095	0.130	0.029	0.662
LEV	4.844	0.584	24.134***	0.003	15.635*	0.073
SIZE	6.663**	0.028	-15.476***	0.000	-11.513***	0.000
Constant	-54.873*	0.074	161.413***	0.000	118.275***	0.000
Wald Chi ² / F-value	2.25*	0.082	13.81***	0.000	5.67***	0.001
Hausman Chi ²	8.50	0.037	38.22	0.000	15.47	0.001
R-Squared	0.02		0.09		0.07	
Observation	577		577		401	
Model	Fixed Effect		Fixed Effect		Fixed Effect	

Note: significant at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7 shows the regression results of Model 2. The result reveals that ESG performance does not have a statistically significant effect on return on equity (ROE) in all of periods, the current year (t), the one-year forward (t+1), or two-year forward (t+2). These results are consistent with studies by Aqabna et al. (2023) in MENA countries, Gutiérrez-Ponce and Wibowo (2023) in Indonesia, Apiwatphokinkul and Chaikayul (2024) in Thailand, and Yoon et al. (2024) in South Korea.

For the control variables, leverage (LEV) has a positive and statistically significant effect on ROE ($\beta = 24.134$, $p < 0.01$) in the one-year forward (t+1) and ($\beta = 15.635$, $p < 0.1$) in two-year forward (t+2). while no significant effect is observed in the current year (t). These findings align with the studies by Aqabna et al. (2023) in MENA countries and Gutiérrez-Ponce and Wibowo (2023) in Indonesia. Firm size (SIZE) has a positive and statistically significant effect on ROE ($\beta = 6.663$, $p < 0.05$) in the current year (t). In contrast, firm size shows a negative and significant effect on ROE ($\beta = -15.476$, $p < 0.01$) in the one-year forward (t+1) and ($\beta = -11.513$, $p < 0.01$) two-year forward (t+2).

Table 8 Regression outcomes for ESG performance and Tobin's Q

Variable	Tobin's Q (t)		Tobin's Q (t+1)		Tobin's Q (t+2)	
ESG	-0.003	0.204	-0.012***	0.000	-0.010***	0.002
LEV	-0.028	0.922	0.167	0.602	-0.028	0.948
SIZE	-0.459***	0.000	-0.749***	0.000	-0.445***	0.002
Constant	6.423***	0.000	9,675***	0.000	6.484***	0.000
Wald Chi ² / F-value	7.81***	0.000	25.48***	0.000	6.481***	0.000
Hausman Chi ²	16.40	0.001	52.61	0.000	15.63	0.001
R-Squared	0.06		0.16		0.09	
Observation	577		577		401	
Model	Fixed Effect		Fixed Effect		Fixed Effect	

Note: significant at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8 shows the regression results of Model 3. The result of ESG performance has a negative and statistically significant effect on firm value (Tobin's Q) ($\beta = -0.012$, $p < 0.01$) in the one-year forward (t+1) and ($\beta = -0.010$, $p < 0.01$) two-year forward (t+2). while no significant effect is observed in the current year (t). These findings are consistent with prior studies, including Manapteecheelert et al. (2024); Meeprom et al. (2024) in Thailand, Chairani and Siregar (2021) in the ASEAN-5 countries, and Lerskullawat and Ungphakorn (2024) in Thailand, the Philippines, and Singapore.

For the control variables, leverage (LEV) does not show any statistically significant effect on firm value Tobin's Q at the 0.1 level in the same year (t), one-year forward (t+1), or two-year forward (t+2). These results align with the findings of Alareeni and Hamdan (2020) in the United States, Chairani and Siregar (2021) in the ASEAN-5 countries, Aqabna et al. (2023) in MENA countries, and Gutiérrez-Ponce and Wibowo (2023) in Indonesia. Firm size (SIZE) shows a negative and statistically significant effect on firm value (Tobin's Q) ($\beta = -0.459$, $p < 0.01$) in the same year (t), ($\beta = -0.749$, $p < 0.01$) one-year forward (t+1), and two-year forward (t+2). This result is consistent with Naeem et al. (2022), which reports this relationship in both developed and developing countries, as well as with the studies of Lerskullawat and Ungphakorn (2024) in the ASEAN-5 countries and Manapteecheelert et al. (2024) in Thailand.

Conclusion

The findings of this study highlight the critical role of the time period in understanding the relationship between ESG performance and financial performance among companies listed on the Stock Exchange of Thailand (SET). Data was observed from the period 2020 to 2024. The results show that ESG performance statistically significantly exerts a positive effect on return on assets (ROA) in the two-year forward ($t+2$), suggesting that the financial benefits of ESG initiatives in terms of operational efficiency emerge over a longer horizon. This result aligns with previous studies such as Naeem et al. (2022), which found delayed positive effects of ESG on financial performance in developing countries, Aqabna et al. (2023), which observed similar lagged effects in MENA countries and Gutiérrez-Ponce and Wibowo (2023) in the Indonesian context. The delayed positive effect reflects that ESG activities, which often require substantial resources and long-term planning, gradually contribute to improved asset utilization and operational excellence. Additionally, Tobin's Q has a statistically significant negative relationship in the one-year and two-year forward periods ($t+1$ and $t+2$), indicating that the market may perceive ESG-related investments as costs that reduce firm value in the near term. This result corresponds with Chairani and Siregar (2021); Lerskullawat and Ungphakorn (2024); Manapteechee et al. (2024), who found that investors in ASEAN and Thailand markets. These results suggest that market participants in emerging markets like Thailand may undervalue ESG initiatives due to skepticism about their future payoffs, insufficient ESG disclosure quality, or may simply fail to immediately recognize the stakeholder-driven benefits of such efforts. Conversely, there is no statistically significant relationship between ESG performance and Return on Equity (ROE) across all periods. This finding is consistent with previous studies like Apiwatphokinkul and Chaiyakul (2024); Yoon et al. (2024), suggesting that ESG efforts may not directly affect shareholder returns in the short- or medium-term, reflecting the fact that ESG outcomes contribute more to broad stakeholder value than immediate financial returns.

Research suggestions

The findings indicate practical applications. Executives should view ESG implementation as a long-term strategic investment focused on operational efficiency. However, they must also prepare to address the challenge of a negative market reaction to firm valuation represented by Tobin's Q. This reaction suggests the market interprets ESG investment as a cost. To counter this perception, reinforcing high-quality, standardized disclosure is essential to reduce ambiguity and build investor confidence. Regulators play a vital role in utilizing this research as a basis for developing standard regulations. They should promote widespread understanding of the time lag for benefit realization while simultaneously enhancing the stringency of disclosure standards to help investors accurately assess the strategic value of ESG and effectively mitigate the negative impact on firm valuation during the initial phase.

Limitations and suggestions for future research

This study focused on ESG data from the Refinitiv database from 2020 to 2023, suggesting that future research could expand the scope to include ASEAN-5 countries, other emerging markets, or developing economies with similar types of firms, or consider a longer study period for firms listed on Thailand's stock exchange. In addition, future studies could explore additional factors that might influence financial performance and investigate how certain variables may moderate the relationship between ESG performance and firm outcomes.

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