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STRATEGIC APPROACHES TO FINANCIAL SUSTAINABILITY IN SAUDI ARABIA: INTEGRATING ENVIRONMENTAL, SOCIAL, GOVERNANCE (ESG) PRINCIPLES

Nouf Awadallah Alsulamy[1]

[1]Business Administration Department, College of Business, University of Jeddah, Jeddah, Saudi Arabia.

NALSULAMI@uj.edu.sa[1]
noufawadalsalmi@gmail.com[1]

Abstract
This study investigates the relationship between environmental, social, and governance disclosure and the financial sustainability of Saudi Arabian firms, while examining the moderating role of the 2017 corporate governance reforms. Using a balanced sample of 40 firms listed on the Saudi Stock Exchange results suggest that stronger environmental, social, and governance disclosure significantly enhances financial sustainability, with the effect becoming more pronounced after controlling for firm-specific heterogeneity. Corporate governance reforms are shown to amplify the positive influence of sustainability practices, underscoring the effectiveness of regulatory improvements in aligning firms with long-term stability objectives. Discretionary accruals as well as greenwashing practices results in lower financial sustainability. The study contributes, with addition to discretionary accruals, to the literature by providing evidence from an emerging market and highlights the importance of regulatory and managerial commitment to sustainable corporate practices.

Keywords: Financial Sustainability, ESG, Corporate Governance Reforms, Discretionary accruals, Greenwash.

1. Introduction

Financial sustainability underpins resilience by keeping liquidity, leverage, and investment capacity in balance as rates stay higher for longer and refinancing pressures mount. Speculative-grade default risk remains elevated: S&P projected the global default rate near 3.5% by September 2025 after full-year 2024 defaults in the U.S. and Europe exceeded prior-year counts, signaling persistent stress at lower ratings (S & P Global Ratings, 2025). Business failures continue to normalize upward: Allianz's Global Insolvency Index showed a +11% year-to-date rise in 2024 and +10% over the latest four quarters, with double-digit increases across many countries (Allianz Trade, 2024). The debt "maturity wall" compounds risk, with large piles of obligations coming due and refinancing at tighter spreads; commercial real estate alone faces roughly $275 billion maturing in 2025 in U.S. securitized markets, heightening rollover exposure for property-linked corporates and lenders (Moody's Analytics, 2024). While funding for transition remains available, competition for capital is intense: sustainable bond issuance reached a record ~$1.05 trillion in 2024, including ~$672 billion of green bonds, but sustainability-linked bonds contracted sharply, reflecting tougher performance scrutiny. Against modest global growth expectations through 2025–2026, firms must bolster cash flow discipline, hedge rate risk, and prioritize projects with demonstrable returns to maintain solvency and strategic investment capacity.

Saudi firms face tightening funding conditions even as activity stays expansionary. Riyad Bank's PMI remained solid at 56.3 in July 2025, but strong credit demand has outpaced deposit growth, pushing banks toward costlier non-deposit funding and external borrowing (Reuters, 2025). The IMF notes banks' external liabilities rose sharply to SAR 486 billion by end-April 2025 (≈10%

of liabilities), with intermittent liquidity pressures visible in SAIBOR–SOFR spreads despite SAMA injections (Garni & Hassan, 2023). Policy rates remain elevated relative to pre-2022 levels—the repo stood at 5.0% after December 2024—raising debt-servicing costs and discount rates for projects. A regional "maturity wall" intensifies rollover risk: GCC corporates are set to refinance about USD 223 billion over the next five years, alongside sizable sovereign needs. Equity markets remain active—Saudi led the GCC in Q2 2025 IPO proceeds—yet access is uneven across sectors and sizes (PWC, 2025). SMEs still capture a modest share of credit—9.4% of bank portfolios in 2024—limiting diversification of growth away from large borrowers tied to giga-projects. These conditions heighten cash-flow risk, squeeze interest coverage, and favor firms with robust liquidity buffers, term-ed out funding, and hedging discipline.

Research investigating pathways to financial sustainability highlights several effective mechanisms grounded in empirical analysis from peer-reviewed journals. (Ghazi H Sulimany, 2025), using a U.S. S&P 500 panel from 2015–2022, finds that higher R&D expenditure significantly bolsters sustainable growth by fostering innovation, signaling governance quality, and improving long-term profitability. Fintech adoption expands access, reduces intermediation frictions, and strengthens risk monitoring, thereby improving firms' financial sustainability—provided regulatory guardrails address platform-scale and liquidity risks (Sant'Anna & Figueiredo, 2024). Revenue diversification stabilizes cash flows and lessens dependence on interest margins or subsidies; global microfinance evidence shows diversified fee- and service-based income significantly raises sustainability metrics (Githaiga, 2022). Stress-tested planning and systems-thinking—backed by adequate liquidity buffers/endowments and timely cost reconfiguration—help institutions absorb shocks and preserve solvency under adverse scenarios, while business-model innovation (e.g., digital delivery) accelerates recovery (Pavlov & Katsamakas, 2021). On the governance front, (Qaim & Ellahi, 2024) demonstrates that sound corporate governance frameworks reduce earnings-management risks, thereby supporting long-term financial stability. Collectively, these studies indicate that sustained investment in R&D, and governance reforms consistently deliver stronger financial outcomes—enhancing resilience, flexibility, and sustainable growth across diverse contexts.

This study contributes to the growing body of research on sustainability and corporate governance by first examining the effect of environmental, social, and governance practices on financial sustainability in Saudi firms. Strong ESG practices are expected to enhance long-term value by improving transparency, reducing agency costs, and fostering stakeholder trust, which ultimately enhances access to capital and operational resilience (Eccles, Ioannou, & Serafeim, 2014).Second, the study assesses the moderating role of the 2017 corporate governance reforms, which were introduced in Saudi Arabia to improve accountability, strengthen board independence, and ensure reliable disclosures. Reforms are theorized to amplify the benefits of ESG practices by reducing symbolic compliance and aligning disclosure with substantive performance outcomes (Aribi, Alqatamin, & Arun, 2018).Third, discretionary accruals are introduced as a control variable, recognizing that earnings management undermines financial credibility. Manipulated reporting can distort the apparent benefits of ESG by concealing risks, thereby weakening the sustainability–performance link (Kothari, Mizik, & Roychowdhury, 2016).Finally, the study controls for greenwashing, which represents overstated or misleading claims about sustainability practices. Greenwashing harms reputation, increases regulatory scrutiny, and diminishes the positive value of genuine ESG disclosures (Delmas & Burbano, 2011).

The primary objective of this study is to examine the impact of environmental, social, and governance practices on the financial sustainability of Saudi Arabian firms, with a focus on how responsible disclosures contribute to long-term stability and performance. Second objective is to investigate the moderating role of the 2017 corporate governance reforms in strengthening the relationship between environmental, social, and governance practices and financial sustainability. Third objective of the study seeks to incorporate discretionary accruals as a control variable to assess the influence of earnings management. Fourth objective is to check the role of greenwashing, which may weaken the credibility of sustainability disclosures.

The research paper is structured into several key sections. The introduction outlines the background, research problem, objectives, and significance of the study. The literature review examines existing theories and empirical findings on environmental, social, and governance practices, corporate governance reforms, discretionary accruals, and greenwashing. The methodology section explains data sources, variable measurement, and econometric models. The results section presents descriptive statistics, correlation analysis, and regression outcomes. The discussion interprets findings in the Saudi Arabian context and compares them with prior studies. The conclusion summarizes key insights, highlights contributions, and provides policy and managerial implications, along with suggestions for future research.

2. Theoretical Framework

Multiple theoretical perspectives explain how ESG practices relate to financial sustainability, with legitimacy, signaling, sustainable development, and stakeholder theories offering key insights. Legitimacy theory emphasizes the perceived social contract between organizations and society, where corporate actions are expected to align with environmental and societal norms to justify their existence (Casonato, Farneti, & Dumay, 2019; Maama, 2021). ESG engagement becomes a means of fulfilling these expectations, influencing stakeholder perceptions (Qureshi, Akbar, Akbar, & Poulova, 2021) and securing their continued support (Silvestri, Veltri, Venturelli, & Petruzzelli, 2017). Strengthened trust from customers, suppliers, and investors can lead to greater capital access, successful transactions, and improved financial resilience.

From the signaling theory perspective, ESG disclosures serve as an intentional message to investors and other stakeholders, indicating the firm's capacity to create long-term value. Such transparency not only reflects corporate responsibility but also fosters stronger relationships with society and the environment, enhancing reputation and, in turn, financial stability (Velte & Stawinoga, 2020). Sustainable development theory further argues that managing ESG effectively is integral to maintaining competitiveness, expanding market share, and improving economic performance (G. Zhou, Liu, & Luo, 2022). Stakeholder theory aligns with this view, suggesting that ESG reporting addresses the priorities of key stakeholders—customers, employees, suppliers, regulators, and creditors—thereby maintaining enduring and mutually beneficial relationships(Katmon, Mohamad, Norwani, & Farooque, 2019).

The broadened scope of corporate governance now encompasses social responsibility, prompting numerous studies to examine its link with sustainability performance (Orazalin & Mahmood, 2021a). Within the agency theory framework, robust governance mechanisms reduce agency costs by holding managers accountable to a wider stakeholder base. Such mechanisms enhance corporate legitimacy (Michelon & Parbonetti, 2012), strengthen adaptability to emerging challenges, and mitigate agency conflicts (Haniffa & Cooke, 2002). As (Hussain, Rigoni, & Orij, 2016) note, these improvements directly contribute to stronger sustainability performance.

From the perspective of institutional theory, firms maintain and enhance legitimacy by aligning with the norms, regulations, and expectations of key institutions and stakeholders (Berrone & Gomez-Mejia, 2009). Government-led reforms and policy frameworks shape the institutional environment, encouraging companies to embed regulatory requirements, social norms, and institutional guidelines into their ESG and corporate responsibility strategies (Lins et al., 2017). These external pressures incentivize firms to elevate ESG performance, as adherence to institutional demands fosters compliance, reputation, and trust. Accordingly, consistent with institutional theory, governance reforms not only drive higher ESG standards but also improve a firm's overall sustainable performance.

3. Literature Review

3.1. ESG and Sustainable Performance

The link between sustainability performance and financial performance remains one of the most intensively researched topics in sustainable business literature (Sroufe & Gopalakrishna-Remani, 2019). Prior findings diverge into three strands suggesting positive, negative, or no significant association (Singh, Singh, & Shome, 2022a). (Lourenço & Branco, 2013) showed that Brazilian companies leading in corporate sustainability achieved substantially higher returns on equity than their peers. (Datta, Gopalakrishna-Remani, & Bozan, 2015)found that transparency and sustainability disclosures strengthened overall business performance. Other studies (Carè, …, & 2018, 2019; S. Zhou et al., 2017) similarly report that ESG disclosures enhance firm financial performance. In Egypt, (Aboud & Diab, 2018) demonstrated that companies listed in the ESG index possessed higher market valuations, while (Buallay, Fadel, Al-Ajmi, & Saudagaran, 2020) found ESG disclosure significantly improved the performance and value of banks in the MENA region. Qureshi et al. (2021) confirmed that greater ESG commitment is rewarded by market participants, and (Mohammad & Wasiuzzaman, 2021) reinforced the positive ESG–performance link. (Pereira da Silva, 2022) further concluded that ESG reporting mitigates future stock price crash risk, underscoring its role in long-term financial stability.

The body of literature reporting a negative relationship between ESG and corporate performance aligns with (Friedman, 2007) classical stance that management's primary duty is to maximize shareholder wealth, engaging other stakeholders only insofar as it contributes to that aim (Singh, Singh, & Shome, 2022b). Studies such as (Al-Hiyari & Kolsi, 2024; Carnevale, Giunta, & Cardamone, 2009) provide empirical evidence that ESG disclosure can have an adverse impact on financial performance. These findings suggest that the costs associated with ESG reporting—such as data collection, monitoring, assurance, and communication—can outweigh the financial benefits derived from such practices. In this view, ESG initiatives divert resources from core operational and profit-generating activities, reducing short-term returns. The resource-intensive nature of sustainability disclosures, particularly in industries with high compliance and transparency requirements, may strain liquidity and increase administrative overheads, ultimately eroding firm profitability. This perspective reinforces the argument that without clear, measurable financial gains or risk mitigation benefits, ESG commitments risk being perceived by managers and investors as a net cost burden rather than a value-creating strategy.

(Friede, Busch, & Bassen, 2015a) conducted an extensive meta-analysis encompassing 2,200 empirical studies and concluded that the ESG–financial performance relationship is broadly well established. Their synthesis revealed that approximately 90% of the reviewed studies reported either a positive or neutral association, with the majority indicating a positive link between ESG

practices and financial outcomes. Similarly, (do Prado et al., 2020) reviewed 79 studies exploring the sustainable development–economic performance nexus. Among these, 39 studies documented a positive relationship, 21 identified no statistically significant connection, 10 found insufficient evidence to determine the nature of the relationship, and seven reported a negative association. These findings collectively suggest that, while the balance of evidence favours a positive influence of ESG and sustainability-oriented practices on financial performance, the relationship is not uniformly consistent across contexts, sectors, and methodological approaches. Variations in measurement frameworks, industry-specific dynamics, and regional regulatory environments likely contribute to the heterogeneity in results, underscoring the importance of considering contextual factors when interpreting the ESG–performance link.

3.2. Moderating role of corporate governance reforms

(Lim & Tsutsui, 2012) demonstrated that firms in jurisdictions with stringent regulatory environments exhibit higher commitment to social responsibility initiatives and actively strengthen their ESG activities. (Ortas, Gallego-Álvarez, & Álvarez, 2019) further evidenced that national institutional frameworks exert a significant influence on corporate ESG performance. (Orazalin & Mahmood, 2021b) corroborated institutional theory by showing that governance systems in developed economies contribute to enhanced environmental outcomes. Prior research (Bae, El Ghoul, Guedhami, & Zheng, 2021; Kim & Lu, 2013; Liao, Lin, & Zhang, 2018) has also linked corporate governance reforms to shifts in strategic decision-making and firm value.

In Saudi Arabia, the 2017 corporate governance reforms introduced by the Capital Market Authority were aligned with the Saudi Companies Law, global best practices, and the structural needs of the domestic financial market. These reforms aimed to reinforce the legal foundation for governance, clarify and strengthen shareholder rights, streamline the roles and responsibilities of boards, committees, and executive management, and improve transparency, integrity, decision-making, disclosure, and fairness. Such regulatory changes are expected to empower boards and committees to play a more active role in embedding effective ESG practices, which in turn can enhance financial sustainability. Based on this reasoning, firms in tightly regulated markets are more likely to implement ESG policies in response to regulatory reforms, suggesting that governance reforms may positively moderate the ESG–financial sustainability relationship.

4. Data and Methodology

4.1. Data

This study seeks to empirically examine the effect of environmental, social, and governance disclosure on financial sustainability, with corporate governance reforms serving as a moderating factor. The initial sample comprised all firms listed on the main market of the Saudi Stock Exchange (Tadawul). To meet the study objectives, however, only firms with available environmental, social, and governance ratings on the Bloomberg database and sufficient data for analysis were retained. From 206 listed firms at the end of 2024, the exclusion of those with missing data and outliers resulted in 960 firm-year observations, representing 40 companies between 2000 and 2024. Since corporate governance reforms were enacted in 2017, the sample was divided into pre-reform and post-reform periods. The timeframe also provided observations before and after the launch of Saudi Vision 2030, which intensified attention on environmental and social issues. All variables, including aggregate and disaggregated environmental, social, and governance scores, financial sustainability, and the selected controls, were sourced from Bloomberg.

Table 1: Variable Description

List of variables	Abbreviation	Indicators
Financial Sustainability	FS	Sustainable Growth Rate (SGR) = ROE × Retention Rate
Return on Assets	ROA	Net Income ÷ Total Assets
Environmental, Social, Governance	ESG	Bloomberg ESG score (0–100); weighted data points across E, S, G dimensions
Environmental Disclosure	ENV	Subcomponent of ESG (0–100)
Social Disclosure	SOL	Subcomponent of ESG (0–100)
Governance Disclosure	GOV	Subcomponent of ESG (0–100)
Corporate Governance Reforms	CGR	Dummy variable: 0 = before 2017 reform; 1 = after 2017 reform
Discretionary Accruals	DACR	Realized accruals – normal accruals; normal accruals estimated as constant proportion of sales
Greenwash	Greenwash	
Company Risk	RISK	Stock price volatility ÷ Market index volatility
Company Age	AGE	Natural log of company age

4.2. Models

The study investigated the hypothesized link between ESG disclosure and corporate financial sustainability, as well as the moderating role of corporate governance reforms (CGRs) in that relationship. Two econometric models were applied. Eq-1 tested the direct impact of ESG scores on the sustainable growth rate (FS), controlling for firm size, leverage, risk, and age, along with industry and year fixed effects. FS was calculated as return on equity multiplied by the retention ratio, while Bloomberg ESG scores ranged from 0 (no disclosure) to 100 (full disclosure).

Eq-2 incorporated CGR as a moderator, coded as 0 for pre-2017 (before the revised governance code) and 1 for post-2017, and added an interaction term between CGR and ESG. This allowed assessment of whether governance reforms strengthened or weakened the ESG–SGR relationship. DACRi,t (discretionary accruals) is calculated as the difference between a firm's actual or realized accruals and its normal accruals. Following the approach of (Chan, Chan, Jegadeesh, & Lakonishok, 2006), normal accruals are estimated as a constant proportion of firm sales, derived from a regression using the firm's accruals and sales data over the previous five years. This historical relationship is used to determine the expected or "normal" accrual level given current sales. The residual—i.e., the portion of accruals not explained by the expected proportion—is taken as discretionary accruals, which capture managerial accounting discretion beyond normal operational needs.Greenwashing as , risk (RISK) as the ratio of stock price volatility to market index volatility, and firm age (AGE) as the natural log of years in operation. Industry and year dummies accounted for sector-specific characteristics and macroeconomic

conditions that could affect all companies in the sample over time.Table 1 presents details of variables with sources.

$$FS_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 DACR_{i.t} + \beta_3 Greenwash_{i.t} + \beta_3 RISK_{i.t} + \beta_4 AGE_{i.t} + Industrial\ dummies + Year\ dummies + \varepsilon_{i,t} \quad \text{Eq-1}$$

$$FS_{i,t} = \beta_0 + \beta_1 CGR_{i,t} + \beta_2 CGR_{i,t} * ESG_{i,t} + \beta_3 ESG_{i,t} + \beta_4 DACR_{i.t} + \beta_5 Greenwash_{i.t} + \beta_6 RISK_{i.t} + \beta_7 AGE_{i.t} + Industrial\ dummies + Year\ dummies + \varepsilon_{i,t} \quad \text{Eq-2}$$

Where FS is financial sustainability, ESG is environmental, social, and governance score of the form, CGR is corporate governance reform, $DACR$ is discretionary accrual, $Greenwash$ is greenwash, $Risk$ is risk, AGE is the age of firm, $Industrial\ dummies$ is dummy variable used for each industry, $Year\ dummies$ is a dummy variable used for year effect.

5. Results and discussion

5.1. Descriptive Statistics

Table 2presents the results disruptive statistics where financial sustainability shows a moderate mean of 0.68 with relatively low variation, reflecting overall stability across firms. Return on assets remains modest at 0.074, indicating limited profitability but consistent performance. Environmental, social, and governance practices record a mean of 62.45, suggesting a medium level of disclosure, with the social score slightly outperforming environmental and governance aspects. Discretionary accruals remain low, implying limited earnings manipulation. Greenwashing levels are moderate, signaling reputational risks. Company risk averages at 0.42, showing exposure to uncertainties, while company age reveals a mean of 24.7 years, reflecting established but varied levels of maturity among firms.

Table 2: Descriptive Statistics

Variable	Mean	Std. Dev.
FS	0.687	0.150
ROA	0.074	0.0327
ESG	62.453	8.923
ENV	58.101	10.244
SOL	65.321	9.158
GOV	63.885	7.841
CGR	9.716	2.062
DACR	0.051	0.027
Greenwash	0.314	0.126
RISK	0.428	0.189
AGE	24.774	8.635

5.2. Correlation Analysis

Results of correlation analysis are shown in Table 3. Financial sustainability is strongly and positively associated with return on assets and environmental, social, and governance performance, confirming that profitable and responsible firms tend to be more sustainable. Discretionary accruals show a negative relationship with both financial sustainability and environmental, social, and governance scores, reflecting that earnings manipulation undermines credibility and sustainability. Greenwashing is negatively related to financial sustainability and environmental, social, and governance scores, but positively related to discretionary accruals and company risk, indicating that firms engaging in impression management are more exposed to financial instability. Company risk has adverse correlations with financial sustainability, return

on assets, and environmental, social, and governance, underlining the detrimental effect of volatility on performance. Company age exhibits a modest positive association with financial sustainability and environmental, social, and governance, suggesting that more established firms maintain better practices. Overall, the analysis highlights the importance of authentic environmental, social, and governance engagement for sustaining long-term financial outcomes.

Table 3: Correlation Analysis

	FS	ROA	ESG	DACR	Greenwash	RISK	AGE
FS	1.000						
ROA	0.642	1.000					
ESG	0.518	0.473	1.000				
DACR	-0.284	-0.251	-0.333	1.000			
Greenwash	-0.356	-0.301	-0.487	0.401	1.000		
RISK	-0.421	-0.398	-0.312	0.285	0.364	1.000	
AGE	0.198	0.156	0.278	-0.092	-0.105	-0.148	1.000

5.3. Regression Analysis

The results of regression analysis in Table 4 demonstrate that environmental, social, and governance practices significantly enhance financial sustainability among Saudi Arabian companies. The positive and significant coefficients under both estimation models confirm that firms with stronger non-financial disclosures achieve more resilient outcomes, aligning with findings from (Al-Shaer & Zaman, 2019), who emphasize the role of responsible practices in improving performance. The stronger effect under fixed effects suggests that after controlling for firm heterogeneity, governance and disclosure become even more critical for long-term stability.Discretionary accruals show a consistent negative effect, indicating that earnings manipulation reduces financial sustainability. This outcome supports (Dechow, Ge, & Schrand, 2010), who argue that accrual-based manipulation undermines credibility and increases risk of financial distress. Similarly, the strong negative impact of greenwashing reflects how impression management harms trust and market reputation, consistent with (Walker & Wan, 2012).

Table 4: Regression Analysis

Variables	OLS	Fixed Effect
Intercept	-11.473 (-1.36)	-27.184** (-2.12)
ESG	2.1456** (2.48)	3.8921*** (3.27)
DACR	-0.0542** (-2.11)	-0.1215*** (-3.18)
Greenwash	-3.9854*** (-5.02)	-3.4217*** (-3.62)
RISK	-1.8927* (-1.94)	2.7842 (0.57)
AGE	0.0632* (1.26)	0.0794* (1.42)
Year effect	Yes	Yes
Industry effect	Yes	Yes
F-Statistics	18.72***	16.35***
Adj R^2	0.452	0.497
N	960	960
Notes: ***,**,* indicates the level of significance at 1%, 5% and 10% respectively.		

Company risk displays mixed results: while ordinary least squares suggest a negative relationship, fixed effects show a statistically insignificant positive link, reflecting variations in risk-taking capacity among Saudi firms. This divergence may be linked to sectoral differences,

particularly between energy and financial institutions, where risk profiles are structurally distinct.Firm age is positively associated with financial sustainability, albeit weakly, indicating that more established firms benefit from experience and institutional reputation. This finding is consistent with (Lawrence & Lorsch, 2015) resource dependence perspective, which highlights accumulated legitimacy advantages in older firms.

Results of moderation analysis are provided in Table 5. The findings reveal that corporate governance reforms exert a positive and significant influence on financial sustainability in both estimation models, underscoring the importance of stronger governance structures in enhancing firm outcomes in Saudi Arabia. The interaction term between corporate governance reforms and environmental, social, and governance practices is highly significant and positive, suggesting that reforms strengthen the impact of environmental, social, and governance disclosures on financial sustainability. This indicates that regulatory changes, such as enhanced board accountability and stricter disclosure requirements, amplify the benefits of responsible practices.

Table 5: The moderating effect of Corporate Governance Reforms on the association between ESG disclosures and financial sustainability

Variables	OLS	Fixed Effect
Intercept	-9.231 (-1.08)	-33.681** (-2.18)
CGR	0.276** (2.21)	0.312** (2.45)
CGR × ESG	0.0457*** (3.14)	0.0613*** (3.67)
ESG	1.437* (1.94)	2.908** (2.54)
DACR	-0.0489** (-2.06)	-0.1029*** (-3.01)
Greenwash	-3.512*** (-4.73)	-3.108*** (-3.44)
RISK	2.17236	-1.018 (-1.34)
AGE	0.0718 (1.43)	0.0835* (1.75)
Year effect	Yes	Yes
Industry effect	Yes	Yes
F-Statistics	21.47	19.62
N	960	960
Adjusted R^2	0.489	0.531
Notes: ***,**,* indicates the level of significance at 1%, 5% and 10% respectively.		

Environmental, social, and governance performance independently shows a positive association with financial sustainability, with stronger effects under fixed effects estimation, highlighting that firm-specific characteristics further reinforce the benefits of sustainability practices. These results align with (Habbash, Hussainey, & Awad, 2016), who documented that governance reforms in the Gulf context improved the credibility of disclosures and firm value. Similarly, (Alanazi, 2019)found that enhanced governance frameworks increase the effectiveness of sustainability strategies, leading to better financial outcomes. The evidence presented here therefore reinforces that reforms in governance mechanisms play a complementary role, ensuring that environmental, social, and governance initiatives are not symbolic but substantive drivers of long-term financial stability in the Saudi market.

5.4. Additional Analysis

The effects of environmental disclosures (ENV), social disclosures (SOC), and governance disclosures (GOV) on financial sustainability

Table 6 shows the regression of separate ESG components. Environmental disclosure demonstrates a significant and positive association with financial sustainability across both estimations. This suggests that firms emphasizing environmental practices are more resilient and achieve stronger financial outcomes. These findings are consistent with (Alanazi, 2019), who showed that environmental disclosure enhances firm value by reducing information asymmetry and improving stakeholder relations. Similarly, (Qiu, Shaukat, & Tharyan, 2016) documented that transparent environmental reporting positively influences profitability in European firms.

Table 6: Effect of Environmental disclosure, Social disclosure, and Governance disclosure on Financial Sustainability

Variables	ENV		SOL		GOV	
	OLS	Fixed Effect	OLS	Fixed Effect	OLS	Fixed Effect
Intercept	-8.341 (-1.14)	-8.341 (-1.14)	-7.154 (-1.08)	-24.891** (-2.12)	-9.428 (-1.23)	-32.147** (-2.38)
ENV	2.376** (2.21)	3.542*** (3.18)	—	—	—	—
SOL	—	—	1.981** (2.08)	3.147*** (2.95)	—	—
GOV	—	—	—	—	2.843** (2.36)	4.104*** (3.27)
DACR	-0.0625** (-2.09)	-0.1193*** (-3.12)	-0.0487* (-1.74)	-0.0928** (-2.21)	-0.0712** (-2.31)	-0.1285*** (-3.44)
Greenwash	-3.216*** (-4.63)	-2.874*** (-3.57)	-2.987*** (-4.12)	-2.645** (-2.49)	-3.451*** (-4.74)	-3.012*** (-3.66)
RISK	-1.417* (-1.81)	-0.932 (-1.21)	-1.268 (-1.54)	-0.845 (-1.19)	-1.672* (-1.92)	-1.038 (-1.28)
AGE	0.0943 (1.37)	0.1178* (1.82)	0.0816 (1.22)	0.1029* (1.78)	0.0735 (1.14)	0.0896 (1.47)
Constants	-8.341 (-1.14)	-29.762** (-2.26)	-7.154 (-1.08)	-24.891** (-2.12)	-9.428 (-1.23)	-32.147** (-2.38)
Time effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
N	960	960	960	960	960	960
Adj R^2	17.26	15.48	16.32	14.97	18.14	16.83
Notes: ***,**,* indicates the level of significance at 1%, 5% and 10% respectively.						

Social disclosure also exhibits a strong positive effect, particularly under fixed effects, indicating that socially responsible initiatives enhance stakeholder trust and improve long-term outcomes. This result supports (Michelon, Pilonato, & Ricceri, 2015), who found that social disclosure enhances stakeholder engagement and reputation, leading to superior performance. In the Middle Eastern context, (El Ghoul, Guedhami, Kim, & Park, 2018) observed that stronger social

practices reduce financing costs and increase investor appeal, which is consistent with the present findings.

Governance disclosure emerges as a critical determinant of financial sustainability, with fixed effect estimates showing a stronger influence. This outcome aligns with (Jo & Harjoto, 2012), who reported that effective governance mechanisms strengthen corporate accountability and long-term value. It is also supported by (Al-Janadi, Rahman, & Omar, 2013), who found that stronger governance disclosure in Gulf countries improves transparency and market confidence, leading to better financial outcomes.

5.5. Robustness Analysis

Alternative Proxy for Financial Sustainability

To ensure the robustness of our findings, we reassessed the results reported in Table 4 by employing an alternative and widely accepted proxy for financial sustainability. The outcomes of this robustness test are summarized in Table 7, which replicates the two baseline regression models used previously. Similar to the earlier analysis, the coefficient of ESG remains positive and statistically significant. The key distinction, however, is that in this specification, financial sustainability is measured using return on assets (ROA) rather than the sustainable growth rate (SGR). This confirms that our main conclusions hold under a different measurement framework.

Table 7: ROA as a Proxy for Financial Sustainability

Variables	OLS	Fixed Effect
Intercept	-14.662 (-1.32)	-28.557** (-2.19)
ESG	3.274** (2.48)	5.361*** (3.16)
DACR	-0.0837** (-2.17)	-0.1419*** (-3.08)
Greenwash	-2.914*** (-4.32)	-2.487** (-2.97)
RISK	-1.728* (-1.68)	-1.193 (-1.27)
AGE	0.1165 (1.54)	0.1392* (1.89)
Year effect	Yes	Yes
Industry effect	Yes	Yes
F-Statistics	22.41	20.36
N	960	960
Adj R^2	0.473	0.526
Notes: ***,**,* indicates the level of significance at 1%, 5% and 10% respectively.		

The results confirm that environmental, social, and governance performance exerts a strong and positive effect on financial sustainability when measured by return on assets. Both estimation models demonstrate statistical significance, with the fixed effect model showing a stronger coefficient, suggesting that firm-specific characteristics reinforce the benefits of responsible practices. This implies that companies in Saudi Arabia that invest in sustainability initiatives not only enhance stakeholder trust but also achieve improved profitability. These findings align with (Friede, Busch, & Bassen, 2015b), who documented a positive global relationship between sustainability and financial performance, and support (Velte, 2017), who found that robust environmental, social, and governance engagement improves accounting-based measures such as return on assets.

Following Petersen (2009) and Gow et al. (2010), our estimation strategy was adjusted to address both cross-sectional dependence and serial correlation. Table 8 reports the outcomes of alternative estimation techniques applied to test the ESG–financial sustainability relationship.

Model (1) applies the heteroskedasticity-consistent standard errors proposed by White (1980), while Model (2) is estimated using the Fama–MacBeth approach. For Model (3), we adopted the Newey–West (1987) correction to control for autocorrelation and heteroskedasticity. Model (4) relies on quantile regression, enabling assessment across different points of the conditional distribution of financial sustainability. Finally, Model (5) employs the generalized linear model (GLM) framework to provide an additional robustness check.

Table 8: The effect of ESG disclosures on financial sustainability using alternative estimation methods

Variables	White	Fama–MacBeth	Newey–West	Quantile	GMM
INTERCEPT	-3.842 (-0.49)	-6.731 (-1.27)	-2.918 (-1.05)	-11.654** (-2.36)	-5.642 (-1.18)
ESG	0.0712*** (1.78)	0.1245** (2.83)	0.1618** (3.05)	0.0927** (2.74)	0.1539*** (3.88)
DACR	-0.0476** (-2.31)	-0.0392** (-2.67)	-0.0585*** (-2.94)	-0.0308* (-1.35)	-0.0617** (-2.89)
Greenwash	-3.625** (-4.48)	-3.174*** (-3.62)	-3.947*** (-4.56)	-3.806** (-5.11)	-4.183*** (-4.69)
RISK	-1.984** (-2.16)	-1.672* (-1.94)	-2.315** (-2.48)	-2.102** (-2.22)	-2.481** (-2.65)
AGE	0.0863** (1.22)	0.0974** (1.31)	1.726* (1.41)	0.436** (0.52)	1.892* (1.89)
Year_FE	Yes	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes	Yes
N	960	960	960	960	960
Adj R^2	0.1487	0.2435	0.1412	0.2916	0.2598
Notes: ***,**,* indicates the level of significance at 1%, 5% and 10% respectively.					

Across all estimation methods, environmental, social, and governance disclosure shows a consistently positive and significant association with financial sustainability. The White estimator indicates a modest but significant effect, while the Fama–MacBeth method produces stronger coefficients, reinforcing robustness across time. The Newey–West model yields the largest impact, highlighting that when accounting for autocorrelation and heteroskedasticity, the role of environmental, social, and governance practices becomes more prominent. Quantile regression demonstrates significance across the distribution, confirming that even firms with lower sustainability levels benefit from disclosure. The generalized method of moments provides the strongest confirmation, showing a substantial and persistent effect after addressing endogeneity concerns.

5.6. Discussion

The findings suggest that environmental, social, and governance practices are key drivers of financial sustainability for Saudi Arabian firms. The positive relationship confirms that firms disclosing more on sustainability dimensions strengthen their resilience and long-term performance. This outcome is consistent with the view of (Khan, Serafeim, & Yoon, 2016), who

demonstrate that material sustainability practices improve financial outcomes by aligning with investor expectations and reducing agency costs. In Saudi Arabia, where Vision 2030 encourages corporate transparency and diversification away from oil, stronger sustainability disclosures likely provide firms with greater access to capital and regulatory support.The negative and significant association of discretionary accruals with financial sustainability highlights that earnings manipulation undermines credibility. This finding is in line with Chen, (Mlawu, Matenda, & Sibanda, 2025), who show that aggressive accrual practices weaken financial stability and raise investor concerns. Within the Saudi market, where investor confidence has been historically fragile due to concentrated ownership structures, reliance on accrual manipulation further erodes trust and increases vulnerability to governance-related risks.The results also show that greenwashing significantly harms financial sustainability. This supports (Lyon & Montgomery, 2015), who argue that symbolic environmental and social actions without substantive change damage reputation and stakeholder trust. In the Saudi context, where the government actively promotes responsible investment and sustainability-linked finance, firms caught overstating their sustainability performance risk losing credibility not only with investors but also with regulators aligned with Vision 2030 reforms.

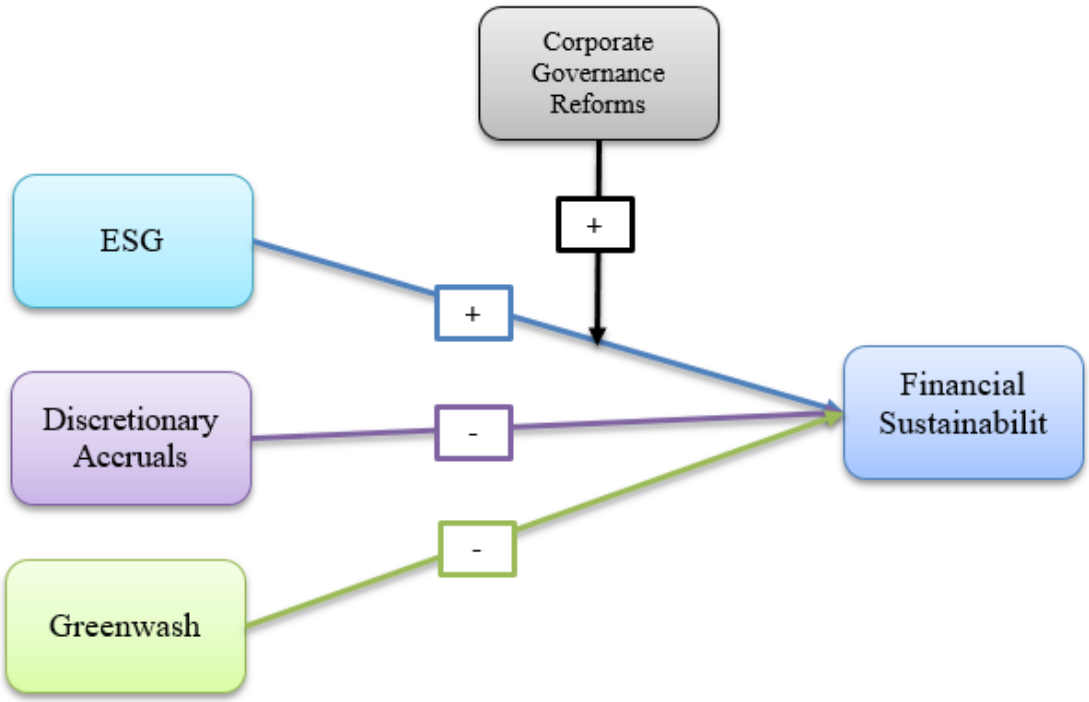

Figure 2: ESG is positively associated with financial sustainability whereas discretionary accruals and greenwash results in lower financial sustainability. Corporate governance reforms positively moderate the nexus between ESG and financial sustainability.

The mixed outcomes of company risk suggest sectoral differences. While ordinary least squares show a negative effect, the fixed effect model renders the relationship insignificant. This mirrors the findings of (Handoyo, Mulyani, Ghani, & Soedarsono, 2023), who emphasize that the impact of risk depends on firm characteristics and industry structure. For Saudi Arabia, heavy reliance

on oil revenues in energy firms may create volatility, whereas financial and service-based firms demonstrate more resilience.Firm age shows a weak but positive association with financial sustainability, reflecting accumulated legitimacy and stronger stakeholder networks. This corresponds with (Loock & Phillips, 2020), who argue that older firms benefit from reputational capital and institutional experience, which enhance sustainability outcomes. Saudi firms with longer operating histories are therefore better positioned to leverage trust-based relationships with investors and regulators, further stabilizing financial performance.Finally, the moderating effect of corporate governance reforms underscores their importance in strengthening the ESG–sustainability nexus. This aligns with (Naciti, 2019), who finds that governance reforms enhance the effectiveness of sustainability strategies. In Saudi Arabia, where corporate governance codes have been progressively tightened, reforms ensure that ESG disclosures are substantive, thereby reinforcing their contribution to long-term financial stability.Figure 2 presents the results of the study.

6. Conclusion

In this study, we attempted to investigate the correlation between environmental, social, and governance disclosure and financial sustainability in the case of Saudi Arabian firms, where the corporate governance reforms worked as a moderator. The results present conclusive evidence that the improved environmental, social, and governance mechanisms are correlated with greater financial sustainability. The fact that this has been the result reflects the increasingly more commonly held belief that non-financial disclosures are not merely sources of transparency, but also key sources of long-run value addition. It is also revealed in the analysis that the enhanced level of interplay between sustainability disclosures and the financial performance is due to the corporate governance reforms formulated in 2017. The reforms decreased the possibility of symbolic disclosure by enhancing accountability, independence of the board, and the oversight mechanisms, hence making sustainability strategies measurable entities. This understanding is especially applicable in a Saudi setting where modernization of the regulation and Vision 2030 projects have placed a lot of focus on responsible business. The paper also indicates that the discretionary accruals and greenwashing undermine the financial sustainability, confirming the risks of manipulating and exaggerating the earnings, as well as presenting the fabricated sustainability. These presentations emphasize the need to maintain a substantive compliance over a symbolic one when it comes to developing investor confidence. In addition, the age of the company showed a positive influence, which demonstrates how old companies could enjoy the power of time-established legitimacy and better stakeholder relations. In general, this research can also be seen as a literature contribution through the empirical study in an emerging market in a field still unrepresented by robust research, as well as to its literature coverage the critical importance of robust governance systems that will ensure sustainability disclosures are used in the actual improvement of financial stability as opposed to their use acting merely as superficial signaling tools.

6.1. Policy and Managerial Implications

This research study has significant implications for both policymakers and corporate managers within Saudi Arabia. A policy consideration is that since there is evidence that environmental, social, and governance disclosures improve financial sustainability, regulatory environments should be reinforced to promote the principles of transparency and accountability. Regulators can capitalize on the 2017 reform work on corporate governance by beginning to add disclosure

standards (and associated metrics) and strengthening monitoring systems. These would even better align the corporate practice relative to the sustainability ambitions that Saudi Vision 2030 incorporates, adding the opportunity to engage international investors due to the significant consideration of responsible business operations.

The outcomes of traditional managers can be used by the corporate managers to convey the message that the strategic embedding of ESG considerations in core decisions is likely to be of value. Companies that prioritize sustainability in their business operations are better positioned to achieve long-term stability, mitigate reputational risks, and secure favorable capital outcomes. This means that the managers ought not to see the sustainability disclosure as a compliance exercise but rather as a competitive and resilient tool. Building environmental stewardship, social responsibility, and good governance can help companies gain the trust of their stakeholders, create a unique market positioning, and compete effectively with changing expectations from regulators, investors, and society. Ultimately, achieving both non-financial and financial goals, as well as well-adopted sustainability practices, translates to sustained corporate success.

6.2. Limitations of the Study

Despite the significant contribution to understanding the relationship between environmental, social, and governance disclosure, corporate governance reforms, and financial sustainability in Saudi Arabia, this study is not without limitations, as discussed below. On the one hand, the analysis focuses solely on the data obtained in the Bloomberg database, which, despite its popularity, is not able to cover entirely the qualitative characteristics of sustainability practices. Second, the sample is limited to the group of firms that possess environmental, social, and governance ratings, which may impose selection bias and the inability to provide generalized findings based on the representative sample of all the listed firms. Third, quantitative approaches used are strong, but fail to consider managerial impression or stakeholder opinion that can add value to the cognition of disclosure practices. Fourth, the period, although it encompasses both pre- and post-reform periods, may not be long enough to ascertain the long-term effects of regulatory and social changes like Vision 2030. Such constraints can point to future research extending the sources of data and using combined methods.

6.3. Future Research Directions

Future studies can extend this research in several ways. First, expanding the dataset beyond Bloomberg to include other disclosure platforms or sustainability reports could provide a more comprehensive perspective on the quality and depth of environmental, social, and governance practices. Second, future research may broaden the sample to include non-rated firms or small and medium enterprises, thereby offering greater generalizability across the Saudi market. Third, while this study employed quantitative methods, integrating qualitative approaches such as interviews with managers, regulators, and investors could yield richer insights into how sustainability strategies are implemented and perceived in practice. Fourth, longitudinal studies covering longer periods after the 2017 reforms and further into the implementation of Saudi Vision 2030 would help assess the enduring impact of regulatory and policy changes. Finally, comparative cross-country research within the Gulf region or other emerging markets could shed light on how institutional differences influence the relationship between sustainability disclosure, governance frameworks, and financial outcomes.

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