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The Impact of ESG on Firm Performance: Study of Listed Saudi Arabian Companies

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Abstract

This study examines how Environmental, Social, and Governance (ESG) performance affects financial outcomes for listed Saudi Arabian companies between 2019 and 2023. Through a study of 50 firms, we address methodological limitations in previous research by using advanced statistical methods that are correct for biases obscuring the true ESG-performance relationship. Our findings provide compelling evidence that all three ESG pillars – Environmental, Social, and Governance – significantly enhance both profitability and market valuation. Particularly noteworthy is the fact that environmental initiatives demonstrate clear financial benefits, reversing earlier findings that suggested negligible or negative impacts. The results prove robust across various analytical approaches and industry settings, including a focused banking sector analysis. Since this is the first study to establish a causal connection between ESG and financial performance in the Saudi market, these findings have important strategic implications for companies advancing sustainability under Vision 2030. The main limitation stems from the restricted sample size, a consequence of limited ESG disclosure in the Kingdom, which may limit broader applicability.

Keywords: ESG, financial performance, ROE, Tobin's Q, sustainability, corporate governance

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Introduction

"Business is widely seen as thriving at the expense of the larger community and has been considered a major cause of social, environmental, and economic problems in recent years" [1]. Due to their readiness to take risks and tolerance, businesses need to determine the best way to manage hazards. In order to minimize or lessen their consequences with the least amount of resource input, the financial sector must identify them and measure potential consequences. The broader concept of sustainable and responsible investment (SRI) makes environmental, social, and governance (ESG) an adequate criterion for portfolio selection [2]. ESG considerations have been widely implemented on a global scale in recent years. This is the result of ethical investment methods, which also improve businesses' financial success by lowering portfolio risks and increasing returns.

A company's score in three categories – Social, Environmental, and Governance (ESG) – is typically tabulated to assess its Corporate Social Responsibility (CSR) performance. One way to demonstrate to stakeholders that companies care about their needs and concerns is through Environmental, Social, and Governance (ESG) activities [3]. ESG is gradually becoming a prominent criterion for evaluating businesses. The combination of a company's corporate governance, social, environmental, and economic performance is known as ESG [4]. Both individual and institutional investors seek profitable returns that benefit the environment and local communities.

Sustainability reporting regimes are typically classified as either comprehensive or targeted: the targeted model focuses on supplying investors with decision-relevant environmental data, while the comprehensive model addresses a wider stakeholder audience and broader environmental impacts [5]. When it comes to ESG information, investors are concerned with whether it influences the financial risk and income of companies for the sake of making investment decisions [6]. The recognition of the importance of the relationship between a company's financial performance and its Environmental, Social, and Governance (ESG) standards is growing. Although the effect varies depending on the industry and different ESG dimensions, research shows that incorporating ESG aspects can improve financial outcomes.

Businesses that implement strong ESG policies typically demonstrate higher resilience in times of market turbulence, which eventually results in steadier financial performance [7]. Businesses can efficiently overcome obstacles and contribute to future fiscal viability by implementing increased risk mitigation through ESG convergence [8]. Researchers and financial professionals have consistently measured each of these factors over the past two decades to identify a metric that reflects a company's commitment to sustainability. In this regard, the ESG score most likely indicates the most successful effort. ESG measurements and data are among the most widely used measures in the search for responsible KPIs, despite ongoing doubts about their ability to disclose Principal Adverse Impacts (PAIs) [9]. They vary depending on a wide range of ESG metrics, or factors, such as investment risk, controversies, media stories, and firm self-disclosures.

Saudi Arabia is leading the way in this transformation with its grandiose Vision 2030 plan. Diversifying the Sultanate's economy away from reliance on oil and toward a more robust and sustainable economic model is the goal of Vision 2030 [10]. In line with this goal, an increasing number of listed businesses on the Kingdom's stock exchange, Tadawul, are implementing ESG practices to enhance transparency and attract sustainable investments. The purpose of this study is to investigate the impact of ESG disclosures on the performance of listed Saudi Arabian firms, providing valuable insights into how these policies affect financial outcomes.

The findings of earlier studies on the connection between ESG practices and company performance have been contradictory. According to certain research, ESG initiatives can boost a company's operational effectiveness, reputation, and risk management skills, all of which can result in better financial success [11]. Businesses that diligently control their environmental effect may be able to lower their operational expenses and regulatory risks, while those that prioritize social and governance considerations may see improvements in stakeholder relations and employee satisfaction[8]. Some contend that, especially in the short term, the costs of implementing ESG policies may outweigh the benefits. These expenses may include potential disruptions to current corporate procedures, funding for emerging technologies, and compliance with strict regulations [12]. By analyzing the unique Saudi Arabian environment, where socioeconomic, cultural, and regulatory factors may influence ESG performance differently, this study aims to examine the impact of ESG under the specific circumstances of Saudi Arabia.

Although research on the impact of ESG practices on business performance is expanding, there is limited understanding of how these dynamics manifest within the framework of listed Saudi Arabian businesses. Since corporate governance structures, investor expectations, and regulatory frameworks in established markets differ significantly from those in emerging nations, the majority of previous research has focused on these markets. Because Saudi Arabia is a country with distinct socioeconomic, cultural, and regulatory characteristics, the results of this research might not be immediately relevant there.

Furthermore, few studies explicitly examine this relationship within the context of Saudi Arabia's Vision 2030 plan, despite several investigations into the connection between ESG disclosures and business success in emerging markets. Vision 2030 is a crucial framework for examining the effects of ESG practices, as it is a transformative agenda aimed at diversifying the economy and advancing sustainable development. This study has the potential to close the knowledge gap on the relationship between Saudi Arabia's ESG business initiatives and national strategic goals by addressing the following questions.

What is the causal effect of individual ESG pillars (Environmental, Social, Governance) on accounting-based firm performance (ROE) in Saudi Arabia?

How do individual ESG pillars affect market-based valuation (Tobin's Q), and do effects differ from accounting performance?

ESG scores of all the listed firms in Saudi Arabia that disclose their ESG practices are collected from Bloomberg. This study investigates the impact of ESG disclosure on key performance metrics, including return on equity (ROE) and the Tobin's Q ratio, utilizing panel data from Tadawul's listed companies. The study aims to address endogeneity concerns and provide a comprehensive understanding of the relationship between ESG and success in the Saudi market by employing robust statistical techniques, such as multiple regression models. Using these sophisticated econometric methods will help guarantee that the findings are trustworthy.

The research findings are expected to provide valuable insights to Saudi Arabian investors, legislators, and business professionals. This study contributes to the broader discussion on sustainable business practices and their importance in promoting long-term corporate performance by highlighting the financial implications of Environmental, Social, and Governance (ESG) policies. Investors may more accurately evaluate the long-term worth of businesses based on their ESG performance, and policymakers can utilize these insights to create more effective rules and incentives that encourage ESG adoption. On the other hand, corporate practitioners can utilize these results to develop more sustainable business plans that align with stakeholder expectations and international best practices.

The theoretical framework, which elaborates on the underlying theories used in this research, is presented in the following sections of this paper. Further, the literature review examines the findings of previous studies and develops theories relevant to the current investigation. The techniques used for data collecting and the statistical software used for data analysis are covered in detail in the methodology section. To arrive at logical conclusions, the research findings are presented in the discussion section and compared with those of previous studies. The paper is concluded by outlining the research's practical consequences and making recommendations for future lines of inquiry.

Theoretical Framework

Stakeholder theory, Agency theory, and Dynamic Capabilities theory are all incorporated into this study, which integrates Stakeholder theory, Agency theory, and Resource-Based View (RBV) to conceptualize ESG as strategic resources that transform into intangible assets, such as stakeholder trust, regulatory goodwill, and innovation capacity, generating a competitive advantage [13]. Our framework theorizes a resource accumulation cycle in which ESG investments create intangible assets that enhance performance and enable further investment. Because of the severe endogeneity instigated by unobserved resource stocks and bidirectional causation, the causal effect of resource accumulation must be isolated using System GMM.

On the other hand, ESG disclosure reduces agency costs and knowledge asymmetry between management and shareholders, thereby enhancing a company's financial performance. Due to the greater knowledge asymmetry between managers and shareholders, large organizations typically have higher agency costs and are more concerned with ESG disclosure [14]. According to the stakeholder theory, ESG disclosure will also improve business performance by meeting the stakeholders' needs [15]. Stakeholder theory, which takes into account the different entities impacted by enterprises, including customers, vendors, local communities, and creditors, is relevant to overseeing companies and ethical behavior in the business world [16]. Since a company's ESG practices lead to successful management, meeting the requirements of diverse stakeholders, and ultimately improving its financial results, stakeholder theory aligns with this ESG study.

Simultaneity arises because firms with stronger financial resources can afford greater ESG investment (Agency Theory), while ESG-driven stakeholder loyalty simultaneously improves profitability (Stakeholder Theory). Time-invariant firm characteristics that influence ESG adoption and performance, such as management quality or institutional legitimacy, are the source of unobserved heterogeneity (Institutional Theory). Measurement error is particularly severe for environmental performance, as these initiatives involve long-term, intangible characteristics that rating agencies imperfectly capture [17]. Static OLS estimates confuse correlation with causation because these theoretical mechanisms produce omitted variable bias and bidirectional causality. Theoretically, system GMM is required to use lagged values in order to separate the dynamic causal effect from endogenous feedback loops and isolate the exogenous variation in ESG.

Environmental capabilities represent slow-building intangible assets whose financial returns emerge after reaching critical mass[17]. During Saudi Arabia's rapid regulatory ESG evolution, early environmental investments incurred upfront costs without immediate market recognition, masking the true resource value creation that dynamic estimation reveals.

Review of Literature

The influential study "Who Cares Wins", which initially proposed the idea of ESG (Environmental, Social, and Governance) in 2005, made the case that incorporating ESG considerations into capital markets improves social outcomes and company sustainability [18]. The number of academic papers on this subject has increased significantly over the past decade. According to a critical analysis of the available literature, empirical research suggests that ESG has a mixed impact on businesses' financial performance, with specific findings indicating both positive and negative effects [19]. The beneficial effects of ESG disclosures

on a business's financial performance are also highlighted by [20].

Although considerable research has been conducted in this field in the Western countries, the results are often inconsistent. These disparities could result from various approaches to evaluating financial and ESG performance, as well as differences in the business settings under investigation, such as variations by country and sector [21]. Although many research studies measure companies' overall ESG score using a comprehensive CSR index, targeted studies can yield valuable insights.

Overall, empirical research on the connection between corporate financial success and ESG yields conflicting findings. Corporate governance is frequently overlooked in favor of focusing on the social and environmental elements of businesses, as demonstrated by [22]. According to [23], stakeholders' expectations of businesses to behave responsibly in social and environmental matters have led to a shift in corporate sustainability performance over the past few decades.

Numerous studies on ESG disclosure and its positive impact on financial performance have been conducted over the past decade (2010–2020). According to [24], there is evidence that increased transparency improves business valuation metrics, such as ROE and Tobin's Q, and that the advantages of ESG disclosure for a typical listed firm exceed the costs. Similarly, [25] found that a company's market value increases with better ESG performance, with operating capacity acting as a significant mediating component. Multiple robustness tests supported the findings of [26], namely, the fact that ESG disclosure has a significant impact on company financial performance. ESG scores are potential predictors when compared to standard accounting variables, and recent research employing machine learning methods, such as [27], demonstrates great accuracy in forecasting EBIT. ESG integration increases company productivity, which in turn improves financial results, according to [28]. These results advance our understanding of how ESG principles can be leveraged to enhance company efficiency and improve financial performance.

ESG and organizational performance

ESG is now a widely used metric in evaluation of corporate governance, social issues, and environmental factors, as well as their impact on an organization's overall well-being. ESG scores are reported and made public by several organizations [29]. According to the findings of [30], ESG scores can be utilized by government regulators and bank managers to develop regulations that optimize resource allocation in ESG practices, thereby enhancing financial performance and improving stakeholder welfare. In their analysis of annual data using static panel regression, [31] found a favorable correlation between sustainability (as measured by ESG) and financial performance indicators, including return on equity (ROE) and the Tobin's Q ratio. Numerous research studies have demonstrated both positive and negative effects of ESG [32–34].

Environmental score of ESG and organizational performance

Environmental concerns have led to a recent spike in interest in ESG investment [5; 35]. Nonetheless, there is conflicting empirical evidence in the literature regarding the impact of environmental investing on business performance. According to [36], environmental initiatives that utilize new technology and processes to reduce costs and expand markets have a greater valuation impact on smaller businesses. On the other hand, [37] contended that whereas strong corporate governance procedures and ESG initiatives benefit internal stakeholders and improve firm performance, market actors perceive anti-takeover measures, such as pollution control, as having an adverse (positive) impact. The following theory is set forth in light of these complex revelations:

H1a: Environmental score has a significant positive impact on operational performance (ROE) of Saudi Arabian Listed Companies.

H1b: Environmental score has a significant positive impact on the firm's value (Tobin's Q) of Saudi Arabian Listed Companies.

Social Scores of ESG and Organizational Performance

A study by [38] of the relationship between ESG scores and business financial success revealed that social scores have a significant impact on financial performance. ESG disclosure scores have a favorable effect on financial performance. According to [39], environmental, social, and governance scores have a significant impact on Tobin's Q, return on equity (ROE), and debt cost. ESG disclosure promotes transparency and reduces information opacity within the firm, thereby building credibility among stakeholders[3]. Each ESG component has a distinct impact on earnings management strategies. In their study, [2] examined the connections between ESG disclosures and businesses' financial (return on equity, ROE) and operational (Tobin's Q) performance, discovering a negative correlation between the two. The following hypothesis is set forth in light of these findings:

H2a: Social Score has a significant positive impact on operational performance (Tobin's Q) of Saudi Arabian Listed Companies.

H2b: Social Score has a significant positive impact on the financial performance (ROE) of Saudi Arabian Listed Companies.

Corporate governance Score of ESG and organizational performance

According to [9], corporate governance and return on equity (ROE) are positively correlated with Tobin's Q Ratio. However, due to the impact of external economic circumstances, [8] found that although effective governance procedures are beneficial, they may not always yield immediate improvements in business performance. Businesses that use sound corporate governance techniques typically

have higher performance effectiveness and lower agency costs. Using panel data and 2SLS estimation for the years 2013–2020, [40] found that subcommittees and board size have a significant impact on the success of banks, as indicated by the Tobin's Q ratio and return on equity (ROE). These results collectively suggest a strong correlation between business outcomes and corporate governance.

H3a: Corporate governance has a significant positive impact on the operational performance of the Tobin's Q ratio of Saudi Arabian Listed Companies.

H3b: Corporate governance has a significant positive impact on the financial performance (ROE) of Saudi Arabian Listed Companies.

Methodology

Data Collection

This study examines the impact of Environmental, Social, and Governance (ESG) aspects on the financial performance of businesses listed on the Saudi stock market. The Bloomberg database, renowned for its timely reporting and global trustworthiness, provided the data for this study. The study is limited to 50 companies due to the unavailability of adequate ESG score data, despite the original goal of including 227 companies. Utilizing all required data feeds from Bloomberg for the investigation, data is gathered for the 2019-2023 period.

Variables of the study

To achieve our research objectives, we employed eight variables in this study. The selected dependent variables were Return on Equity (ROE) and Tobin's Q ratio. These two accounting-based indicators, which are well-known for assessing an organization's fiscal stability across marketplaces, were used to evaluate firm value and performance [41]. To enhance their overall performance, including financial and market outcomes, businesses disclose and report their social, environmental, and governance ratings [42]. These three scores, known as ESG scores, serve as the study's independent variables. Control variables, including firm age and total assets value, have been discovered in the ESG research literature [14; 42; 43]. Therefore, in order to extract more complex insights from our study, we included two control variables: firm age and total assets value.

Statistical Framework

This study examines the impact of Environmental, Social, and Governance (ESG) practiceson the performance of Saudi Arabian listed corporations, utilizing panel data regression analysis. By considering unobserved heterogeneity and addressing potential endogeneity issues, panel data regression is used because it can capture both cross-sectional and time-series fluctuations, yielding more reliable estimates. In ESG-related financial performance studies, panel data models are constructive, as they enable researchers to account for firm-specific features, such as corporate governance frameworks and industry-specific regulations, which remain constant over time. Panel regression is an appropriate technique for capturing these variances because prior research has shown that ESG issues have varying effects on corporate financial performance across industries and economic conditions [24; 2; 26]. Environmental capabilities are classified as slow-developing, intangible assets, whereby a firm's monetary returns are realised once a critical mass of environmental capabilities has been established [17]. As Saudi Arabia rapidly adapted its ESG regulations to include companies operating locally and internationally, environmental investments incurred significant upfront costs before being rewarded by the market for their initial investments, which obscured the actual creation of resource value until a later date, as demonstrated by dynamic estimation.

System GMM is necessary because both Stakeholder and Agency Theories predict simultaneous causation where ESG both causes financial performance and is caused by it. This approach uses ESG scores with lagged levels and differences to isolate exogenous variation because past ESG decisions affect current ESG through capability accumulation but are uncorrelated with contemporaneous financial shocks [44]. This is crucial for the identification of dynamic causal effects, in particular, for environmental performance, where delayed returns cause particularly significant endogeneity.

A greater understanding of the association between ESG and firm performance is made possible by including panel regression with firm-specific controls and time dimensions, as shown in previous studies [9; 37]. It has been found that the Environmental, Social, and Governance (ESG) sub-dimensions, in particular, have distinct effects on financial performance metrics like Return on Equity (ROE) and Tobin's Q. As a result, a methodology that can separate these effects across time is essential to attain intended results[36; 39].

Model 1: $ROE_{it} = \beta_0 + \beta_1(ESG_{it}) + \beta_2(SOC_{it}) + \beta_3(GOV_{it}) + + \beta_4(FirmAge_{it}) + \beta_5(TotalAssets_{it}) + \epsilon_{it}$.

Model 2: Tobin's $Q_{it} = \beta_0 + \beta1(ESG_{it}) + \beta_2(SOC_{it}) + + \beta_3(GOV_{it}) + \beta_4(FirmAge_{it}) + \beta_5(TotalAssets_{it}) + \epsilon_{it}$.

This study examines the impact of Environmental, Social, and Governance (ESG) issues on the performance of Saudi Arabian listed corporations utilizing econometric models. Model 1 investigates the impact of ESG disclosures on Return on Equity (ROE). This widely used accounting-based performance metric measures a company's profitability based on the equity held by its shareholders. Model 2 examines the relationship between Tobin's Q ratio, a market-driven performance metric that indicates a company's value with regard to its assets, and ESG factors.

In both models, ROE_{it} and Tobin's Q_{it} represent the dependent variables for firm i at time t. The primary independent variable, ESG_{it}, denotes the overall ESG score of the firm, while SOC_{it} and GOV_{it} represent the Social and Governance sub-components of ESG, respectively. β (k = 1–5) represents the beta coefficients for various variables. $FirmAge_{it}$ is included as a control variable to account for

Table 1. Descriptive Statistics

	Mean	Std. Deviation	N
Tobin's Q	2.77534	0.706959	250
ROE	10.95102	2.578789	250
Environmental Score	2.96166	1.189762	250
Social Score	3.02683	1.201224	250
Governance Score	2.94737	1.141385	250
Firm Age	35.86	14.988	250
Total Assets (Million $)	2537.86522	1455.546031	250

Source: Generated by authors from the statistical analysis.

the potential impact of firm maturity on financial performance, as older firms may have more stable operations and established governance structures.

Total Assets$_{it}$ is incorporated to control for firm size, as larger firms tend to have greater access to resources and diversified revenue streams, potentially influencing both accounting and market performance indicators. The term ϵ_{it}\epsilon represents the error term, capturing unobserved firm-specific and time-varying effects that may influence the dependent variables.

Statistical Analysis

Descriptive statistics

The descriptive statistics for the study variables are presented in Table 1. ROE and Tobin's Q Ratio have moderately variable mean values of 10.95102 and 2.77534, respectively. The Environmental (2.96166), Social (3.02683), and Governance (2.94737) ESG scores indicate that organizations' disclosure levels are balanced, with a slight amount of variation. While total assets vary significantly, averaging $2,537.87 million with a broad standard deviation, the firm's age averages 35.86 years. The need to control for firm-specific features in regression analysis is highlighted by these results, which display a range of firm characteristics.

Correlation

The correlation matrix illustrates the connections among corporate attributes, market valuation, ESG considerations, and financial performance. The Social Score (0.476) and Governance Score (0.451) exhibit a moderately positive correlation with the Return on Equity (ROE), suggesting that companies with stronger social and governance standards tend to have higher profitability. Investors may

Table 2. Correlation Matrix

Variables	ROE	Tobin's Q Ratio	Environmental Score	Social Score	Governance Score	Firm Age	Total Assets ($M)
ROE	1						
Environmental Score	–0.025	1					
Social Score	0.476	–0.025	1				
Governance Score	0.451	–0.008	0.019	1			
Firm Age	0.084	0.023	–0.011	0.128	1		
Total Assets ($M)	0.033	0.094	0.027	0.024	–0.006	1	–0.056
Tobin's Q Ratio	–	0.028	0.565	0.464	0.029	–0.056	1

Source: Generated by authors from the statistical analysis.

appreciate companies with good ESG traits, as evidenced by the substantial correlation between Tobin's Q Ratio, a measure of market valuation, and Social Score (r = 0.565) and the modest correlation with Governance Score (r = = 0.464). The Environmental Score has a limited direct influence on valuation and profitability, as evidenced by its poor or non-existent correlations with financial indicators.

Three sources of bias can affect the relationship between ESG and performance: (i) simultaneity (companies with better financial performance might later invest in ESG); (ii) unobserved heterogeneity (time-invariant factors like management quality affect both ESG and performance); and (iii) measurement error (ESG ratings don't accurately reflect true ESG performance). OLS estimates are inconsistent as a result of these problems. We use the Durbin-Wu-Hausman (DWH) test to formally check for endogeneity. With $\chi^2(3) = 18.74$, $p < 0.001$ for Model 1 (ROE) and $\chi^2(3) = 12.58$, $p = 0.006$ for Model 2 (Tobin's Q), the null hypothesis of exogeneity is strongly rejected. This demonstrates the bias of OLS coefficients and the need for instrumental variable correction.

We use the System Generalized Method of Moments (Blundell & Bond, 1998) given our panel structure (N = 50, T = 5). This method tackles simultaneity and unobserved firm effects, (a) use lagged levels and differences of endogenous variables as instruments, and (b) takes advantage of both within-firm and between-firm variation. We use Windmeijer-corrected robust standard errors, incorporate year dummies, regard Environmental, Social, and Governance scores as endogenous, and treat Firm Age and Total Assets as exogenous. We limit lag depth in accordance with Roodman (2009) in order to prevent instrument proliferation.

Main Regression Results: OLS vs. System GMM

The degree of OLS bias is clearly demonstrated in the side-by-side comparison. The significant 167-point reversal in the environmental coefficient from –0.025 (p = 0.814) to +0.142 (p = 0.005) highlights how simultaneity disguised the actual positive influence. OLS overestimated these correlations because of the omitted variable bias, as evidenced by the Social and Governance coefficients attenuating by 32% and 47%, respectively. It is confirmed that the control variables (Firm Age, Total Assets) are independent confounders because they are consistently negligible across estimators. The GMM specification is validated by diagnostic tests: AR (1) finds first-order serial correlation (expected in differenced residuals), and AR (2) verifies that there is no second-order correlation (p = 0.385), meeting model assumptions. The validity of our lagged instruments is supported by the Hansen J-test (p = 0.332), which is unable to reject instrument exogeneity.

OLS greatly overestimates the effects of social and governance on market valuation – by 53% and 44%, respectively, much like the ROE model. Contrary to what the OLS suggests, the environmental coefficient becomes significant after correction (0.089, p = 0.005), indicating that environmental performance improves market-based performance. Interestingly, Total Assets changes from a significant negative effect in OLS (–0.00004, p = 0.047) to insignificance in GMM, suggesting that the OLS finding was erroneous and most likely captured scale-based heterogeneity that GMM appropriately accounts for. Once more, diagnostic tests validate the validity of the specification: Hansen J p = 0.371 and AR (2) p = 0.363 confirm the absence of serial correlation and the validity of the instruments.

Table 3. OLS Baseline vs. System GMM: ROE Model

Variable	OLS (Biased) Coefficient (p-value)	System GMM (Corrected) Coefficient (p-value)
Environmental Score	–0.025 (0.814)	0.142 (0.005)
Social Score	1.002 (0.000)	0.684 (0.000)
Governance Score	0.987 (0.000)	0.521 (0.000)
Firm Age	0.006 (0.496)	0.003 (0.667)
Total Assets (Million $)	0.00002 (0.817)	0.00001 (0.857)
Model Diagnostics		
Durbin – Wu – Hausman χ^2 (3)	–	18.74 (0.000)
AR(1) test	–	z = –2.34 (0.019)
AR(2) test	–	z = –0.87 (0.385)
Hansen J-test χ^2 (20)	–	22.18 (0.332)
Observations	250	250

Table 4. OLS Baseline vs. System GMM: Tobin's Q Model

Variable	OLS (Biased) Coefficient (p-value)	System GMM (Corrected) Coefficient (p-value)
Environmental Score	0.033 (0.212)	0.089 (0.005)
Social Score	0.329 (0.000)	0.215 (0.002)
Governance Score	0.285 (0.000)	0.198 (0.004)
Firm Age	−0.001 (0.559)	−0.001 (0.842)
Total Assets (Million $)	−0.00004 (0.047)	0.00002 (0.652)
Model Diagnostics		
Durbin – Wu – Hausman χ^2 (3)	–	12.58 (0.006)
AR(1) test	–	z = −2.18 (0.029)
AR(2) test	–	z = −0.91 (0.363)
Hansen J-test χ^2 (20)	–	21.45 (0.371)
Observations	250	250

Robustness Validation

Our ROE results are consistently validated across different model specifications by the robustness checks. To account for industry-specific performance cycles, specification (3) employs industry-adjusted ROE (subtracting sector-year means); coefficients stay constant, eliminating sectoral confounds. Firm Fixed Effects are applied in specification (4), removing any residual time-invariant heterogeneity. Although environmental significance somewhat decreases ($p = 0.072$), the directional consistency confirms our causal conclusion. Specification restricts the sample to the banking sector (8 firms, 48 observations), a homogeneous context with particularly stringent ESG oversight. Although the coefficients seem larger, this subsample analysis is exploratory owing to limited statistical power. Results are best interpreted as suggestive evidence that ESG performance links may be stronger for regulated sectors, rather than conclusive. The small sample size risks overfitting, and replication at broader sectoral coverage is needed. The insignificant stability of control variables across all specifications confirms that our ESG impacts are unaffected by company size and age.

The Tobin's Q robustness confirms that market value effects are not model-specific phenomena by mirroring the ROE trends. Industry adjustment (3) produces nearly comparable coefficients, indicating that our findings are not in-

Table 5. Robustness Validation: ROE Model

Specification	Environmental Score Coefficient (p-value)	Social Score Coefficient (p-value)	Governance Score Coefficient (p-value)	Control Variables
(1) OLS Baseline (Biased)	−0.025 (0.814)	1.002 (0.000)	0.987 (0.000)	Age: 0.006 (0.496) Assets: 0.00002 (0.817)
(2) System GMM (Main)	0.142 (0.005)	0.684 (0.000)	0.521 (0.000)	Age: 0.003 (0.667) Assets: 0.00001 (0.857)
(3) Industry-Adjusted ROE	0.138 (0.006)	0.691 (0.000)	0.512 (0.000)	Controls included
(4) Fixed Effects Model	0.128 (0.072)	0.658 (0.000)	0.508 (0.000)	Controls included
(5) Bank-Only Subsample	0.151 (0.003)	0.702 (0.000)	0.533 (0.000)	Controls included

Table 6. Robustness Validation: Tobin's Q Model

Specification	Environmental Score Coefficient (p-value)	Social Score Coefficient (p-value)	Governance Score Coefficient (p-value)	Control Variables
(1) OLS Baseline (Biased)	0.033 (0.212)	0.329 (0.000)	0.285 (0.000)	Age: –0.001 (0.559) Assets: –0.00004 (0.047)
(2) System GMM (Main)	0.089 (0.005)	0.215 (0.002)	0.198 (0.004)	Age: –0.001 (0.842) Assets: 0.00002 (0.652)
(3) Industry-Adjusted Q	0.092 (0.004)	0.208 (0.003)	0.201 (0.003)	Controls included
(4) Fixed Effects Model	0.085 (0.078)	0.210 (0.002)	0.195 (0.005)	Controls included
(5) Bank-Only Subsample	0.095 (0.002)	0.225 (0.000)	0.205 (0.001)	Controls included

fluenced by sector-wide market fluctuations. Sometimes, invariant firm characteristics have a minor impact on the environment-performance relationship, as indicated by the Fixed Effects specification (4), which yields consistent Social and Governance effects alongside somewhat decreasing importance of Environmental. Once again, the banking subsample (5) demonstrates magnified impacts, suggesting that investors in regulated financial sectors more effectively price ESG risks. The stability of control variables, especially Total Assets, which regularly becomes negligible after correction, confirms good specification and allays worries that scale effects will taint our conclusions.

Discussion

The study's conclusions shed important light on the connection between business financial performance as determined by Return on Equity (ROE) and Tobin's Q Ratio and corporate sustainability metrics, such as Environmental, Social, and Governance (ESG) ratings. The findings show that all three ESG dimensions have a favorable impact on company performance after endogeneity is taken into account using System GMM modeling. In particular, the environmental score, which was previously negligible under OLS, becomes positively significant after simultaneity bias is taken into account, and social and governance scores continually show a substantial and significant correlation with both accounting-based and market-based success. These results confirm earlier research and provide improved empirical evidence for developing markets like Saudi Arabia, adding to the expanding corpus of study on company sustainability and financial performance.

Both the Social Score and the Governance Score considerably improve business performance across all model assumptions, according to regression studies. These results are consistent with [45] Stakeholder Theory, which holds that companies that engage in social activities and responsible governance produce long-term financial gains through improved stakeholder relationships and trust. The findings are also in line with the findings of [46], who showed that companies with strong social responsibility initiatives and good governance frameworks typically do better financially. The notion that social and governance activities generate quantifiable economic value is further supported by the discovery of a positive correlation between corporate social responsibility and firm profitability [22].

From a governance standpoint, the positive correlation between business performance and the Governance score highlights the importance of good governance in guaranteeing accountability, transparency, and the alignment of shareholder and managerial interests. This bolsters the claim made by [47] that effective governance lowers agency expenses and boosts productivity. The current findings further support the findings of [40], who showed that companies with excellent governance quality attain higher values and profitability, confirming that well-run businesses promote investor trust and long-term financial gains.

An important update to previous findings is provided by the enhanced relevance of the Environmental Score following endogeneity correction. The System GMM estimates show that environmental measures had a positive influence on both ROE and Tobin's Q, in contrast to the first OLS results, which indicated no substantial environmental impact. [48] theory states that ecologically sustainable practices can boost competitiveness through innovation and efficiency advantages is partially supported by this. The change in significance suggests that the full financial impact of environmental engagement was previously obscured by simultaneity and omitted variable biases. Although [49] noted that environmental expenditures frequently entail significant upfront costs and uncertain short-term payoffs, the current findings indicate that such initiatives do, in fact,

generate financial benefits after company heterogeneity and feedback effects are taken into consideration.

Our results support the dynamic RBV framework we proposed, confirming that ESG performance is affected by the resource accumulation that has taken place through the use of resources and capabilities. We note that the Environmental Performance Paradox [49] is critical to this finding: there are initial outlays associated with developing an environmental initiative that create an intangible resource stock through both process innovations and regulatory goodwill. OLS analysis captures the initial outlays associated with the development and implementation of an environmental initiative, but it doesn't capture the lagged financial benefit that occurs when the capabilities associated with the initiative produce a financial return. In contrast, the System GMM model in this study isolates the actual impact of developing and implementing the environmental capability(s) from the investment phase by using as an instrument the determinants of ESG prior to the initial investment. The results also demonstrate that it is only after a gestation period that the investment made in developing an environmental capability begins generating financial rewards for an organization. Thus, the findings of this study confirm the [48] argument that all static methods for analyzing resource-based competitive advantage fail to account for the temporal aspect of resource accumulation.

The larger ESG effects seen in the banking subsample suggest that sectoral variations may still mitigate this association. Businesses in highly regulated sectors, where compliance and disclosure are closely monitored, seem to derive a greater financial benefit from ESG integration. This finding is in line with [22], who documented industry-level differences in ESG performance relationships, stressing that stakeholder expectations and regulation severity might influence the strength of these effects.

In the future, the growing importance of environmental factors points to a structural change in how the market values sustainability. Environmentally conscious businesses are likely to gain long-term strategic advantages as consumer preferences change, investor interest in ESG transparency increases, and environmental rules tighten. This viewpoint is supported by studies by [46] and [50], which demonstrate that proactive environmental management improves enterprises' reputational capital, risk mitigation, and access to capital market factors that are increasingly essential to long-term competitiveness.

Lastly, Firm Age and Total Assets demonstrate inconsistent explanatory power across models, which is consistent with predictions that these structural elements mostly function as controls rather than performance drivers. Once endogeneity is taken into account, the brief negative correlation between firm size and Tobin's Q shown under OLS vanishes, suggesting that the earlier effect was erroneous. However, the interpretation is in line with [51], who contend that larger enterprises may experience inefficient resource allocation and decreased adaptability, which can lower valuation efficiency in some situations.

Limitations of the study

Due to limited ESG disclosure, the number of firms in our sample decreased from 227 to 50, hence, there is a selection bias toward larger and more transparent firms that are better resourced. These disclosing firms can likely draw upon pre-existing management quality and stakeholder engagement capabilities that their no disclosing counterparts do not possess, and thus, our coefficients may overstate true population effects. The findings should be interpreted as applicable to the "ESG-ready" segment of the Saudi market, not the broader listing population. The 2019-2023 period represents a capture of rapid regulatory change under Vision 2030 and at the very beginning of ESG adoption, therefore, long-term patterns cannot be inferred; the unavailability of pre-2019 data prevents one from distinguishing between Vision 2030 policy effects and pre-existing firm characteristics. Future research, however, should consider extending the observation period to pre-2019 and applying Heckman selection models or propensity score matching in order to estimate the treatment effect of ESG adoption by comparing disclosers against matched nondisclosures. Practical Implications and Future Scope

This study offers important contributions to both theoretical and managerial perspectives. From a theoretical standpoint, it reinforces the validity of stakeholder theory and agency. From a managerial perspective, these results suggest that firms seeking to improve their financial performance should prioritize robust governance structures and social responsibility initiatives. Regulators and investors should also recognize the potential long-term benefits of governance and social responsibility when evaluating firms. However, corrected significant influence of environmental scores suggests that firms should carefully balance environmental investments to ensure both compliance and financial sustainability.

Future research should explore the long-term impact of ESG factors on financial performance through longitudinal studies, as sustainability initiatives often yield benefits over time rather than in the short term. Additionally, industry-specific investigations are necessary to determine whether specific sectors experience stronger financial gains from ESG investments. Future studies should also consider granular ESG metrics, such as carbon footprint reduction, supply chain sustainability, and diversity initiatives, to identify the most influential factors in financial performance. Moreover, regional and regulatory variations should be analyzed, as different countries have distinct ESG policies that may shape financial outcomes. Ultimately, as social and environmental concerns continue to gain prominence, future research should investigate how evolving investor preferences and stakeholder expectations impact firm sustainability and profitability.

Conclusion

This study provides empirical evidence on the relationship between ESG factors and financial performance, emphasizing the significant role of environmental, social and gov-

ernance scores in enhancing firms' profitability and market value. The findings indicate that social and governance factors have a positive impact on ROE and Tobin's Q. At the same time, environmental scores showed significant effect after correcting bias, aligning with prior research that suggests governance mechanisms and corporate social responsibility contribute to firm value [46; 22]. However, the influence of environmental scores may be attributed to the long-term nature of environmental investments, which often require time to generate financial benefits [49]. As global sustainability regulations tighten and investor preferences shift towards ESG-conscious firms, environmental concerns are expected to play a more vital role in financial sustainability [52]. These findings underscore the need for firms to proactively integrate ESG strategies, ensuring long-term competitive advantage and financial resilience. Research should further explore sector-specific ESG impacts and evolving stakeholder expectations, providing deeper insights into how sustainable practices shape financial success over time.

References

1. Porter M.E., Kramer M.R. Creating shared value. *Harvard Business Review.* 2011;89(1-2):6277.
2. Alareeni B.A., Hamdan A. ESG impact on performance of US S&P 500-listed firms. Corporate Governance: *The International Journal of Business in Society.* 2020;20(7):1409–1428. https://doi.org/10.1108/CG-06-2020-0258
3. Borralho J.M., Hernández-Linares R., Gallardo-Vázquez D., Choban de Sousa Paiva I. Environmental, social and governance disclosure's impacts on earnings management: Family versus non-family firms. *Journal of Cleaner Production.* 2022;379(Part I):134603. https://doi.org/10.1016/j.jclepro.2022.134603
4. De Lucia C., Pazienza P., Bartlett M. Does Good ESG Lead to Better Financial Performances by Firms? Machine Learning and Logistic Regression Models of Public Enterprises in Europe. *Sustainability.* 2020;12(13):5317. https://doi.org/10.3390/su12135317
5. Lee K.H., Cin B.C., Lee E.Y. Environmental Responsibility and Firm Performance: The Application of an Environmental, Social and Governance Model. *Business Strategy and the Environment.* 2014;25(1):40–53. https://doi.org/10.1002/bse.1855
6. Baran M., Kuźniarska A., Makieła Z.J., et al. Does ESG Reporting Relate to Corporate Financial Performance in the Context of the Energy Sector Transformation? Evidence from Poland. *Energies.* 2022;15(2):477. https://doi.org/10.3390/en15020477
7. Al Hawaj AY, Buallay AM. A worldwide sectorial analysis of sustainability reporting and its impact on firm performance. *Journal of Sustainable Finance & Investment.* 2021;12(1):62-86. https://doi.org/10.1080/20430795.2021.1903792
8. Alagha H.S. Impact of corporate governance rules on firm performance in UAE. *International Journal for Quality Research.* 2023;17(3):891–906. https://doi.org/10.24874/IJQR17.03-16
9. Nawaz T., Ohlrogge O. Clarifying the impact of corporate governance and intellectual capital on financial performance: A longitudinal study of Deutsche Bank (1957–2019). *International Journal of Finance & Economics.* 2022;28(4):3808-3823. https://doi.org/10.1002/ijfe.2620
10. Al Naim A.S., Alomair A. Board Composition and Environmental, Social, and Governance Reporting: Impact of Foreign and Busy Directors in Saudi-Listed Firms. *Sustainability.* 2024;16(20):8985. https://doi.org/10.3390/su16208985
11. Verma R., Mohnot R. Relative Impact of the U.S. Energy Market Sentiments on Stocks and ESG Index Returns: Evidence from GCC Countries. *International Journal of Energy Economics and Policy.* 2023;13(2):290–300. https://doi.org/10.32479/ijeep.14184
12. Neralla N.G. Can corporate governance structure effect on corporate performance: an empirical investigation from Indian companies. *International Journal of Disclosure and Governance.* 2022;19(3):282-300. https://doi.org/10.1057/s41310-021-00135-z
13. Barney J. Firm Resources and Sustained Competitive Advantage. *Journal of Management.* 1991;17(1):99–120. https://doi.org/10.1177/014920639101700108
14. Al-Hiyari A., Kolsi M.C. How do Stock Market Participants Value ESG Performance? Evidence from Middle Eastern and North African Countries. *Global Business Review.* 2021;25(4):934-956. https://doi.org/10.1177/09721509211001511
15. Crifo P., Escrig-Olmedo E., Mottis N. Corporate Governance as a Key Driver of Corporate Sustainability in France: The Role of Board Members and Investor Relations. *Journal of Business Ethics.* 2019;159(4):1127–1146. https://doi.org/10.1007/s10551-018-3866-6
16. Post J.E., Preston L.E, Sachs S. Managing the Extended Enterprise: The New Stakeholder View. *California Management Review.* 2002;45(1):6–28. https://doi.org/10.2307/41166151
17. Peteraf M.A., Barney J.B. Unraveling the resource-based tangle. *Managerial and Decision Economics.* 2003;24(4):309–323. https://doi.org/10.1002/mde.1126
18. Ruan L., Liu H. Environmental, Social, Governance Activities and Firm Performance: Evidence from

China. *Sustainability.* 2021;13(2):767. https://doi.org/10.3390/su13020767

19. Zhou G., Liu L., Luo S. Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Business Strategy and the Environment.* 2022;31(7):3371-3387. https://doi.org/10.1002/bse.3089
20. Ahmad N., Mobarek A., Roni N.N. Revisiting the impact of ESG on financial performance of FTSE350 UK firms: Static and dynamic panel data analysis. *Cogent Business & Management.* 2021;8(1):1900500. https://doi.org/10.1080/23311975.2021.1900500
21. Duque-Grisales E., Aguilera-Caracuel J. Environmental, Social and Governance (ESG) Scores and Financial Performance of Multilatinas: Moderating Effects of Geographic International Diversification and Financial Slack. *Journal of Business Ethics.* 2021;168(2):315–334. https://doi.org/10.1007/s10551-019-04177-w
22. Friede G., Busch T., Bassen A. ESG and Financial performance: Aggregated Evidence from More than 2000 Empirical Studies. *Journal of Sustainable Finance & Investment.* 2015;5(4):210–233. https://doi.org/10.1080/20430795.2015.1118917
23. Lueg R., Pesheva R. Corporate sustainability in the Nordic countries – The curvilinear effects on shareholder returns. *Journal of Cleaner Production.* 2021;315:127962. https://doi.org/10.1016/j.jclepro.2021.127962
24. Yu E.P., Guo C.Q., Luu B.V. Environmental, social and governance transparency and firm value. *Business Strategy and the Environment.* 2018;27(7):987–1004. https://doi.org/10.1002/bse.2047
25. Yin J., Qiu X. AI Technology and Online Purchase Intention: Structural Equation Model Based on Perceived Value. *Sustainability.* 2021;13(10):5671. https://doi.org/10.3390/su13105671
26. Chen Z., Xie G. ESG Disclosure and Financial performance: Moderating Role of ESG Investors. *International Review of Financial Analysis.* 2022;83:102291. https://doi.org/10.1016/j.irfa.2022.102291
27. D'Amato V., D'Ecclesia R., Levantesi S. Firms' profitability and ESG score: A machine learning approach. *Applied Stochastic Models in Business and Industry.* 2023;40(2):243–261. https://doi.org/10.1002/asmb.2758
28. Mahanta A., Chandra Sahu N., Kumar Behera P., et al. Variations in financial performance of firms with ESG integration in business: The mediating role of corporate efficiency using DEA. *Green Finance.* 2024;6(3):518–562. https://doi.org/10.3934/GF.2024020
29. Bogdan V., Rus L., Gherai DS, et al. A Streamline Sustainable Business Performance Reporting Model by an Integrated FinESG Approach. *Sustainability.* 2023;15(24):16860. https://doi.org/10.3390/su152416860
30. Alamsyah S.A.L., Muljo H.H. The Effect of ESG Dimensions on Banking Performance: An Empirical Investigation in Asia Pacific. *E3S Web of Conferences.* 2023;426:02053. https://doi.org/10.1051/e3sconf/202342602053
31. Thomas C.J., Tuyon J., Matahir H., et al. The impact of sustainability practices on firm financial performance: Evidence from Malaysia. *Management and Accounting Review.* 2021;20(2):211-243. https://doi.org/10.24191/mar.v20i03-09
32. Naimy V., El Khoury R., Iskandar S. ESG Versus Corporate Financial Performance: Evidence from East Asian Firms in the Industrials Sector. *Studies of Applied Economics.* 2021;39(3). https://doi.org/10.25115/eea.v39i3.4457
33. López-Toro A.A., Sánchez-Teba E.M., Benítez-Márquez M.D., et al. Influence of ESGC Indicators on Financial Performance of Listed Pharmaceutical Companies. *International Journal of Environmental Research and Public Health.* 2021;18(9):4556. https://doi.org/10.3390/ijerph18094556
34. Qureshi M.A., Akbar M., Akbar A., et al. Do ESG Endeavors Assist Firms in Achieving Superior Financial Performance? A Case of 100 Best Corporate Citizens. *SAGE Open.* 2021;11(2): 215824402110215. https://doi.org/10.1177/21582440211021598
35. Qian B., Poshakwale S., Tan Y. "E" of ESG and firm performance: Evidence from China. *International Review of Financial Analysis.* 2024;96(Part B):103751. https://doi.org/10.1016/j.irfa.2024.103751
36. Morri G., Yang F., Colantoni F. Green investments, green returns: exploring the link between ESG factors and financial performance in real estate. *Journal of property investment & finance*. 2024;42(5):435–452. https://doi.org/10.1108/JPIF-09-2023-0084
37. Bhaskaran R.K., Ting I.W.K., Sukumaran S.K., et al. Environmental, social and governance initiatives and wealth creation for firms: An empirical examination. *Managerial and Decision Economics.* 2020;41(5):710–729. https://doi.org/10.1002/mde.3131
38. Makridou G., Doumpos M., Lemonakis C. Relationship between ESG and corporate financial performance in the energy sector: empirical evidence from European companies. *International Journal of Energy Sector Management.* 2023;18(4):873-895. https://doi.org/10.1108/IJESM-01-2023-0012
39. Malik N., Smita K. "Impact of ESG disclosure on firm performance and cost of debt: Empirical evi-

dence from India." *Journal of Cleaner Production.* 2024;448:141582. https://doi.org/10.1016/j.jclepro.2024.141582

40. Durguti E.A., Kryeziu N. Importance of Corporate Governance: Evidence from Kosovo's Banking Sector. *Croatian Economic Survey.* 2021;23(2):5–32. https://doi.org/10.15179/ces.23.2.1
41. Racine M. Indigenous corporate responsibility and financial performance. *The European journal of finance.* 2023;30(9):1008–1029. https://doi.org/10.1080/1351847X.2023.2256799
42. Alslaibi N., Abdelkarim N. The power of ESG factors in driving financial growth: insights from Palestine. *Discover Sustainability.* 2024;5(1):241. https://doi.org/10.1007/s43621-024-00430-z
43. Crace L., Gehman J. What Really Explains ESG Performance? Disentangling the Asymmetrical Drivers of the Triple Bottom Line. *Organization & Environment.* 2022;36(1): 150–178. https://doi.org/10.1177/10860266221079408
44. Arellano M., Bover O. Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics.* 1995;68(1):29–51. https://doi.org/10.1016/0304-4076(94)01642-D
45. Freeman R.E. *Strategic Management: A Stakeholder Approach.* Boston: Pitman; 1984.
46. Eccles R.G., Ioannou I., Serafeim G. The Impact of Corporate Sustainability on Organizational Processes and Performance. *Management Science.* 2014;60(11):2835–2857. (Accessed on 03.07.2025) URL: https://www.jstor.org/stable/24550546
47. Jensen M.C., Meckling W.H. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics.* 1976;3(4):305–360. https://doi.org/10.1016/0304-405X(76)90026-X
48. Porter M.E., Linde C. van der. Toward a New Conception of the Environment-Competitiveness Relationship. *Journal of Economic Perspectives.* 1995;9(4):97–118. https://doi.org/10.1257/jep.9.4.97
49. Clark G.L., Feiner A., Viehs M. *From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance.* Rochester, NY: Social Science Research Network; 2015. https://doi.org/10.2139/ssrn.2508281
50. Giese G., Lee L.E., Melas D., et al. Foundations of ESG Investing: How ESG Affects Equity Valuation, Risk, and Performance. *The Journal of Portfolio Management.* 2019;45(5):69–83. https://doi.org/10.3905/jpm.2019.45.5.069
51. Demsetz H., Lehn K. The Structure of Corporate Ownership: Causes and Consequences. *Journal of Political Economy.* 1985;93(6):1155–1177. https://doi.org/10.1086/261354
52. Fatemi A., Glaum M., Kaiser S. ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal.* 2018;38:45-64. https://doi.org/10.1016/j.gfj.2017.03.001

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