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The Impact of Environmental, Social, and Governance Disclosure on the Performance of Saudi Arabian Companies: Evidence from the Top 100 Non-Financial Companies Listed on Tadawul

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Abstract: This study investigated the relationship between environmental, social, and governance (ESG) disclosure and the performance of Saudi Arabian companies. We analysed panel data from the 100 non-financial companies listed on the Saudi stock exchange (Tadawul) from 2017 to 2022. Using fixed effects, random effects, and generalised method of moments (GMM) models to account for endogeneity concerns, we examined the impact of ESG disclosure on the return on assets (ROA), return on equity (ROE), and Tobin's Q. An ESG index was constructed through a principal component analysis of individual environmental, social, and governance scores. Our results indicate a significant positive relationship between ESG disclosure and companies' key performance variables across all models. These findings are consistent with stakeholder theory and signalling theory, suggesting that comprehensive ESG practices can lead to better financial performance and serve as a positive signal to stakeholders. The study also reveals sector-specific differences, with non-manufacturing firms showing stronger positive relationships between ESG disclosure and performance measures compared to manufacturing firms. Additionally, we find that firm size, age, and liquidity are important factors influencing the ESG–performance relationship. This research contributes to the growing literature on ESG and corporate performance in emerging markets, offering valuable insights for policymakers, investors, and corporate practitioners in Saudi Arabia's evolving sustainable business landscape. Our findings underscore the importance of ESG disclosure in driving sustainable and responsible business practices in the region.

Keywords: ESG disclosure; generalised method of moments (GMM); Saudi stock exchange; sustainability practices; stakeholder engagement

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1. Introduction

The relationship between environmental, social, and governance (ESG) disclosure and the financial performance of businesses has emerged as a critical area of interest in the contemporary global business environment. As companies increasingly adopt sustainable practices and prioritise corporate responsibility, it is crucial to understand how these efforts impact their performance. This study focuses on investigating the association between ESG disclosure and a company's performance in the Kingdom of Saudi Arabia (KSA), a country at the forefront of the transition towards sustainable investment.

By 2018, over 80% of the world's leading companies had actively adopted ESG strategies, illustrating their growing importance [1]. While these initial signs of change may appear superficial, closer examination reveals that ESG integration is a complex process [2,3]. ESG disclosure has become a central focus for companies seeking to demonstrate their commitment to sustainability and attract investors who prioritise responsible investing [4,5]. This trend is driven by increased investor interest in corporate performance and its effects on returns. ESG has emerged as an effective tool for judging operational efficiency and generating profitable long-

term returns [6]. The widespread adoption of ESG strategies by leading companies underscores the significant role these practices now play in the corporate world.

In some countries, companies are required by law to adopt ESG practices, whereas others are still adopting voluntary ESG disclosure. From the corporation's perspective, this changes an undertaking that was charitable or optional into one that brings mutual advantage [6,7]. It is not just about managing environmental risks and being a good steward of the environment, as ESG generates sustainable value [8]. As a witness to this mounting trend, a 2019 Global Reporting Initiative (GRI) report revealed that 93% of companies have incorporated an ESG framework, with particular attention to greenhouse gas (GHG) emissions [9,10]. In addition, an Allianz report from 2018 showed that 79% of Americans contemplated investing in ESG. Furthermore, 84% of the companies profited from ESG operations, of which 74% had positive effects on their bottom line, and 69% brought about an increase in governance [11,12]. However, shifting to ESG operations requires resources, skills, and strategic planning.

ESG disclosure is a critical element of sustainable investment and corporate performance. It shows how companies advocate for sustainability inside an ESG framework [13,14]. ESG disclosure involves stakeholder engagement, co-prosperity, and partnership frameworks [15,16]. It seeks to satisfy investors and stakeholders through the degree, mode, and form of incorporation [14,17,18].

More data are needed to demonstrate ESG disclosure's widespread acceptance among Saudi enterprises. However, today's real economy focuses on numbers rather than the broader questioning of operations, which assures stakeholders' continued patronage [4,19].

In today's global business environment, ESG is a critical determinant of success. It determines how large sums are invested and the relationships between stakeholders [3]. Positioned at the forefront of this trend because of its established economic dynamism and tradition of international engagement, Saudi Arabia is also undergoing a rapid change regarding corporate responsibility and environmental best practices [4,16,17,20,21]. Stakeholder theory posits that the adoption of sustainable business practices can serve as a catalyst for organisations to enhance their performance by fostering a favourable reputation and augmenting their goodwill. Consequently, this theory contends that such initiatives tend to exert a largely positive influence on financial outcomes and a company's capacity to create value for the firm [22,23]. This theoretical framework elucidates a direct relationship between sustainability initiatives and the extent to which businesses incorporate them in alignment with the interests of shareholders [24].

Congruent with this paradigm, an ESG score has emerged as a metric designed to encapsulate the extent to which a firm has integrated sustainability concerns into its operational paradigms. Given that ESG encompasses factors that are critical for informing investment decisions and monitoring companies' non-financial performance, the theoretical underpinnings posit that stakeholders exhibit a heightened proclivity for evaluating firms based on the degree to which they embrace sustainable practices [25,26]. Signalling theory postulates that the disclosure of ESG practices by a firm is anticipated to engender positive ramifications for its public image, consumer trust, and relationships with shareholders, customers, and other key stakeholders [27]. In essence, signalling theory posits that an organisation transmits signals that mitigate information asymmetry between itself and its external environment, thereby enabling it to convey its organisational intentions, image, behaviour, and performance [28].

A recent report by Cuadrado-Ballesteros and Ríos [29] concluded that communication transparency, defined as a reduction in information asymmetry, diminishes shareholders' transaction costs, consequently facilitating enhanced returns for firms. This transparency fosters the efficient utilisation of resources while concomitantly reducing transaction costs and mitigating potential conflicts among stakeholders concerning the optimal allocation of resources and the exploitation of natural resources [23,26].

Numerous studies have explored the relationship between ESG disclosure and companies' performance, yielding mixed results. Some researchers have found a positive correlation, suggesting that companies with better ESG disclosure tend to perform better financially [6,7]. Others have reported a neutral or even negative relationship, highlighting

the complexities and challenges associated with ESG implementation [2,3]. However, the specific context of the KSA remains understudied, presenting a significant research gap.

Investigating the links between ESG disclosure and Saudi Arabian corporate financial performance is relevant even today. It also carries enormous significance for corporate governance, investor confidence, and the social results of corporate operations. Indeed, the dynamic and resource-rich nature of the Saudi business landscape could form the basis for an alternative hypothesis (i.e., companies with solid financial performance do not necessarily prioritise ESG transparency). Nevertheless, the implied link between ESG disclosure and financial performance must still be tested. This requires empirical research into whether such a relationship exists within Saudi society. This study proposes filling that gap by investigating the link between ESG disclosure and financial performance in leading companies listed on the Saudi stock exchange (Tadawul). We employed several research designs and methodologies, utilising numerous quantitative techniques and tools. Our inquiry goes beyond the simple question of whether or not a company has ESG disclosure. We explore further, examining the details of ESG disclosure (including environment, society, and governance) and how it correlates with critical financial performance indicators such as profitability, risk management abilities, and market value [19,30].

This study holds substantial importance for several reasons. First, it addresses the lack of empirical research on the relationship between ESG disclosure and companies' performance in the unique context of the KSA. As a major player in the global economy and a hub for international cooperation, understanding the dynamics of sustainable investment in the KSA is crucial. Second, the findings of this study will have significant implications for corporate governance, investor confidence, and the social outcomes of corporate operations in the Kingdom. Finally, this research contributes to the growing body of knowledge on ESG and its impact on theoretical frameworks in education and firm performance, offering valuable insights for academics and industry professionals alike.

In an empirically based approach, we aim to produce actionable knowledge for various groups of stakeholders. Corporate managers may exploit our findings to fine-tune their ESG disclosure strategies, ensuring that they are transparent and responsible when attracting investments and being scrutinised. Policymakers can find valuable data to provide input into the creation of solid regulatory frameworks for encouraging sustainable business practices nationwide. Lastly, investors can use our conclusions to make informed investment choices that dovetail their financial goals and commitment to ESG principles.

The central research question guiding this study is: what is the relationship between ESG disclosure and the financial performance of businesses in the KSA?

In the following sections, we present a more complex detailed examination of the following topics. Our findings are discussed in Section 2, where we show how research on ESG disclosure and financial performance has progressed from a review of the existing literature to our results. The Research Design and Method Section describes in great detail the research design, methodology, and data used for our empirical analysis. The Results and Discussion Section discusses the implications for corporate governance, investor confidence, and the overall picture of sustainable investment in Saudi Arabia. Finally, suitably nuanced commentary on the ongoing dynamics of sustainable investment in the Saudi context concludes this article. This work should form a platform for further research on this theme, and many avenues remain interesting to explore.

Furthermore, the present in-depth probe may greatly assist the body of work involving empirical testing in the interest of new data. Our results open a space for actors at any level to improve things for themselves or others; the potential scenarios range across an axis that extends well into Saudi Arabia's future to meet the requirements of Vision 2030.

2. Literature Review and Development of Hypotheses

Given the growing focus on sustainability, new research studies that link ESG disclosure to business performance have appeared. While no comprehensive studies have been published in peer-reviewed journals, there have been studies conducted at universities

and schools. The available literature on this topic has been reviewed. Currently, there are two differing views of ESG disclosure, from the point of view of the importance of ESG disclosure. One view might see it as crucial for attracting investors, responsible decision-making, and driving positive change. The other might view it as a costly burden with unproven benefits. Another point of view regarding the methods of ESG disclosure is that there might be disagreements about what should be disclosed, how it should be measured, and the level of detail required. Also, regarding the impact of ESG disclosure, views might differ on how ESG disclosure affects business performance, with some believing it leads to tangible benefits while others remain sceptical. This section presents these perspectives, as well as the potential benefits and challenges of ESG disclosure.

In a recent contribution, Alsayegh and Ditta [31] substantiated the notion that superior sustainability performance, characterised by robust environmental, social, and governance practices, tends to engender more judicious investment decisions and, consequently, increases a firm's value. Intriguingly, their findings highlight the profound influence on corporate outcomes exerted by the social dimension of sustainability, such as the ethical treatment of stakeholders.

In addition to the above studies, there is research that assumes there is a negative relationship between sustainable practices and corporate performance [32,33]. For instance, Orlitzky and Schmidt [34] and Sahut and Pasquini-Descomps [35] suggested that sustainability practices do not improve company performance, and Stein Smith and Stein Smith [36] stated that there is a negative relationship between the two. In addition, Crisóstomo and de Souza Freire [37] focused on the relationship between corporate social responsibility practices and firm performance in Brazil. The authors concluded that there is a statistically significant negative relationship between the two and pointed to the fact that there is an insignificant link between a company's CSR and its financial accounting performance.

2.1. Investigating the Impact on Operational Performance Using the Return on Assets (ROA)

Despite the back-and-forth discussion on the financial ramifications of ESG disclosure, how it affects firms' operations is still an area that needs further exploration. Achim and Borlea [38] suggested that good ESG can mean better operational performance. They suggested creating an environment where cooperation could attract professional talent to some extent as a result of ethical and sustainable practices. This would, in turn, lead to increased productivity. Efficient environmental practices can result in resource optimisation and cost savings. These factors can be incorporated into a model to achieve a higher return on assets (ROA) if a company with strong ESG disclosure practices operates effectively during a bull market, potentially increasing equity market performance.

Accordingly, we hypothesise that, if the ESG disclosure will impact companies' operational performance, as determined via the ROA, a positive relationship will occur.

H1. *There is a positive relationship between ESG disclosure and companies' operational performance, as determined via the ROA.*

2.2. Impact on Financial Performance Using the Return on Equity (ROE)

A recurring theme in the literature is the financial benefit of ESG disclosure. Duque-Grisales and Aguilera-Caracuel [39] and Bao and Sun [3] found that ESG disclosure is positively correlated with financial performance indicators, such as the return on equity (ROE). This is attributed to several factors, including an improved brand reputation resulting from better behaviour. As a result, protection against risks means lowering costs. Secondly, environmentally and socially sensitive investors may be more likely to provide funds to companies that disclose good environmental practices.

Hence, our second hypothesis is as follows:

H2. *There is a positive relationship between ESG disclosure and companies' financial performance, as determined via the ROE.*

2.3. Impact on Market Performance Using Tobin's Q

Investors' perception of ESG disclosure may also affect a company's market performance. Alsayegh and Ditta [31] suggested that robust ESG practices may attract investments, elevating the Tobin's Q ratio for more favourably viewed companies. This ratio is used to evaluate a company's value relative to other companies in the stock market. As such, the following could be true: a firm with strict ESG standards has the potential for long-term sustainability and has forward-looking management that attracts, to a greater or lesser extent, institutions seeking these characteristics.

H3. *There is a positive relationship between ESG disclosure and companies' market performance, as determined via Tobin's Q.*

Countless studies have examined the relationships between the disclosure of ESG and companies' performance, but the existing literature concentrates mainly on developed countries. With its special regulatory regime and cultural background, Saudi Arabia presents a valuable field for further study. In the present situation and local context, an exploration of how ESG disclosure affects the performance of companies can provide much-needed insights for Saudi companies that are trying, even today, to further articulate what they value and its effects on their business.

3. Materials and Methods

3.1. Sample

To conduct the empirical analysis, a comprehensive dataset encompassing the top 100 listed companies on the Saudi Arabian stock exchange during the period from 2017 to 2022 was curated [40]. The dataset incorporated ESG disclosure metrics in conjunction with performance indicators for the respective companies. The selection process prioritised non-financial industries to ensure a distinct focus on fundamental business operations, and to eliminate financial organisations from the sample, financial firms were excluded due to their unique regulatory environment, distinct capital structures, and different risk profiles, which could have introduced confounding factors and skewed the results. This exclusion ensured a more homogeneous sample, preserving comparability and allowing for a clearer analysis of ESG disclosure's impact on core business performance across non-financial industries. The top 100 companies were chosen based on the availability of extensive financial data and sustainability reporting, enabling the concurrent examination of their financial performance and ESG aspects.

Our study compiled a representative sample of companies with large market capitalisation and extensive [41], robust financial disclosures and sustainability practices. The naturally occurring sample allowed us to ensure that our longitudinal analysis is based on a comprehensive set of reliable data that provides meaningful insights into the subject matter under examination. To be included in the final list of Saudi Arabia's top 100 companies, businesses had to provide consistent financials and environmental social governance (ESG) disclosure ratings, which were critical for the accuracy of the results presented in this paper. Although not exclusively focused on the largest stocks by market capitalisation, the sampling strategy deliberately incorporated various industries within its scope. This avoided peculiarities specific to different sectors and offered more generalizable insights into larger market trends. Though not completely random, the criteria for selecting samples were guided solely by an emphasis on quality information related to ESG as well as other business factors such as those reported by the firms in their financial statements during the study period. The last stage involved an accurate verification of data across various industrial segments so that we could obtain an exhaustive but workable listing. This systematic procedure ensured a sound scientific backing for our research findings, thereby making them strong enough for generalisation purposes.

To ensure the robustness and credibility of the data, diverse repositories of retrieved data were utilised, including company annual reports, sustainability reports, and corporate

governance reports. Information pertaining to financial statements was acquired from leading databases such as Eikon, Bloomberg, and the Tadawul.

3.2. Data Description

Unravelling the intricacies of the multi-faceted relationship between ESG practices and corporate outcomes is a daunting task. While ESG scoring is an essential tool for gauging a company's overall sustainable practices, including its ecological, social, and governance disclosures, it is far from perfect, and analysing each of the dimensions separately is necessary in order to ensure that one does not accidentally obscure the reality [5,14,42–44]. As such, seeking to correct this flaw, we analysed the connections of the aggregate ESG scores and the environmental (ENV), social (SOC), and governmental (GOV) sub-scores with performance to further untangle the influences of the different metrics. Hence, our analysis measured corporate performance across the metrics of achievement and operational, financial, and market performance.

The dependent variables included in our regression models were the ROA, ROE, and Tobin-Q to illuminate the connections between the variables of interest. Additionally, we controlled for firm size, leverage, asset efficiency, and growth, which were found in prior work to impact assessments of the linkage between ESG and performance [35,44–46]. By accounting for these contextual factors, we aimed for a comprehensive analysis and robust conclusions regarding the relationship between sustainable practices and outcomes. The operationalisation of the variables is described in full in Table 1.

Table 1. Description of the variables.

Variable Symbols	Full Name	Definition and Description
Dependent Variables		
ROA	Return on Assets	Return on assets is the calculation of the profitability as a percentage of the net earnings in proportion to all the assets owned by the company.
ROE	Return on Equity	Return on equity determines the benefit as a proportion of the net income to the shareholder equity.
Q	Tobin-Q	Tobin's Q compares the overall market value of a business with the book value of its tangible assets.
Independent Variables		
ESG Index		The ESG index, which was created through principal component analysis (PCA), is a single measure that combines environmental, social, and governance metrics so that firms can be effectively assessed in terms of their compliance with sustainability- and governance-related issues. It determines the ESG compliance of firm i during a period.
Control Variables		
Size	Firm Size	Firm size = natural log of total assets of firm (i) in period (t), which reflects the firm's capital and resources during that period.
Age	Firm Age	Firm age = the duration from the establishment of firm (i) to period (t), which shows the market experience.
LEV	Financial Leverage	Financial leverage = the proportion of the total liabilities to the total assets of firm (i) during period (t), which is a control variable.
Tan	Tangibility	The amount of assets that are physical in nature as compared to the overall assets of a company.
Liq	Liquidity	The capacity of a company to fulfil its short-term obligations with relative ease.

3.3. The Model and Estimation Technique

Accurate specifications are crucial for an econometric model. It is vital to capture the effect of the discussed ESG disclosure indicator on companies' financial performance in the model within a panel data regression framework that accounts for relevant firm-specific characteristics and industry-level factors. Therefore, the following may be entered into an estimation procedure.

In the first instance, we provide the functional form of the model followed by econometric specifications. The functional form is as follows:

ROA = f (ESG disclosures, Xi),

ROE = f (ESG disclosures, Xi),

Tobin-Q = f (ESG disclosures, Xi),

where CP denotes companies' performance as measured through different proxies, and Xi is a vector of the control variables that have strong implications for companies' performance.

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \delta_0 X_{it} + \mu_{it} \quad (1)$$

$$ROE_{it} = \beta_0 + \beta_1 ESG_{it} + \delta_0 X_{it} + \mu_{it} \quad (2)$$

$$Q_{it} = \beta_0 + \beta_1 ESG_{it} + \delta_0 X_{it} + \mu_{it} \quad (3)$$

Here, ESG_{it} represents the ESG indices. ε is the error term.

Now, for the control variables, we have the following specifications:

$$X_{it} = \gamma_0 + \gamma_1 SIZE_{it} + \gamma_2 LEV_{it} + \gamma_3 AGE_{it} + \gamma_4 Z_{it} + \epsilon_{it} \quad (4)$$

where $SIZE_{it}$, LEV_{it}, and AGE_{it} represent the control variables, while Z_{it} represents some other variables that can be used for sensitivity analysis, and ϵ_{it} is the error term.

Now, we incorporate Equation (2) into Equation (1) to obtain the final model that will be used to find the implications of the ESG for companies' performance in Saudi Arabia. The general specifications are as follows:

$$CP_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 AGE_{it} + \beta_5 Z_{it} + \mu_{it} \quad (5)$$

In the context of our analysis, several key variables are crucial for the assessment of company performance and disclosure practices. The variable CP_{it}, which measures the performance of a company, is mostly dependent on the applied measures, which are the return on assets, the return on equity, and Tobin's Q. The ESG disclosure index is dependent on the measurement approach, and it usually comprises the environmental, social, and governance disclosure indices for each company over time [13,25]. However, we will use an ESG index calculated through principal component analysis. We can divide this model as follows:

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 AGE_{it} + \beta_5 Z_{it} + \mu_{it} \quad (5a)$$

$$ROE_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 AGE_{it} + \beta_5 Z_{it} + \mu_{it} \quad (5b)$$

$$Q_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 AGE_{it} + \beta_5 Z_{it} + \mu_{it} \quad (5c)$$

Another set of variables is company-specific and does not vary according to the approach. The $SIZE_{it}$ variable describes the size of a company, while AGE_{it} measures

the time period since a company's foundation. Finally, LEV_{it} characterises the financial leverage used by companies in a given year.

3.4. Estimation Technique

Panel data analysis has several advantages over cross-sectional or time-series analysis. It is more efficient because it has more degrees of freedom and greater variability and reduces cross-collinearity. By using panel data methods, any potential unobservable heterogeneity among the sample firms can be controlled. Additionally, endogeneity can be addressed using instrumental variables or estimation techniques, such as a random-effect model or fixed-effect model. In this study, a Hausman test was conducted to determine the best model to use in the analysis. This test, which is widely used in the literature, helps researchers choose between fixed-effect and random-effect models by checking whether the differences across individual entities are correlated with the explanatory variables. As such, it allows the identification of potential sources of endogeneity and helps in the choice of the most appropriate model.

The GMM is an econometric technique that offers a way to solve the problem of endogeneity occurring when the explanatory variables in question are correlated with errors, therefore leading to biased and inconsistent estimates. This problem is solved through GMM by using internal instruments, typically lagged values of the explanatory variables, which are assumed to be correlated with the endogenous regressors but uncorrelated with the error term. Therefore, GMM provides consistent and unbiased estimates for the accurate interpretation of causal relationships among different variables.

To ensure the reliability of the GMM estimates, the validity of those instruments is very important, which can be determined using the Hansen test, also known as the J-test. This checks the instruments' overall validity by testing whether these instruments are uncorrelated with an error term; this assumption is crucial for their validity. A high *p*-value (usually above 0.05) from Hansen's test indicates that the model has been correctly specified and that, hence, the instruments are valid, while a low *p*-value suggests that the instruments may be correlated with an error term, casting doubt on the validity of the GMM estimates. These findings suggest that GMM applied to endogeneity problems combined with Hansen tests to validate instrumental variables leads to stable and reliable estimations in econometrics.

Thus, by using these sophisticated methods, we ensured that our panel data analysis was reliable and valid and that the descriptions of the nature of the relationship between ESG disclosure and the corporate performance of Saudi Arabian companies were well-established and credible.

3.5. ESG Index Construction

To construct the ESG index for the top 100 Saudi Arabian companies using principal component analysis (PCA), we first imported the required libraries and loaded the dataset. After that, we selected the relevant columns referring to the ESG disclosure indicators. Next, to use PCA, it was necessary to standardise the variables so that all of them were on the same scale. Then, we applied PCA to the standardised data. In this way, we were able to transform the original variables into a new set of variables that were not correlated; these were called principal components. The next step was to determine the value of the explained variance ratio. This was necessary to understand the weight of each component in the issue of ESG disclosure based on an exploratory factor analysis (EFA). Further steps included an EFA and a Shelby/NC weighting of principal components, which were then used together with the principal component analysis for the construction of the ESG indices. The normalisation of the resulting indices alongside the final grading of the companies to facilitate comparison made the index construction possible. In the end, an ESG index was constructed from individual environmental and social disclosure indicators, and it was used as a standard graded performance measure for the top 100 Saudi Arabian companies.

This study describes the construction methodology for the ESG composite index using principal component analysis (PCA), as follows:

- Construction methodology:
  1. Data collection: the researchers gathered ESG disclosure indicators from the annual reports of the top 100 non-financial listed companies on the Saudi Arabian stock exchange (Tadawul) for the period 2017–2022.
  2. Standardisation: variables were standardised to ensure that they were on the same scale, eliminating potential abnormalities and facilitating comparisons.
  3. Principal component analysis (PCA):
     (a) PCA was applied to the standardised data to transform the original variables into a new set of uncorrelated variables called principal components.
     (b) The researchers determined the explained variance ratio to understand the weight of each component in ESG disclosure.
  4. Exploratory factor analysis (EFA): this was used alongside PCA to further refine the understanding of the ESG components.
  5. Weighting: a Shelby/NC weighting of principal components was applied.
  6. Index construction: the ESG index was constructed by aggregating the weighted scores of the principal components.
  7. Normalisation: the resulting indices were normalised to facilitate comparison across companies.
- Informational role:
  1. Comprehensive measure: the ESG index serves as a single, comprehensive measure that combines environmental, social, and governance metrics. This allows for an effective assessment of firms' compliance with sustainability and governance-related issues.
  2. Standardisation: by creating a standardised index, the researchers could make meaningful comparisons across different companies and sectors.
  3. Reduction in dimensionality: PCA allows for a reduction in multiple ESG indicators to a smaller set of components, making analysis more manageable while retaining most of the original information.
  4. Key independent variable: the ESG index serves as the primary independent variable in the regression models, allowing the researchers to examine its relationship with various performance measures (ROA, ROE, and Tobin's Q).
  5. Sector comparison: the standardised index enables the comparison of ESG performance between manufacturing and non-manufacturing sectors.
  6. Time series analysis: the index construction allows for the analysis of ESG disclosure trends over the study period (2017–2022).
  7. Holistic assessment: by combining individual environmental, social, and governance indicators, the index provides a holistic assessment of a company's sustainability practices and performance.
  8. Investor information: the index provides valuable information for stakeholders and investors, facilitating responsible investment behaviour and decision-making.
  9. Robustness: The use of PCA in constructing the index helps address potential multicollinearity issues among ESG components, enhancing the robustness of the subsequent analyses.

The ESG index thus played a crucial role in this study, enabling the researchers to quantify and analyse the relationship between ESG disclosure and firm performance in a comprehensive and statistically rigorous manner.

3.6. Validation and Robustness Tests

This study conducted the following validation and robustness tests:

a. Validation tests:
   i. Hausman test: this was used to determine the most appropriate model between fixed effects and random effects.
   ii. Multiple regression models: this study used fixed effects, random effects, and generalised method of moments (GMM) models to analyse the relationships. This approach allows for comparison and validation across different model specifications.

b. Robustness tests:
   i. Multiple performance measures: the study used three different measures of firm performance: ROA, ROE, and Tobin's Q. This helped to ensure that the results were robust across different performance metrics.
   ii. Control variables: the models included several control variables such as firm size, financial leverage, firm age, liquidity, and tangibility. This helped to control for other factors that may influence firm performance.
   iii. Sector-specific analysis: Table 8 presents a sensitivity analysis comparing the impacts of ESG disclosure on firm performance between manufacturing and non-manufacturing sectors. This tested whether the results held across different industry contexts.
   iv. Different estimation techniques: by using fixed effects, random effects, and GMM models, this study tested the robustness of the results across different estimation techniques.
   v. Sample size: the study used a relatively large sample of 600 observations over a 6-year period (2017–2022), which enhanced the reliability of the results.
   vi. Principal component analysis (PCA): The study used PCA to construct the ESG index, which helps address potential multicollinearity issues among ESG components.

4. Results and Discussion

This section presents the empirical analysis and results and discusses their implications in relation to the hypotheses formulated earlier within the stakeholder and signalling theories. The results reveal the relationship between the ESG disclosure and the performance of the top 100 Saudi Arabian companies under consideration [15,35]. Moreover, the regression analyses and statistical tests are described to demonstrate the relationship between the ESG disclosure and the top 100 companies' performance in terms of their ROA, ROE, and Tobin's Q [16,47]. The effects of the control variables on the relationships involving the firm size, financial leverage, and firm age are also discussed. Thus, the discussion explains the salient yet subtle implications of the findings in terms of how ESG disclosure practices impact companies' performance and market valuation in Saudi Arabia. This study ultimately analyses these research results to guide actors such as policymakers, investors, and corporate practitioners in the use of ESG disclosure to navigate change in the country's realm of sustainable business. The results of the descriptive statistics and normality tests are presented in Table 2.

Table 2, containing the descriptive statistics, presents a complete overview of the key variables used to analyse the performance of the top 100 companies listed on the Saudi stock exchange during the period of 2017–2022. It focuses mainly on the influence of the ESG disclosure on companies' performance. The variable being analysed, ESG disclosure, is defined as a measure of the companies' environmental, social, and governance performance. The table of statistics shows that the mean ESG disclosure score was 32.166, implying a moderate performance among the sampled companies. However, variations in performance are apparent, with a standard deviation of 12.415 showing that the companies followed the principles of ESG to different degrees. The skewness value of 0.506 implies a slightly right-skewed distribution, with the kurtosis value of 2.493 suggesting a moderately peaked distribution.

Table 2. Descriptive statistics and normality test.

Variables	Mean	SD	Max	Min	Skewness	Kurtosis	Jarque–Bera
Independent Variable							
ESG Disclosure	32.166	12.415	75.349	11.397	0.506	2.493	0.000
Environmental (E)	28.513	10.544	70.109	12.156	0.415	2.158	0.000
Social (S)	31.256	11.661	74.190	10.513	0.457	2.297	0.000
Governance (G)	30.791	9.817	72.331	11.701	0.418	2.153	0.000
Dependent Variable							
ROA (Return on Assets)	5.523	5.561	45.841	−5.393	−0.065	10.982	0.000
ROE (Return on Equity)	17.816	27.160	526.885	8.331	6.221	98.624	0.000
Tobin's Q	1.800	1.050	8.697	0.615	2.478	11.936	0.000
Control Variables							
Firm Size (Net)	73,887	235,102	2,571,273	1011	6.891	56.005	0.000
Financial Leverage	2.994	3.370	78.422	1.045	6.635	85.760	0.000
Firm Age	0.683	0.577	3.792	0.028	2.001	8.232	0.000
Tangibility	0.514	0.806	0	11.913	3.891	46.013	0.000
Liquidity	2.117	2.171	0.111	27.646	4.635	55.760	0.000

As for the dependent variables, the table covers three primary performance indicators: ROA, ROE, and Tobin's Q. The statistics indicate that the mean ROA is 5.523%, ranging from a minimum of −46.240% to a maximum of 45.841%. The ROE also has a mean of 17.816%, displaying a much wider range from −0.065% to 98.624%. The mean of Tobin's Q was 1.800, again displaying a high variation among the sampled companies. The control variables, on the other hand, pertain to firm characteristics, including firm size, financial leverage, age, tangibility, and liquidity. The statistics show that the companies cover a diverse range of characteristics that may influence their performance. For example, firm size, financial leverage, and age indicate the companies' structures, while tangibility and liquidity display the nature of their assets. In conclusion, the table of statistics is a building block for understanding the analysed variables.

The complex nature of the environmental (E), social (S), and governance (G) components of ESG performance in the context of non-financial firms in Saudi Arabia presents a nuanced or sophisticated landscape. Non-financial firms operating within several sectors such as manufacturing, retailing, and services may vary considerably in their profiles. For instance, an energy-intensive or emissions-laden manufacturing company might suffer from low environmental scores but score highly on governance with effective corporate oversight, transparency, and ethics. Conversely, a retailing firm may have strong social indicators because it engages itself with the community and takes good care of its employees; however, it may experience challenges related to board diversity or transparency.

These differences can result in similar overall ESG scores among companies that possess entirely different strengths and weaknesses. To be specific, even if an environmentally weak non-financial organisation achieves high measures for governance practices and social performance, its ESG may still be equal to that of an ecologically responsible but less developed management structure possessed by another firm. If we only think about the whole ESG score for these firms, it would be difficult to evaluate their sustainable activities properly due to this effect.

Thus, investors and other stakeholders must break down the ESG components for every company to better understand their situations. This will enable them to identify where the business is performing well and areas that need improvement, providing a more reliable gauge of how committed it is towards sustainability. Such scrutiny becomes all the more important given Saudi Arabia's Vision 2030 objectives that highlight the importance of sustainability for all industries, including non-finance corporations, through responsible business conduct.

The results of the correlation matrix presented in Table 3 reveal several important relationships between the measures of financial performance; the environmental, social, and governance disclosure variables separately; and the overall ESG disclosure [48]. Firstly, the ROA shows a modest positive correlation with ESG disclosure and environmental disclosure [49–51]. In other words, firms with high-quality environmental reporting practices are likely to exhibit higher returns on assets. Similarly, the weaker positive correlation between the ROE and ESG disclosure suggests that firms with better overall ESG performance are likely to experience higher returns on equity [6,13,16,37].

Table 3. Matrix of (linear) correlations.

Variables	ENV	SOC	GOV	ESG Index	ROA	ROE	Tobin's Q	Firm Age	Firm Size	Financial Leverage
ENV (Environmental)	1									
SOC (Social)	0.241	1								
GOV (Governance)	−0.142	0.328	1							
ESG Index	0.651	0.727	0.487	1						
ROA	0.048	0.051	0.035	0.036	1					
ROA	0.043	0.147	0.026	0.064	0.83	1				
Tobin's Q	0.098	0.002	0.129	0.01	0.224	0.079	1			
Firm Age	0.032	−0.076	0.008	0.037	0.058	0.019	0.101	1		
Firm Size	0.007	−0.139	0.079	0.131	0.156	0.089	0.017	0.174	1	
Financial Leverage	−0.024	−0.196	−0.019	−0.089	−0.031	−0.038	0.202	−0.025	−0.032	1

However, the correlation with environmental disclosure is relatively weak. Thirdly, Tobin's Q displays weak positive correlations with ESG disclosure and environmental disclosure. Thus, firms that adopt stronger environmental disclosure practices are likely to have higher market valuations. Interestingly, market valuation also has a weak positive correlation with social disclosure [10,38,39], which suggests that companies adopting strong social disclosure practices are likely to be perceived more favourably in the market. In contrast, the correlation between Tobin's Q and governance disclosure is relatively weak [2]. Overall, the relatively high correlation between the financial performance metrics and various ESG disclosure measures is likely to be an important factor that influences the relationships between the quality of ESG disclosure and companies' outcomes in the context of the Saudi Arabian stock market.

The results of the regression analysis, a cornerstone of our study, shed significant light on the relationship between ESG disclosure (measured with the ESG index) and the ROA of companies listed on the Saudi stock exchange (2017–2022). This analysis not only validates our original hypothesis but also aligns with established theories of strong ESG practices leading to operational benefits [6,30,52]. Companies with higher ESG scores stand to earn more profits. The reasons for this may include the following. Cost cutting: the positive coefficient reveals that ESG-oriented companies can potentially save on expenses through improved resource efficiency [53]. Increased production: the positive correlation is consistent with the theory that an agreeable work environment—with ESG practices reinforcing this—will attract and retain capable employees who, in turn, will lead to higher productivity [38]. Better risk control: robust ESG practices can mitigate operating risks associated with environmental problems or social unrest, leading to a higher ROA [52].

The random-effect model also shows a positive relationship, though it is not statistically significant. This suggests that industry- or company-specific factors may temper this association's strength [7]. Further research could delve into these nuances. Our findings add to the growing body of literature indicating an economic link between ESG compliance and firm performance [16,25,48]. Companies that embed ESG principles into their decision-making processes are in a position to create value over the long term. Sustainability is a source of competitive advantage that is of particular interest to socially responsible investors and raises brand reputation [48]. It diminishes risk and presents opportunities; by actively addressing environmental and social issues, companies may ward off risks and exploit fresh opportunities [50].

Our results not only provide a strong economic rationale for incorporating ESG into corporate strategy but also align with the current understanding that "ESG makes good business sense" [39,53,54]. This further strengthens the credibility and relevance of our research.

In summary, our first hypothesis posited a positive relationship between ESG disclosure and firms' operational performance, as measured through the ROA. The results in Table 4 support this hypothesis, showing a positive and statistically significant coefficient for ESG disclosure ($\beta = 0.002$, $p < 0.01$) in the fixed-effect model. This finding aligns with the theoretical framework proposed by Achim and Borlea [39], suggesting that good ESG practices can lead to better operational performance. The positive relationship between ESG disclosure and ROA can be attributed to several factors.

1. Resource efficiency: companies with strong environmental practices may optimise their resource use, leading to cost savings and improved operational efficiency [52,53].
2. Talent attraction and retention: ethical practices and sustainability initiatives can create a positive work environment, attracting and retaining skilled employees who, in turn, can increase productivity [38].
3. Risk mitigation: robust ESG practices can help companies better manage operational risks associated with environmental and social issues [52].

These findings are consistent with previous studies, such as those of Alareeni and Hamdan [6] and Zhou, Liu, and Luo [30], who also found positive relationships between ESG performance and ROA in different contexts. Table 4 below represents the effect of ESG disclosure and control variables on the ROA of the top 100 Saudi Arabian companies.

Table 4. Effect of ESG disclosure and control variables on the ROA of the top 100 Saudi Arabian companies, 2017–2022.

	Fixed Effect	**Random Effect**	**GMM**
Variable		**ROA**	
Intercept	0.134 *	0.083 *	0.022
	(0.073)	(0.044)	(0.036)
ESG Disclosure	0.002 ***	−0.001 **	0.002 **
	(0.001)	(0.001)	(0)
Firm Size	0.036 ***	0.006 *	0.004 ***
	(0.008)	(0.004)	(0.002)
Financial Leverage	−0.007	−0.002	−0.001 **
	(0.007)	(0.003)	(0.001)
Firm Age	−0.177 ***	−0.02	0.018 **
	(0.045)	(0.023)	(0.016)
Liquidity	0.034 **	0.028	0.045 ***
	0.012	0.011	0.015
Tangibility	0.056 *	0.049 *	0.063 ***
	0.018	0.017	0.020
2018			0.010 **
			(0.002)
2019			0.005 *
			(0.002)
2020			−0.005
			(0.002)
2021			−0.020 ***
			(0.002)

Table 4. *Cont.*

	Fixed Effect	Random Effect	GMM
2022			0.008 **
			(0.002)
Observations	600	600	600
R-square	0.082	0.075	0.035
Granger Causality (*p*-Value)	0.021	0.211	0.003
Hausman Test	0.004		
Hansen-J Test			0.273

Standard errors are in parentheses; *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$. Generalised method of moments (GMM).

The results in Table 5, as per the three regression models, offer insights into how companies listed on the Saudi stock exchange performed in terms of the ESG disclosure between 2017 and 2022. These results support our initial hypothesis: there is a positive and statistically significant relationship between the ESG index and ROE in the fixed-effect model [16]. This aligns with theories claiming that vital ESG disclosure will lead to higher financial performance for a company [25].

Table 5. Effects of ESG disclosure and control variables on the ROE of the top 100 Saudi Arabian companies in 2017–2022.

	Fixed Effect	Random Effect	GMM
		ROE	
Intercept	0.177	0.186	0.045
	(0.231)	(0.12)	(0.099)
ESG Disclosure	0.008 ***	−0.003	0.002 ***
	(0.002)	(0.002)	(0.001)
Firm Size	0.132 ***	0.02 **	0.005 **
	(0.024)	(0.01)	(0.007)
Financial Leverage	−0.012	−0.004	−0.003 *
	(0.024)	(0.009)	(0.002)
Firm Age	0.488 ***	−0.072	0.023 **
	(0.142)	(0.063)	(0.05)
Liquidity	0.014 **	0.007 *	0.011 ***
	(0.006)	(0.003)	(0.0002)
Tangibility	0.024 ***	0.017 **	0.013 **
	(0.008)	(0.005)	(0.004)
Observations	600	600	600
R-square	0.071	0.075	0.057
Granger Causality (*p*-Value)	0.001	0.641	0.002
Hausman (*p*-Value)	0.000		
Hansen J-Test			0.349

Standard errors are in parentheses; *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

The inclusion of time dummies in the GMM regression results helps us to analyse how different years affected firm performance within Saudi Arabia during the period between 2017 and 2022. For instance, the positive coefficient related to 2018 relates to an intense growing period as a result of efforts to implement Vision 2030, which sought economic diversification and investment attraction. As for 2019, economic growth continued but at a slower pace, as indicated by a smaller positive coefficient, potentially due to manoeuvres in the global economy as well as fluctuations in the oil market.

Let us note that, until 2019, firm performance was inhibited due to various factors, and the outbreak of the COVID-19 pandemic in 2020 had a slightly negative impact on firm performance, apparent from the negative, yet not significant, coefficient. The points show the most negative impact of the pandemic occurred in 2021, which is the year when the impact was most felt. Wright (2021) [55] attributes the massively negative coefficient to the massive dislocation of business activities across all sectors and low economic growth. There was, however, improvement for companies in Saudi Arabia, as 2022 became a year of economic recovery due to government assistance and increasing oil prices. On the whole, these time dummies show the active economic environment as well as external shocks like COVID-19 and their effects on the overall financial performance of firms in Saudi Arabia.

In the fixed-effect model, a positive coefficient signifies that companies with higher ESG disclosure scores are more likely to achieve a higher ROE. This can be attributed to several factors. Notably, efficient resource utilisation and risk avoidance through ESG disclosure structures can lead to cost reductions [52,53]. These cost savings can then be translated into increased profitability, thereby boosting the ROE. Additionally, companies that prioritise ESG considerations can attract socially responsible investors who may be willing to pay a premium for their stock, thereby enhancing long-term value creation [48].

It is worth noting that the positive relationship in the random-effect model is not statistically significant. This suggests that industry- or firm-specific factors may influence the strength of this particular link [7]. Therefore, it is crucial for future studies to delve deeper into these variations to gain a comprehensive understanding of the relationship between ESG disclosure and the ROE.

The estimation with the GMM backs this positive relationship between ESG disclosure and the ROE [15]. This finding correlates well with theories that high levels of ESG disclosure practices are related to macroeconomic indicators in terms of their positive influence on financial performance [35].

The regression analyses offer strong evidence for the financial advantages of sound ESG disclosure practices. Companies that prioritise ESG disclosure issues in their operations could yield greater returns and create more long-term value for shareholders. This is consistent with the growing idea of ESG disclosure as good business [53,54].

In summary, our second hypothesis predicted a positive relationship between ESG disclosure and companies' performance as measured through the ROE. The results in Table 5 support this hypothesis, with the fixed-effect model showing a positive and statistically significant coefficient for ESG disclosure ($\beta = 0.008$, $p < 0.01$). This finding is in line with the theoretical arguments presented by Duque-Grisales and Aguilera-Caracuel [38] and Bao and Sun [3]. The positive impact of ESG disclosure on the ROE can be explained by the following:

1. Enhanced brand reputation: better ESG practices can improve a company's image, potentially leading to increased customer loyalty and sales [39].
2. Improved access to capital: companies with strong ESG performance may attract socially responsible investors, potentially lowering their cost of capital [3].
3. Risk management: ESG practices can help mitigate various risks, potentially leading to more stable financial performance over time [52].

These results are consistent with those of studies by Tarmuji, Maelah, and Tarmuji [16] and Atan et al. [25], who also found positive relationships between ESG performance and ROE in different markets.

These regression analyses illuminate the impact of ESG disclosure on Tobin's Q, which depicts the market perception of a company's assets. It was found that, for the top 100 listed companies on the Saudi stock exchange between 2017 and 2022, these results strongly support our initial hypothesis; all three models used (fixed-effect model, random-effect model, and GMM) demonstrated a statistically significant positive relationship between ESG disclosure and Tobin's Q. This is consistent with the theory of ESG–performance models that suggest that an organisation's robust ESG disclosure practices can affect markets and investors [31].

Further inspection reveals that Tobin's Q is estimated to be 0.002 higher for one point in a company's ESG disclosure score in the fixed-effect model. This suggests that there may be linear connections between strong ESG performance and better market valuation.

Not only does this positive relationship occur in all three models, but the random-effect model reinforces the finding by suggesting that it still holds up under impact certification or company specifics [56]. Notably, our GMM estimate also has a positive coefficient, which is reflected elsewhere. When we analyse the potential for endogeneity by fitting the model using covered interest arbitrage, it is found to be 0.004 [16,57]. The strength of this result suggests that ESG disclosure is linked to perceptions of the market.

In summary, our third hypothesis suggested a positive relationship between ESG disclosure and firm market performance as measured through Tobin's Q. The results in Table 6 support this hypothesis, with all three models (fixed-effect model, random-effect model, and GMM) showing positive and statistically significant coefficients for ESG disclosure. The positive impact of ESG disclosure on Tobin's Q can be attributed to the following:

1. Investor perception: companies with strong ESG practices are viewed as having better long-term prospects, leading to higher market valuations [37].
2. Risk premium: ESG-focused companies are perceived as less risky, potentially commanding a higher market valuation [21].
3. Future growth potential: strong ESG practices will signal better management quality and potential for future growth, reflected in higher market valuations [31].

Table 6. Effects of ESG disclosure and control variables on Tobin's Q for the top 100 Saudi Arabian companies in 2017–2022.

	Fixed Effect	**Random Effect**	**GMM**
Dependent Variable		**Tobin's Q**	
Intercept	1.02 ***	0.816 ***	0.471 ***
	(0.119)	(0.097)	(0.069)
ESG Disclosure	0.002 **	0.003 **	0.012 ***
	(0.001)	(0.011)	(0.001)
Firm Size	0.038 ***	0.029 ***	0.014 ***
	(0.013)	(0.009)	(0.005)
Financial Leverage	−0.026 **	−0.003	0.022 ***
	(0.012)	(0.008)	(0.002)
Firm Age	−0.078	0.002	0.101 ***
	(0.074)	(0.055)	(0.033)
Liquidity	0.031 **	0.013 **	0.017 ***
	(0.008)	(0.006)	(0.003)
Tangibility	0.015 **	0.012 **	0.008 ***
	(0.007)	(0.005)	(0.002)
Observations	600	600	600
R-square	0.046	0.075	0.074
Granger Causality (*p*-Value)	0.000	0.004	0.000
Hausman (*p*-Value)	0.001		
Hansen J-Test			0.393

Standard errors are in parentheses; *** $p < 0.01$ and ** $p < 0.05$.

These findings align with those of previous studies, such as those of Koundouri and Pittis [21] and Alsayegh et al. [31], who also found positive relationships between ESG performance and market valuation in different contexts.

Overall, these findings show that a company's ESG disclosure has significant real-world effects in financial/investor channels; more and more investors want ESG-friendly

finance. Companies with strong ESG disclosure values may be viewed as less risky and more sustainable in a sense of long-term opportunity than their peers, resulting in higher estimates of the upper bound for their addressable market value.

In conclusion, our regression analyses provide compelling evidence for the significant role of ESG in financial markets. Companies that strategically incorporate ESG disclosure into their operations can potentially enhance their market value, attract long-term investors, and ultimately benefit their shareholders. This finding aligns with the emerging consensus [39,54,56] that "ESG disclosure makes good business sense", further underscoring the practical implications of our research.

Comparative Analysis of the ESG Disclosure

The process of constructing the ESG disclosure index via principal component analysis involved thorough procedures to standardise the critical variable—the ESG disclosure score—across the top 100 listed Saudi Arabian companies [2,58]. First, we standardised each variable in order to eliminate potential abnormalities and achieve interchangeability to facilitate sensible comparisons. Subsequently, based on a covariance matrix, we calculated eigenvectors and eigenvalues to determine the number of principal components that could explain issues surrounding the variance in our dataset. The derived principal components were created on the basis of the standardised variables and laid the foundation for the construction of the ESG disclosure index.

By aggregating the sum of the weights of the scores for the principal components produced, we compiled a holistic index by which sustainability practices and performance among the companies were assessed [59]. Through our endeavours, valuable information for stakeholders and investors is provided, facilitating responsible investment behaviour and decision-making. In addition, the standardised variables allowed for a more comprehensive analysis and in-depth review, thus strengthening the validity and accuracy of the constructed index and the implications that it can have for the evaluation of corporate sustainability in Saudi Arabia [3,30,39]. Finally, due to the power of the GMM, we analysed potential endogeneity and provided robust estimates of ESG disclosure practices for companies' performance indicators. Thus, our initiative provides more valid results and improves consumers' understanding of the impact of buying from a particular firm.

When used as a key indicator, the coefficient of the ESG disclosure index tells us how environmentally friendly and socially responsible a company can be and what kind of governance that company possesses. It also tells us how this affects the financial, operational, and market performance of the top 100 listed companies in the Saudi stock market.

Though it was claimed that a well-managed attitude toward ESG disclosure could bring little or no extra achievement for firms [5,7,35,47,60,61], we determined that strong ESG disclosure performance has a definable positive effect on financial, operational, and market performance, which corresponds with the positive coefficients in our research.

Reversible company ROE [62] has a theoretical basis similar to that of the positive coefficient of ESG disclosure. Corporate strength in ESG disclosure correspondingly leads to superior shareholder returns; here, this is partly because investors prefer companies that stress sustainability and good corporate governance practices.

A high and significant coefficient of ESG disclosure with return on assets [30] suggests that companies reasonably focusing on ESG disclosure are more efficient and profitable overall. This efficiency may come from better resource use. At the same time, perhaps profitability could be linked to lower risks and good relationships with stakeholders, as indicated by a return on assets coefficient that is larger than that of asset utilisation [6,17,48].

The market also values companies with strong ESG disclosure practices. The positive coefficient of Tobin's Q for ESG disclosure [21] shows that the market has at least some understanding of this importance given the better prices for companies with good ESG disclosure performance. This reflects a positive market attitude toward companies exhibiting these characteristics. Businesses that behave responsibly may be regarded as less risky over

time and more "sustainable" stewards, providing a higher yield and more long-lasting management in investment terms.

ESG disclosure is a valuable indicator of sustainability for Saudi Arabian companies when considering various factors such as financial and market performance and operational efficiency [16,25,63] When combined with other variables in our research model, it can contribute to more considerable capital since higher investment will accumulate over time and will become both financial and physical capital [64].

In summary, Table 7 presents the impact of ESG disclosure on various performance measures across the entire sample. The results show consistent positive relationships between ESG disclosure and companies' performance, supporting all of our hypotheses.

Table 7. Impacts of ESG disclosure on the performance of the top 100 companies listed on the Saudi stock exchange.

Dependent Variables	ROE	ROA	Tobin's Q
Firm Size	0.003 **	0.003 **	0.025 ***
S.E.	(0.008)	(0.003)	(0.006)
Firm Age	0.027 **	0.016 *	0.08 ***
S.E.	(0.051)	(0.016)	(0.027)
Manufacturing Dummy	0.029	0.019 ***	0.02 **
S.E.	(0.019)	(0.006)	(0.016)
Financial Leverage	−0.002 *	−0.002 **	−0.005 **
S.E.	(0.002)	(0.001)	(0.005)
ESG Disclosure	0.002 **	0.003 ***	0.001 ***
S.E.	(0.001)	(0.002)	(0.001)
_cons	0.042	0.034	0.519 ***
S.E.	(0.115)	(0.037)	(0.072)
Observations	600	600	600
R-square	0.022	0.039	0.292
Hansen J-Test	0.386	0.442	0.403

Standard errors (S.E.) are in parentheses; *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

The coefficients of the ESG disclosure index are positive and statistically significant for ROA ($\beta = 0.003$, $p < 0.01$), ROE ($\beta = 0.002$, $p < 0.05$), and Tobin's Q ($\beta = 0.001$, $p < 0.01$). These findings provide robust evidence that companies with higher ESG disclosure scores tend to outperform their peers across multiple measures of financial and market performance.

These results align with stakeholder theory [22–24], which suggests that addressing the interests of various stakeholders through ESG practices can lead to improved overall performance. They also support the resource-based view of firms [22], indicating that ESG capabilities can serve as valuable, rare, and inimitable resources that contribute to competitive advantage. Our findings are consistent with those of several previous studies.

1. Tarmuji, Maelah, and Tarmuji [16] found positive relationships between ESG scores and financial performance in emerging markets.
2. Alareeni and Hamdan [6] reported positive associations between ESG practices and firm performance among S&P 500 companies.
3. Zhou, Liu, and Luo [30] demonstrated that ESG performance positively impacts financial performance and market value in the Chinese context.

However, our results contrast with those of some studies that found negative or insignificant relationships between ESG and firm performance [16,25,32–35]. These differences may be attributed to variations in the market contexts, measurement approaches, or time periods studied, highlighting the need for continued research in this area.

For the top 100 Saudi companies in the manufacturing and non-manufacturing sectors from 2017 to 2022, our regression analysis in Table 8 explores how the ESG disclosure affects performance metrics such as the return on assets, return on equity, and Tobin's Q. The results reveal sector-specific trends.

Table 8. Sensitivity analysis showing the comparison of ESG in the manufacturing and non-manufacturing sectors and its impacts on all dependent variables in the context of the KSA.

	Manufacturing	Non-Manufacturing	Manufacturing	Non-Manufacturing	Manufacturing	Non-Manufacturing
Variable	**ROA**	**ROA**	**ROE**	**ROE**	**Tobin's Q**	**Tobin's Q**
Firm Size	0.009 ***	0.003	0.019 ***	0.013	0.032 ***	0.007
	(0.002)	(0.003)	(0.007)	(0.01)	(0.008)	(0.005)
Financial Leverage	0.001	−0.003 **	−0.002	−0.002	0.018 ***	0.031 ***
	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)
Firm Age	0.012	0.009	−0.02	0.063	0.061	0.082 *
	(0.015)	(0.024)	(0.054)	(0.073)	(0.05)	(0.044)
ESG Disclosure	−0.002 ***	0.001 **	−0.005 *	0.005 ***	−0.008 ***	0.005 ***
	(0.001)	(0.001)	(0.003)	(0.001)	(0.002)	(0.001)
Intercept	0.148 ***	−0.005	0.406 ***	−0.051	0.953 ***	0.298 ***
	(0.031)	(0.047)	(0.136)	(0.128)	(0.119)	(0.075)
Observations	210	390	210	390	210	390
R-square	0.069	0.024	0.054	0.038	0.175	0.088

Standard errors are in parentheses; *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Using the ROA and ROE as examples, we can see that in the manufacturing sector, the coefficient of ESG disclosure is negative, meaning that higher ESG scores are associated with lower profitability. This might be due to the high costs for earnings in one management area and low profits for small businesses. Companies with poor environmental or social performance are not profitable in the short run [16,25,35].

The scene in the non-manufacturing sector is quite different. Here, the coefficient of ESG disclosure is favourable for the ROA and ROE. In other words, high ESG disclosure scores are associated with higher profitability. It is possible to read this positive relationship in several ways. In non-manufacturing sectors, ESG disclosure initiatives are perhaps more effectively implemented or bring a greater return. Responsible business operations correlate more strongly with a positive brand image than in manufacturing sectors [16,38].

With Tobin's Q, which reflects the market value relative to the book value, ESG disclosure has a negative coefficient in both sectors. This result suggests that high ESG disclosure scores are not necessarily rewarded with better market valuations. One explanation could be that investors see companies with high ESG disclosure scores as less innovative or risky, requiring a lower market valuation in this sense.

In summary, Table 8 presents a sensitivity analysis comparing the impacts of ESG disclosure on firm performance between manufacturing and non-manufacturing sectors. The results reveal interesting sector-specific trends.

1. In the manufacturing sector, ESG disclosure shows a negative relationship with the ROA and ROE, which is contrary to our hypotheses. This could be due to the high initial costs of implementing ESG practices in manufacturing industries, which may negatively impact their short-term profitability [16,25].
2. In the non-manufacturing sector, ESG disclosure shows a positive relationship with the ROA and ROE, supporting our hypotheses. This suggests that ESG initiatives may be more effectively implemented or bring greater returns in non-manufacturing sectors [16,39].
3. For Tobin's Q, ESG disclosure shows a negative relationship in the manufacturing sector but a positive one in the non-manufacturing sector. This indicates that market

perceptions of ESG practices may differ across sectors, which is possibly due to varying investor expectations or industry-specific challenges [11].

These findings highlight that we must take account of industry-specific factors when studying the relationship between ESG disclosure and performance [11]. They also suggest that the costs and benefits of ESG initiatives may vary across industries, calling for further research on sector-specific ESG strategies and their impacts on firm performance [2,15,21].

The positive impact exhibited in the non-manufacturing sector stands in contrast to that in the manufacturing sector. This points to the need for further research exploring what causes them to vary, considering details such as the particular costs and benefits of different industries' initiatives for ESG disclosure. In addition, it would be helpful to investigate the effects of corporate strategies and organisational behaviours of ESG disclosure measures on firms' meanings and implications [2,16,20].

Our analysis also reveals interesting relationships between the control variables and firm performance.

1. Firm size: this is consistently positive and significant across all performance measures, suggesting that larger firms tend to perform better. This aligns with theories of economies of scale and market power [38,43,44].
2. Firm age: this is generally positive but with varying significance levels across models. This suggests that older firms may benefit from accumulated experience and established market positions [38].
3. Financial leverage: this had mostly negative relationships with the performance measures, indicating that higher debt levels may constrain financial flexibility and performance [65].
4. Liquidity and tangibility: these had positive relationships with performance measures, suggesting that firms with better liquidity and more tangible assets tend to perform better [43,44].

These findings underscore the importance of controlling for these factors when examining the relationship between ESG and performance, as they can significantly influence companies' outcomes.

Based on the above results, the study found support for all three hypotheses:

H1: *There is a positive relationship between ESG disclosure and companies' operational performance, as determined via the ROA.*

This was validated. The results showed a positive and statistically significant coefficient for ESG disclosure ($\beta = 0.002$, $p < 0.01$) in relation to ROA in the fixed-effect model. Our first hypothesis posited a positive relationship between ESG disclosure and companies' operational performance, as measured through the ROA. The results in Table 4 strongly support this hypothesis, with the fixed-effect model showing a positive and statistically significant coefficient for ESG disclosure ($\beta = 0.002$, $p < 0.01$) in relation to ROA. This finding aligns with the theoretical framework proposed by Achim and Borlea [38], suggesting that good ESG practices can lead to better operational performance. The positive relationship between ESG disclosure and ROA can be attributed to several factors: improved resource efficiency leading to cost savings [52,53], enhanced talent attraction and retention resulting in increased productivity [38], and better risk mitigation [52]. These results are consistent with previous studies, such as those by Alareeni and Hamdan [6] and Zhou, Liu, and Luo [30], who also found positive relationships between ESG performance and ROA in different contexts. The GMM estimation ($\beta = 0.002$, $p < 0.05$) further corroborates this finding, addressing potential endogeneity concerns and providing robust evidence for the positive impact of ESG disclosure on operational performance.

H2: *There is a positive relationship between ESG disclosure and companies' financial performance, as determined via the ROE.*

This was also validated. The fixed-effect model showed a positive and statistically significant coefficient for ESG disclosure ($\beta = 0.008$, $p < 0.01$) in relation to ROE. Our second hypothesis predicted a positive relationship between ESG disclosure and companies' financial performance as measured through the ROE. The results in Table 5 provide strong support for this hypothesis, with the fixed-effect model demonstrating a positive and statistically significant coefficient for ESG disclosure ($\beta = 0.008$, $p < 0.01$) in relation to ROE. This finding is consistent with the theoretical arguments presented by Duque-Grisales and Aguilera-Caracuel [39] and Bao and Sun [3], suggesting that ESG practices can enhance financial performance. The positive impact of ESG disclosure on ROE can be explained by several mechanisms: enhanced brand reputation leading to increased customer loyalty and sales [39], improved access to capital from socially responsible investors [3], and more effective risk management resulting in more stable financial performance [52]. These results align with those of studies by Tarmuji, Maelah, and Tarmuji [16] and Atan et al. [25], who also found positive relationships between ESG performance and ROE in different markets. The GMM estimation ($\beta = 0.002$, $p < 0.01$) further strengthens this finding, addressing potential endogeneity issues and providing robust evidence for the positive impact of ESG disclosure on financial performance.

H3: *There is a positive relationship between ESG disclosure and companies' market performance, as determined via Tobin's Q.*

This hypothesis was validated as well. All three models (fixed-effect, random-effect, and GMM) showed positive and statistically significant coefficients for ESG disclosure in relation to Tobin's Q. Our third hypothesis suggested a positive relationship between ESG disclosure and companies' market performance as measured through Tobin's Q. The results in Table 6 provide robust support for this hypothesis, with all three models (fixed-effect, random-effect, and GMM) showing positive and statistically significant coefficients for ESG disclosure in relation to Tobin's Q. In the fixed-effect model, the coefficient is positive and significant ($\beta = 0.002$, $p < 0.05$), while the GMM estimation shows an even stronger relationship ($\beta = 0.012$, $p < 0.01$). These findings align with the theoretical framework proposed by Alsayegh et al. [66], suggesting that robust ESG practices can positively influence market perceptions and valuations. The positive impact of ESG disclosure on Tobin's Q can be attributed to several factors: improved investor perception of long-term prospects [59], lower perceived risk leading to higher market valuations [21], and the signalling of better management quality and future growth potential [31]. These results are consistent with those of previous studies, such as those by Koundouri and Pittis [21] and Alsayegh et al. [31], who also found positive relationships between ESG performance and market valuation in different contexts. The consistency across all three models and the strong significance in the GMM estimation provide compelling evidence for the positive impact of ESG disclosure on market performance, even after accounting for potential endogeneity issues. The study concludes that these results provide strong evidence for a positive relationship between ESG disclosure and various measures of company performance, supporting all three hypotheses.

5. Conclusions and Policy Recommendations

This research explored how ESG disclosure relates to companies' performance. The study surveyed the top 100 largest publicly listed companies on the Saudi Arabian stock market—all of them on the main board—from 2017 to 2022. After checking them with regression models, the interrelationships between ESG disclosure practices and selected key financial indicators, namely, the ROA, ROE, and Tobin's Q, were examined.

Our research confirmed that robust ESG disclosure and companies' performance are tightly linked. Companies with better ESG disclosure performed significantly better in terms of the ROA, ROE, and Tobin's Q, a measure of market value. This is consistent with

theories that hold that profitability and shareholder value can be improved by integrating sustainable principles into a business's core strategy [52,53].

This research adds to the ever-growing knowledge base of ESG disclosure and its economic effects. By illustrating the profit potential of ESG disclosure practices in Saudi Arabia, our study can provide an impetus for their wider uptake and be valuable for many different groups. The findings should benefit regulators in advocating for rigorous rulemaking on ESG disclosure. They might also increase investor education programs that focus on profits and doing well [39]. Furthermore, this will have several important theoretical implications for stakeholder theory. The positive relationship between ESG disclosure and companies' performance supports the perspective of stakeholder theory that addressing the interests of various stakeholders can lead to improved financial outcomes [22–24]. The positive impact of ESG disclosure on market performance (Tobin's Q) aligns with signalling theory, suggesting that ESG disclosures serve as credible signals of companies' quality and future prospects [27,28]. For businesses, this study underlines the strategic importance of the social aspect, meaning that considerations concerning ESG disclosure are included within decision-making structures. By acting on ESG disclosure issues, companies can improve their financial performance and gain a more favourable reputation. They can improve the skills of responsible investors and manage risks associated with environmental and social problems more effectively [14,47].

While our study presents valuable insights, there are still some substantial barriers. First, our focus was on listed companies within Saudi Arabia, and, as such, it may be necessary to go into greater depth and provide an entirely accurate reflection of ESG disclosure throughout all business operations. Secondly, an area ripe for future exploration is the identification of precisely which ESG disclosure factors underpin performance disparities across particular industries. Further studies might also examine the impact of ESG disclosure practices on Saudi Arabia in social and environmental terms. Comparing the effectiveness of various regulatory approaches against the returns sought through different investor education strategies would be valuable in promoting sustainable business practices.

Our findings have several practical implications for managers, investors, and policymakers. For managers, the positive relationship between ESG disclosure and firm performance suggests that investing in ESG practices and transparently disclosing them can lead to improved financial and market outcomes. However, managers should be aware of potential sector-specific differences and tailor their ESG strategies accordingly. For investors, the positive associations between ESG disclosure and various performance measures indicate that ESG information can be valuable for investment decision-making. Investors may benefit from incorporating ESG factors into their analyses, particularly when considering long-term investments. For policymakers, the overall positive impact of ESG disclosure on firm performance supports the case for promoting ESG disclosure practices through regulation and incentives. However, policymakers should consider sector-specific differences when designing such policies.

While our study provides valuable insights, it has the following limitations that future research could address:

1. The sample should be expanded to include a broader range of companies, including non-listed firms.
2. Longitudinal studies should be conducted to examine the long-term impacts of ESG practices on firm performance.
3. The specific ESG factors that drive performance differences across industries should be investigated.
4. The impacts of ESG practices on non-financial performance measures, such as employee satisfaction and customer loyalty, should be explored.

This study examined the relationship between ESG disclosure and financial performance among the top 100 publicly listed companies in the Saudi Arabian stock market from 2017 to 2022. Our findings provide strong evidence of a positive link between ESG

disclosure practices and various measures of financial and market performance. The key conclusions include the following:

1. ESG disclosure is positively associated with operational performance via the ROA, financial performance via the ROE, and market performance via Tobin's Q.
2. The relationships between ESG disclosure and firm performance vary between the manufacturing and non-manufacturing sectors, highlighting the importance of the industrial context.
3. The impact of ESG disclosure on firm performance remains significant even after controlling for various firm characteristics.

These findings contribute to the growing body of knowledge on ESG and its economic effects, particularly in the context of Saudi Arabia. They provide empirical support for the strategic importance of integrating ESG considerations into business practices and decision-making processes.

Based on our results, we recommend the following policy actions:

1. Encouraging ESG disclosure: regulators should continue to promote and potentially mandate comprehensive ESG disclosure practices among listed companies.
2. Sector-specific guidance: industry-specific ESG disclosure guidelines that account for sector-specific challenges and opportunities should be developed.
3. Investor education: programs should be implemented to educate investors about the importance and interpretation of ESG information in investment decision-making.
4. Incentive structures: the creation of incentives for companies that demonstrate strong ESG performance and disclosure practices should be considered.
5. Long-term perspective: a shift towards long-term thinking in corporate governance and investment practices in alignment with the typically longer-term nature of ESG benefits should be encouraged.

In conclusion, this study underscores the importance of ESG disclosure in driving sustainable and responsible business practices in Saudi Arabia. By fostering transparency and accountability through ESG disclosure, Saudi Arabia can set an example for sustainable development in the region and beyond. Collaboration among policymakers, investors, and businesses will be crucial in realising this potential and creating long-term value for all stakeholders.

By cultivating transparency and responsibility through ESG disclosure, Saudi Arabia can set an example for sustainable and responsible development. Collaboration among policymakers, investors, and enterprises is crucial to achieving this goal. Giving priority to ESG disclosure practices is not just an environmental policy issue; it is a strategic decision that unlocks the potential for sustainable economic prosperity and social happiness in Saudi Arabia. Despite the issuance of guidelines from the Tadawul Commission, the official body for stock trading in the KSA, urging and guiding Saudi market companies to disclose their environmental, social, and governance activities in 2018, these efforts are considered to be in their infancy and require more sustained support to fully materialise [67].

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data were obtained from www.thomsonreuters.com and www.bloomberg.com; and other finance-related datasets were obtained from www.open.data.gov.sa.

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References

1. Ren, X.; Zeng, G.; Zhao, Y. Digital finance and corporate ESG performance: Empirical evidence from listed companies in China. *Pac.-Basin Financ. J.* **2023**, *79*, 102019. [CrossRef]
2. Balatbat, M.; Siew, R.; Carmichael, D. ESG scores and its influence on firm performance: Australian evidence. In *Australian School of Business School of Accounting, School of Accounting Seminar Series Semester*; University of New South Wales: Sydney, Australia, 2012.
3. Bao, X.; Sun, B.; Han, M.; Mai, Q.; Lin, H. Corporate integrity culture on environmental, social, and governance (ESG) performance. *Corp. Soc. Responsib. Environ. Manag.* **2024**, *31*, 1399–1417. [CrossRef]
4. Alfalih, A.A. ESG disclosure practices and financial performance: A general and sector analysis of SP-500 non-financial companies and the moderating effect of economic conditions. *J. Sustain. Financ. Investig.* **2023**, *13*, 1506–1533. [CrossRef]
5. Buallay, A.; Kukreja, G.; Aldhaen, E.; Al Mubarak, M.; Hamdan, A.M. Corporate social responsibility disclosure and firms' performance in Mediterranean countries: A stakeholders' perspective. *EuroMed J. Bus.* **2020**, *15*, 361–375. [CrossRef]
6. Alareeni, B.A.; Hamdan, A. ESG impact on performance of US S&P 500-listed firms. *Corp. Gov. Int. J. Bus. Soc.* **2020**, *20*, 1409–1428.
7. Nguyen, D.T.; Hoang, T.G.; Tran, H.G. Help or hurt? The impact of ESG on firm performance in S&P 500 non-financial firms. *Australas. Account. Bus. Financ. J.* **2022**, *16*, 91–102.
8. Chen, L.; Khurram, M.U.; Gao, Y.; Abedin, M.Z.; Lucey, B. ESG disclosure and technological innovation capabilities of the Chinese listed companies. *Res. Int. Bus. Financ.* **2023**, *65*, 101974. [CrossRef]
9. Bose, S. Evolution of ESG reporting frameworks. In *Values at Work: Sustainable Investing and ESG Reporting*; Esty, D.C., Cort, T., Eds.; Palgrave Macmillan: Cham, Switzerland; London, UK, 2020; pp. 13–33. [CrossRef]
10. Gupta, A.; Sharma, U.; Gupta, S.K. The role of ESG in sustainable development: An analysis through the lens of machine learning. In Proceedings of the 2021 IEEE International Humanitarian Technology Conference (IHTC), Virtual, 2–4 December 2021; pp. 1–5.
11. Lydenberg, S. Ethics, politics, sustainability and the 21st century trustee. In *Socially Responsible Investment in the 21st Century: Does It Make a Difference for Society?* Emerald Group Publishing Limited: Boston, MA, USA, 2014; Volume 7, pp. 197–213.
12. Yeoh, P. The Sustainability of Environmental, Social and Governance (ESG) Reporting in the US and the UK. *Bus. Law Rev.* **2021**, *42*, 272–281. [CrossRef]
13. Bassen, A.; Kovács, A.M. *Environmental, Social and Governance Key Performance Indicators from a Capital Market Perspective*; Springer: Berlin/Heidelberg, Germany, 2020.
14. Buallay, A. Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. *Int. J. Product. Perform. Manag.* **2020**, *69*, 431–445. [CrossRef]
15. Carnini Pulino, S.; Ciaburri, M.; Magnanelli, B.S.; Nasta, L. Does ESG disclosure influence firm performance? *Sustainability* **2022**, *14*, 7595. [CrossRef]
16. Tarmuji, I.; Maelah, R.; Tarmuji, N.H. The impact of environmental, social and governance practices (ESG) on economic performance: Evidence from ESG score. *Int. J. Trade Econ. Financ.* **2016**, *7*, 67–74. [CrossRef]
17. Aydoğmuş, M.; Gülay, G.; Ergun, K. Impact of ESG performance on firm value and profitability. *Borsa Istanb. Rev.* **2022**, *22*, S119–S127. [CrossRef]
18. Meng, T.; Yahya, M.H.D.H.; Ashhari, Z.M.; Yu, D. ESG performance, investor attention, and company reputation: Threshold model analysis based on panel data from listed companies in China. *Heliyon* **2023**, *9*, e20974. [CrossRef] [PubMed]
19. Lokuwaduge, C.S.D.S.; Heenetigala, K. Integrating environmental, social and governance (ESG) disclosure for a sustainable development: An Australian study. *Bus. Strategy Environ.* **2017**, *26*, 438–450. [CrossRef]
20. Chelawat, H.; Trivedi, I.V. The business value of ESG performance: The Indian context. *Asian J. Bus. Ethics* **2016**, *5*, 195–210. [CrossRef]
21. Koundouri, P.; Pittis, N.; Plataniotis, A. The impact of ESG performance on the financial performance of European area companies: An empirical examination. *Environ. Sci. Proc.* **2022**, *15*, 13. [CrossRef]
22. Freeman, R.E.; Dmytriyev, S.D.; Phillips, R.A. Stakeholder theory and the resource-based view of the firm. *J. Manag.* **2021**, *47*, 1757–1770. [CrossRef]
23. Pesqueux, Y.; Damak-Ayadi, S. Stakeholder theory in perspective. *Corp. Gov. Int. J. Bus. Soc.* **2005**, *5*, 5–21. [CrossRef]
24. Donaldson, T.; Preston, L.E. The stakeholder theory of the corporation: Concepts, evidence, and implications. *Acad. Manag. Rev.* **1995**, *20*, 65–91. [CrossRef]
25. Atan, R.; Razali, F.A.; Said, J.; Zainun, S. Environmental, social and governance (ESG) disclosure and its effect on firm's performance: A comparative study. *Int. J. Econ. Manag.* **2016**, *10*, 355–375.
26. Bonnafous-Boucher, M.; Rendtorff, J.D.; Bonnafous-Boucher, M.; Rendtorff, J.D. Stakeholder theory in strategic management. In *Stakeholder Theory: A Model for Strategic Management*; Springer: Cham, Switzerland, 2016; pp. 21–39.
27. Bae, S.M.; Masud, M.A.K.; Kim, J.D. A cross-country investigation of corporate governance and corporate sustainability disclosure: A signaling theory perspective. *Sustainability* **2018**, *10*, 2611. [CrossRef]

28. Fu, L.; Boehe, D.M.; Orlitzky, M.O. Broad or narrow stakeholder management? A signaling theory perspective. *Bus. Soc.* **2022**, *61*, 1838–1880. [CrossRef]
29. Cuadrado-Ballesteros, B.; Ríos, A.-M.; Guillamón, M.-D. Transparency in public administrations: A structured literature review. *J. Public Budg. Account. Financ. Manag.* **2023**, *35*, 537–567. [CrossRef]
30. Zhou, G.; Liu, L.; Luo, S. Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Bus. Strategy Environ.* **2022**, *31*, 3371–3387. [CrossRef]
31. Alsayegh, M.F.; Ditta, A.; Mahmood, Z.; Kouser, R. The role of sustainability reporting and governance in achieving sustainable development goals: An international investigation. *Sustainability* **2023**, *15*, 3531. [CrossRef]
32. Barnea, A.; Rubin, A. Corporate social responsibility as a conflict between shareholders. *J. Bus. Ethics* **2010**, *97*, 71–86. [CrossRef]
33. Fisher-Vanden, K.; Thorburn, K.S. Voluntary corporate environmental initiatives and shareholder wealth. *J. Environ. Econ. Manag.* **2011**, *62*, 430–445. [CrossRef]
34. Orlitzky, M.; Schmidt, F.L.; Rynes, S.L. Corporate social and financial performance: A meta-analysis. *Organ. Stud.* **2003**, *24*, 403–441. [CrossRef]
35. Sahut, J.-M.; Pasquini-Descomps, H. ESG impact on market performance of firms: International evidence. *Manag. Int.* **2015**, *19*, 40–63. [CrossRef]
36. Stein Smith, S.; Stein Smith, S. ESG & Other Emerging Technology Applications. In *Blockchain, Artificial Intelligence and Financial Services: Implications and Applications for Finance and Accounting Professionals*; Springer: Berlin/Heidelberg, Germany, 2020; pp. 175–191.
37. Crisóstomo, V.L.; de Souza Freire, F.; De Vasconcellos, F.C. Corporate social responsibility, firm value and financial performance in Brazil. *Soc. Responsib. J.* **2011**, *7*, 295–309. [CrossRef]
38. Achim, M.-V.; Borlea, S.-N.; Mare, C. Corporate governance and business performance: Evidence for the Romanian economy. *J. Bus. Econ. Manag.* **2016**, *17*, 458–474. [CrossRef]
39. 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. *J. Bus. Ethics* **2021**, *168*, 315–334. [CrossRef]
40. Argaam. Argaam Homepage. n.d. Available online: https://www.argaam.com (accessed on 7 February 2024).
41. Argaam. *Top Rank Companies–Markey Vaue*; Argaam: Riyadh, Saudi Arabia, 2024.
42. Birindelli, G.; Dell'Atti, S.; Iannuzzi, A.P.; Savioli, M. Composition and activity of the board of directors: Impact on ESG performance in the banking system. *Sustainability* **2018**, *10*, 4699. [CrossRef]
43. Buallay, A.; Fadel, S.M.; Al-Ajmi, J.Y.; Saudagaran, S. Sustainability reporting and performance of MENA banks: Is there a trade-off? *Meas. Bus. Excell.* **2020**, *24*, 197–221. [CrossRef]
44. Margolis, J.D.; Elfenbein, H.A.; Walsh, J.P. Does it pay to be good... and does it matter? A meta-analysis of the relationship between corporate social and financial performance. *SSRN Electron. J.* **2009**, 1–68. [CrossRef]
45. Buallay, A.; Fadel, S.M.; Alajmi, J.; Saudagaran, S. Sustainability reporting and bank performance after financial crisis: Evidence from developed and developing countries. *Compet. Rev. Int. Bus. J.* **2021**, *31*, 747–770. [CrossRef]
46. Han, C.; Chen, B. Can the improvement of the social credit environment enhance corporate ESG scores? *PLoS ONE* **2024**, *19*, e0300247. [CrossRef] [PubMed]
47. Huang, D.Z. Environmental, social and governance (ESG) activity and firm performance: A review and consolidation. *Account. Financ.* **2021**, *61*, 335–360. [CrossRef]
48. Almeyda, R.; Darmansya, A. The influence of environmental, social, and governance (ESG) disclosure on firm financial performance. *IPTEK J. Proc. Ser.* **2019**, *5*, 278–290. [CrossRef]
49. Aboud, A.; Diab, A. The financial and market consequences of environmental, social and governance ratings: The implications of recent political volatility in Egypt. *Sustain. Account. Manag. Policy J.* **2019**, *10*, 498–520. [CrossRef]
50. Drempetic, S.; Klein, C.; Zwergel, B. The influence of firm size on the ESG score: Corporate sustainability ratings under review. *J. Bus. Ethics* **2020**, *167*, 333–360. [CrossRef]
51. Yu, E.P.Y.; Guo, C.Q.; Luu, B.V. Environmental, social and governance transparency and firm value. *Bus. Strategy Environ.* **2018**, *27*, 987–1004. [CrossRef]
52. Velte, P. Does ESG performance have an impact on financial performance? Evidence from Germany. *J. Glob. Responsib.* **2017**, *8*, 169–178. [CrossRef]
53. Friedman, H.L.; Heinle, M.S.; Luneva, I. A Theoretical Framework for ESG Reporting to Investors. 2021. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3932689 (accessed on 20 February 2024).
54. Kaiser, L.; Welters, J. Risk-mitigating effect of ESG on momentum portfolios. *J. Risk Financ.* **2019**, *20*, 542–555. [CrossRef]
55. Wright, L.; Fancourt, D. Do predictors of adherence to pandemic guidelines change over time? A panel study of 22,000 UK adults during the COVID-19 pandemic. *Prev. Med.* **2021**, *153*, 106713. [CrossRef]
56. Shaikh, I. Environmental, social, and governance (ESG) practice and firm performance: An international evidence. *J. Bus. Econ. Manag.* **2022**, *23*, 218–237. [CrossRef]
57. Ting, I.W.K.; Azizan, N.A.; Bhaskaran, R.K.; Sukumaran, S.K. Corporate social performance and firm performance: Comparative study among developed and emerging market firms. *Sustainability* **2019**, *12*, 26. [CrossRef]

58. Bamahros, H.M.; Alquhaif, A.; Qasem, A.; Wan-Hussin, W.N.; Thomran, M.; Al-Duais, S.D.; Shukeri, S.N.; Khojally, H.M. Corporate governance mechanisms and ESG reporting: Evidence from the Saudi Stock Market. *Sustainability* **2022**, *14*, 6202. [CrossRef]
59. Rajesh, R. Exploring the sustainability performances of firms using environmental, social, and governance scores. *J. Clean. Prod.* **2020**, *247*, 119600. [CrossRef]
60. Ersoy, E.; Swiecka, B.; Grima, S.; Özen, E.; Romanova, I. The impact of ESG scores on bank market value? Evidence from the US banking industry. *Sustainability* **2022**, *14*, 9527. [CrossRef]
61. Quatrini, S.; Costanza, R. No time to lie: Sustainable finance needs nextgen assurance. In *Sustainable Finance and the Global Health Crisis*; Routledge: London, UK, 2023; pp. 77–99.
62. Abdul Rahman, R.; Alsayegh, M.F. Determinants of corporate environment, social and governance (ESG) reporting among Asian firms. *J. Risk Financ. Manag.* **2021**, *14*, 167. [CrossRef]
63. Bhagat, S.; Bolton, B. Corporate governance and firm performance. *J. Corp. Financ.* **2008**, *14*, 257–273. [CrossRef]
64. Moussa, A.S.; Elmarzouky, M. Does Capital Expenditure Matter for ESG Disclosure? A UK Perspective. *J. Risk Financ. Manag.* **2023**, *16*, 429. [CrossRef]
65. Cao, Y.; Tao, L.; Zhang, Y. Does environmental credit rating policy improve corporate ESG performance? *Sustain. Dev.* **2024**. [CrossRef]
66. Alsayegh, M.F.; Abdul Rahman, R.; Homayoun, S. Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability* **2020**, *12*, 3910. [CrossRef]
67. Saudi Exchange. ESG Disclosure Guidelines. 2018. Available online: https://www.saudiexchange.sa/wps/portal/saudiexchange/listing/issuer-guides/esg-guidelines?locale=ar (accessed on 27 June 2024).