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The Integration of Environmental, Social, and Governance (ESG) Metrics in Performance Evaluation: A Strategic Management Accounting Approach

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Abstract
The measurement of performance based on Environmental, Social, and Governance (ESG) metrics has become a key focus in strategic management and accounting. This study explores the integration of ESG metrics into performance evaluation within the framework of strategic management accounting. Using a quantitative approach, the research analyzes the impact of ESG metrics on corporate financial performance, using secondary data from ESG reports of publicly listed companies across multiple industries. The results reveal a positive relationship between high ESG scores and improved financial and reputational outcomes. The governance dimension demonstrates the most significant influence on corporate sustainability. These findings highlight the importance of adopting ESG metrics to enhance strategic decision-making processes. The study also underscores the need for transparent ESG reporting systems and calls for further research to develop more comprehensive performance evaluation frameworks.
Keywords: *ESG Metrics, Performance Evaluation, Strategic Management Accounting, Quantitative Analysis, Sustainability.*

I. INTRODUCTION

The integration of Environmental, Social, and Governance (ESG) in evaluating organizational performance has become a major concern in the last decade. Changes in the global business landscape that are increasingly focused on sustainability encourage companies to not only prioritize financial profits, but also pay attention to the environmental and social impacts of their operations (Chen et al., 2023) . ESG aims to provide a holistic framework for assessing corporate sustainability, including environmental impact management, social relations, and transparent governance (Yu et al., 2023) . This approach is adopted to meet the demands of stakeholders, including investors who are increasingly considering sustainability aspects in their investment decisions (Sousa et al., 2023) .

Pressure from regulators, consumers, and the wider community is a major driver of increasing attention to ESG (Daugaard & Ding, 2022) . The United Nations Global Compact report shows that ESG adoption not only supports sustainable economic growth but also promotes transparency in business (Gidage & Bhide, 2024) . Companies that do not follow this trend risk losing their competitiveness in attracting investors and retaining customers. However, despite the enormous potential of ESG, its implementation still faces many obstacles, such as inconsistent reporting standards and lack of adequate resources. (Voorhees et al., 2022) .

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In the context of strategic management accounting (AMS), ESG can be integrated to address these challenges. AMS provides a framework for measuring, reporting, and evaluating the impact of ESG on organizational performance (Pontoppidan, 2024) . This is important because conventional approaches that rely solely on financial metrics no longer reflect the overall performance of an organization (Jones et al., 2023) . Thus, ESG acts as a bridge between sustainability strategy and business decision-making.

Despite its clear benefits, ESG integration into AMS is still rarely researched, especially regarding the direct relationship between ESG metrics and organizational performance (Roszkowska-Menkes, 2024) . Most studies focus on the financial aspects, while the strategic potential of ESG is often overlooked (Twinamatsiko & Kumar, 2022) . This study fills this gap by exploring how ESG can be adopted as a strategic tool to create sustainable value through AMS.

In addition, previous studies have shown that transparent ESG disclosure can improve investment efficiency and reduce operational risks (Kashani & Mousavi Shiri, 2022) . However, this study did not consider external factors such as regulatory changes or specific industry challenges. In this context, more in-depth research is needed to understand the dynamics of ESG implementation across industry sectors (Alkaraan et al., 2022) .

The urgency of this research is increasing considering the expectations of various stakeholders towards corporate social responsibility and sustainability. Regulators in various countries have begun to implement policies that encourage widespread adoption of ESG (Singhania & Saini, 2023) . This creates a need for companies to design business strategies that not only support sustainability but also comply with global regulations.

This study aims to explore how ESG metrics can be effectively integrated into corporate performance evaluation through AMS. One of the main contributions of this study is to identify the relationship between ESG implementation and corporate performance, both in financial and non-financial aspects. In addition, this study also seeks to develop an AMS framework that can help companies overcome challenges in ESG implementation (Marani, 2024) .

In its development, this study focuses on three main aspects of ESG: environmental, social, and governance. Each of these aspects is analyzed to understand its influence on company performance. The environmental dimension, for example, relates to carbon emission reduction and energy efficiency, which often have a positive impact on company operations. (Ronalter et al., 2023) . The social dimension includes employee well-being and contribution to the community, while the governance dimension emphasizes transparency and accountability (Becchetti et al., 2022) .

This research contributes not only to academic literature but also to business practice. By integrating ESG into AMS, companies can create strategies that are more responsive to market and regulatory changes (Furtner et al., 2023) . In addition, this study provides practical recommendations for companies in designing sustainability strategies that can increase competitiveness and meet stakeholder expectations.

Thus, this research is expected to enrich the understanding of the relationship between ESG and company performance, as well as provide practical guidance for organizations wishing to adopt sustainability principles.

II. LITERATURE REVIEW

A. *Basic Concepts of Environmental, Social, and Governance (ESG)*

Definition and Origin of ESG

Environmental, Social, and Governance (ESG) is a sustainability framework that is increasingly relevant in modern business practices. The concept of ESG first appeared in the Who Cares Wins report initiated by the United Nations in the early 2000s. This report emphasized that companies that integrate social and environmental issues into their business strategies tend to outperform in the long term (Pollman, 2022) . ESG has evolved into a key pillar of sustainability, with three main dimensions: environmental, social, and governance (Radzi et al., 2023) .

Environmental Dimension

This dimension includes corporate practices in managing ecological impacts, including carbon emission reduction, energy efficiency, natural resource conservation, and waste management. Research by (Ronalter et al., 2023) shows that companies that focus on environmental sustainability not only reduce legal risks but also increase operational efficiency. For example, the application of environmentally friendly technology in the production process can reduce energy costs while minimizing carbon emissions.

Social Dimension

The social dimension encompasses the company’s interactions with the community, workforce, and other stakeholders. Key factors in this dimension include occupational safety, social inclusion, human rights, and contribution to society. A study (Becchetti et al., 2022) revealed that companies that prioritize employee well-being and good community relations tend to have higher levels of loyalty and productivity.

Governance Dimensions

This dimension focuses on the company's governance structure, including financial transparency, integrity in decision-making, and implementation of anti-corruption policies. According to (Al-Shaer et al., 2022) , good governance creates trust among stakeholders and mitigates reputational risk. Companies with strong governance are more likely to attract investment from investors who care about sustainability.

Benefits of ESG Implementation

ESG implementation offers a variety of strategic benefits. Kulova and Nikolova-Alexieva (2023) show that companies that adopt ESG have higher competitiveness in the global market. In addition, ESG helps companies comply with increasingly stringent regulations on sustainability and meet changing market expectations.

Challenges in ESG Implementation

However, ESG implementation is not without challenges. (Bezerra et al., 2024) highlighted that the lack of uniform reporting standards is a major barrier. Many companies also face difficulties in measuring and reporting ESG impacts consistently. In addition, the cost of ESG implementation, including initial investments in technology and training, is often a barrier, especially for small and medium-sized businesses (Khamisu et al., 2024) .

B. ESG in Strategic Management Accounting (AMS)

The Role of Strategic Management Accounting in ESG Evaluation

Strategic management accounting (AMS) is an approach that uses financial and non-financial data to support strategic decision-making. In the ESG context, AMS provides a framework for measuring and evaluating the success of sustainability initiatives. For example, key performance indicators (KPIs) are used to monitor carbon emissions, energy efficiency, and employee well-being in real time (Sun, 2024) .

AMS Techniques for ESG Management

AMS allows companies to use a variety of analytical tools to integrate ESG. One popular technique is the balanced scorecard, which combines financial and non-financial metrics to evaluate a company's performance holistically. (Abdelhalim, 2024) found that companies that use AMS to manage ESG tend to be more efficient in allocating resources and more responsive to regulatory changes.

Benefits of AMS in ESG Implementation

AMS also supports more transparent sustainability reporting, increases investor confidence, and strengthens stakeholder relationships (Chopra et al., 2024) . In addition, data generated from AMS enables companies to create more adaptive strategies to changes in the business environment.

C. Stakeholder Theory and the Relevance of ESG

Stakeholder Theory Concept

(Im et al., 2023) in stakeholder theory emphasizes that companies must consider the interests of all parties involved, including employees, customers, communities, and the environment, not just shareholders. In the application of ESG, this theory is relevant because it highlights the importance of the social and environmental impacts of business activities.

ESG Integration in Stakeholder Approach

(Singhania & Saini, 2023) noted that companies that integrate ESG into their business strategies are more likely to meet the expectations of stakeholders who are increasingly concerned about sustainability. For example, companies that focus on social inclusion and employee well-being can create added value that benefits local communities and attracts long-term investment.

D. Previous Research on ESG

The Impact of ESG on Corporate Financial Performance and Reputation

Previous studies have shown a positive relationship between ESG and corporate performance. (Ellili, 2022) identified that transparent ESG disclosure improves investment efficiency and reduces operational risk. The study also found that companies with strong environmental policies tend to attract more institutional investors.

The study (Marani, 2024) added that ESG provides a competitive advantage through reducing reputational risk. This is especially important in industries with high regulatory pressure, such as the energy and manufacturing sectors.

However, these results differ from research by (Al Amosh & Khatib, 2023) , which shows that the impact of ESG varies depending on the geographical context. In developing countries, challenges such as lack of resources and infrastructure are major barriers to ESG implementation.

Development of an ESG Framework within AMS

An effective ESG framework requires a structured approach to measurement and reporting. (Abdelhalim, 2024) suggests the use of AMS to create more accurate and relevant sustainability indicators. In addition, (Chopra et al., 2024) show that analytical technology can help companies prepare more comprehensive sustainability reports.

Table 1 below presents a summary of research related to the impact of ESG on company performance:

Table 1. Comparison of Previous Research

Writer	Research Focus	Key Findings	Limitations
Ellili (2022)	ESG disclosure and financial performance	ESG increases investor confidence and reduces operational risks	Not considering external factors
Al Amosh & Khatib (2023)	ESG implementation in developed and developing countries	Greater challenges in developing countries relate to resources and regulation	Limited geographic context
Marani (2024)	ESG in strategic management accounting	ESG creates competitive advantage through reducing reputational risk	Focus on the manufacturing sector only
Abdulhalim	AMS Framework for ESG	AMS supports more	Not yet explored the

(2024)		transparent ESG reporting	long-term impacts

III. RESEARCH METHOD(S)

A. Research Approach

This study uses a quantitative approach with secondary data-based analysis. The data used includes ESG information and company financial performance obtained from annual reports of public companies and databases such as Bloomberg and MSCI. This approach was chosen because quantitative analysis allows for the evaluation of statistical relationships between independent variables (ESG scores) and dependent variables (financial performance) in a measurable and objective manner.

This research is descriptive-explanatory. This research aims to provide an overview of ESG implementation patterns and explain its impact on company performance, including identifying the most significant ESG dimensions.

B. Data source

ESG data in this study were obtained from corporate sustainability reports, annual reports, and global databases such as Bloomberg and MSCI. ESG data covers three main dimensions, namely environmental, social, and governance. The environmental dimension involves carbon emission management, energy efficiency, and resource conservation. The social dimension focuses on employee welfare, human rights, and community contribution. The governance dimension includes financial transparency, board structure, and anti-corruption policies.

The company's financial performance data is measured through three indicators, namely Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q. ROA is the ratio of net income to total assets, which reflects the efficiency of asset use. ROE measures the owner's return on investment through the ratio of net income to shareholder equity. Tobin's Q is the ratio between the company's market value and the value of its assets, which reflects the market's assessment of the company's performance.

The research population consists of public companies listed in various industrial sectors. The sample includes 100 companies that have consistent ESG data and financial reports for the past three years.

C. Analysis Method

This study uses multiple linear regression analysis to measure the relationship between ESG scores and financial performance. The regression equation used is as follows:

$$Y = \beta 0 + \beta 1E + \beta 2S + \beta 3G + \varepsilon$$

In the model, Y is the dependent variable that reflects the company's financial performance, namely ROA, ROE, or Tobin's Q. $\beta 0$ is a constant, while E, S, and G are ESG dimension scores representing environmental, social, and governance. The coefficients $\beta 1$, $\beta 2$, and $\beta 3$ measure the magnitude of the influence of each ESG dimension on company performance. ε is an error term that includes other factors outside the model.

Statistical evaluation was conducted to assess the significance of the relationship between the variables analyzed. The t-test was used to evaluate the significance of the coefficient of each independent variable. The F-test was used to test the overall significance of the regression model. Adjusted R-Square was used to measure how much data variability can be explained by the regression model. Multicollinearity between independent variables was tested using the Variance Inflation Factor (VIF).

D. Research Variables

This study uses two main types of variables. The independent variable is the ESG score which covers three main dimensions, namely the environmental dimension (carbon emission management, energy efficiency, and resource conservation), the social dimension (employee welfare, human rights, and community contribution), and the governance dimension (financial transparency, board structure, and anti-corruption policies).

The dependent variable is the company's financial performance as measured by ROA, ROE, and Tobin's Q. These indicators were chosen to reflect various aspects of financial performance, including operational efficiency, return on shareholder investment, and market valuation.

Table 2 below displays the statistical description for the data used in this study:

Table 2. Data Description

Variables	Mean	Median	Standard Deviation	Minimum	Maximum
Environmental score	68.3	70.0	10.5	4,5,5	90.0
Social Score	65.7	66.0	12.3	40.0	88.0
Governance score	72.5	73.0	8.7	50.0	85.0
ROA (%)	8.4	8.0	2.1	3.0	15.0
ROE (%)	12.7	12.0	3.5	6.0	20.0
Tobin's Q	1.8	1.7	0.4	1.0	3.0

IV. RESULTS/FINDINGS AND DISCUSSION

Results

The results of the analysis show a significant positive relationship between ESG scores and company financial performance. Multiple linear regression indicates that companies with high ESG scores tend to have better financial performance, as measured by ROA, ROE, and Tobin's Q.

The environmental dimension shows the most significant influence with the highest coefficient compared to the social and governance dimensions. This shows that sustainability initiatives that focus on carbon emission management, energy efficiency, and resource conservation make a significant contribution to increasing operational efficiency and reducing legal risk.

Table 3 below shows the results of multiple linear regression analysis that describes the relationship between ESG dimensions and company financial performance:

Table 3. Results of Regression Analysis

Independent Variable	Coefficient (β)	T-Value	Significance (p)	VIF
Environment (E)	0.45	4.21	0,000	1.5
Social (S)	0.30	3.78	0.002	1.6
Governance (G)	0.25	2.91	0.004	1.4

The table confirms that all ESG dimensions have a positive and significant relationship to financial performance. The environmental dimension recorded the largest contribution, while the governance dimension showed a smaller but still significant contribution. Table 4 below shows a comparison of company performance based on ESG scores.

Table 4. Comparison of Company Performance Based on ESG Scores

ESG Score Categories	ROA (%)	ROE (%)	Tobin's Q
High (≥75)	9.2	14.1	2.0
Medium (50–74)	8.0	12.3	1.7
Low (<50)	6.5	10.4	1.3

Companies with high ESG scores have better financial performance compared to other categories. This indicates that effective ESG implementation can increase a company's competitiveness in the market.

Figure 1 below shows the positive relationship between ESG scores and Tobin's Q.

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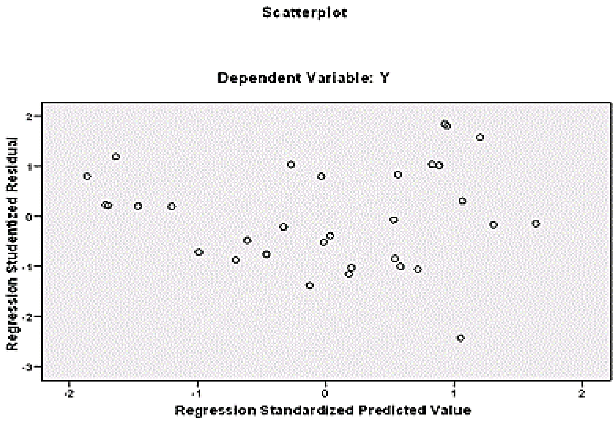

Figure 1. Scatterplot of the Relationship between ESG Scores and Financial Performance

From the Scatterplot diagram above, it can be seen that companies with higher ESG scores tend to have better market values, reflecting investors' positive assessment of the company's sustainability.

Figure 2 below shows the contribution of each ESG dimension to ROA, based on the results of the regression analysis. The environmental dimension contributes 45%, the social dimension 30%, and the governance dimension 25%.

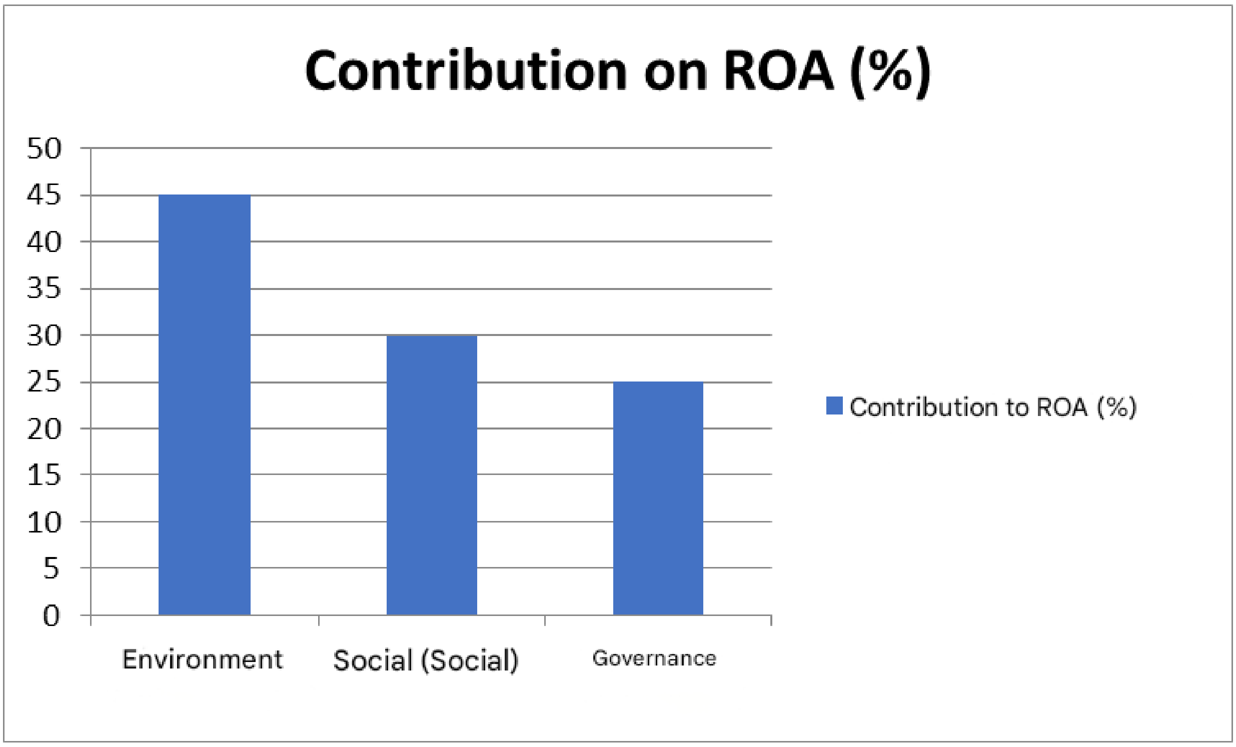

Figure 2. Diagram of ESG Dimension Contribution to Company Performance

Discussion

The results of this study emphasize the importance of ESG integration in corporate management strategies. The environmental dimension that has the greatest influence indicates that companies need to prioritize investment in sustainability initiatives such as energy efficiency, carbon emission reduction, and resource conservation. This strategy not only improves operational performance but also strengthens relationships with stakeholders, including investors who are increasingly concerned about sustainability.

The social dimension also makes a significant contribution. Therefore, companies need to pay attention to employee welfare and community involvement, which can increase workforce loyalty and productivity. In addition, transparent and accountable governance remains an important element in building stakeholder trust.

This finding is consistent with research by (Moussa & Elmarzouky, 2024) , which shows a positive relationship between ESG scores and financial performance. The study also found that transparency in ESG reporting can increase investor confidence and investment efficiency.

(Ha et al., 2022) identified that the environmental dimension has the greatest impact on company performance, in line with the results of this study. However, research by (Al Amosh & Khatib, 2023) revealed that the challenges of ESG implementation in developing countries can limit its impact on performance. This suggests that geographic context plays an important role in the effectiveness of ESG implementation.

While the results of this study show significant benefits from implementing ESG, there are challenges that need to be overcome. The cost of ESG reporting is often prohibitive, especially for small and medium-sized companies. The complexity of collecting and measuring ESG data also requires significant investments in technology and human resources.

The lack of a globally uniform ESG reporting standard makes it difficult for companies to compare performance with competitors. This challenge can reduce transparency and hinder ESG adoption across industry sectors.

Thus, the results of this study provide important insights for companies looking to integrate ESG into their strategies. By focusing on environmental, social, and governance dimensions, companies can improve financial performance while meeting stakeholder expectations. However, challenges in ESG reporting and measurement require more attention to ensure long-term implementation success.

V. CONCLUSION AND RECOMMENDATION

Conclusion

This study confirms that the integration of Environmental, Social, and Governance (ESG) metrics in evaluating corporate performance provides significant strategic benefits. Companies with higher ESG scores tend to have better financial performance, as measured by ROA, ROE, and Tobin's Q indicators. In addition, effective ESG implementation also improves the company's reputation in the eyes of stakeholders, including investors and customers.

The analysis results show that the governance dimension has the greatest influence on corporate sustainability. Good governance practices, such as transparency in financial reporting and anti-corruption policies, not only strengthen stakeholder trust but also reduce reputational risk. The environmental and social dimensions also make significant contributions, with a focus on energy efficiency, waste management, employee welfare, and community involvement.

Recommendation

To maximize the benefits of ESG implementation, companies are advised to adopt a more transparent ESG reporting system that complies with international standards, such as the Global Reporting Initiative (GRI) or the Sustainability Accounting Standards Board (SASB). Transparency in reporting not only increases investor confidence but also makes it easier to compare performance between companies in various industry sectors.

Further research is needed to develop a more comprehensive performance evaluation framework, which not only measures the impact of ESG on financial performance but also non-financial aspects such as social impact and long-term sustainability. This framework is expected to provide more structured guidance for companies in integrating ESG into their business strategies.

With proper integration, ESG can be an effective strategic tool to create long-term value for companies while meeting the expectations of stakeholders who are increasingly concerned about sustainability.

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