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THE IMPACTS OF ESG SCORES ON FIRM'S PERFORMANCE IN FOOD AND BEVERAGE INDUSTRY

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Abstract:
This study explores the relationship between Environmental, Social, and Governance (ESG) scores and financial performance in the global food and beverage industry. The study espouses quantitative research design and utilised dataset collected from Refinitiv Eikon, covering firm-year observations from 91 companies across different regions. Descriptive statistics reveals a mean ESG score of 59.762, indicating above-average transparency. Correlation analysis suggests weak relationships between ESG scores and financial indicators. Further, regression results show a positive impact of ESG scores on ROE, a non-significant relationship with ROA, and a negative impact on Tobin's Q. These findings contribute to the ongoing debate on the connection between ESG practices and financial outcomes, providing insights into the specific context of the food and beverage industry. The study concludes by discussing the implications of the results and offered avenues for future research.

JEL: G32; M14; O44

Keywords: ESG scores, firm performance, food and beverage industry

1. Introduction

In recent years, environmental, social, and governance (ESG) considerations have emerged as pivotal factors influencing corporate behavior and, subsequently, financial performance. Investors, employees, suppliers, customers, and government bodies now anticipate that the company will actively address and implement essential risk-reduction measures while maintaining effective reporting across these various dimensions (Aydoğmuş *et al.*, 2022). Therefore, companies across various industries increasingly recognise the significance of adopting sustainable and responsible business practices, not

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only to fulfill their ethical responsibilities but also to enhance long-term value creation. Among the sectors where these dynamics are particularly pronounced, the food and beverage industry is intimately connected with global environmental challenges, social equity concerns, and corporate governance issues.

It is reported that the food and beverage industry is responsible for 70% of the world's freshwater withdrawal and 21-37% of total global greenhouse gas emissions (REASK, 2022; Liu *et al.*, 2023). In other words, the industry is widely recognised as one of the major contributors to climate change and the alteration of the earth system. This potentially leads the industry to face scrutiny and pressure akin to the oil industry (REASK, 2022). Thus, companies within this sector are encountering escalating demands to enhance their sustainability practices, and the environmental, social, and governance (ESG) agenda has gained considerable traction in the process.

ESG reporting addresses a broad spectrum of issues, including climate change, labor practices, diversity, and corporate governance. It has evolved into a crucial practice for organizations to communicate their commitment to sustainability, ethical practices, and long-term value creation. However, from the company's perspective, engaging in ESG reporting involves significant investments. During board meetings and relevant committees, a critical consideration is whether these investments and resources align with financial viability. This paper aims to contribute to the ongoing debate by focusing on international food and beverage companies.

Stakeholder Theory, introduced by Freeman (1984), posits that sustainable success for companies is achieved by aligning the interests of all stakeholders beyond prioritising shareholder profits. This approach involves considering the interests of various stakeholders, including customers, employees, communities, the environment, and suppliers (Freeman *et al.*, 2007). In line with this perspective, ESG metrics serve as a tool to assess a company's performance on issues crucial to a broader group of stakeholders, akin to how financial metrics assess performance for shareholders (Kay *et al.*, 2020).

Numerous studies have explored the relationship between a firm's ESG practices and its financial performance, with a majority reporting positive finding. However, there are also studies presenting negative results, aligning with Friedman's (1962) Shareholder theory that emphasises profit maximisation for shareholders as the firm's core objective. This study specifically aims to investigate whether there is a correlation between a firm's ESG performance and its financial returns within the food and beverage industry.

2. Literature Review

2.1 Environmental, Social, and Governance (ESG)

ESG refers to Environmental, Social, and Governance, which can be seen as a continuation of both corporate social responsibility (CSR) and socially responsible investment (SRI) (Chen and Xie, 2022). In other words, it denotes how companies perform in each of those three areas. The extensive range of information provided by ESG practices is highly appreciated and endorsed due to its ability to mirror a company's operational circumstances and possible risks, as emphasized by Hu *et al.* (2018). Despite

the absence of standardization in ESG information, scholars contend that it can aid in adjusting to environmental shifts and may eventually become a fundamental aspect of a company's competitive strategy (Galbreath, 2013).

Certainly, ESG scores are commonly used as a proxy for assessing a company's sustainability performance, as noted by Drempetic *et al.* (2019). Understanding this relationship requires breaking down the term. Typically, the ESG score is divided into three components, and each company receives an individual rating for its environmental, social, and governance initiatives. The environmental disclosure score evaluates factors such as CO2 emissions and a company's total waste output. Similarly, the social disclosure score assesses aspects like equality, human rights, and labor conditions. Finally, the governance disclosure score encompasses various factors, including shareholder rights and corruption. Collectively, these components form the overall ESG disclosure score, which is provided by well-known databases such as ASSET4, SAM, Bloomberg, and Thomson Reuters Eikon TM (Dorfleitner *et al.*, 2015).

Furthermore, Kengkathran (2019) contends that revealing ESG information is a compulsory business practice in advanced nations, presenting various avenues for engagement. Moreover, it is incumbent upon businesses to confront the challenges encountered by developing countries, encompassing issues like poverty, human rights violations, environmental deterioration, political corruption, and disparity. She added that determining whether ESG disclosure benefits or harms companies depends entirely on how effectively companies engage in ESG initiatives. ESG disclosure serves as a prominent tool to bolster a company's strategic efforts in achieving its desired image and business objectives (Kengkathran, 2019).

2.2 Shareholder Theory and Stakeholder Theory

Shareholder theory, introduced by Friedman (1962), is a framework that asserts that the primary objective of a corporation is to maximise shareholder wealth. According to this theory, the interests of shareholders, who have invested capital in the company, should be the central focus of corporate decision-making (Friedman, 1962). Therefore, the ultimate measure of a company's success, within the frame of shareholder theory, is its ability to generate profits and increase the value of the shareholders' investments.

On the contrary, stakeholder theory challenges the exclusive focus of shareholder theory by proposing that a corporation has a broader responsibility to multiple stakeholders beyond shareholders. Developed by R. Edward Freeman *(*1984*)*, stakeholder theory posits that successful businesses actively consider and balance the interests of various stakeholders, including employees, customers, suppliers, communities, and the environment. Of these two theories discussed, stakeholder theory is generally more aligned with and supportive of Environmental, Social, and Governance (ESG) practices. Companies adopting stakeholder theory are more likely to incorporate ESG factors into their decision-making processes.

2.3 ESG and Firm's Performance

According to Waheed and Zhang (2020), the disclosure of ESG-related details by businesses contributes to garnering societal acknowledgment and social capital, fostering sustainable development. By and large, the environmental conservation initiatives, social responsibilities, and governance standing of enterprises play a direct role in shaping ESG evaluations. An improvement in these evaluations thereby proves advantageous for augmenting the overall value of the enterprise (Wu *et al.*, 2022). Additionally, the extensive scope and wealth of information inherent in ESG make it widely endorsed and valued. This comprehensive data can effectively portray a company's operational landscape and potential risks (Hu *et al.*, 2018). Industries exhibiting commendable ESG performance stand a higher chance of receiving recognition from government bodies, thereby securing trust from both consumers and investors. This, in turn, elevates the company's credibility and competitiveness, leading to a reduction in losses stemming from associated penalties.

A plethora of related studies have highlighted the positive impacts of ESG disclosure on firms' performance. For instance, studies carried out by Chung *et al.* (2023), Delvina and Hidayah, (2023); Aydoğmuş *et al.* (2022); Sanberg *et al.* (2022), Ahmad *et al.* (2021), Conca *et al.* (2020), and Kenkathran (2019) revealed that ESG scores could either partially or simultaneously have a significant relationship with company's financial performance. However, others such as Kartika *et al.* (2023), Modamad *et al.* (2020), and Duque-Grisales *et al.* (2019) found a negative relationship between ESG disclosure and firms' performance. A summary of these studies is illustrated in Table 1 below.

Despite ambivalent findings, the abovementioned studies share some similarities in terms of variables espoused to evaluate firms' performance, such as ROA (Return on Asset), ROE (Return on Equity), and Tobin's Q. According to Masa'deh *et al.* (2015), accounting measures (e.g., ROA and ROE) have been instrumental for analysts in gauging a company's future profitability and assessing the potential returns on investments in the company's equity securities; however, market measures (i.e., Tobin's Q) can also be beneficial for evaluating a company's market value or stock price in relation to its fundamental factors such as profitability and growth. Therefore, this present study will opt for these three variables as a means to examine the impacts of ESG disclosure on firms' performance.

Table 1: A summary of previous related studies

Authors	Context	Database	Measures	Period	Findings
Chung *et al.* (2023)	Hong Kong	Hong Kong Stock Exchange (HKEX)	ROA	2009-2019	+
Delvina and Hidayah, (2023)	Indonesia	Indonesia Stock Exchange	Tobin's Q ROA	2017-2021	+
Aydoğmuş *et al.*, (2022)	Global	Bloomberg Dataset	ROA Tobin's Q	2013-2021	+
Sanberg *et al.* (2022)	Europe	CSRHub	ROA ROE	2017-2020	+
Ahmad *et al.*, (2021)	UK	Thompson Reuter	MV EPS	2002-2018	+

Conca *et al.* (2020)	Europe	Bloomberg Dataset	ROA PM Tobin's Q	2009-2017	+
Kartika *et al.* (2023)	Indonesia	Indonesia Stock Exchange	Tobin's Q ROA ROE	2017-2021	-
Modamad *et al.* (2020)	Malaysia	Thompson Reuter	ROIC	2009-2018	-
Kengkathran (2019)	Australia Malaysia	Bursa Malaysia Australia Securities Exchange	ROA	2017	-
Duque-Grisales *et al.*, (2019)	Latin America	Thompson Reuter	ROA	2009	-

2.4 Hypotheses Development

In light of the literature reviewed above, it is evident that ESG score and firm's performance are closely related. Particularly, several studies (e.g., Chung *et al.*, 2023; Delvina and Hidayah, 2023; Aydoğmuş *et al.*, 2022; Sanberg *et al.*, 2022; Ahmad *et al.*, 2021) indicated that there is a positive relationship between ESG score and firms' performance. Therefore, it is hypothesised in this present study that the former will have a positive impact on the latter, and the following hypotheses are proposed:

- **Hypothesis 1 (H1):** ESG scores can positively affect a firm's financial performance.
- **Hypothesis 2 (H2):** ESG scores can positively affect a firm's market value.

3. Research Methodology

3.1 Research Design

The present study aligns with the positivist paradigm since it is characterised by the belief that the social world can be studied using scientific methods similar to those used in the natural sciences. With the purpose of examining the impact of ESG scores on firms' financial performance, the quantitative research design is adopted, involving investigating different variables and employing statistical analysis to arrive at a conclusion.

3.2 Data Collection

The dataset utilised in this study is constructed using Refinitive Eikon, recognised as one of the most comprehensive databases on ESG, employing over 700 content research analysts to gather data on 10,000 companies dating back to 2002 (Refinitiv, 2021). The ESG scores are derived from data collected from various external sources, including annual reports, company websites, CSR reports, and news sources. This research focuses on the period from 2012 to 2022, selected to encompass multiple company years and ensure a substantial number of data points. The study's sample consists of annual information from 91 companies in the global food and beverage sector, resulting in 5,005 firm-year observations. Table 2 provides a summary of the data.

Table 2: Sample Data

Context	Number of Firms	%
Europe	27	29.67
United States	20	21.97
Japan	12	13.18
South Africa	12	13.18
United Kingdom	11	12.08
Hong Kong	9	9.89
Total	**91**	**100**

3.3 Variables

3.3.1 Dependent variables

This study concentrates on exploring the correlation between ESG scores and a firm's performance, with a focus on three dependent variables. The initial variable assesses Return on Assets (ROA), determined by dividing Net Income by Total Assets. ROA serves as a reliable indicator of a company's actual capability to generate returns, as suggested by Pätäri *et al.* (2011). The second variable, Return on Equity (ROE), is calculated by dividing Net Income by Equity, providing insights into a company's profitability concerning its equity. These financial indicators, ROA and ROE, are widely employed to represent a firm's financial performance, as demonstrated in various studies (e.g., Chung *et al.*, 2023; Delvina and Hidayah, 2023; Kartika *et al.*, 2023; Aydoğmuş *et al.*, 2022; Sanberg *et al.*, 2022). The third variable is Tobin's Q, a market-based financial performance metric calculated by dividing a company's market value by the book value of its total assets, as outlined by Velte (2007) and Choi and Wang (2009).

3.3.2 Independent Variables

In this study, the independent variable employed is the ESG score, sourced from Refinitiv. Many researchers, such as Chung *et al.* (2023), Delvina and Hidayah (2023), Kartika *et al.* (2023), and Aydoğmuş *et al.* (2022), choose Refinitiv ESG scores for their investigations. Refinitiv is recognised for offering one of the most comprehensive ESG datasets available, spanning data from as far back as 2002. The evaluation of ESG performance considers 10 themes and 3 pillars, comprising over 600 criteria.

The three pillars and their associated themes include Environment (emissions, innovation, and resource usage), Social (human rights, workforce, product responsibility, and community), and Governance (shareholders, management, and CSR Strategy). Refinitiv gathers a substantial portion of the data from public sources like business websites, annual reports, and other company documents. Additionally, some data is directly provided by the companies. Refinitiv diligently audits and standardises this data to generate ESG scores. For further details on the Refinitiv ESG score range, please refer to Table 3 (Refinitiv, 2021).

Table 3. Refinitiv ESG score range

Score Range	Description
From 0 to 25	Scores in this range imply poor relative ESG performance and insufficient transparency in the public disclosure of relevant ESG data
From 26 to 50	Scores in this range imply satisfactory relative ESG performance and moderate transparency in the public disclosure of relevant ESG data
From 51 to 75	Scores in this range imply good relative ESG performance and above average transparency in the public disclosure of relevant ESG data
From 76 to 100	Scores in this range imply Excellent relative ESG performance and high degree of transparency in the public disclosure of relevant ESG data

Source: Refinitiv (2021)

3.3.3 Control Variables

According to Kengkathran (2019), total assets are directly correlated with the size of a company. However, the impact of company size on performance remains a subject of debate. There is an observation that as a company expands and diversifies, its performance may decline. Conversely, Ghoul *et al.* (2010) argue that larger companies attract extensive media and analyst coverage, thereby reducing information asymmetry and potentially enhancing company performance. In the context of the current study, the researcher suggests that a company's size may also influence its visibility, with smaller companies potentially having the ability to avoid media scrutiny more effectively. Consequently, this research addresses the impact of company size by controlling for total assets. A higher total assets value is associated with a presumed stronger relationship between ESG disclosure and financial performance. Table 4 provides a summary of all variables.

Table 4. Summary of Variables

Dependent Variable	Description/ Formula
ROA – Return on Assets	Net Income/ Total Assets
ROE – Return on Equity	Net Income/ Equity
Tobin's Q	Equity Market Value / Equity Book Value
Independent Variables	
ESG Score	Refinitiv Score
Control Variable	
Total Assets	Refinitiv Eikon

3.4 Data Analysis

This study investigates the influence of Environmental, Social, and Governance (ESG) scores on firms' financial performance, as measured by Return on Asset (ROA) and Return on Equity (ROE). Additionally, total assets are included as a control variable to account for the potential impact of company size. The obtained data will then be analysed quantitatively using statistical tools such as descriptive statistics, correlation analysis, and regression analysis. The details are discussed below:

3.4.1 Descriptive Statistics

To provide an initial overview of the dataset, descriptive statistics will be employed. This includes calculating such measures as mean, median, standard deviation, and range for the key variables – ESG score, ROA, ROE, Tobin's Q and total assets.

3.4.2 Correlation Analysis

Correlation analysis will be conducted to assess the relationships between variables. This step aims to identify any initial patterns or associations between ESG scores, financial performance indicators (ROA, ROE, and Tobin's Q), and total assets. The Pearson correlation coefficient will be employed for continuous variables.

3.4.3 Regression Analysis

To delve deeper into the relationships and assess the impact of ESG scores on financial performance while controlling for total assets, multiple regression analyses will be conducted. In this study, fixed effects would be more appropriate, as they account for individual-specific effects and help control for unobserved heterogeneity, making the estimates more reliable. Accordingly, the multiple regression equations for each dependent variable are formulated to test H1 and H2:

$$Y_{ROE} = b0 + b1 \cdot ESGScore + b2 \cdot TotalAsset + \varepsilon$$
$$Y_{ROA} = b0 + b1 \cdot ESGScore + b2 \cdot TotalAsset + \varepsilon$$
$$Y_{TobinsQ} = b0 + b1 \cdot ESGScore + b2 \cdot TotalAsset + \varepsilon$$

4. Findings

4.1 Descriptive Analysis

Descriptive statistics in Table 4 reveal that the mean value for ESG score is 59.762, which implies a relatively good ESG performance and above average transparency. It further shows that ROA has a mean value of 7.489, whilst ROE and Tobin's Q reach the mean value of 18.448 and 2.155, respectively. Moreover, the descriptive analysis uncovers that the mean value of total assets among companies in the food and beverage industries is USD 133,250,000.

Table 5: Descriptive Statistics

	N	Mean	SD	Min	Median	Max
Independent Variable						
ESG score	5005	59.762	17.829	1.02	59.76	93.51
Dependent Variables						
ROA	5005	7.489	5.747	-62.68	6.97	29.94
ROE	5005	18.448	31.023	-650.11	14.39	310.88
Tobin's Q	5005	2.155	3.719	0.33	1.59	92.42
Control Variable						
Total Assets (USD in millions)	5005	133.250	613.090	56.461	5.688	7,185.700

4.2 Correlation Result

The correlation matrix illustrated in Table 6 below shows that there are correlations between ESG score and the other variables, but the relationships are generally weak. The correlation coefficients are close to zero, indicating that the strength of the relationships is not substantial. Elaborately put, there is a weak negative correlation between ESG score and Tobin's Q, whilst there is a minimal relationship between ESG score and ROA. This suggests that as the ESG score increases, Tobin's Q tends to decrease slightly. However, there is a weak positive correlation between ESG score and ROE, indicating a slight tendency for ROE to increase if ESG score increases. A positive correlation is also found in ESG score and Total Assets.

Table 6: Pearson Correlation Matrix

	TQ	ROA	ROE	Total Assets	ESG Score
TQ	1				
ROA	0.0545	1			
ROE	0.0376	0.5474*	1		
Total Assets	-0.0768	-0.1961*	-0.1315	1	
ESG Score	-0.1510	-0.0082	0.0957	0.1514	1
Correlation is significant at the 0.05 level (2-tailed).					
*. Correlation is significant at the 0.01 level (2-tailed).					

4.3 Regression Results

Table 7 presents the fixed-effect results for panel data analysis, which corroborate the findings obtained from the correlation analysis. The analysis reveals that in Model A, the coefficient for the ESG Score is positive (0.007), suggesting a marginal increase in Return on Assets (ROA) with a higher ESG Score. Notably, in Model B, the coefficient for the ESG Score is positive and statistically significant (0.154), indicating a substantial increase in Return on Equity (ROE) associated with a higher ESG Score. Conversely, in Model C, the coefficient for the ESG Score is negative and statistically significant (-0.031), signifying a decrease in Tobin's Q with a higher ESG Score, suggesting a potential adverse impact on market valuation. However, it is observed that Total Assets do not exhibit a statistically significant impact on any of the dependent variables in the models.

Table 7: Fixed Effect Regression Results

	Model A	Model B	Model C
Variables	**ROA**	**ROE**	**Tobin's Q**
ESG Score	-0.01 (0.011)	0.111** (0.049)	-0.018** (0.008)
Total Assets	-0.000*** (0.011)	-0.000 (0.000)	-0.000 (0.000)
LSD R-squared	0.038	0.219	0.182
F-test	5.619	3.009	3.024
Durbin Watson	0.994	0.928	0.663
*p<0.1; **p<0.05; ***p<0.01.			

5. Discussion

The descriptive statistics offer an overview of the key variables in the study. The mean ESG score of 59.762 suggests a relatively strong ESG performance and above-average transparency within the food and beverage industry. Financial performance metrics (ROA, ROE, and Tobin's Q) indicate moderate financial health, with ROE having the highest mean at 18.448.

The results from correlation and regression analyses show that the ESG score has a significant positive impact on Return on Equity (ROE) and a significant negative impact on Tobin's Q. However, it does not exhibit a statistically significant relationship with Return on Assets (ROA). These findings align with Sanberg *et al.*'s (2022) study, which also found a positive association between ESG score and ROE. Despite not reaching statistical significance, the present study's findings are consistent with several previous studies (e.g., Kengkathran, 2019; Duque-Grisales *et al.*, 2019; Modamad *et al.*, 2020; and Kartika *et al.*, 2023) that suggest a positive relationship between ESG score and ROA. Notably, this study diverges from the findings of Conca *et al.* (2020), Ahmad *et al.* (2021), Sanberg *et al.* (2022), Aydoğmuş *et al.* (2022), and Delvina and Hidayah (2023) by revealing a significant negative impact of ESG score on Tobin's Q.

The non-significant impact of Total Assets on dependent variables in all models suggests that the company's size, as measured by total assets, may not significantly drive financial performance in this context.

In sum, these findings provide valuable insights into the nuanced relationship between ESG scores and financial indicators in the food and beverage industry. The observed positive association with ROE and negative association with Tobin's Q warrant further exploration and consideration in the broader context of sustainable business practices.

6. Recommendation

Considering the existing ESG literature and recognising the limitations of the present study, potential future research could explore the following avenues:

- Shortening the study period, conducting additional observations, and employing panel data analysis may offer a more accurate depiction of the genuine impact of ESG activities on corporate sustainability.
- Compare the impact of ESG scores on financial performance across industries to identify common trends or sector-specific dynamics. This comparative approach can contribute to a broader understanding of how sustainability practices influence financial outcomes in various business contexts.
- Enhance the depth of understanding regarding the impact of ESG practices on financial performance by combining quantitative results with qualitative research methods. One effective strategy is to conduct semi-structured interviews with industry experts, company executives, and stakeholders. This approach can

provide valuable insights into the mechanisms through which ESG practices exert influence on financial performance.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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