

The Effect of ESG Practices on Portfolio Efficiency in Thailand's Transportation and Logistics Sector

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Abstract

This research investigates the relationship between Thailand's stock market performance and the transportation sector's adherence to environmental, social, and governance (ESG) conditions. In this study, the optimum portfolios were compared from 2020–2024 using historical data and the Capital Asset Pricing Model (CAPM) theory. The results suggest that ESG stocks play an important role in financial performance. On average, ESG stock prices are higher than those of non-ESG stocks. In addition, based on standard deviation, ESG stocks appear to be less volatile than non-ESG stocks. The findings also indicate that, due to the COVID-19 pandemic, stock values declined across all groups during 2020–2021. In the CAPM analysis, the beta coefficients of ESG stocks range revealed that risk was associated with the ranking of 0.7–1.1. Most of these were stocks exhibiting returns close to the market benchmark with less volatility. However, non-ESG stocks had a ranking of beta 0.3–1.3, confirming that they were riskier compared to the market benchmark.

Furthermore, the findings suggest that investing in ESG stocks may improve a portfolio's risk-return profile compared to non-ESG stocks. Therefore, ESG stocks may have the potential to outperform non-ESG stocks in the context of sustainable investment. In terms of policy implications, investors seeking stable long-term returns in the transportation sector may consider ESG stocks as part of their portfolio strategy. Additionally, companies aiming to enhance credibility with investors should align with SET ESG standards, which link ESG ratings to long-term performance through integration into capital markets.

Keywords: 1) TRANS stock 2) ESG risk 3) CAPM 4) Sustainability

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Introduction

Stock market investigation is no longer a new issue for investors in the digital era. Moreover, the advancement of new technology and its impact on investors provides opportunities for portfolio optimization to achieve higher returns in comparison to traditional bank savings. Therefore, the selection of securities for investment is a key factor for investors, as it can impact the expected return on investment at any given time (Shanaev and Ghimire, 2022, pp. 1-17). Not only must a company's performance be strong, but sustainable business operations must also consider environmental, social, and corporate governance, namely sustainable businesses (ESG Business). Therefore, investors who want to achieve their expected returns with reduced risk tend to invest in more sustainable stocks, which can also generate good returns for them in the long term.

Sustainable investment requires the analysis of opportunities and risks involving the environment (E: Environmental), society (S: Social), and corporate governance (G: Governance) of a business throughout the value chain, or ESG, and may have a significant impact on business operations and stakeholders. Therefore, sustainable investment is believed to provide stable returns in the long term because it emphasizes the risks of the ESG factors that directly benefit business operations. This trend continues to show a steady improvement due to sustainable business operations. To be considered sustainable, businesses must pass the Stock Exchange of Thailand's criteria, also known as ESG ratings. These ratings are categorized into four grades: BBB, A, AA, and

AAA, which have been in effect since 2023. Therefore, businesses operating in this group must maintain a sustainable performance in accordance with the conditions stipulated by the Stock Exchange of Thailand. Given the increasingly stable investment trends and move toward sustainable stocks, investors are becoming more interested in the securities of sustainable business groups.

The Stock Exchange of Thailand's securities are divided into eight industry categories consist of Agro & Food, Consumer Products, Financials, Industrials, Property & Construction, Resources, Services and Technology. Given the changing economic situation following recovery from the COVID-19 pandemic, one business group has become significantly more prominent: logistics or transportation stocks, which showed in the services industry. These remain crucial to the current economic climate. The transportation industry is an important part of the stock market due to its direct relationship with economic growth and trade, both nationally and globally (Onomakpo, 2025, pp. 1-29). Changes in the transportation industry not only impact companies operating in the business itself, but also the entire supply chain, including manufacturers, distributors, and consumers. This makes transportation stocks a key player in investment portfolios and has a far-reaching impact on economic performance. When it comes to their connection to the global economy, transportation stocks are directly linked to the movement of goods and raw materials around the world. This means that changes in factors such as economic expansion, oil price changes, economic crises, or trade wars all

impact the transportation industry. Therefore, the volatility of transportation stocks reflects changes in the global economy and market direction. However, the transportation industry is one of the sectors most affected by external factors such as fluctuating oil prices, geopolitical changes, environmental policies, and the development of new technologies. This study addresses an important research gap by examining ESG and stock returns in Thailand's transportation sector. This sector differs from those in developed markets due to its emerging market characteristics and distinct regulatory environment. Its reliance on infrastructure investment and logistics integration makes it especially sensitive to ESG factors. Therefore, this study contributes novel evidence from a

unique institutional setting.

These factors can rapidly change the performance of transportation companies. Investors must therefore pay close attention to monitoring and analyzing these factors to assess investment risks and opportunities. As can be observed in the Figure 1, the SET, SETESG, and TRANS indexes show volatility from 2020–2021 due to the shock emanating from the COVID-19 pandemic. Following that period, stocks in the three indexes demonstrated an upward trend again. The SETESG Index was close to that of the SET, but the TRANS Index showed less volatility than the SET and SETESG indexes. Hence, investors became more interested in logistics companies since they were less volatile than other industries.

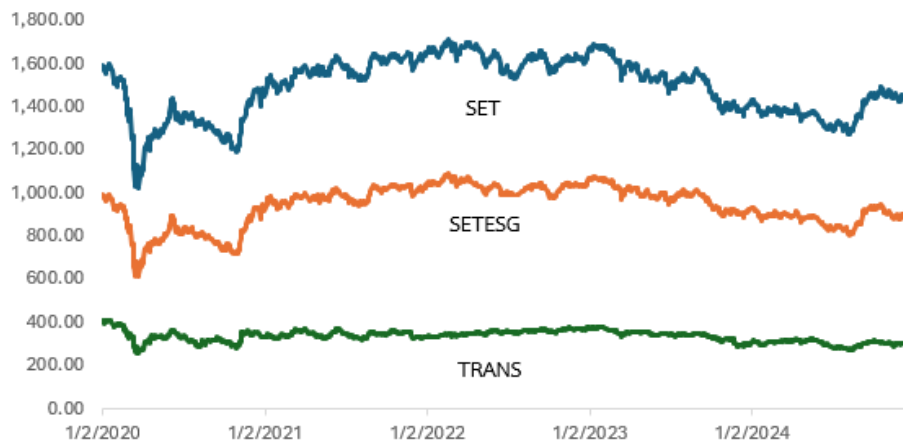


Figure 1 SET, SETESG and TRANS index

Source: settrade, 2025

Furthermore, transportation stocks play a crucial role in portfolio risk management strategies. Sustainable transportation stocks are well-suited to situations of economic change or market uncertainty, making them a valuable indicator of economic movements and market trends. Therefore, to manage risk within an investment portfolio, optimization is

important. This study analyzes and compares sustainable stocks (ESG stocks) and other stocks (non-ESG stocks) in the TRANS group. This is crucial when deciding to invest in transportation stocks, as failure to adapt could put companies at a competitive disadvantage and impact their long-term performance.



Research Aims and Objectives

1. To compare the characteristics of ESG and non-ESG stock prices using historical data.
2. To analyze the stock returns and volatility of ESG and non-ESG companies.
3. To investigate the impact of the market index on ESG and non-ESG stock returns using CAPM theory.

The Scope of Research

The daily data in the TRANS stock data from SETSMART is analyzed using historical data. Moreover, the risk and returns of the two groups (ESG and non-ESG) are presented to demonstrate their influence on investor decision-making. The CAPM is used in this study to test the beta and alpha for analyzing the risks affecting portfolio management. The data collection period ranges from January 2, 2020, to December 31, 2024, covering the COVID-19 pandemic.

Contribution of this study

The research helps to expand understanding of the role played by ESG in the returns and risks of stocks in the transportation and logistics sector, an industry with high environmental impact and structural importance to the Thai economy. Comparing the performance of stocks with ESG ratings to general stocks (non-ESG) will help confirm or challenge international findings through the following research questions: Can sustainable investment generate superior, equal, or inferior returns compared to conventional investing? Does investing in ESG stocks provide better risk-adjusted returns than conventional stocks? The findings of this study are expected to

benefit investors through better management of their investment portfolios, while businesses can operate effectively through sustainable management.

Literature Review

1) The Impact of ESG Themes on stock returns: The relationship between ESG ratings and stock returns has been widely explored across different contexts, yielding diverse but largely supportive findings. A comprehensive meta-analysis by (Friede, Busch, and Bassen, 2015, pp. 210-233), reviewing over 2,000 studies, concludes that the majority find either a neutral or positive association between ESG and financial performance, suggesting that ESG considerations are not detrimental to returns. Engelhardt, Ekkenga and Posch (2021, pp. 1-15) found that high ESG ratings in 1,452 firms from 16 different European countries led to higher abnormal returns and lower stock volatility during the COVID-19 crisis. Moreover, the results show that firms with higher ESG performance demonstrate higher cumulative and lower idiosyncratic volatility. Moreover, according to La Torre, et al. (2020, pp. 1-12), the EURO STOXX 50 index from 2010–2018 showed that ESG factors such as quantitative ratings, scoring, and qualitative opinions affected stock returns and reduced volatility but did not affect ESG commitments. However, Li, et al. (2023, pp. 1-15), who studied the A-share financial market in China from 2015–2022, showed that stock returns were negatively related to ESG ratings. In contrast, Rodionova, Skhvediani and Kudryavtseva (2022, pp. 1-26) studied US stock returns and ESG ratings, divid-

ing them into two groups: green and non-green companies. The results revealed that green companies had higher returns than non-green companies and less volatility. In addition, the Great Recession (2007–2009) and the COVID-19 pandemic significantly impacted the US stock market and increased investment risk. Feng, et al. (2022, pp. 1884–1895) reported the relationship between ESG or CSR and stock returns, focusing on short and long-run relationships. The results showed that ESG, CSR, and stock returns all exhibited cross-sectional dependence over short and long-term relationships. Moreover, Whelan, et al. (2021, p. 10), Broadstock, et al. (2021, pp. 1-9), and Gavrilakis and Floros (2023, p. 3)[A1.1][A1.2] showed that the relationship between ESG and financial performance had a positive correlation with ESG performance and stock returns. Friede, Busch, and Bassen (2015, pp. 210-233) and Chen, Song and Gao (2023, pp. 1-15) proved that ESG performance is positively interrelated with corporate performance in large-scale companies, so this results confirmed that beneficial to companies and governments to create the advantage of ESG stocks.

2) Theoretical Foundations linking ESG and Stock Return: Sharpe, W. F. (1964, pp. 425-442) investigated financial market theory, namely the CAPM (resulting in him receiving a Nobel Prize in 1990). He proposed that the CAPM be employed to set the investor rate of return on a risky security, given the non-diversifiable risk. The systematic risk will then decrease by diversifying the portfolio and applying the Markowitz model, which depends on the tradeoff between risk and return. The

CAPM explains the risk by the coefficient of BETA. Rodionova, Skhvediani and Kudryavtseva (2022 pp. 1-26) examined the CAPM theory and tested the hypothesis using the coefficients of BETA in the logistic stock market of the S&P 500, dividing the data into two groups: green and non-green logistic stocks. The results showed that green stocks were less volatile and risky when compared to non-green stocks. Rutkowska-Ziarko, et al. (2022, pp. 1-13) tested the CAPM in bull and bear periods using the London Stock Exchange. The evidence suggests a positive risk premium in increasing markets and a negative risk premium in decreasing markets, explained by the beta coefficients of CAPM theory and confirming the results of other studies (Novak and Petr, 2011, pp. 447-460; Rutkowska-Ziarko, et al., 2022, pp. 1-13; Shanaev and Ghimire, 2022, pp. 1-17)[A2.1][A2.2].

3) ESG Development in the Stock Exchange of Thailand. The Stock Exchange of Thailand (SET) began promoting good governance and adding audit committees to generate structural and regulatory internal control mechanisms and risk management systems from 1993–1996, namely corporate governance (CG), which is the foundation for all listed companies. Subsequently, from 1997–2006, it established infrastructure and networks. From 1999–2001, the Thai Institute of Directors (IOD) was created to integrate the SET, SEC, Bank of Thailand, and World Bank. The CG center, launched in Version 1, encouraged shareholder involvement through the Thai Investors Association. In 2004, the SET presented the CG recognition program, and CSR started to promote



Version 2 in 2006. From 2007–2012, the SET established the Corporate Social Responsibility Institute (CSRI). In 2008, the Guiding Principles for CSR were established, followed in 2012 by practical tools for listed companies consisting of CSR Reporting Guidelines and the IR Handbook. Furthermore, the ASEAN CG Scorecard assessment was introduced and received the top score for the first time among ASEAN countries. From 2013–2020, the SET joined the UN Sustainable Stock Exchange Initiative. In 2015, the SET launched the Thailand Sustainability Investment (THSI). In 2018, the SET introduced the new SETTHSI Index to the stock market, and subsequently the Corporate Sustainability Guide for Thai Listed Companies, involving ESG, as shown in the 56-1 One Report. From 2021–2022, the data management system, namely the ESG Data Platform, was established. In 2023, THSI was adjusted to create a SET ESG rating consisting of four grades: AAA, AA, A, and BBB, starting from November 6, 2023. In 2024, the SET Carbon was developed, in preparation for increasing the ESG assessment to the global level in 2026.

4) The logistic trends in the growth of Thailand: The impact of logistic-manufacturing integration (LMI) and stock market performance in China's A-share market showed that the stock market demonstrated a positive impact on the LMI implementation of 181 companies from 2002–2024, as reported by Liu, et al. (2025, pp. 1-20). In ASEAN, the logistic stock showed the influence of return on assets (ROA) and return on equity (ROE) in the Indonesian stock market, with the ROA of transportation and logistics companies listed from 2018–2022

reported to have negatively affected the stock price but not ROE (Septriawan, Rozi and Syaharman (2025, pp. 210-219). However, Ngoc et al. (2021, pp. 688-719)[A3.1][A3.2] studied ROA and ROE indicators in Vietnam from 2012–2019 and found that ROA had a negative impact on the stock market, but ROE was not affected, in similarity to Indonesia. In Thailand, Nittayakamolphon, et al. (2025, pp. 1-15) studied the primary driver of ESG performance on the stock market. They reported that the influence of Thailand's sustainability investment on the stock market lacked hedging functions while weak financial assets such as bitcoin were a safe haven. Consequently, Thailand's sustainability investment in the alternative asset can be used for risk diversification.

Research Review

Generally, previous studies reviewed the results showing the relationship between ESG and stock returns in many countries such as America, Europe, China and other countries but research in Thailand has found relatively few such findings. From the perspective of research theory, the CAPM explained the systematic risk will then decrease by diversifying the portfolio and applying the Markowitz model, which depends on the tradeoff between risk and return proof theory by CAPM analysis. Moreover, Thailand create a SET ESG rating consisting of four grades: AAA, AA, A, and BBB, starting from November 6, 2023. So, the business willingness to adjust the strategy for better performance in the future. For this reason, studies on ESG equity in Thailand often receive attention. Thailand is a small emerging market with potential for further development, yet

there is limited research on this topic. In this paper, the gaps in the above literature studies are attempted to be filled. This paper expanded on logistic industry in Thailand cause this area is the new emerging market. It is a capital market that should provide good risk diversification.

Hypothesis

Based on previous research, the following hypothesis can be formulated for the present study to evaluate the relationship between ESG and non-ESG stock returns and performance, represented by 23 companies. The hypothesis is that ESG stocks will outperform in the stock market of non-ESG.

Data

The stock prices in the TRANS group were collected for this research from the SETSMART database, which consisted of 29 companies. However, six companies were sub-

ject to data lag, so the data collection involved a total of 23 companies, shown in Appendix A. The data were separated into two groups: ESG companies and non-ESG companies. The first group consisted of 11 stocks with an ESG rating by the SET. The data on ESG stocks scored by the SET database were evaluated according to company performance as presented in the Form 56-1 One Report by the SEC of Thailand. The second group consisted of companies without an ESG ranking, totaling 12 stocks. The stock price data used included an adjustment to the daily closing price from the SETSMART database, comprising a total of 1,211 observations.

Methodology

The methodology used in this research consists of three steps, based on data and a literature review shown in the conceptual framework.

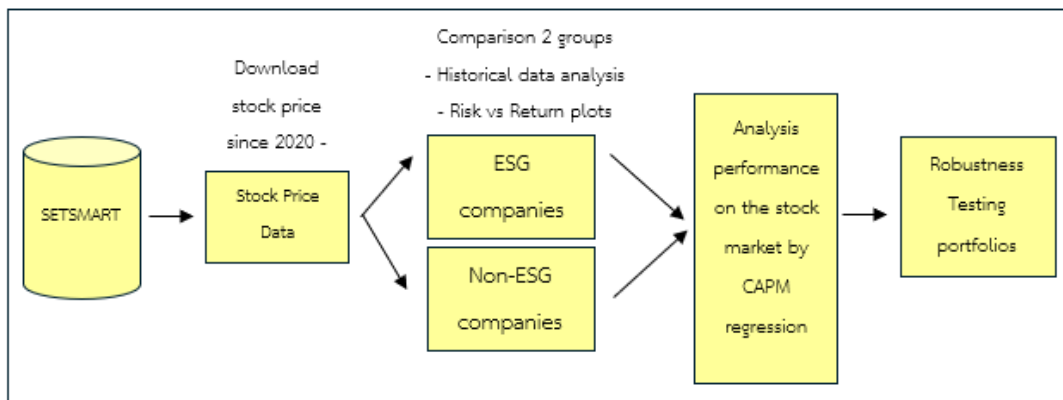


Figure 2 Conceptual Framework

For the conceptual framework, the first step, the performance measurements of stock returns were collected from SETSMART for 2020–2024, consisting of 1,211 observations in total. The stock returns and standard deviation were then calculated to show the return and risk of those stocks. Stock returns calculated by

equation (1)

$$R_{it} = \ln \left(\frac{\text{Price}_{it}}{\text{Price}_{it-1}} \right) \quad (1)$$

Volatility was calculated by standard deviation as the risk of each stock, as shown in equation (2)

$$\sigma = \sqrt{\frac{\sum_{i=1}^N (R_i - \bar{R}_i)^2}{N}} \quad (2)$$



In the second step, the risks and returns were generated to compare ESG and non-ESG companies. This research investigated the historical data on log stock returns rather than the returns and standard deviation, instead of the risk, as reported in the scatter plot graph. For the third step, linear regression was used to estimate the portfolio by the Capital Asset Pricing Model (CAPM) introduced by Sharpe, W. F. (1964, pp. 425-442), French, C. W. (2003, pp. 60-72). From a theoretical standpoint and previous paper, the Capital Asset Pricing Model (CAPM) provides a framework for understanding the relationship between systematic risk and expected returns. Building on Markowitz's portfolio theory, diversification enables investors to reduce unsystematic risk, leaving systematic risk as the primary determinant of returns. In this context, ESG and non-ESG factors may serve as additional information that influences risk perception and investment decisions, potentially affecting the risk-return trade-off and overall portfolio performance. This model explains that the standard deviation (SD) is not appropriate for measuring risk, but beta (β) can estimate the sensitivity of the risk, since it is better at representing the systematic risk than SD. The alpha in the CAPM model is known as Jensen's Alpha (Jensen, 1968, pp. 389-416). Jensen's Alpha is used to report the risk exposure relative to the excess returns of the market benchmark index. Beta compares the return of the market benchmark index with the return of each stock. When beta equals 1, the stock's returns move in line with the market, meaning the stock's risk premium equals the market risk premium. Furthermore,

if the value of beta is more than 1, the stock has higher volatility than the market, while if the value of beta is less than 1, the stock has lower volatility than the market. The risk-free rate is calculated according to the interest rates of 10-year government bonds for the CAPM equation. Equation (3) shows the CAPM regression. Jensen's Alpha is used to calculate the abnormal returns for the portfolio:

$$R_i - R_{fr} = \alpha_i + \beta_i(R_{SET_t} - R_{fr_t}) + \varepsilon_i \quad (3)$$

where R_i is returns on stock i , R_{fr} is risk-free rate, R_{SET} is returns on the market index (SET index), α_i is intercept, β_i is slope coefficient and ε_i is error term. The coefficients of alpha α_i and beta (β) are shown in Table 1. For the final step, the robustness of this research was investigated by checking the stock returns of ESG and non-ESG portfolios using the CAPM theory, but the model changes the SET Index to the SETESG Index to explain the results using beta and alpha. Equation (4) shows the CAPM regression.

$$R_i - R_{fr} = \alpha_i + \beta_i(R_{SETESG_t} - R_{fr_t}) + \varepsilon_i \quad (4)$$

where R_i is returns on stock i , R_{fr} is risk-free rate, R_{SETESG} is returns on the market index of ESG (SETESG index), α_i is intercept, β_i is slope coefficient and ε_i is error term. The coefficients of alpha α_i and beta (β) are shown in Table 1.

Table 1 Coefficients of CAPM parameters

Coefficient		Explanation
α	$\alpha < 0$	The investment outperforms the expected return based on its risk level (Outperform).
	$\alpha = 0$	The investment performs as expected according to the CAPM (Neutral performance).
	$\alpha > 0$	The investment underperforms relative to the expected return (Underperform).
β	$\beta < 1$	Assets earn lower risk than the market return.
	$\beta = 1$	Assets earn risk equal to the market return.
	$\beta > 1$	Assets earn more risk than the market return.

Results

1) Analysis of Historical Stock Data of ESG and Non-ESG

Historical stock data on ESG and non-ESG companies were examined in this study, and the average, SD, Max, Min, and Median values are reported in Table 2.

The results showed that, when compared to the historical data on the two groups in table 2, AOT in the ESG group was found to have the highest average price of all stocks but NYT is the lowest, while RCL is the highest average price, but B stock in the non-ESG group was the lowest.

Table 2 Descriptive statistics

Company	Obs.	Mean	SD	Max	Min	Median
ESG Stocks						
AOT	1,211	64.98	5.86	76.25	47.00	64.75
BA	1,211	12.12	5.20	25.75	3.60	11.50
BEM	1,211	8.60	0.76	11.40	6.50	8.55
BTS	1,211	8.34	2.03	13.80	3.76	8.60
DMT (IPO 7/5/2021)	888	11.95	0.98	15.90	10.20	11.90
III	1,211	9.71	3.83	18.16	3.49	10.30
NYT	1,211	3.82	0.57	5.45	2.62	3.80
PSL	1,211	11.62	5.32	25.25	2.42	9.60
SJWD	1,211	13.50	4.47	23.20	4.96	14.30
TTA	1,211	7.55	3.55	18.90	1.88	6.90
WICE	1,211	8.47	4.60	24.20	1.25	6.95
Non -ESG Stocks						
AAV	1,211	2.41	0.45	3.24	0.97	2.54
ASIMAR	1,211	1.77	0.47	3.08	0.58	1.66



Company	Obs.	Mean	SD	Max	Min	Median
B	1,211	0.38	0.26	1.12	0.07	0.31
BTSGIF	1,211	4.58	1.55	10.20	2.96	4.04
KEX (IPO 4/12/2020)	974	19.88	15.84	61.00	1.69	18.20
KIAT	1,211	0.46	0.10	0.76	0.22	0.44
MENA (IPO /7/2021)	847	1.72	0.36	2.72	0.91	1.75
PORT	1,211	2.06	0.62	3.56	0.98	2.08
PRM	1,211	6.96	1.16	9.80	3.14	6.80
RCL	1,211	26.73	15.16	63.50	1.70	25.50
TFFIF	1,211	8.11	1.54	12.90	6.05	7.70
TSTE	1,211	8.44	2.46	15.80	5.85	7.10

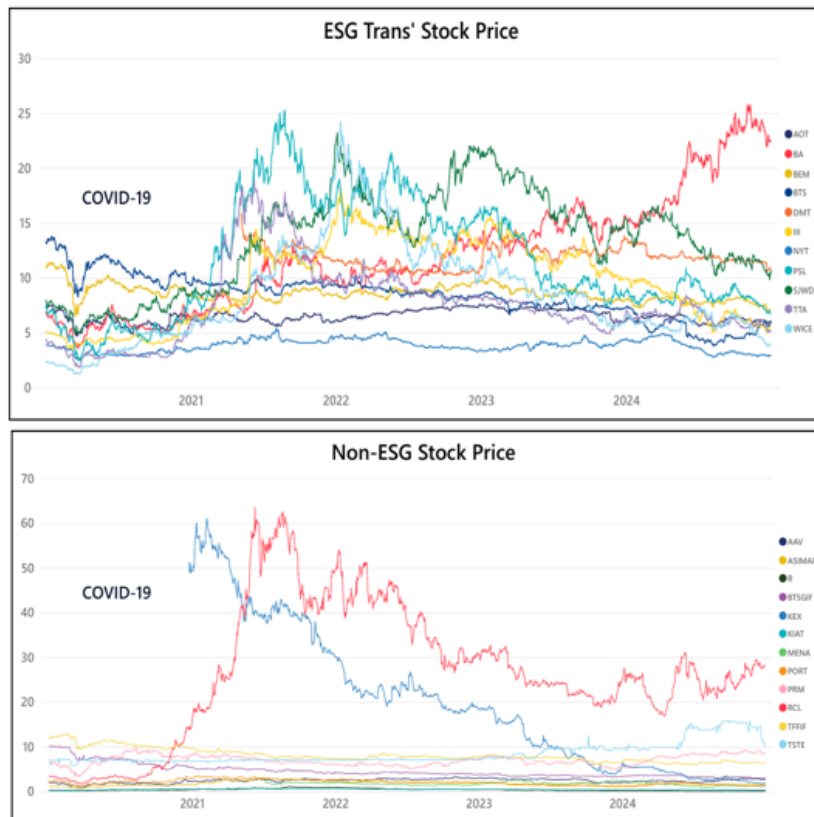


Figure 3 Adjust closed price for ESG and non ESG stocks

Moreover, Figures 3 show the pricing of ESG and non-ESG groups. According to top of Figure 3, during the period from 2020–2021, which covered the COVID-19 pandemic, the stock prices of all companies showed a downward trend, this crisis support the paper of Engelhardt, Ekkenga and Posch (2021, pp.

1-15). After that, company stock prices started to demonstrate an upward trend again, with some stocks such as PSL, NYT, and DMT showing high volatility. BA stock has shown an upward trend from 2020–2024. As can be observed from below Figure 3, all the stock prices of non-ESG tend to be very volatile, especially

KEX and RCL. The Initial Public Offering (IPO) of KEX started with the maximum price and has subsequently shown a downward trend because the company continues to suffer losses. The prices of other stocks, such as AAV, ASIMAR, and B, are not demonstrating much

growth. The trends and volatilities in this group are very different in comparison to the stocks in the ESG group.

2) Analysis of Risk and Return of ESG and Non-ESG

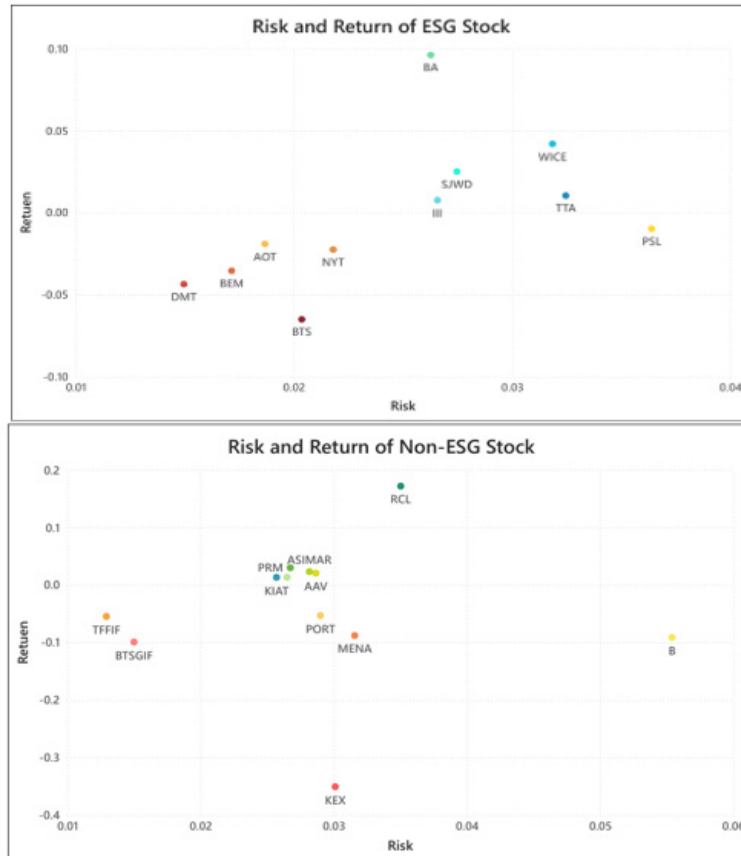


Figure 4 Risk and Return of ESG and Non-ESG stocks

The stock returns and volatilities of ESG and non-ESG companies are analyzed in this section. The risk-return plot in top of Figure 4 shows the risk measured by SD on the x-axis and returns by the log return price on the y-axis. According to the scatter plot analysis, “BA” in the ESG stock group exhibited the highest return of 9.6% with a low risk of 2.62%, indicating that it produced the best performance. On the other hand, “BTS” exhibited the lowest return of -6.49% and an SD of 2.03%, while six

stocks, namely DMT, BEM, BTS, NYT, AOT, and PSL, produced negative returns. Other stocks provided positive returns, such as BA, III, SJWD, TTA, and WICE.

According to the non-ESG stock results presented in Figure 4 below, six showed negative returns, namely B, MENA, PORT, KEX, BTSGIF, and TFFIF. Moreover, KEX produced the worst stock performance in this group, having experienced continuous losses since 2022, due to poor performance and intense competition.



On the other hand, RCL stock exhibited the best performance in this group with a maximum return of 17.19% and low risk. B exhibited the highest risk in this group, equal to 5.54% with negative returns, while KEX showed the lowest returns, indicating a poor performance by this company. Overall, stocks in this group exhibited high risk but low returns, except RCL.

Therefore, according to the second objective, the analysis of stock returns and volatilities for ESG and non-ESG companies revealed the following:

1. ESG stocks are less volatile and less risky, producing higher performance compared to non-ESG stocks. Based on these findings, investors are encouraged to adopt diversification strategies by incorporating ESG stocks into their

portfolios to enhance risk-adjusted returns and improve overall portfolio stability.

2. ESG stocks generally demonstrate higher returns compared to non-ESG stocks. Nevertheless, certain non-ESG stocks, such as KEX and B, show relatively weaker performance. This implies that investors may need to carefully evaluate these stocks, while continuing to diversify their portfolios across other securities to optimize risk management.

3. Theoretically, high risk should result in high returns. However, this research found that high-risk stocks did not necessarily yield the highest returns, and conversely, the riskiest stocks did not necessarily yield the highest returns either.

3) Regression Analysis

Table 3 Regression analysis with the ESG and Non-ESG stocks

Stock	Obs.	Intercept (Alpha)	SET Index (Beta)	Adjust R-square
ESG stocks				
AOT	1,211	0.002501***	1.117875***	0.555985
BA	1,211	0.002685***	1.073738***	0.258702
BEM	1,211	-0.001078	0.962043***	0.488326
BTS	1,211	0.000187	1.033270***	0.399350
DMT	888	-0.006389***	0.755743***	0.184610
III	1,211	-0.002016	0.899647***	0.177221
NYT	1,211	-0.004902***	0.781695***	0.198997
PSL	1,211	0.004150**	1.188888***	0.164990
SJWD	1,211	0.002532*	1.099177***	0.248005
TTA	1,211	0.004124**	1.178494***	0.204013
WICE	1,211	0.004345***	1.174194***	0.210355
Non-ESG stocks				
AAV	1,211	0.007065***	1.307980***	0.322807
ASIMAR	1,211	-0.000304	0.970625***	0.183591
B	1,211	0.001100	1.086797***	0.129643

Stock	Obs.	Intercept (Alpha)	SET Index (Beta)	Adjust R-square
BTSGIF	1,211	-0.008215***	0.665460***	0.304757
KEX	974	0.020725***	1.009900***	0.097827
KIAT	1,211	-0.001058	0.940319***	0.219964
MENA	847	-0.017699***	0.330357***	0.006608
PORT	1,211	0.001178	1.072984***	0.211842
PRM	1,211	0.001946	1.077678***	0.256205
RCL	1,211	0.001708	0.994549***	0.124420
TFFIF	1,211	-0.009225***	0.599113***	0.332659
TSTE	1,211	-0.014540***	0.317026***	0.044668

Note: *** indicates the significance level at 1%

Tables 3 show the regression analysis of excess returns for both the ESG and non-ESG groups compared to the market return benchmark. Moreover, heteroscedasticity was tested using the white test and no significant issues were detected. In addition, autocorrelation was examined using the Durbin–Watson statistic, and the results indicate that the model satisfies the required assumptions. Both the ESG and non-ESG groups, compared to the market return benchmark, found that the market return is significant in all stocks, explaining the data by Jensen’s Alpha of stocks showed in Figure 5.

ESG, the top-performing company, outperformed seven stocks, namely AOT, BA, BTS, PSL, SJWD, TTA, and WICE; hence, the investment outperformed the expected return based on its risk level. On the other hand, the investment underperforms BEM, DMT, III, and NYT. The highest overperforming company was WICE, equal to the value of 0.004345, with WICE stock returns of around 0.03 or 3%. WICE stock also produced a good performance. However, BTS had the lowest alpha, equal to

the value of 0.000187 for outperforming and close to zero, meaning that investment in BTS stock would produce adequate returns for the risk taken. The highest underperforming company was DMT, with a value equal to -0.006389, meaning that the investment would yield a lower return compared to the risk taken. Moreover, investment in NYT, III, and BEM stocks would produce a lower return compared to the risk taken. This result confirmed the previous of Rodionova, Skhvediani and Kudryavtseva (2022, pp. 1-26). Meanwhile, non-ESG stocks outperformed six stocks, namely AAV, B, KEX, PORT, PRM, and RCL. The non-ESG stocks with the highest value was KEX, meaning that investors would receive greater additional returns than expected, and the bottom graph showing risk versus return plots in Figure 5 below confirms the result. MENA stock produced the highest underperformance, equal to the value of -0.017699, meaning that the additional return received by investors was less than expected. TSTE, TFFIF, and BTSGIF exhibited negative alpha values, meaning that investors should be cautious about these stocks be-



cause they offered lower returns compared to the risk taken. This overwhelmingly supports the findings of Rutkowska-Ziarko, et al. (2022,

pp. 1-13) who suggests a positive premium in increasing markets and a negative risk premium in decreasing markets.

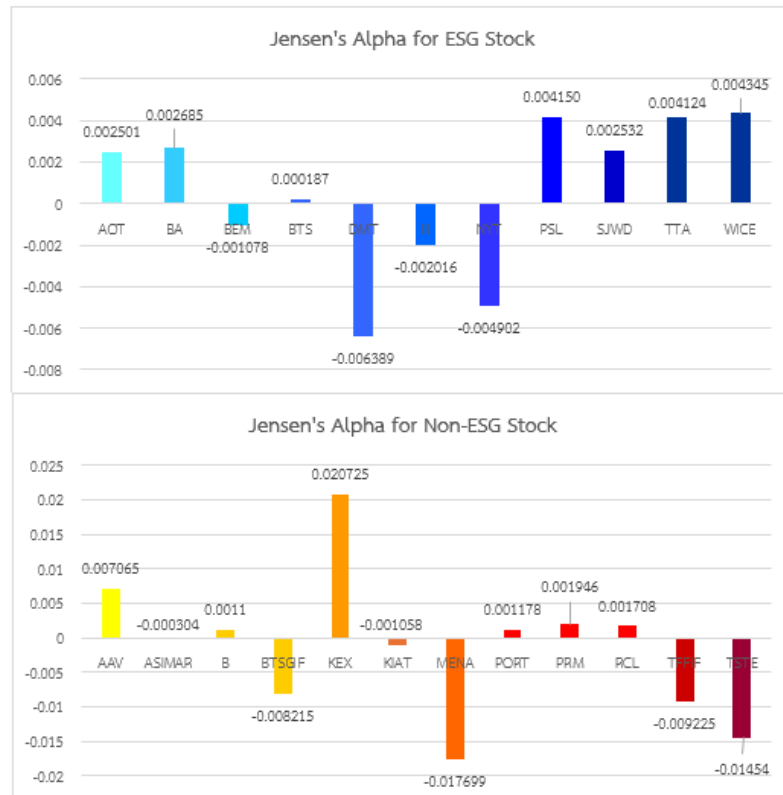


Figure 5 Jensen's Alpha value of stocks

Figure 6 shows the beta coefficient, the top graph referring to the ESG stocks, and the bottom graph the non-ESG stocks, with different colors representing the company's stock. According to the beta values of ESG stocks, seven of the 11 companies had a beta higher than 1, namely PSL, TTA, WICE, AOT, BA, SJWD, and BTS, meaning that these stocks involved more risk than the SET returns. These stocks confirmed the CAPM theory that explained by the beta coefficients and other studies of Novak and Petr[A5.1][A5.2], 2011, pp. 447-460; Rutkowska-Ziarko, et al., 2022, pp. 1-13; Shanaev and Ghimire, 2022, pp. 1-17). The maximum beta had a PSL equal to the value of 1.18888, the second was TTA, equal to the

value of 1.178494, while the third was WICE, which had a value equal to 1.174194. Only four stocks had a beta value lower than 1, namely BEM, DMT, III and NYT. The BEM stock exhibited the minimum beta value, and the lowest alpha, making it the less volatile of ESG stocks, which supported the previous of Nittayakamolpun, et al. (2025, pp. 1-15) studied the primary driver of ESG performance on the stock market.

When considering the beta of non-ESG stocks at the bottom of Figure 6, five out of 12 companies had a beta higher than 1, such as AAV, B, KEX, PORT, and PRM, meaning that their stocks had higher volatility than the SET returns. The highest beta was exhibited by AAV,

with a value equal to 1.30798, followed by B and PRM, which had values equal to 1.086797 and 1.077678, respectively. The maximum beta value was exhibited by AAV, which also had the second-highest beta of all, indicating high volatility for this stock. MENA stock showed the lowest beta value of 0.330357 and the

highest alpha value of -0.17699, meaning that this stock was both less risky and produced low returns. Furthermore, comparing the beta values in the two groups, ESG stocks were found to have similar values and are closer to 1 than non-ESG stocks.



Figure 6 Beta values of stocks

4) Robustness Testing

For the regression analysis showed excess returns of both ESG and non-ESG com-

paring the original regression, changing variable from SET to SETESG index.

Table 4 CAPM with ESG stock

	Obs.	Intercept (α)	SETESG	R-square
ESG stocks				
AOT	1,211	0.000769	1.038410***	0.560619
BA	1,211	0.000270	0.963166***	0.243200
BEM	1,211	-0.002607***	0.891921***	0.490484
BTS	1,211	-0.001246	0.967481***	0.409147
DMT	888	-0.008152***	0.684788***	0.162357



	Obs.	Intercept (α)	SETESG	R-square
III	1,211	-0.004373***	0.791772***	0.160327
NYT	1,211	-0.006808***	0.694437***	0.183456
PSL	1,211	0.001346	1.060511***	0.153352
SJWD	1,211	-0.000284	0.970287***	0.225752
TTA	1,211	0.001044	1.037573***	0.184716
WICE	1,211	0.001110	1.026172***	0.187653
Non-ESG stocks				
AAV	1,211	0.004401***	1.185920***	0.310066
ASIMAR	1,211	-0.002944**	0.849818***	0.164369
B	1,211	-0.004612	0.944656***	0.119979
BTSGIF	1,211	-0.009695***	0.597711***	0.287255
KEX	974	0.018970***	0.935552***	0.091208
KIAT	1,211	-0.003284***	0.838471***	0.201344
MENA	847	0.009280***	1.395112***	0.147678
PORT	1,211	-0.001178	0.965088***	0.200221
PRM	1,211	-0.000528	0.964431***	0.239720
RCL	1,211	-0.001406	0.852111***	0.106611
TFFIF	1,211	-0.011084***	0.514173***	0.306602
TSTE	1,211	-0.015284***	0.282999***	0.042805

Note: *** indicates the significance level at 1%

For the ESG stocks presented in Table 4, the variable substitution method and SETESG were used instead of the original explanatory variable SET. The results for the alpha coefficients of BEM, BTS, III, and NYT were reported to be negatively significant at -0.002607, -0.001246, -0.008152, -0.004373, and -0.006808, respectively, and the same as the original equation. However, SJWD exhibited the opposite sign from positive to negative when compared with the main regression. As for the other stocks, AOT, BA, PSL, TTA, and WICE exhibited the same positive alpha coefficients as the unique equation. Moreover, the

beta coefficients of ESG stocks were positively significant in all assets, and the same as the original equation. This robust testing of the beta coefficient included four stocks, namely AOT, PSL, TTA, and WICE, which showed a value of more than 1, meaning that the stock was at greater risk of volatility than market returns.

For the non-ESG stocks in Table 4, the alpha coefficient results of ASIMAR, B, BTSGIF, KIAT, PORT, PRM, RCL, TFFIF, and TSTE showed negative significance at -0.002944, -0.004612, -0.009695, -0.003284, -0.001178, -0.000528, -0.001406, -0.011084, and -0.015284, respectively. As for the other stocks, namely AAV,

KEX, and MENA had the same positive alpha coefficient as the unique equation. Moreover, the beta coefficient of ESG stocks exhibited positive significance in all assets and was the same as the original equation. Only two stocks (AAV and MENA) showed a value of more than 1, meaning that the stocks had greater volatility than market returns. The other stocks showed beta values of less than 1, meaning that the stock investment risk was lower than the benchmark risk.

The results suggest that using ESG stocks while making investing decisions could result in higher returns for investors. ESG investments are linked to decreased systematic risk, as evidenced by the beta coefficients of ESG stocks being lower than those of non-ESG companies. This solution emphasizes ESG's capacity to reduce risk. Overall, the comparison of ESG and non-ESG portfolios indicates that ESG equities offer more advantages and risk characteristics in addition to competitive returns.

Conclusion and Discussion

ESG principles add value to investment as a key driver of sustainable growth in the capital market. By focusing on ESG stocks, investors can expect greater returns with less volatility. ESG stocks also play a crucial role in shaping financial performance. In contrast, non-ESG stocks tend to be at high risk, with some producing low returns, while others offer high returns but require investors to accept very high risks. In summary, the average price of ESG stocks tends to be higher than non-ESG stocks, and this study reveals that AOT had

the highest stock price and NYT the lowest of ESG stocks, while RCL exhibited the highest stock price and B the lowest. Moreover, ESG stocks were less volatile than non-ESG stocks, according to the results for SD values. From 2020–2021, all stocks were found to have low prices due to the COVID-19 pandemic.

According to the risk and return analysis, BA was found to have the highest return but not the highest risk, and ESG stock produced a high performance, followed by WICE, which produced the next best returns but with a higher risk. Six stocks showed negative returns during the study period, namely DMT, BEM, BTS, NYT, AOT, and PSL, due to the impact of the COVID-19 pandemic. As for the non-ESG stocks, RCL was the best, demonstrating the highest return but not the highest risk in the group, the highest risk being B stock. When comparing ESG and non-ESG stocks, this study suggests that investing in ESG stocks may enhance the risk-adjusted returns of a portfolio. The results provide some evidence that ESG stocks could potentially outperform and support the increasing interest in sustainable investment.

The regression results obtained through CAPM analysis confirmed the research hypothesis that the ESG stocks will have a better performance than non-ESG stocks. Negative alpha coefficients indicate that the investment yielded returns less than expected for the risk taken. Moreover, the beta coefficients of ESG stocks revealed that risk was associated with the rank of 0.7–1.1. Most of these stocks produced returns close to the market benchmark with less volatility. Non-ESG stocks had a rank



beta of 0.3–1.3, suggesting that they could be relatively riskier compared to the market benchmark. For robust testing, the SET Index was replaced with the SETESG Index, and the findings provide some evidence that ESG stocks may offer better investment potential than non-ESG stocks.

Recommendation and Policy Implication

As for recommendations and policy implications are followings:

1. Investors who need to invest in transportation stocks and want stable long-term returns should choose ESG stocks because these companies must be evaluated by the SET to pass the standard environment, social, and governance conditions for business stability.

2. For risk-loving investors who want high-yield stocks but must also accept high

stock risks, non-ESG companies such as RCL may be suitable for short-term investment due to their superior performance.

3. Companies wishing to increase their credibility with investors may need to focus on the ESG standard of the SET, which has connected its rating score to long-term performance commitment by integrating the ESG standard into its capital markets.

4. The Securities and Exchange Commission (SEC) should strengthen regulatory frameworks and actively promote ESG integration within the industry by enhancing disclosure standards, encouraging transparency, and supporting long-term sustainable investment practices.

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No	Company Name	Ticker	ESG Rating
1	Airports of Thailand Public Company Limited	AOT	A
2	Bangkok Airways Public Company Limited	BA	BBB
3	Bangkok Expressway and Metro Public Company Limited	BEM	AAA
4	BTS Group Holdings Public Company Limited	BTS	AA
5	Don Muang Tollway Public Company Limited	DMT	AA
6	Triple I Logistics Public Company Limited	III	AA
7	Namyong Terminal Public Company Limited	NYT	AA
8	Precious Shipping Public Company Limited	PSL	AA
9	SCGJWD Logistics Public Company Limited	SJWD	AAA
10	Thoresen Thai Agencies Public Company Limited	TTA	AA
11	Wice Logistic Public Company Limited	WICE	AA
Non-ESG companies			
1	Asia Aviation Public Company Limited	AAV	-
2	ASIAN Marine Services Public Company Limited	ASIMAR	-
3	BEGISTICS Public Company Limited	B	-
4	BTS Rail Mass Transit Growth Infrastructure Fund	BTSGIF	-
5	KEX Express (Thailand) Public Company Limited	KEX	-
6	Kiattana Transport Public Company Limited	KIAT	-
7	MENA Transport Public Company Limited	MENA	-
8	SAHATHAI Terminal Public Company Limited	PORT	-
9	Prima Marine Public Company Limited	PRM	-
10	Regional Container Lines Public Company Limited	RCL	-
11	Thailand Future Fund	TFFIF	-
12	TSTE Public Company Limited	TSTE	-