The Impact of ESG Sustainability Standards on The Financial Performance of Listed Real Estate Companies in Vietnam

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Highlight

Analysis of 52 Vietnamese real estate companies listed on the Ho Chi Minh City and Hanoi Stock Exchanges (2022–2025; 156 firm-year observations) indicates that ESG implementation is associated with a negative impact on operational financial performance, measured by Return on Assets (ROA).

Abstract

This research was conducted on 52 Vietnamese real estate companies listed on the Ho Chi Minh City Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) during the period 2022-2025, with a total of 156 observations, to examine the impact of Environmental, Social and Governance (ESG) standards on financial performance. Return on Assets (ROA) is used as the indicator to measure financial performance, while control variables, including company size (SIZE), company age (AGE), financial leverage (LEV), and dividend payout ratio (DIVI), are included in the model. The data were analyzed using Stata 17, employing ordinary least squares (OLS) regression, the Fixed-Effects Model (FEM), the Random-Effects Model (REM), the feasible generalized least squares (FGLS) estimation method, and diagnostic tests. The results indicate that ESG implementation negatively affects the operational performance of listed real estate companies in Vietnam during 2022-2025. The research findings are expected to provide important empirical evidence, contributing to guiding companies in optimizing their ESG strategies, while also supporting regulatory bodies and investors in formulating long-term and short-term ESG policies for the real estate sector in Vietnam.

Keywords

Financial Performance; Return on Assets (ROA); Real Estate Sector; Corporate Governance

Introduction

The 2022-2025 period witnessed the Vietnamese real estate market fall into a state of severe decline under the impact of the global economic recession, high interest rates, tightened capital flows, decreased liquidity, and a series of legal obstacles related to land, planning, and construction investment. The supply-demand imbalance has been increasing as the high-end segment faces a surplus, while social housing and housing for workers are in serious shortage. In addition, the lack of transparency in information disclosure and inadequacies in real estate market management have caused many companies to face difficulties, reducing operational efficiency and causing losses to state budget revenue. The new policies emphasize corporate social responsibility, environmental obligations, and transparent governance, imposing higher requirements on the use of resources, land, and the protection of citizens' interests.

In parallel with the domestic context, the world is facing increasingly severe challenges from climate change, environmental pollution, and the depletion of natural resources, making environmental protection a top priority in the development policies of many countries and corporations. The United Nations' 2030 Agenda for Sustainable Development identifies sustainable development based on three pillars: economic, social, and environmental, wherein the 17 Sustainable Development Goals create a global framework to respond to challenges in labor, production, resource management, and social equity. Concurrently, at COP26 in 2021, Vietnam committed to achieving net-zero emissions by 2050, affirming its determination to transition to a green economy. To realize this goal, the government has implemented the National Green Growth Strategy for 2021-2030, emphasizing the role of businesses in technological innovation, optimizing resource use, and applying sustainable development solutions linked with environmental responsibility.

In the context of the real estate market undergoing a profound restructuring period, assessing the impact of ESG on corporate financial performance has become particularly important. Real estate companies are directly affected by the policy system on land, planning, environment, and social responsibility, which can make ESG compliance costs higher and the impacts different compared to other industries. Although ESG has become a global trend and an increasingly important criterion for investors, credit institutions, and capital markets, empirical evidence in Vietnam remains limited, especially in the listed real estate sector. The study "The Impact of ESG Sustainability Standards on the Financial Performance of Listed Real Estate Companies in Vietnam" not only has academic significance but also holds high practical value. The research results will support businesses in building optimal ESG strategies, provide a basis for investors to assess risks and returns more accurately, and contribute to shaping policies that promote the stable, transparent, and sustainable development of Vietnam's real estate market during the current green transition period.

2. Literature Review

2.1. Foreign studies on the impact of ESG sustainability standards on the financial performance of companies

Velte (2017) conducted an empirical study titled "Does ESG performance have an impact on financial performance? Evidence from Germany" to examine the relationship between environmental, social, and governance performance (ESGP) and corporate financial performance. The study focused on companies listed on Germany's Prime Standard, including the DAX30, TecDAX, and MDAX indices, during the 2010-2014 period with 412 firm-year observations. ESGP data was collected from the Thomson Reuters Asset4 database, while financial performance was measured by two groups of indicators: accounting-based and market-based (Tobin's Q). The author used correlation analysis and linear regression methods to determine the relationship between ESGP and corporate financial performance. The research results show that ESGP has a positive and statistically significant impact on ROA, implying that companies that focus on implementing ESG activities well often achieve higher financial performance from an accounting perspective. However, ESGP does not have a significant impact on Tobin's Q, indicating that German investors during the study period may not have reacted strongly to ESG information. When breaking down each ESG component, governance performance was identified as the factor with the strongest impact on financial performance compared to the other two components, environment and social. Velte's (2017) study makes a significant contribution to the field of corporate social responsibility and financial performance by both disaggregating ESG into its components and combining two groups of financial measures (ROA and market-based) in the German corporate context. Although the study's limitation lies in using data solely from Asset–which may be subject to subjectivity–the results still affirm the important role of corporate governance in connecting sustainability initiatives with financial performance. The author suggests that future research should consider using alternative and more innovative ESG indicators to enhance objectivity and the ability to compare across different contexts.

Duque-Grisales & Aguilera-Caracuel (2019) with the study "Environmental, Social and Governance Scores and Financial Performance of Multilaterals: Moderating Effects of Geographic International Diversification and Financial Slack" analyzed the financial performance of a company to find the relationship with superior ESG scores in emerging markets of multinational corporations in Latin America. The research data was collected from 104 multinational companies from Brazil, Chile, Colombia, Mexico, and Peru for the period from 2011 to 2015. The results showed that the relationship between ESG scores and financial performance is negative, meaning that Latin American-based multinational companies with the best ESG scores tend to receive lower profits. Finally, the empirical analysis provides evidence of the moderating effect of financial slack and geographic international diversification on the relationship between ESG dimensions and the company's financial performance. The study has significant implications for managers and policymakers; however, limitations still exist: the sample only includes EMNs from five Latin American countries, the ESG data is based on a global score which can be subjective, and a deeper analysis of the constituent factors of each E, S, G dimension is needed to understand their individual impacts on financial performance.

Zachary Folger-Laronde et al. (2020) in their study "ESG ratings and financial performance of exchange-traded funds during the COVID-19 pandemic. Journal of Sustainable Finance & Investment" focused on analyzing the relationship between ESG ratings and financial performance during the Covid-19 period, when the market was in a severe recession. The author team analyzed the differences and relationships between the financial returns and sustainable performance of ETFs during the market downturn caused by COVID-19. At the same time, the research group also shed light on two challenges in measuring sustainable performance at the fund level: the performance of indicators during a health crisis and the transparency of ESG assessment methods. The research data (scores

of the ETFs) were taken from Corporate Knights, a research firm that provides RI ratings. Subsequently, the research team applied ANOVA and multivariate regression models. The results showed that during the market recession, the sustainability indicators used to measure and evaluate sustainable performance did not fully assess the ability to protect against financial losses.

Phoebe Koundouri et al. (2022) conducted the study "The Impact of ESG Performance on the Financial Performance of European Area Companies: An Empirical Examination" with the objective of examining the relationship between good ESG performance and the good financial situation of companies based on empirical data from companies in Europe. The study collected information from 50 leading European companies on ESG performance (STOXX Europe ESG Leaders 50 Index), covering many sectors, specifically Automotive, Consumer Products, Energy, Financial Services, Manufacturing...The research results indicated that 44 out of the 50 companies included in the STOXX Europe ESG Leaders 50 index used ESG reporting frameworks and complied with the 17 Sustainable Development Goals of the United Nations. The remaining six companies dedicated resources to developing internal systems to monitor their performance according to ESG criteria. The analysis also clearly showed the profitability potential of companies with good ESG performance compared to the remaining companies, across all sectors.

Simin Chen et al. (2023) in their study "Environmental, social, and governance performance and financial outcomes: Analyzing the impact of ESG on financial performance" explored the impact of ESG on the financial performance of businesses. The study collected data over a 10-year period (2011-2020) with a sample of 24,076 observations from 3,332 listed organizations worldwide. The theoretical basis of the research is based on signaling theory and stakeholder theory, while also applying multiple regression and classification regression analysis methods with STATA 16 software. The research results demonstrate that ESG performance has a positive correlation with business operational performance ($p < 0.01$). In addition, the results also indicate that the impact of ESG ratings on business operational performance is significant for large-scale companies and insignificant for small-scale companies. In the context of environmentally sensitive industries, the findings of this study provide empirical insights into the relationship between the operational performance of businesses and the effectiveness of ESG practices. It also reinforces the importance of integrating ESG into business organizations.

The study by Paolo Candio (2024) titled "The Influence of ESG Score on Financial Performance: Evidence from the European Health Care Industry" focuses on clarifying the relationship between ESGP and financial performance in the European healthcare sector–a field previously under-researched in this aspect. Based on data from leading healthcare companies listed in the STOXX 600 index for the period 2012-2022, this study analyzed the relationship between the overall ESG score and each pillar (E, S, G) with ROA and market-based financial performance indicators. The results show that the impact of ESG on financial performance is heterogeneous and modest, meaning there is no strong and consistent relationship between these two factors across the entire industry. Specifically, the Governance (G) pillar shows the most positive and significant impact on financial performance, reflecting the key role of governance structure in improving operational efficiency and investor confidence. In contrast, the Environment (E) pillar only shows an impact on ROA financial indicators, but it is unstable; while the Social (S) pillar has almost no significant impact on financial performance measures. The study contributes to expanding the empirical evidence in the European healthcare sector, while also suggesting that future research should consider expanding the analysis model to other data contexts and standards to deepen the understanding of the mechanism of impact between ESG and financial performance, as well as to assess industry-specific differences in this relationship.

The study by Haoyue Bai and Junghee Kim (2024) titled "Do ESG Practices Promote Financial Performance? Comparison of English, Chinese, and Korean Papers Through Bibliometric and Meta-Analysis" focuses on analyzing the relationship between ESG activities and financial performance through bibliometric analysis and data synthesis from 2,659 ESG-related papers in three languages: English, Chinese, and Korean. The research aims to assess research trends over time, identify focal points, and compare the impact of ESG on financial performance across different linguistic and cultural contexts. The results show that ESG research experienced a significant turning point around 2019, when the number of published papers increased dramatically in multiple languages. The analysis of the co-occurrence keyword network shows that financial performance is a cross-cutting theme in ESG studies. The meta-analysis results indicate a low overall positive correlation between ESG and financial performance. However, when disaggregated by language, Chinese and Korean papers show a moderate correlation, while English-language papers do not demonstrate a significant correlation. This study contributes to the body of knowledge on ESG, provides important information for academic discourse, corporate management,

and policymaking, and emphasizes the role of linguistic and cultural context in shaping the ESG-financial performance relationship, contributing to the global development of business activities towards a sustainable growth trend.

The study by Yavuz et al. (2025) titled "Does ESG performance have an impact on financial performance? Evidence from Turkey" aims to analyze the influence of ESG aspects on the financial performance of listed companies in Turkey. The study uses panel regression on data from 21 companies in the Borsa Istanbul-100 index for the period 2011–2020 to assess the separate impacts of ESG aspects on financial indicators such as Return on Equity (ROE), ROA, and Tobin's Q. The results show that the environmental and governance aspects have a positive impact on ROE and Tobin's Q, while the governance aspect has a negative impact on Tobin's Q but remains positive with ROE. No statistically significant impact of ESG aspects on ROA was found. These results highlight that the macroeconomic structure, legal system, and financial development level of a country play an important role in shaping the effectiveness of ESG activities. The study also indicates that managers should prioritize investment in environmental activities and build a governance strategy consistent with the legal framework and investor expectations. This research contributes to the limited literature on the role of ESG aspects in improving financial performance in emerging markets, while also providing important practical and academic implications on how to implement corporate social responsibility and ESG in similar contexts.

Zhang (2025) conducted the study "The impact of ESG performance on the financial performance of companies: evidence from China's Shanghai and Shenzhen A-share listed companies" with the aim of examining the impact of ESG practice performance on financial performance in the Chinese market, thereby providing empirical evidence on its influence and implications. By collecting information from A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2009 to 2022, the study uses econometric models to analyze the relationship between ESG performance and financial performance. The findings show that ESG performance significantly enhances financial performance. Heterogeneity analysis reveals that the positive impact of ESG performance is more pronounced in companies in the eastern region, state-owned enterprises, and highly polluting industries. This study provides empirical evidence from China, demonstrating the important role of ESG for corporate financial performance. The research results provide valuable information for policymaking and corporate management aimed at promoting sustainable development and optimizing investment strategies.

Lu et al. (2025) conducted a study titled "ESG Ratings and Financial Performance in the Global Hospitality Industry" to examine the relationship between ESG ratings and corporate financial performance in the global hotel industry. The study used data from public companies with 1,110 observations from 16 countries during the period 2005–2022. By applying a fixed-effects regression model along with generalized least squares (GLS) and two-stage least squares (2SLS) methods, the authors controlled for issues of heteroskedasticity and endogeneity in the model. The empirical results show that ESG ratings have a positive and statistically significant impact on corporate financial performance, both when considering the overall rating and the separate pillars (environment, social, governance). In particular, the positive impact of ESG on corporate financial performance is more pronounced in the United States compared to other countries and increased during the COVID-19 pandemic, reflecting differences in institutional frameworks and the level of capital market development. The study has provided strong evidence for the role of ESG as a factor promoting financial performance in the accommodation services industry, while also carrying important implications. However, the authors also pointed out some limitations regarding the data and scope of the research: the sample only includes publicly listed companies, due to the limitations of ESG data from Bloomberg, which makes it difficult to generalize the results to private enterprises or other sectors. Furthermore, differences in culture, institutions, and national context have not been fully controlled for, suggesting that the ESG-corporate financial performance relationship may vary depending on local conditions. The study therefore suggests that future research should expand its scope to more sectors and countries, and also examine the long-term impacts of ESG in the post-pandemic period, in order to provide a deeper understanding of the sustainable effectiveness of ESG strategies. Additionally, the use of advanced estimation methods such as generalized method of moments or quasi-experimental designs could help increase the reliability and generalizability of the research findings.

2.2. Domestic studies on the impact of ESG sustainability standards on the financial performance of companies
The study "The influence of environment, society, and governance on the financial performance of enterprises: Empirical evidence from Vietnam" by Tran Thi Xuan Anh and Nguyen Thuy Linh (2023) examined the impact of ESG on the profitability and market value of Vietnamese enterprises in the VN30 index–the group of stocks with the highest market capitalization and liquidity on the HOSE–during the 2017-2021 period by applying panel data

analysis. The research results show that investing in ESG has a negative impact on financial performance based on accounting data but a positive impact on financial performance based on market data. This implies that ESG helps businesses enhance their brand value, increase the loyalty of employees to the company, as well as the loyalty and trust of the community and consumers towards the business operations of the enterprise. Therefore, businesses need to pay more attention to the process of preparing annual reports and ESG reports for relevant parties.

The study "The impact of ESG on the performance of highly capitalized enterprises listed on the Vietnamese stock exchange" by Le Thi Hai Yen et al. (2024) measured the impact of ESG on the business performance of large-cap listed enterprises in Vietnam over a 3 years period from 2020 to 2022. Using the OLS regression method, the research results show that ESG has a positive but relatively small impact on the business performance of the enterprises in the research sample. Based on the research results, the authors propose an optimal solution for businesses to optimize their ESG strategy, aiming for the dual goals of reducing costs and increasing profits. However, the study has some limitations in assessing ESG scores based on information published on the company's website and in annual reports, leading to a lack of consistency in presentation and information. This could lead to the authors inadvertently omitting information. Furthermore, focusing only on the 100 largest capitalized companies in Vietnam may not fully reflect the impact of ESG across different sectors and limits the generalizability of the findings across the entire market. To gain a more comprehensive view of the impact of ESG on business performance by industry, the research sample should be expanded to include more diverse companies with different capitalizations and fields of operation. In addition, it is necessary to continue investigating the impact of macroeconomic variables, such as economic and political conditions.

The study "Exploring the relationship between ESG Practices and Financial Performance of Vietnamese Companies" by Tang My Sang & Hung Nguyen Tien (2024) investigated the relationship between ESG practices and the financial performance of 100 Vietnamese companies listed in the VN100 Index during the 2017-2023 period by using Pooled OLS, FEM, and REM models. The analysis results show no statistically significant relationship between ESG and financial performance. These findings emphasize the influence of traditional financial factors such as company age, company size, LEV, and economic growth rate, while also highlighting their importance for the financial performance of the company. This result may be an indication that the Vietnamese market values short-term profits more than long-term sustainable obligations. With the world changing and ESG standards penetrating developing economies, the study also recommends that more research be conducted to assess the impact of ESG factors consistently across different market contexts and through different periods.

The study "The impact of sustainability standards on the financial performance of listed companies in Vietnam: Evidence from the panel data regression method" by Le Huy Tuan et al. (2025) analyzed data from 30 companies listed on the Vietnamese stock market during the 2012-2022 period to assess the impact of ESG compliance on financial performance. To examine this impact, the study applied the panel data regression method with primary estimation methods including pooled (Pooled OLS), the FEM, and the REM. GLS, 2SLS, and the generalized method of moments were also used for analysis. The results show that ESG has a positive impact on the financial performance of businesses. From this, the study proposes some recommendations to promote ESG practices in listed companies in the stock market. However, a limitation of the study is its limited sample size of 30 companies for the 2012-2022 period, which may not be representative of the entire Vietnamese stock market. In addition, using only traditional financial indicators such as ROA and FV may not fully reflect financial performance. Furthermore, the proposed research directions include expanding the research sample to include more companies and industries; building more complex analytical models to control for other influencing factors; and comparing the impact of ESG across different economic periods and countries with similar market conditions.

2.3. Research Gap
Although there have been many studies worldwide and regionally on the impact of ESG sustainability standards on corporate financial performance, studies in the Vietnamese context are still very limited. Existing studies mainly focus on developed economies or large emerging markets, while specific characteristics of corporate culture, market development level, and investor awareness in Vietnam may lead to different results. Specifically, studies in developed economies include Velte (2017) in Germany, Yavuz et al. (2025) in Turkey, Paolo Candio (2024), and Phoebe Koundouri et al. (2022) in European companies; while studies in large emerging markets such as Zhang (2025) in China, and Lu et al. (2025) in the global hotel industry have also been conducted.

In addition, most studies survey many different industries or focus on industrial, manufacturing, and service sectors, while the real estate sector - an industry with unique characteristics regarding investment capital, long project durations, economic cycles, and environmental impacts - has not been studied in depth. The study by Chen et al. (2023) analyzed 24,076 observations from 3,332 companies across many sectors worldwide; the study by Paolo Candio (2024) focused only on the European healthcare sector during the 2012 - 2022 period; the study by Lu et al. (2025) surveyed the global hotel industry with 1,110 observations from 16 countries during the 2005 - 2022 period. Meanwhile, listed real estate companies in Vietnam play an important role in economic development but still lack empirical evidence on the impact of ESG on financial performance. Existing studies also show inconsistent results regarding the impact of ESG. Some studies record a positive impact, such as Chen et al. (2023), Zhang (2025), Velte (2017), and Lu et al. (2025); others point to a negative relationship between ESG and financial performance, such as Paolo Candio (2024) and Bai & Kim (2024). Meanwhile, some studies show a mixed relationship or no clear relationship, typically Yanus et al. (2025), Tran & Nguyen (2023), and Sang & Nguyen (2024). This difference may stem from factors such as industry, geographical area, corporate culture, research methodology, as well as the time frame and method of measuring ESG.

Therefore, to provide accurate and comprehensive evidence on the impact of ESG on the financial performance of listed real estate companies in Vietnam, conducting an empirical study is necessary. This research not only helps to clarify the relationship between ESG and financial performance in the Vietnamese context but also provides a scientific basis for developing an appropriate ESG strategy for the real estate industry.

2.4. Foundational Theories for Building the Research Model

2.4.1. Legitimacy theory
Legitimacy theory was developed by Dowling & Pfeffer (1975) and was more systematically defined in the research of Suchman (1995). The core of the theory is that the existence and development of a business depend on its "social license to operate," which is the degree to which the business is accepted and permitted to operate by society. Lindblom (1994) further reinforced this argument by emphasizing that an organization only achieves legitimacy when its values, behaviors, and orientations are consistent with the value system that society expects. In the current context, reporting and disclosing ESG information have become important tools for businesses to demonstrate compliance with the environmental, social, and governance standards that the community, investors, and stakeholders expect. For listed real estate companies in Vietnam, legitimacy plays a particularly important role because the real estate industry is under intense scrutiny from regulatory agencies and the community regarding land use, environmental impact, project transparency, and protection of customer rights. Disclosing ESG standards not only helps businesses meet social expectations but also contributes to building an image of "sustainable development," thereby strengthening investor confidence and reducing legal risks. Therefore, according to legitimacy theory, real estate companies have a strong motivation to disclose and comply with ESG to maintain and strengthen their legitimate position, thereby improving financial performance by enhancing reputation, attracting capital, and reducing compliance costs in the long run.

2.4.2. Stakeholder Theory
Stakeholder theory, developed by Freeman (1994), posits that a business can only grow sustainably by maintaining and balancing the interests of all relevant groups. Therefore, a successful business not only needs to satisfy shareholders but also must build good relationships with employees, customers, suppliers, and the community. Meeting the expectations of stakeholders brings many benefits, such as satisfied employees will work more effectively, satisfied customers help increase revenue, and good relationships with suppliers can reduce costs. In this relationship, ESG acts as a tool to reduce conflicts of interest and enhance corporate reputation. The research of El Ghoul et al. (2018) reinforces this point by demonstrating that ESG activities help reduce the cost of capital and improve operational efficiency by resolving conflicts between the company and its stakeholders. This is perfectly suited to the Vietnamese context, where the real estate market is moving towards standardized transparency and sustainable development. Thus, stakeholder theory provides a framework for the assumption that ESG is not just a compliance obligation, but also a strategy that helps real estate companies improve financial performance by expanding their reputation, reducing risks, and strengthening the trust of important stakeholder groups.

2.4.3. Asymmetric information theory
Asymmetric information theory was developed in the 1970s by three economists: George Akerlof, Michael Spence, and Joseph Stiglitz. This theory points out that corporate management often possesses more information

than investors, shareholders, and the public. This information gap can lead to adverse selection and moral hazard, especially in sensitive areas such as the environment, social responsibility, and corporate governance. In this context, disclosing ESG information becomes an important tool to narrow the information gap by making governance and sustainable development activities transparent. A company that performs ESG well can distinguish itself from other companies, reduce its cost of capital, and increase its value. Especially for the real estate industry, information about projects, costs, progress, environmental impact, and legal matters is often held by management, while investors and customers find it difficult to assess accurately, leading to risks of adverse selection and moral hazard. Disclosing ESG information helps to narrow this gap by making environmental, social, and governance activities transparent, sending a signal about management capacity, legal compliance, and a commitment to sustainable development. As a result, listed real estate companies can increase their reputation, reduce their cost of capital, and improve their financial performance, while also creating a significant competitive advantage in the market.

3. Methodology

3.1. Research Process
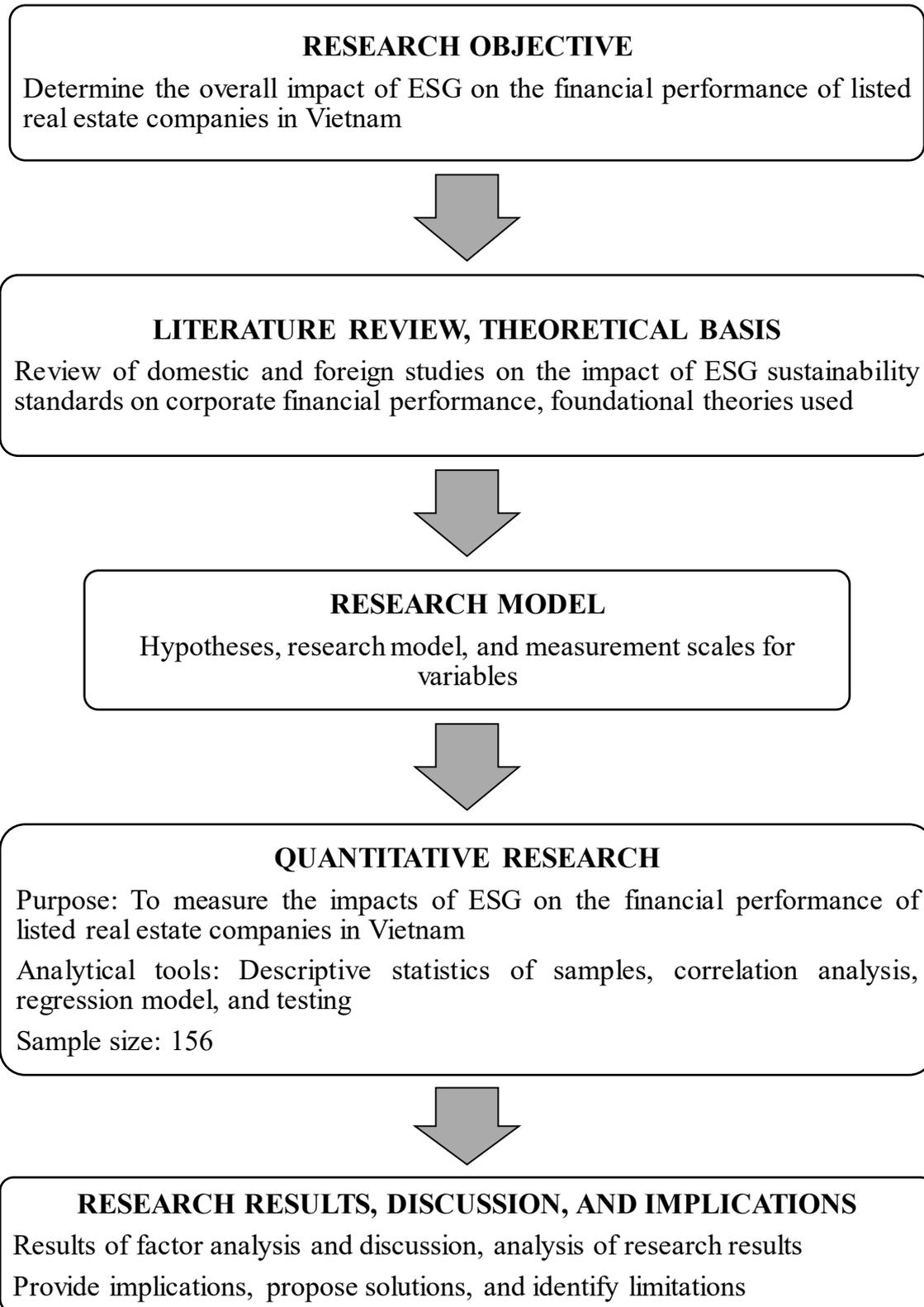The research process is presented in Diagram 1.

RESEARCH OBJECTIVE

Determine the overall impact of ESG on the financial performance of listed real estate companies in Vietnam

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LITERATURE REVIEW, THEORETICAL BASIS

Review of domestic and foreign studies on the impact of ESG sustainability standards on corporate financial performance, foundational theories used

⬇

RESEARCH MODEL

Hypotheses, research model, and measurement scales for variables

⬇

QUANTITATIVE RESEARCH

Purpose: To measure the impacts of ESG on the financial performance of listed real estate companies in Vietnam

Analytical tools: Descriptive statistics of samples, correlation analysis, regression model, and testing

Sample size: 156

⬇

RESEARCH RESULTS, DISCUSSION, AND IMPLICATIONS

Results of factor analysis and discussion, analysis of research results

Provide implications, propose solutions, and identify limitations

Diagram 1. Research Process

(Author group's construction)

3.2. Research Data

- Data source: (1) ESG data was collected from the financial reports and annual reports of the listed real estate companies in the research sample. (2) Data for measuring variables was compiled from news channels, economic data, financial data, and securities data from Cafef and Vietstock.

- Research period: From 2022-2025
- Research scope: 52 listed real estate companies on the HNX and HOSE stock exchanges.
- Sample size: The research sample includes 156 observations. According to Tabachnick & Fidell (2007), to conduct a regression that yields the best results for the study, the minimum required sample size is determined by: N = 50 + 8*K (where K is the number of independent variables in the model). Thus, the minimum estimated sample size would be 58, which is entirely consistent with the sample size of this study.

3.3. Research Model

3.3.1. Dependent Variable
ROA is a popular indicator used to evaluate financial performance based on a company's accounting data. Many studies have used ROA to verify the extent of ESG's impact on financial performance, including Velte (2017); Aydoğmuş et al. (2022); Bai & Jayaraman (2022); Lu et al. (2025).
Formula: ROA = (Net Profit After Tax/Total Assets) * 100%

3.3.2. Independent Variable
Research results show that the impact of ESG scores on ROA is inconsistent. Some studies record a positive impact of ESG, Chen et al. (2023), Zhang, 2025), and Velte (2017). Conversely, some studies report a negative relationship between ESG and financial performance, typically Paolo Candio (2024) and Bai & Kim (2024). Additionally, there are also studies showing a mixed relationship or no clear relationship, such as Yanus et al. (2025), Tran & Nguyen (2023), and Sang & Nguyen (2024). Therefore, there is a need for studies to provide reliable empirical evidence on the impact of ESG on financial performance at listed real estate companies in Vietnam.

To measure the ESG score, this study is based on the regulations in Circular No. 96/2020/TT-BTC of the Ministry of Finance, which provides guidance on information disclosure in the stock market, specifically:

Step 1: Select the information categories that constitute the index: In this study, based on the regulations in Circular No. 96/2020/TT-BTC of the Ministry of Finance, which provides guidance on information disclosure in the stock market, the research constructs a list of ESG information for the study, consisting of 17 information items divided into 3 main information groups as follows:

(1) Information on the environment: Includes 11 information items;
(2) Information on employees: Includes 4 information items;
(3) Information on community and social responsibility: Includes 2 information items.

Detailed information content for each aspect is presented in Table 1.

Table 1. List of ESG indicators according to Circular No. 96/2020/TT-BTC

Aspect	Indicator
Information on the environment	Total direct and indirect greenhouse gas emissions
	Initiatives and measures to reduce greenhouse gas emissions
	Total amount of raw materials used to produce and package the organization's main products and services during the year
	Report on the percentage of recycled raw materials used to produce the organization's main products and services
	Direct and indirect energy consumption
	Energy saved through initiatives for efficient energy use
	Reports on energy-saving initiatives (providing energy-saving products and services or using renewable energy); report on the results of these initiatives

Aspect	Indicator
	Water supply sources and amount of water used
	Percentage and total volume of recycled and reused water
	Number of times fined for violations of environmental laws and regulations
	Total amount of fines for violations of environmental laws and regulations
Information on employees	Number of employees, average salary for employees
	Labor policies to ensure the health, safety, and welfare of employees
	Employee training activities - Average training hours per year, by employee and by employee classification
	Employee training activities - Programs for continuous skill development and learning to support employees in securing employment and career development
Information on community and social responsibility	Community investment and development activities, including financial support for community service
	Encouraging businesses to apply international reporting standards in reporting on Sustainable Development

(Source: Circular 96/2020/TT-BTC–Guidance on information disclosure in the stock market)

Step 2: Calculate the company's ESG score. The ESG disclosure score is calculated using the following formula:

$$ESG_j = \sum X_{ij}$$

ESGj: ESG score of company j; Xij equals 0 if information item i is not disclosed by company j; equals 1 if information item i is only disclosed in a general, non-specific manner by company j; equals 2 if information item i is disclosed and quantified by company j (Harkin et al., 2020). The maximum ESG score a company can achieve is: 34 points.

3.3.3. Control Variables

In this study, the control variables SIZE; AGE, LEV; DIVI were selected based on theory and practice to ensure the model accurately reflects the relationship between compliance with ESG standards and financial performance:
- Company size (SIZE): Company size is considered an important factor affecting both financial performance and the ability to implement ESG activities. Larger companies often possess more abundant financial, human, and technological resources, making it easier for them to implement and maintain effective ESG programs (Guillén et al., 2014; Mohammed et al., 2016; Aboud & Diab, 2018; Fu & Li, 2023; Zhang, 2025).

- Company age (AGE): The age of a company reflects its level of experience, stability, and adaptability to business environment factors. Older companies have often built a reputation, management experience, and a wide network of relationships, allowing them to implement ESG activities more effectively and maintain stable financial performance (Fu & Li, 2023; Zhang, 2025). - Leverage ratio (LEV): The leverage ratio shows the extent to which a company uses debt, thereby reflecting its financial risk and ability to withstand long-term commitments, including ESG activities. Studies show that companies with high leverage ratios may face difficulties in implementing ESG initiatives due to financial resource constraints or pressure to repay debt, while companies with lower leverage can implement ESG more proactively and effectively (Chen et al., 2023; Zhang, 2025).

Earnings per share (DIVI): Earnings per share reflects the level of profit a company generates per outstanding share, which is an important indicator of financial performance and the ability to distribute benefits to shareholders. Companies capable of generating stable dividend income often have better resources to invest in ESG activities, and financial stability also contributes to strengthening commitments to environmental, social, and governance responsibilities.

3.3.4. Research Model

In this study, the model used to assess the impact of ESG on the company's financial performance is presented as follows:

$$ROA = \alpha + \beta_1*ESG_{it} + \beta_2*SIZE_{it} + \beta_3*AGE_{tit} + \beta_4*LEV_{it} + \beta_5*DIVI_{it} + \varepsilon$$

Where α is the intercept; β_k with k = 1,5 are the slope coefficients; i is company i; and t represents year t. Details of the research variables are presented in Table 2.

Table 2. Summary of research variables

	Variable Name	Symbol	Measurement	Expected Sign	Source
Dependent variable	Return on assets	ROA	ROA = (Net profit/Total assets)*100%		Velte (2017); Aydoğmuş et al. (2022); Bai & Jayaraman (2022); Lu et al. (2025)
Independent variable	ESG Score	ESG	$ESG_j = \sum X_{ij}$	+	Ministry of Finance (2020), Esteban-Sanchez & et al. (2017), Harkin & et al. (2020), Le et al. (2025)
Control variables	Company size	SIZE	Ln(total assets)	+	Guillén et al. (2014); Mohammed et al. (2016); Aboud & Diab (2018); Fu & Li (2023); Zhang, (2025)
	Company age	AGE	AGE= Current year - year of business registration	+	Fu & Li (2023); Zhang (2025)
	Financial leverage	LEV	LEV= Liabilities/Total equity	-	Chen et al. (2023); Zhang (2025)
	Dividend payout ratio	DIVI	DIVI = Annual dividend per share / Earnings per share	+	Proposed by the author

(Source: Proposed by the author group)

3.4. Data Analysis Method

The study uses STATA 17 software to further process, analyze, and test the data of the variables after they have been calculated.

(1) Descriptive statistics

Descriptive statistics is the presentation or description of the basic characteristics of a specific dataset.

(2) Pairwise Correlation

Pairwise correlation analysis is a statistical method used to measure the degree and direction of the linear relationship between each pair of variables in a dataset. The Pearson correlation coefficient is commonly used in cases of continuous variables, with values ranging from -1 to +1, reflecting an inverse, direct, or no correlation. This analysis helps to early identify the risk of multicollinearity between independent variables before including them in the regression model. According to Hair et al. (2010), if the absolute correlation coefficient between two variables exceeds 0.8 or 0.9, it may be necessary to consider removing or adjusting the variable to ensure the stability of the model.

(3) Regression model and testing

To test the relationship between the variables, the author will build in turn

+ Pooled ordinary least squares (Pooled OLS)
+ Fixed effect regression model-FEM
+ Random effect regression model-REM
+ Feasible Generalized Least Squares model-FGLS

Then, respectively, perform the White test, Wooldridge test, Hausman test, and Modified Wald test to check for any defects in the model, from which to select the appropriate model and proceed with the analysis.

4. Discuss and Results
4.1. Research results
4.1.1. Descriptive statistics
The results of the descriptive statistics are presented in Table 3.

Table 3. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	156	1.928	4.815	-30.18	29.43
ESG	156	17	8.303	0	32
SIZE	156	15.432	1.744	10.79	21.15
AGE	156	23.808	7.704	10	50
LEV	156	1.534	1.382	.17	8.73
DIVI	156	1168.513	2056.748	-4074	7664

(Source: Calculation results from STATA 17 software)

Descriptive statistics show that the companies in the research sample are diverse but generally maintain satisfactory financial performance and ESG practices. The average ROA is 1.928% with a standard deviation of 4.815, reflecting that the majority of companies are profitable from total assets, although there are still some cases of negative (-30.18) or high (29.43) profits. The average ESG score is 17/32 with a standard deviation of 8.303, indicating that companies have started to pay attention to applying sustainability standards, while still having potential to improve ESG performance. The average company size is 15.43, while the average company age is 23.8 years, showing that the companies have operational experience and stable potential, creating favorable conditions for implementing ESG initiatives. The average leverage ratio is 1.53 with a range from 0.17 to 8.73, reflecting diversity in financial structure, while the average earnings per share (DIVI) is 1168.51, despite large fluctuations (-4074 to 7664), demonstrating that companies still maintain the ability to pay dividends and create value for shareholders.

4.1.2. Pairwise Correlation
The results of the Pairwise correlation analysis are presented in Table 4.

Table 4. Pairwise Correlation

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) ROA	1.000					
(2) ESG	0.006	1.000				
(3) SIZE	0.110	0.222	1.000			
(4) AGE	0.167	-0.072	-0.054	1.000		
(5) LEV	-0.410	-0.030	0.096	0.250	1.000	
(6) DIVI	0.673	0.188	0.119	0.144	-0.210	1.000

(Source: Calculation results from STATA 17 software)

Table 3 shows that the correlation coefficients between the variables in the model have no pair with an absolute value greater than 0.8, indicating that the variables (ESG, SIZE, AGE, LEV, DIVI) and the dependent variable ROA have a moderate linear correlation, with little chance of multicollinearity occurring. In the correlation matrix, the lowest coefficient is -0.410 between LEV and ROA, reflecting a negative relationship between the leverage ratio and financial performance. The highest coefficient is 0.673 between DIVI and ROA, showing that dividend income has a positive and fairly strong relationship with financial performance. The remaining correlation coefficients are all in the range from -0.072 to 0.222, showing that control variables such as SIZE, AGE, and the independent variable ESG all have a reasonable level of correlation with ROA, while not raising concerns about multicollinearity in the model.

4.1.3. Regression model and testing

The regression and test results are presented in Table 5.

Table 5. Regression results and tests

	OLS	FEM	REM	FGLS	VIF
ESG	-0.0738** [-2.29]	-0.202** [-2.12]	-0.119*** [-2.63]	-0.0668** [-2.26]	1.09
SIZE	0.305** [1.99]	1.143** [2.20]	0.534** [2.46]	0.100 [0.56]	1.09
AGE	0.102*** [2.88]	0.0185 [0.10]	0.107** [2.06]	-0.0203 [-0.49]	1.14
LEV	-1.191*** [-5.94]	-2.397*** [-7.87]	-1.767*** [-7.80]	-1.050*** [-4.14]	1.17
DIVI	0.00138*** [10.26]	0.00193*** [11.99]	0.00168*** [11.99]	0.00169*** [15.07]	1.16
_cons	-3.746 [-1.50]	-11.30 [-1.27]	-6.090* [-1.70]	1.440 [0.48]	
N	156	156	156	156	
R - sq	0.575	0.745			
	N = 156 F(5,150) = 40.52 Prob > F= 0.0000 R2 = 0.5746 Adj R2 = 0.5604 Root MSE = 3.1921	N = 156 R-squared: Within = 0.7447 Between=0.4719 Overall = 0.5151 F(5,99) = 57.76 Prob > F = 0.0000	N = 156 R-squared: Within = 0.7366 Between = 0.5466 Overall = 0.5679 Wald chi2(5) =267.35 Prob > chi2 =0.0000	N = 156 Wald chi2(5) = 263.03 Prob > chi2 = 0.0000	
Breusch and Pagan Lagrangian test		chibar2(01) = 35.9 Prob > chibar2 = 0.0000			
Modified Wald test		chi2 (52) = 608642.26 Prob > chi2 = 0.0000			
Hausman test		chi2(5) = 42.16 Prob > chi2 = 0.0000			
Wooldridge test		F(1, 19) = 121.776 Prob > F = 0.0000			

(Source: Calculation results from STATA 17 software)

The OLS model has a Prob > F = 0.0000, indicating the model is statistically significant, with an R^2 of 0.5746. According to this model, the variables ESG, SIZE, AGE, LEV, and DIVI all impact ROA. Specifically, ESG and LEV have a negative impact, while SIZE, AGE, and DIVI have a positive impact, with varying levels of significance ($p < 0.01$; $p < 0.05$). The FEM model has a Prob > F = 0.0000 and an R^2 (within) = 0.7447, showing that the model is suitable for panel data with variation within each company. However, the FEM results show that only the variables ESG, SIZE, LEV, and DIVI are significant, while AGE no longer impacts ROA. The REM model has a Prob > chi2 = 0.0000 and an R^2 (within) = 0.7366, continuing to affirm that ESG, SIZE, AGE, LEV, and DIVI all have a significant effect on ROA.

To choose a suitable model, the Breusch-Pagan Lagrangian test was performed to compare OLS and REM. The results show Prob > chibar2 = 0.0000 < 0.05, indicating that the REM model is more suitable than OLS. Next, the Hausman test was used to choose between FEM and REM. The results show Prob > chi2 = 0.0000 < 0.05, making the FEM model more suitable than REM. Thus, theoretically, FEM is the preferred model. However, both the Modified Wald and Wooldridge tests show that the FEM model suffers from heteroskedasticity and autocorrelation (both tests have a p-value < 0.05). This makes the FEM estimates no longer efficient and they need to be corrected. To overcome these two defects, the FGLS method was used. The FGLS results show that ESG, LEV, and DIVI are all statistically significant with respect to ROA ($p < 0.01$ and $p < 0.05$), while SIZE and AGE

no longer have a significant impact. ESG and LEV continue to have a negative impact, while DIVI has a positive impact on ROA.

Finally, the multicollinearity test shows that all VIFs are less than 10, proving that the model does not exhibit multicollinearity and the independent variables do not cause bias in the estimation.

4.2. Discussion

A summary of the test results is presented in Table 6.

Table 6. Summary of test results

Impacting variables		ROA
Independent variable	ESG	Negative impact
Control variables	SIZE	No impact
	AGE	No impact
	LEV	Positive impact
	DIVI	Positive impact

(Source: Compiled by the author group)

Independent variable ESG score

The regression results from the FGLS model-the most suitable model after correcting for heteroskedasticity and autocorrelation-show that the ESG score has a negative and statistically significant impact on the ROA of listed real estate companies. This is contrary to the initial expectations and is in agreement with previous studies by Paolo Candio (2024), Bai & Kim (2024), and Duque-Grisales & Aguilera-Caracuel (2019). Specifically, the ESG coefficient is -0.0668 ($p < 0.05$), indicating that when the ESG score increases by one unit, the average ROA decreases by approximately 0.0668 percentage points. This suggests that in the short term, implementing activities related to the environment, society, and governance primarily generates costs rather than immediate financial benefits. Given the specific challenges the Vietnamese real estate industry is facing regarding cash flow, legal issues, and liquidity, companies must make significant investments in reporting systems, green technology, risk management, and information disclosure, causing ESG costs to rise and reducing current financial performance. This result is consistent with a common trend in emerging markets, where the financial benefits of ESG primarily appear in the long term, while the immediate impact is often a drain on resources.

The negative impact of ESG on ROA is consistent with the research findings of Tran and Nguyen (2023) on the influence of ESG on Vietnamese companies. This phenomenon can be explained by Friedman's (1970) shareholder theory, according to which the main objective of a company is to maximize profits and shareholder value. Investing in ESG can reduce short-term profits, as capital flows out to implement these activities instead of being used to cut costs, increase revenue, or invest in other profitable projects. This aligns with the argument of Jensen and Meckling (1976) that expenditures that do not bring direct benefits to shareholders can reduce the value of their assets.

Control variables

The research results show that LEV has a negative and statistically significant impact on the ROA of listed real estate companies. This is particularly consistent with market developments during the 2022-2025 period, when the entire industry faced severe liquidity pressure. Since late 2022, the tightening of corporate bond issuance, requirements for legal transparency of projects, along with rising interest rates, have caused the cost of borrowing for real estate companies to increase sharply. Moving into 2023-2024, the large volume of maturing real estate bonds forced many companies to restructure their debt at higher interest costs, increasing financial risk. In this context, companies with high leverage levels had to bear heavy interest payment burdens, their profit margins narrowed, and their return on total assets significantly decreased. Due to the nature of the real estate industry, borrowed capital always accounts for a large proportion of the total project development cost; therefore, the sensitivity of ROA to LEV is even more pronounced during a volatile market period.

Conversely, the DIVI has a strong positive and statistically significant impact on ROA. This result reflects the reality that during the 2022-2025 period, only companies with a solid financial foundation, stable cash flow, and the ability to implement projects effectively could maintain a consistent dividend policy. Maintaining dividend payments in a difficult market context sends a positive signal about the company's financial health, cash flow management capabilities, and reliability. These companies often have a safer financial structure, a reasonable debt ratio, and a portfolio of legally sound projects, thus maintaining better profitability compared to the industry

average. The FGLS analysis results show that SIZE and AGE have no statistical significance for the ROA of listed real estate companies. This reflects the characteristics of the Vietnamese real estate market during the 2022-2025 period, when profitability no longer solely depends on asset size or years of operation. In the context of declining market liquidity, rising interest rates, tightened bond issuance activities, and numerous legally entangled projects, even large or long-established companies still faced significant financial pressure, high project implementation costs, and difficulty maintaining stable ROA. Overall, the results show that advantages in size or age do not create a significant difference during a period of strong market volatility. The financial performance of a real estate company depends mainly on its ability to manage cash flow, its capital structure, its level of financial safety, the legal progress of its projects, and its ability to adapt to macroeconomic fluctuations, rather than on its size or operational experience.

5. Implications

5.2.1. Implications for real estate companies

First, companies need to optimize project implementation costs and capital management. Effective cost control is a top priority to reduce financial pressure and limit the negative impact of ESG on ROA in the short term. During the 2022-2025 period, real estate companies are facing limited liquidity, high borrowing costs, and many legally entangled projects. Tight management of project costs and capital helps maintain profits, ensure financial stability, and the ability to implement projects effectively. Second, companies need to consider a long-term ESG strategy. ESG activities should be selected to be both feasible and cost-optimized, focusing on green technology, risk management, and sustainable development. An effective ESG strategy not only enhances reputation and competitive advantage but also helps companies meet legal requirements and social responsibilities.

Third, companies need to make ESG information transparent. Full disclosure of environmental, social, and governance activities helps businesses build trust with investors and stakeholders, while also improving their ability to raise capital. Transparent information also helps companies meet legal requirements and strengthen their reputation in the market, which is especially important in the 2022-2025 period, when the Vietnamese real estate market is experiencing many fluctuations in liquidity, legality, and supply-demand.

5.2.2. Implications for state regulatory agencies

First, complete the legal framework and guidance for ESG implementation. Regulatory agencies should develop clear regulations on ESG information disclosure, and at the same time, guide companies on how to implement it transparently and cost-effectively. This will help companies monitor progress, assess risks and opportunities of ESG projects, and at the same time, reduce the immediate financial pressure from high ESG costs. This explains why companies, despite wanting to apply ESG, still face difficulties in terms of financial efficiency-because of the lack of guidance and transparent standards.

Second, provide financial support and incentives for ESG projects. The regulatory agency can consider incentive policies such as supporting loan interest rates, reducing taxes, or encouraging investment in green technology. These policies help reduce capital costs and cash flow pressure for businesses, thereby reducing the short-term negative impact of ESG on ROA, while also encouraging businesses to implement ESG effectively and sustainably in the long term. Third, enhance capacity for reporting and sustainable governance. The regulatory agency needs to provide detailed guidance, training, and standardization of the ESG reporting process for businesses to implement effectively, save costs, and improve their sustainable governance capabilities. This not only helps businesses control costs and improve ROA during the ESG implementation process but also provides reliable information for investors and stakeholders, strengthening trust in ESG activities and the transparency of the business.

5.2.3. Implications for stakeholders

First, investors and shareholders need to consider ESG as a long-term strategic factor. Although the short-term impact of ESG on financial performance can be negative, long-term sustainable benefits, including corporate reputation, better risk management, and the ability to meet legal requirements, often emerge over the long run. Therefore, investors should view ESG as part of their risk and return potential assessment strategy, rather than just focusing on short-term profits. Second, financial institutions and banks need to build appropriate support and risk assessment mechanisms. Given the specific nature of the real estate industry from 2022-2025, companies often face high project costs, limited liquidity, and complex debt obligations. Banks and credit institutions should calculate and apply lending policies, preferential interest rates, or other financial support for companies that implement ESG effectively, in order to promote sustainable development while minimizing credit risk.

Third, customers and the community should be encouraged to participate in ESG monitoring. Transparent ESG information helps stakeholders such as customers, the community, and business partners make reasonable decisions and contribute to promoting businesses to implement sustainable activities. This monitoring not only enhances the accountability of businesses but also contributes to the stability and development of the real estate market in a healthy and sustainable direction.

6. Conclusions

The study assessed the impact of ESG sustainability standards on the financial performance of 52 real estate companies listed on the HNX and HOSE from 2022 to 2025. The FGLS analysis results show that the ESG score has a negative and statistically significant impact on ROA with a coefficient of -0.0668 ($p < 0.05$). This indicates that, in the short term, each one-unit increase in the ESG score can reduce the average ROA by approximately 0.0668 percentage points. This phenomenon reflects the specific characteristics of the Vietnamese real estate industry during the research period: the cost of implementing ESG initiatives, including investment in green technology, risk management, reporting systems, and information transparency, is putting pressure on the net profits of businesses. Conversely, control variables such as SIZE and AGE have no statistical significance, showing that advantages in scale or long-standing experience do not guarantee improved financial performance in the context of real estate projects facing difficulties with cash flow, legal issues, and liquidity. In addition, the LEV has a negative and statistically significant impact, reflecting that the use of high debt increases interest payment pressure and financial risk, thereby reducing ROA. In contrast, the DIVI has a strong positive impact, demonstrating that companies with stable cash flow and good financial governance often maintain higher profitability. The study has some limitations to note. First, the ROA indicator is used as the main observation variable to assess financial performance, so it may not fully reflect all aspects of profitability and the financial health of the business. Second, the relatively small research sample size (52 companies), along with the short-term scope (2022-2025), limits the ability to generalize the results to the entire real estate industry. Third, macroeconomic factors, project-specific characteristics, and market risks have not been fully controlled, which may affect the accuracy of the analysis results. To overcome these limitations, future studies should expand the sample size, including more companies and observations over a longer period, while also developing more complex analytical models to better control for factors affecting ROA. In addition, comparing the impact of ESG between different economic periods or between countries with similar market conditions will help to clearly assess both the short-term and long-term impacts of ESG on corporate financial performance.

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