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Dissecting ESG Ratings and The Role of Score Bands in Explaining Cross-Sectional Variation in Thai Stock Returns

การวิเคราะห์การจัดอันดับ ESG และบทบาทของคะแนนในการอธิบายความแปรผันของผลตอบแทนหุ้นประเทศไทย

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Abstract

This study investigates the relationship between Environmental, Social, and Governance (ESG) scores and stock returns among listed firms on the Stock Exchange of Thailand in 2024. Using 858 firm-level observations, we apply a multiple linear regression framework controlling for firm size (LNSIZE), return on assets (ROA), return on equity (ROE), earnings per share (EPS), and industry dummies. ESG scores are obtained from six providers, including SET ESG, Morningstar, ESG Book, MSCI, Refinitiv, and S&P Global. The empirical results reveal that certain ESG score bands—particularly from Morningstar and Refinitiv—have a statistically significant negative association with stock returns. This finding supports theories of investor inattention and mispricing, particularly for firms with lower ESG visibility. The study highlights that ESG band classifications may capture investor behavior more effectively than continuous scores. These findings offer valuable implications for sustainable investment strategy development, particularly in emerging markets where ESG integration remains nascent.

Keywords: ESG, stock return, ESG rating, regression model, emerging markets

บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างคะแนน ESG (สิ่งแวดล้อม สังคม และธรรมาภิบาล) กับอัตราผลตอบแทนของหุ้นในตลาดหลักทรัพย์แห่งประเทศไทย โดยใช้ข้อมูลของบริษัทจดทะเบียนจำนวน 858 บริษัทในปี 2567 การวิเคราะห์ใช้วิธีการถดถอยเชิงพหุคูณ (Multiple Linear Regression) และควบคุมปัจจัยพื้นฐาน ได้แก่ ขนาดของบริษัท (LNSIZE) อัตราผลตอบแทนจากสินทรัพย์ (ROA) อัตราผลตอบแทนผู้ถือหุ้น (ROE) และกำไรต่อหุ้น (EPS) รวมถึงตัวแปรจำลองอุตสาหกรรม คะแนน ESG ได้รับจากผู้จัดอันดับ 6 แห่ง ได้แก่ SET ESG, Morningstar, ESG Book, MSCI, Refinitiv และ S&P Global ผลการศึกษาพบว่า บริษัทที่มีคะแนน ESG อยู่ในระดับต่ำบางกลุ่มมีแนวโน้มสร้างผลตอบแทนสูงกว่า กลุ่มที่ได้คะแนนสูง โดยเฉพาะในบางตัวชี้วัด เช่น Morningstar และ Refinitiv แสดงผลทางสถิติที่มีนัยสำคัญเชิงลบระหว่างคะแนน ESG กับผลตอบแทนหุ้น สอดคล้องกับแนวคิดด้านความไม่สมบูรณ์ของข้อมูลและพฤติกรรมของนักลงทุน ผลการศึกษานี้มีนัยต่อกลยุทธ์การลงทุนอย่างยั่งยืนในตลาดเกิดใหม่ และสนับสนุนการวิเคราะห์แบบจัดกลุ่มคะแนน ESG เพื่อการตัดสินใจด้านการลงทุนและนโยบายขององค์กร

คำสำคัญ: ESG, ผลตอบแทนหุ้น, การจัดอันดับ ESG, แบบจำลองถดถอยเชิงพหุคูณ, ตลาดเกิดใหม่, SET

Introduction

Environmental, Social, and Governance (ESG) is an evaluative framework increasingly employed by corporations and investors to assess firms' commitments to sustainable and responsible business practices. Encompassing a broad range of qualitative and quantitative indicators including carbon emissions, labor conditions, board independence, and transparency ESG performance provides a multidimensional lens for evaluating non-financial risks and value creation potential. As sustainability issues gain prominence in both public discourse and institutional mandates, ESG metrics have evolved into critical inputs for strategic decision-making and investment evaluation.

The financial relevance of ESG, particularly its relationship with stock returns, has emerged as a central theme in both academic and practitioner circles. Yet, empirical findings remain inconclusive. While studies such as Albuquerque et al. (2019) document a positive relationship between ESG scores and firm performance, others including Chava (2014); Bolton & Kacperczyk (2020) report neutral or negative associations. These divergent outcomes point to the need for context-specific inquiry and methodological differentiation, particularly in light of market heterogeneity and evolving investor behavior. Yin et al. (2023) examine the impact of ESG performance on stock returns using panel data of Chinese listed companies from 2011 to 2020. They find that ESG performance positively influences stock returns, especially for non-state-owned firms and those in eastern China. In addition, Kilic et al. (2022) finds that ESG and stock returns comove positively in developing countries, offering limited diversification, while in developed countries, they comove negatively, providing stronger portfolio diversification benefits especially during financial crises.

One compelling explanation for the so-called "ESG premium" where firms with lower ESG ratings tend to yield higher returns draws on Merton's (1987) theory of incomplete information. According to this framework, companies with weaker ESG visibility may be overlooked by mainstream investors,

resulting in undervaluation and subsequently elevated realized returns (Luo, 2022). This mechanism is particularly potent in markets characterized by low liquidity and limited analyst coverage, where mispricing can persist (Dinh, 2023). Furthermore, disaggregated analyses indicate that the environmental and social dimensions, rather than the aggregate ESG score, may serve as stronger predictors of excess returns (Vu et al., 2024), suggesting differentiated investor sensitivities across ESG pillars.

Adding further complexity is the issue of ESG rating disagreement across data providers. Brandon et al. (2021) highlight that firms with greater dispersion in ESG assessments often earn higher returns, potentially reflecting heightened information asymmetry and investor uncertainty conditions which may command risk premia. The environmental pillar, in particular, emerges as the main source of rating divergence, reinforcing its perceived materiality in capital allocation decisions.

From a risk-based perspective, ESG is also positioned as a tool for mitigating downside volatility rather than enhancing upside potential. Pastor et al. (2021) argue that high-ESG firms may attract investor demand, leading to lower expected returns, although realized returns remain contingent on macroeconomic and market-specific dynamics. This risk-buffering interpretation complements valuation-based perspectives and underscores the multidimensional nature of ESG in financial modeling.

In emerging markets such as Thailand, the ESG–return nexus remains underexplored. Preliminary research by Taechaubol (2017) reveals that investor reactions to ESG disclosures such as inclusion in the ESG100 or TSI lists are generally muted and statistically insignificant. This suggests that the integration of ESG considerations into asset pricing and investment decision-making is still at an early stage. Such inefficiencies may stem from informational frictions, limited ESG literacy among retail investors, or the absence of robust enforcement and reporting standards. More recently, Khamphaphan & Sinlapates (2024) provide further empirical evidence using unbalanced panel data and a Fixed Effects Regression Model (FEM) to analyze the relationship between ESG scores and stock returns on the Stock Exchange of Thailand during 2015–2023. This finding is attributed to increased sustainability-related expenditures and long-term strategic positioning.

Most prior studies rely on continuous ESG scores, while real-world investment practices often utilize categorical banding systems (e.g., AAA to CCC ratings). These ESG score bands may better capture investor heuristics and regulatory thresholds, offering an alternative approach to measuring ESG effects on stock performance (Engelhardt et al., 2021; Gupta & Chaudhary, 2023). Our study contributes to the existing literature by adopting a band-based ESG classification system to analyze the cross-sectional variation in stock returns among Thai-listed firms. By controlling for firm fundamentals including firm size (LNSIZE), return on assets (ROA), return on equity (ROE), and earnings per share (EPS) as well as industry-fixed effects, we aim to isolate the financial implications of ESG ratings more precisely.

This research addresses a critical gap by focusing on ESG effects at the firm level using score bands within the context of an emerging market. The findings are expected to inform portfolio

construction strategies, corporate ESG disclosures, and policy frameworks that govern sustainable investing practices, particularly in Asia's evolving financial landscape.

Research Objectives

The primary objective of this study is to examine the relationship between Environmental, Social, and Governance (ESG) performance and stock returns of firms listed on the Stock Exchange of Thailand (SET), using ESG score bands rather than continuous ESG scores. By focusing on score classifications, the study aims to align more closely with how ESG ratings are interpreted and applied in real-world investment decisions.

1. To investigate whether firms with different ESG score bands exhibit significantly different stock return performance during the year 2024, after controlling for firm-specific financial variables.
2. To analyze the impact of each ESG rating source (e.g., SETESG, Morningstar Sustainalytics, ESG Book, MSCI, Refinitiv, S&P Global) on stock returns using multiple regression models.
3. To determine the role of firm fundamentals, including firm size (measured as the natural logarithm of total assets), return on assets (ROA), return on equity (ROE), and earnings per share (EPS), in influencing stock returns.

Research Methods

This study employs a quantitative research design to examine the relationship between Environmental, Social, and Governance (ESG) ratings and stock returns among Thai publicly listed firms for the fiscal year 2024. Using a cross-sectional analytical framework, the research investigates whether ESG scores both in aggregate and across multiple rating providers significantly explain the variation in stock returns after controlling for financial performance indicators and industry-specific effects. The data are collected from multiple secondary sources, including ESG rating providers (such as SETESG, Morningstar Sustainalytics, ESGBook, MSCI, Refinitiv, and S&P Global) and publicly disclosed financial statements. The final sample comprises 858 firms listed on the Stock Exchange of Thailand (SET) with complete and consistent data on ESG ratings, stock returns, and financial metrics. A purposive sampling method was applied to ensure that all firms in the dataset had full coverage for the selected variables. In addition, firms were categorized into eight major industry sectors, with dummy variables assigned to control for sectoral effects in the regression model.

The regression model also incorporates eight industry dummy variables to capture industry-level heterogeneity. The model is specified as follows:

$$R_{i,t} = \alpha + \beta_1 ESG_{i,t-1} + \beta_2 lnSIZE_{i,t-1} + \beta_3 ROA_{i,t-1} + \beta_4 ROE_{i,t-1} + \beta_5 EPS_{i,t-1} + \sum_{j=1}^{7} \beta_{i,j} IND_{i,j} + \varepsilon_i$$

where,

Dependent Variable: Return (R): Stock return calculated by the formula: $(P_t - P_{t-1}) / P_{t-1}$, where P_t is the stock price at time t, and P_{t-1} is the stock price at time t-1.

Independent variables: ESG scores (entered one at a time for robustness testing), the natural logarithm of firm size (LNSIZE), Return on Assets (ROA), Return on Equity (ROE), and Earnings per Share (EPS).

To estimate the model, Ordinary Least Squares (OLS) regression is employed, with robust standard errors used to correct for potential heteroskedasticity. The presence of heteroskedasticity is formally tested using the Breusch–Pagan test, while the Durbin–Watson statistic is calculated to assess the presence of autocorrelation in residuals. Multicollinearity among independent variables is examined using Variance Inflation Factor (VIF) scores.

Based on the theoretical framework and empirical literature, the study proposes several hypotheses. First, it is hypothesized that firms with higher ESG scores will exhibit significantly different stock returns compared to those with lower ESG scores (H1). Second, firm size, measured by LNSIZE, is expected to be negatively associated with stock returns (H2). Third, financial performance metrics such as ROA and ROE are hypothesized to have a positive association with stock returns (H3). Fourth, it is anticipated that higher earnings, reflected by EPS, are also positively associated with stock performance (H4). Lastly, industry-specific effects are expected to influence returns even after controlling for firm-level financial characteristics (H5). These hypotheses are tested across multiple regression models, with ESG scores from different providers examined individually to assess the consistency and strength of their explanatory power.

Empirical Results

Table 1 presents the frequency distribution of ESG band scores assigned by three major ESG rating agencies: MSCI, Refinitiv, and S&P Global, for a total of 858 firm-year observations in the dataset. These band scores are commonly used to classify companies based on their ESG performance, with higher bands reflecting stronger sustainability practices.

For MSCI, the majority of firms (90.1%) have no assigned ESG rating, reflecting either data unavailability or exclusion from the MSCI coverage universe. Among the rated firms, only a small portion received high ESG ratings: one firm (0.1%) was rated AAA, 16 firms (1.9%) each were rated AA and A, and 26 firms (3.0%) were assigned a BBB rating. Lower-tier ratings, such as BB, B, and CCC, accounted for 1.5%, 1.4%, and 0.1% of firms, respectively. The distribution suggests limited coverage and relatively conservative assessments from MSCI for Thai-listed firms.

In the case of Refinitiv, ESG scores were grouped into five bands: 0 (scores below 51), 1 (scores 51–60), 2 (61–70), 3 (71–80), and 4 (above 81). The data indicate that the majority of firms fall into the lowest score band: 743 firms (86.6%) received scores below 51. Only 49 firms (5.7%) scored in the 51–60 range, and 44 firms (5.1%) scored between 61–70. The top bands 71–80 and above 81 contained just 18 (2.1%) and 4 (0.5%) firms, respectively. This skewed distribution illustrates a strong left-tail bias in ESG performance according to Refinitiv metrics, signaling either stricter evaluation criteria or a genuine lack of sustainability integration among most firms in the sample.

For S&P Global, the distribution pattern closely mirrors Refinitiv's, with 804 firms (93.7%) falling into the lowest band (scores below 51). Only 28 firms (3.3%) were classified in the highest band (scores above 81), followed by very small proportions in the intermediate bands: 3 (1.0%) in the 71–80 range, 8 (0.9%) in 61–70, and 9 (1.0%) in 51–60. The dominance of low-score observations again emphasizes the nascent stage of ESG maturity among Thai-listed companies or differences in ESG disclosure standards.

Table 1 Frequency Distribution of ESG Band Scores

SET ESG RATING	**N**	**%**
AAA	55	6.4
AA	81	9.4
A	72	8.4
BBB	21	2.4
No	629	73.3
Total	858	100.00
MORNINGSTAR SUSTAINALYTICS	**N**	**%**
Negligible	0	0
Low	30	3.5
Medium	72	8.4
High	31	3.6
Severe	8	0.9
No	717	83.6
Total	858	100.00
ESG BOOK	**N**	**%**
4 (> 81)	0	0.0
(71-80)	5	0.6
2 (61-70)	36	4.2
1 (51-60)	39	4.5
0 (0-50)	778	90.7
Total	858	100.00

For S&P Global, the distribution pattern closely mirrors Refinitiv's, with 804 firms (93.7%) falling into the lowest band (scores below 51). Only 28 firms (3.3%) were classified in the highest band (scores above 81), followed by very small proportions in the intermediate bands: 3 (1.0%) in the 71–80 range, 8 (0.9%) in 61–70, and 9 (1.0%) in 51–60. The dominance of low-score observations again emphasizes the nascent stage of ESG maturity among Thai-listed companies or differences in ESG disclosure standards.

Table 1 Frequency Distribution of ESG Band Scores (Continued)

MSCI	**N**	**%**
AAA	1	0.1
AA	16	1.9
A	16	1.9
BBB	26	3
BB	13	1.5
B	12	1.4
CCC	1	0.1
No	773	90.1
Total	858	100.00
REFINITIV	**N**	**%**
4 (> 81)	4	0.5
3 (71-80)	18	2.1
2 (61-70)	44	5.1
1 (51-60)	49	5.7
0 (0-50)	743	86.6
Total	858	100.00
S&P GLOBAL	**N**	**%**
4 (> 81)	28	3.3
3 (71-80)	9	1.0
2 (61-70)	8	0.9
1 (51-60)	9	1.0
0 (0-50)	804	93.7
Total	858	100.00

Table 2 summarizes the descriptive statistics for the key variables used in the empirical analysis. The dataset comprises 858 firm-level observations for the year 2024. These statistics provide an overview of the central tendency, dispersion, and range for stock returns, ESG indicators, and selected financial control variables. The average stock return (RETURN) across firms is –15.97%, with a standard deviation of 32.41%, indicating substantial variation in performance. The returns range from a minimum of –93.9% to a maximum of 395.38%, suggesting the presence of a few extreme outliers and potentially volatile market conditions.

Table 2 Descriptive Statistics

Variables	N	Mean	Std. Dev.	Min	Max
RETURN (%)	858	-15.97	32.41	-93.9	395.38
SETESG	858	0.73	1.3	0	4
Morningstar Sustainalytics	858	0.51	1.2	0	5
ESGBook	858	6.65	23.12	0	416.7
MSCI	858	0.41	1.31	0	7
Refinitiv	858	11.61	23.44	0	91.34
S&PGlobal	858	7.42	19.74	0	95
SIZE (million Baht)	858	18,395.09	76,441.51	51.71	963,602.3
ROA (%)	858	11.21	240.81	-221.4	7041
ROE (%)	858	-1.71	83.85	-2345.94	246.91
EPS	858	0.66	29.99	-857.3	34.86

Firm size (SIZE), measured in million Baht, has a mean of 18,395.09 with a large standard deviation of 76,441.51, indicating significant heterogeneity in firm size, from as low as 51.71 million to nearly 964 billion Baht. Return on Assets (ROA) and Return on Equity (ROE) exhibit extreme variations as well, with ROA ranging from –221.4% to 7,041% (mean = 11.21%) and ROE from –2,345.94% to 246.91% (mean = –1.71%). These large variances highlight possible outliers or data distortions in accounting performance. Earnings per Share (EPS) also shows wide dispersion, with values ranging from –857.3 to 34.86 Baht and a mean of 0.66.

From Table 3, firms classified as ESG (n = 226) were compared with non-ESG firms (n = 632) using independent sample t-tests to detect significant differences in means across financial and performance variables. The mean stock return (RETURN) did not differ significantly between the two groups ($t = -0.637$), suggesting no notable return premium for ESG inclusion in this sample.

A significant difference was observed in firm size, with non-ESG firms being significantly larger on average than ESG firms ($t = -2.173$, $p < 0.05$). This finding may reflect the broader inclusion of mid-cap firms in ESG practices in the Thai market. Additionally, EPS was significantly higher among ESG firms ($t = 2.205$, $p < 0.05$), suggesting better earnings generation per share, potentially linked to ESG-related efficiencies or market perception benefits. No statistically significant differences were found for ROA or ROE, indicating that accounting profitability metrics do not differ significantly based on ESG classification in this sample.

Table 3 Difference in Means (t-test) Between ESG and Non-ESG Firms

Variables	ESG (n=226)		NON-ESG (n=632)		t-stats
	MEAN	SD.	MEAN	SD.	
RETURN (%)	-17.02	33.45	-15.6	31.78	-0.637
SIZE (Million Baht)	11,599.82	45,210.11	20,825.04	85,339.76	-2.173*
ROA (%)	3.76	15.23	13.88	262.87	-0.905
ROE (%)	-0.84	75.32	-2.02	86.71	0.273
EPS	1.95	4.62	0.2	31.11	2.205*

**Statistically significant at 0.01 level and *Statistically significant at 0.05 level.

Table 4 presents the Pearson correlation coefficients among the key variables. The results show statistically significant but modest positive correlations between stock returns and most ESG scores, including SETESG (r = 0.107), Morningstar (r = 0.109), Refinitiv (r = 0.112), and S&P Global (r = 0.11), all significant at the 5% level. Firm size (LNSIZE) exhibits the strongest positive correlation with stock return (r = 0.295), suggesting that larger firms tend to perform better in terms of returns in the sample year. ESG scores across providers are also strongly interrelated, especially between MSCI and S&P (r = 0.77) and between SETESG and Refinitiv (r = 0.729), indicating some convergence in ESG assessment methodologies. However, ROA, ROE, and EPS show very weak or insignificant correlations with stock returns, indicating that traditional accounting-based measures are less directly associated with short-term market performance in this sample.

Table 5 presents the results from three multiple linear regression models examining the relationship between ESG scores and stock returns. In Model 1, the SETESG band is negatively associated with stock return at the 5% significance level (β = -1.7956), indicating that companies with higher SETESG bands tend to exhibit slightly lower returns, potentially due to overpricing or investor preference effects. Model 2, which includes Morningstar ESG scores, reveals a similarly negative and statistically significant relationship (β = -2.2062), supporting the underperformance hypothesis of high-ESG firms. In contrast, Model 3 uses ESGBook scores as a continuous measure and shows a negative but insignificant relationship.

Table 4 Pearson Correlation Matrix

VARIABLE	RETURN	SETESG	MORNINGSTAR	ESGBOOK	MSCI	REFINITIV	S&P	LNSIZE	ROA	ROE	EPS
RETURN	1.000	0.107*	0.109*	0.08*	0.082*	0.112*	0.11*	0.295*	0.025	0.042	0.023
SETESG		1.000	0.502*	0.509*	0.495*	0.729*	0.59*	0.537*	-0.014	0.055	-0.035
MORNINGSTAR			1.000	0.55*	0.633*	0.606*	0.63*	0.588*	0.081*	0.048	0.056
ESGBOOK				1.000	0.681*	0.595*	0.68*	0.499*	0.005	0.036	0.040
MSCI					1.000	0.618*	0.77*	0.532*	0.003	0.038	0.049
REFINITIV						1.000	0.69*	0.587*	-0.015	-0.029	0.055
S&P							1.000	0.626*	-0.014	0.037	0.013
LNSIZE								1.000	0.055	0.208*	0.034
ROA									1.000	0.011	0.045
ROE										1.000	0.018
EPS											1.000

Notes: * indicates statistical significance at the 0.05 level (two-tailed test). All correlations are Pearson coefficients

Across all models, firm size (LNSIZE) consistently exhibits a strong and significant positive effect on stock return, which may be indicative of size-related advantages or investor bias in the Thai capital market. However, ROA, ROE, and EPS do not significantly impact stock returns, aligning with earlier T-test and correlation findings. The low VIF values (maximum below 2) suggest that multicollinearity is not a concern. Durbin-Watson statistics near 2 indicate no serious autocorrelation in residuals. The Breusch-Pagan tests reveal no evidence of heteroskedasticity, validating the use of OLS. The models explain around 10–11% of the variation in stock returns (Adjusted R^2), which is reasonable given the cross-sectional nature of the dataset and the noisy behavior of financial returns.

Models 4 through 6 extend the regression analysis by introducing alternative ESG rating sources MSCI, Refinitiv, and S&P Global as the main explanatory variables for stock return. Each model isolates a specific ESG score to test its explanatory power while controlling for financial fundamentals and industry membership.

In Model 4, the coefficient for MSCI ESG ratings is negative and statistically significant at the 5% level (β = -1.927, t = -1.992), suggesting that higher MSCI ESG ratings are associated with lower returns. This aligns with the investor preference theory where higher ESG-rated firms may be overvalued due to non-financial motivations. Model 5 reveals a similar pattern with Refinitiv ESG scores. The coefficient is negative and statistically significant (β = -0.1133, t = -2.024), further reinforcing the inverse association between ESG performance and stock returns in the Thai market context. It is important to reconcile these positive bivariate correlations with the negative associations observed in the multivariate regression models. This divergence may stem from suppression effects in the presence of control variables (such as firm size and industry dummies), multicollinearity among ESG scores, or distributional issues, such as skewness and heteroskedasticity, that distort OLS coefficient estimates. While VIF scores indicate that multicollinearity is not severe, and standard diagnostic tests do not reveal strong violations of assumptions, we acknowledge the potential for Type I/Type II errors, small sample bias, and non-random ESG coverage, all of which are noted as limitations.

Model 6 includes S&P Global ESG scores, which exhibit a negative but only marginally significant effect (β = -0.1307, t= -1.871). While not reaching conventional significance thresholds, the result suggests a possible downward trend in returns for highly rated firms under S&P criteria.

Firm size remains consistently significant and positively associated with returns across all models, further highlighting the return premium enjoyed by larger firms in the sample. Other financial variables (ROA, ROE, and EPS) remain statistically insignificant, consistent with previous models and supporting the robustness of the ESG signal relative to traditional performance metrics.

Table 5 Regression Results – ESG Score Models and Stock Returns

VARIABLES	MODEL 1			MODEL 2			MODEL 3		
	Coeff.	**S.E.**	**t-stats**	**Coeff.**	**S.E.**	**t-stats**	**Coeff.**	**S.E.**	**t-stats**
CONSTANT	-53.3642	4.4158	-12.081**	-54.2576	4.558**	-11.901	-52.4882	4.420**	-11.872
SETESG	-1.7956	0.9566	-1.881*	-	-	-	-	-	-
MORNINGSTAR	-	-	-	-2.2062*	1.1031	-2.123*	-	-	-
ESG BOOK	-	-	-	-	-	-	-0.0721	0.053	-1.361
MSCI	-	-	-	-	-	-	-	-	-
REFINITIV	-	-	-	-	-	-	-	-	-
S&P	-	-	-	-	-	-	-	-	-
LNSIZE	5.5343	0.6995	7.912**	5.6874	0.7276	7.822**	5.3375	0.6913	7.721**
ROA	-0.0011	0.0044	-0.243	-0.0001	0.0044	-0.031	-0.0009	0.0044	-0.270
ROE	-0.0101	0.0129	-0.784	-0.0111	0.0129	-0.863	-0.01	0.0129	-0.782
EPS	0.0091	0.0351	0.268	0.0158	0.0351	0.455	0.0143	0.0351	0.412
DUMMY VARIABLES									
SET	YES			YES			YES		
INDUSTRY	YES			YES			YES		
MAX VIF.	1.42			1.84			1.65		
DURBIN-WATSON	1.970			1.974			1.964		
BREUSCH-PAGAN	0.0101			0.0195			0.0192		
ADJUSTED R^2	0.1077			0.1082			0.106		
F-Stats	8.926**			9.224**			8.81**		

**Statistically significant at 0.01 level and *Statistically significant at 0.05 level.

The Adjusted R^2 improves slightly in Model 4 (0.1282), indicating better explanatory power when MSCI scores are used. Diagnostic tests confirm the models' validity, with low VIFs, acceptable Durbin-Watson statistics near 2 (no autocorrelation), and insignificant Breusch-Pagan statistics (no heteroskedasticity).

These findings collectively suggest that ESG scores, particularly from MSCI and Refinitiv, are negatively related to short-term stock performance in Thailand. This may reflect risk aversion, investor preference distortions, or delayed market responses to ESG valuation signals.

Table 5 Regression Results – ESG Score Models and Stock Returns (Continued)

VARIABLES	MODEL 4			MODEL 5			MODEL 6		
	Coeff.	S.E.	t-stats	Coeff.	S.E.	t-stats	Coeff.	S.E.	t-stats
CONSTANT	-54.0924	4.5238	-11.961**	-54.5351	4.6123	-11.822**	-54.990	4.823	-11.406**
SETESG	-	-	-	-	-	-	-	-	-
MORNINGSTAR	-	-	-	-	-	-	-	-	-
ESG BOOK	-	-	-	-	-	-	-	-	-
MSCI	-1.927	0.9659	-1.992*	-	-	-	-	-	-
REFINITIV	-	-	-	-0.1133	0.0561	-2.024*	-	-	-
S&P	-	-	-	-	-	-	-0.1307	0.0699	-1.871
LNSIZE	5.6193	0.7106	7.915**	5.6927	0.727	7.831**	5.7775	0.7703	7.500**
ROA	-0.001	0.0044	-0.231	-0.0011	0.0044	-0.260	-0.0011	0.0044	-0.2515
ROE	-0.011	0.0129	-0.858	-0.0127	0.013	-0.975	-0.0116	0.0129	-0.902
EPS	0.0154	0.0351	0.446	0.0161	0.0351	0.464	0.0126	0.0351	0.361
DUMMY VARIABLES									
SET	YES			YES			YES		
INDUSTRY	YES			YES			YES		
MAX VIF.	1.75			1.83			2.06		
DURBIN-WATSON	1.969			1.982			1.966		
BREUSCH-PAGAN	0.0130			0.0068			0.0106		
ADJUSTED R^2	0.1282			0.1181			0.097		
F-Stats	13.012**			7.812**			8.961**		

**Statistically significant at 0.01 level and *Statistically significant at 0.05 level.

Discussion

The empirical results of this study offer nuanced insights into the relationship between ESG performance and stock returns in the context of an emerging market, Thailand. Our findings are broadly consistent with several strands of prior literature but also highlight unique aspects specific to score band usage and the structure of the Thai capital market.

First, the negative association between ESG score bands and stock returns, particularly in models using SETESG, Morningstar Sustainalytics, and MSCI, supports the existence of an "ESG premium" as described by Merton's (1987) theory of incomplete information. This suggests that firms with lower ESG visibility may be undervalued by the market, leading to higher realized returns. Accordingly, this supports Hypothesis 1 (H1), which posits a significant relationship between ESG scores and stock returns thus, H1 is accepted.

Second, our findings show that firm size (LNSIZE) is consistently and significantly positively associated with stock returns across all models. This implies that larger firms tend to yield higher returns, which may appear to contradict the classical size effect suggesting that small-cap firms generally outperform. However, in the context of the Thai capital market, this result may reflect investor preference for firms with greater market visibility, analyst coverage, or liquidity, especially in an environment where ESG integration and retail investor literacy remain limited (Taechaubol, 2017). Additionally, Dinh (2023) suggests that in markets with low ESG awareness, larger firms may be overrepresented in ESG discussions and attract more attention from institutional investors, leading to stronger price performance. These observations support Hypothesis 2 (H2) in the context of Thailand, where firm size may function as a signal of stability or strategic visibility.

Third, traditional financial variables such as ROA, ROE, and EPS exhibited limited explanatory power across models. This result contradicts some established theories in corporate finance but aligns with findings from ESG-focused studies (e.g., Pastor et al., 2021), which suggest that financial ratios may be less predictive in markets where non-financial indicators are gaining relevance. Hence, Hypotheses 3 (H3) and 4 (H4) which proposed positive associations between financial performance and stock returns are rejected based on the current dataset and model specifications.

Fourth, the statistical significance of industry dummy variables in some models indicates that sector-specific characteristics influence return behavior, even after controlling for firm-level fundamentals. Hence, H5 is accepted, reinforcing the role of industry context in shaping investor expectations and valuation outcomes. Moreover, the mixed performance of ESG ratings across providers reflects methodological divergence and varying levels of investor trust in different agencies, echoing concerns raised by Brandon et al. (2021). These differences imply that ESG is not yet a standardized or uniformly interpreted metric, particularly in emerging markets like Thailand. Future research should consider explicitly modeling ESG rating disagreement and exploring individual E, S, and G dimensions to improve interpretability.

Finally, our findings differ from studies in developed markets (e.g., Albuquerque et al., 2019), likely due to institutional and investor maturity differences, as noted by Taechaubol (2017). This suggests that Thai capital markets may require further regulatory, disclosure, and investor engagement mechanisms to fully integrate ESG into pricing models.

Conclusions

This study investigates the relationship between Environmental, Social, and Governance (ESG) score bands and stock returns of firms listed on the Stock Exchange of Thailand (SET). Drawing on a comprehensive dataset of 858 firms and multiple ESG data providers including SETESG, Morningstar Sustainalytics, ESG Book, MSCI, Refinitiv, and S&P Global, the analysis employs cross-sectional multiple regression models to assess whether ESG performance, categorized into score bands, has a measurable impact on financial outcomes.

The empirical findings suggest that ESG performance, when analyzed through categorical bands rather than continuous scores, provides nuanced insights into how the market perceives and prices sustainability-related attributes. Specifically, firms in lower ESG score bands, particularly those rated lower in environmental and social dimensions, tend to exhibit marginally higher stock returns. This supports the hypothesis of a potential ESG risk premium, whereby firms with lower ESG visibility may be undervalued or overlooked, resulting in excess returns consistent with Merton's (1987) theory of incomplete information.

Furthermore, firm size (LNSIZE) consistently shows a statistically significant negative relationship with stock returns, highlighting the return potential of smaller firms within the Thai market. Conversely, accounting-based performance indicators such as ROA, ROE, and EPS show limited explanatory power in the regression models, suggesting that non-financial factors such as ESG scores and market structure play a more dominant role in shaping return dynamics in this context.

The study also reveals that the impact of ESG on stock returns is not uniform across all rating agencies, reflecting differences in scoring methodologies, coverage, and rating philosophies. ESG rating disagreement and the dominance of certain rating dimensions (e.g., environmental) appear to influence return patterns, further complicating the interpretability of ESG signals by investors. From a policy and investment standpoint, these results underscore the growing importance of ESG metrics in emerging markets, while also highlighting the need for greater standardization and transparency in ESG ratings. Investors, regulators, and corporate managers should consider the implications of ESG band classifications not only as sustainability indicators but also as signals that may influence market valuation, capital allocation, and portfolio construction.

This research contributes to the expanding body of literature by offering empirical evidence on the financial relevance of ESG scores in a developing economy. As ESG integration becomes more central to capital markets across Asia and globally, future studies should explore multi-year panel data, causal inference techniques, and sector-specific ESG dynamics to deepen understanding of ESG's financial

impact. The Securities and Exchange Commission (SEC) of Thailand and the Stock Exchange of Thailand (SET) should enhance regulatory frameworks that promote consistent ESG disclosure standards and mandate ESG reporting for a broader set of listed firms, particularly mid- and small-cap companies often overlooked in ESG assessments. Strategic collaboration with local and international ESG rating agencies is essential to harmonize scoring methodologies and improve rating transparency. Furthermore, ESG score bands should be integrated into capital market development strategies for example, by incorporating ESG tiers into index construction, investor screening tools, or listing incentives. The SEC and SET could also support the creation of a national ESG data repository, allowing investors and firms to access standardized, audited ESG metrics. By facilitating such institutional reforms and data infrastructure, Thailand can foster more strategic, long-term capital allocation aligned with sustainability goals and investor expectations, positioning the Thai capital market as a regional leader in ESG integration.

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