

# Statistical Analysis of Accounting Disclosure on Environmental, Social, and Governance (ESG) Performance on Firm Value: The Moderating Role of Accounting Earnings Quality in Saudi Listed Firms

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**Abstract:** This study investigates the relationship between accounting disclosures related to Environmental, Social, and Governance performance and firm value in publicly listed firms in Saudi Arabia, highlighting the moderating influence of the quality of accounting profitability. Employing a balanced panel of non-financial firms from 2019 to 2024, the findings provide substantial evidence regarding the valuation of ESG disclosure in the context of a developing market undergoing regulatory and institutional transformations. The empirical results indicate a positive and statistically significant relationship between ESG disclosure and business value, as measured by Tobin's Q. When examining ESG disclosure by its various dimensions, the environmental and social components have positive and substantial relationships with corporate value, while the governance element has a weaker and statistically negligible effect.

**Keywords:** Accounting Disclosure on Environmental, Social, and Governance (ESG) Performance - Firm Value-Accounting Earnings Quality.

## 1. Introduction

Firm value in capital markets is increasingly assessed through an information environment that combines traditional financial signals with ESG disclosure. At the same time, ESG signals are not always comparable since rating agencies often assign materially different ESG assessments to the same firm because of differences in scope, measurement, and weighting methodologies[1]. As a result of these limitations, global standard setting has moved sustainability disclosure closer to general purpose financial reporting by emphasizing information that is useful to investors regarding sustainability risks and opportunities that may affect enterprise value[2]. In the Saudi context, evidence at the firm level shows that ESG disclosure is associated with value and performance outcomes, including Tobin's Q, among firms listed on Tadawul [3]. Other studies also find a relationship between ESG disclosure and firm performance in Saudi listed companies[4], while more recent research examines the role of governance monitoring features in models of ESG disclosure and firm value [5]. Overall, these findings point to the increasing relevance of ESG disclosure in Saudi capital markets.

Saudi Arabia offers a particularly relevant institutional setting for examining ESG disclosure and firm value in light of ongoing regulatory and governance reforms aligned with Vision 2030. ESG transparency is increasingly positioned within broader efforts to modernize corporate governance and develop capital markets[6]. At the same time, expectations surrounding sustainability reporting are being aligned with investor oriented disclosure approaches that emphasize decision useful information[2]. Empirical evidence from Saudi Arabia further indicates that ESG disclosure is associated with profitability outcomes [7] as well as with more timely financial reporting, suggesting that ESG engagement is closely linked to disclosure discipline and reporting quality[8]. Other studies directly examine the relationship between ESG disclosure and financial reporting quality and reinforce the view that ESG reporting and accounting credibility tend to move together in practice[9].

At the same time, the effect of ESG disclosure on firm value depends on the credibility of the accounting system in which this information is produced. For this reason, accounting earnings quality represents an important condition that shapes how ESG disclosure becomes value relevant. Evidence from different countries shows that earnings quality is related to firm value, although the strength of this relationship differs across institutional settings[10]. Studies that focus on governance also show that monitoring mechanisms can reinforce the link between earnings quality and firm value[11]. Research from emerging markets further shows that earnings quality varies widely across firms due to differences in firm characteristics, ownership structures, and managerial discretion[12]. Recent work also suggests that ESG practices influence managerial

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reporting behavior. In particular, mandatory ESG disclosure is associated with lower levels of earnings management, whereas voluntary disclosure tends to provide weaker credibility signals[13, 14].

Despite the expansion of both Saudi and international research on ESG disclosure and firm outcomes, Saudi studies have not directly examined whether accounting earnings quality conditions the relationship between ESG disclosure and firm value. This issue is especially relevant given continuing concerns about the comparability of ESG measures [1] and the growing reliance on investor focused sustainability disclosure standards [2]. In response, this study examines the effect of ESG disclosure on firm value in Saudi listed firms and assesses whether this effect differs according to the level of accounting earnings quality. The remainder of the study reviews the relevant literature and develops the research hypotheses. The next section presents the research methodology and hypothesis testing, followed by a discussion of the results and the main conclusions.

### 1.1 Literature Review

ESG disclosure has moved from a marginal narrative outside financial reporting to an important source of value relevant information within the corporate information environment. This shift reflects growing investor demand for clear evidence on how sustainability risks and opportunities shape future cash flows and overall firm risk. The change has been reinforced by the introduction of sustainability disclosure standards that are designed for investors and that frame ESG information as useful for capital allocation rather than as symbolic or reputational communication [2, 15]. By explicitly linking sustainability issues to enterprise value, this disclosure approach brings ESG reporting closer to the objectives of general purpose financial reporting and supports the view that ESG disclosure affects firm value through information effects and risk assessment in capital markets[16].

An important distinction in the value literature concerns ESG performance and ESG disclosure. ESG performance captures the actual sustainability practices and outcomes of the firm, whereas ESG disclosure refers to how these practices are reported through indicators, targets, governance arrangements, and narrative explanations [2]. Because capital markets rely on information that is observable and verifiable, ESG performance tends to become value relevant mainly through disclosure that allows external users to assess sustainability activities[15]. Ongoing differences in ESG measurement and reporting practices mean that investors often discount generic or incomparable disclosures. As a result, value effects are more closely tied to disclosure quality and credibility than to the sheer amount of disclosure provided[16, 17]. Recent research further shows that ESG disclosure operates within the broader financial reporting environment rather than in isolation. Investors interpret sustainability information alongside traditional accounting signals, especially earnings and cash flow information [18, 19]. ESG disclosure therefore acts as an extension of the corporate information set, with its value relevance depending on its consistency with financial reporting outcomes and its integration into the firm's overall disclosure practices.

Institutional developments have further integrated ESG disclosure into general purpose reporting practices. IFRS S1 requires firms to disclose sustainability related risks and opportunities that are relevant to users of financial reports when making resource allocation decisions, with mandatory implementation starting in 2024[2]. This requirement strengthens the informational connection between ESG disclosure and firm value because sustainability related information used in investment decisions is ultimately reflected in market prices and valuation outcomes[15]. At the same time, continuing concerns about ESG data quality and differences in external ratings highlight the importance of firm level disclosure as a central source of value relevant sustainability information[16]. From a theoretical standpoint, ESG disclosure can influence firm value through several well established channels. It may affect expected cash flows by supporting operational efficiency, innovation, stakeholder engagement, and long term strategic positioning[20]. ESG disclosure can also lower required returns by reducing perceptions of regulatory, litigation, and reputational risk[21]. In addition, improved transparency around long horizon sustainability risks can reduce information risk and allow investors to form more accurate valuations in settings where ESG reporting practices remain uneven [15].

Evidence indicates that the valuation ramifications of ESG disclosure are often evaluated in relation to core financial facts rather than as an independent narrative. In firm value models, profitability and capital structure are typically included alongside ESG disclosure to assess the pricing of sustainability transparency in relation to financial performance and financing decisions[22, 23]. Empirical data indicates a favorable correlation between ESG disclosure and firms value, while highlighting significant variability across institutional contexts and disclosure trustworthiness. Extensive studies and meta-analyses demonstrate that ESG disclosure correlates with diminished risk outcomes, decreased crash risk, and enhanced financing conditions, suggesting that value effects frequently function through more extensive economic mechanisms rather than a singular direct pathway[24]. This variation aligns with data indicating that the ESG disclosure and firm value relationship is contingent upon the specified underlying mechanism. When financial performance is conceptualized as an intermediary channel, ESG disclosure is associated with company value via operating results, hence endorsing a cash-flow perspective on ESG value relevance[23].

However, the efficiency of these channels is heavily reliant on the legitimacy of the underlying information environment. Sustainability disclosures are inherently subjective and prone to impression management and selective reporting, creating ongoing worries about greenwashing [17]. As a result, investors apply credibility discounts to ESG disclosures that are seen as unclear, unverifiable, or inconsistent with financial outcomes, reducing their impact on firms value even when the underlying sustainability performance is high [16]. In addition to firm-level transparency, capital markets rely on ESG information intermediaries to gather and translate sustainability signals into ratings for valuation. Empirical data based on quasi-experimental identification demonstrates that ESG ratings influence firms value via identifiable mechanisms, showing that information processing and reliability considerations extend beyond disclosure to the rating systems used by investors [22].

Within this context, accounting earnings quality emerges as a central factor linking ESG disclosure to firm value. So, the interaction between sustainability transparency and financial fundamentals is also captured in models where ESG disclosure conditions the profitability and firm value relationship. Furthermore, evidence indicates that ESG disclosure can strengthen the capitalization of profitability into firm value, implying that the pricing of ESG information is intertwined with the assessment of financial performance signals [25]. Earnings quality reflects the extent to which reported earnings faithfully represent firms' underlying economic performance and provide reliable inputs for value. High-quality earnings reduce noise, constrain managerial discretion, and improve the interpretability of both financial and non-financial disclosures [26]. Consequently, earnings quality should be viewed not merely as a control variable, but as a key informational channel through which ESG disclosure is assessed by capital markets.

Recent studies show that profitability quality makes ESG disclosure more credible by helping investors tell the difference between real sustainable initiatives and compliance that is only symbolic [27]. So, when earnings are of high quality, sustainability narratives are more likely to be seen as congruent with a company's economic realities. This makes it easier for ESG related information to affect a firm value. On the other hand, low profits quality makes more skeptical of ESG disclosures and raises worries about the gap between sustainability narratives and real financial success [28]. This integrative perspective is substantiated by empirical evidence. Furthermore, extensive research indicates that ESG disclosure correlates favorably with firm value, reduced downside risk, and enhanced financing conditions, these impacts exhibit significant variability between firms and institutional contexts [24]. Research that directly examines earnings quality indicates that capital markets jointly price ESG disclosure and financial reporting quality, with more pronounced value effects noted in firms with superior earnings quality [29] [30]. Also, Evidence from regulatory environments demonstrates that mandated ESG disclosure improves reporting discipline and diminishes earnings management, while voluntary disclosure provides diminished credibility advantages in the absence of strong accounting quality [14].

The moderating influence of earnings quality is especially prominent in emerging markets, where ESG reporting systems are still developing and enforcement mechanisms vary significantly. Previous studies indicate that in these settings, investors place greater emphasis on conventional accounting quality to evaluate the credibility of sustainability disclosures [31]. Empirical evidence from emerging economies demonstrates that adherence to sustainability disclosure correlates with reduced earnings management and enhanced reporting reliability, whereas inadequate accrual quality diminishes investor confidence and undermines value relevance [12, 13] [32]. Governance and assurance systems additionally influence this relationship. Audit quality influences the relationship between ESG disclosure and firm value and moderates the connection between ESG reporting and earnings management, highlighting the importance of monitoring strength in maintaining disclosure credibility [33, 34]. The literature identifies earnings quality as a critical moderating variable in the relationship between ESG disclosure and firms value [29, 30]. ESG disclosure impacts firms' value via expectations of future cash flows, risk evaluation, and information transparency; however, the degree to which these factors are incorporated into market pricing is contingent upon the reliability of the underlying accounting framework. In the Saudi context, where the sustainability disclosure is quickly expanding and reporting procedures are evolving, earnings quality is crucial in establishing whether ESG disclosure enhances firm value.

## 2. Research design

### 2.1 Sample construction

This study examines the relationship between accounting disclosure related to Environmental Social and Governance performance and firm value, with a specific focus on the moderating role of accounting earnings quality in Saudi listed firms. To achieve this objective, the analysis is conducted using a balanced panel dataset consisting of 500 firm year observations over the period from 2019 to 2024. The data are collected from firm's annual reports, sustainability reports, and the Mubasher database. The sample is restricted to non-financial firms listed on the Saudi Exchange in order to ensure comparability in accounting structures and reporting practices across firms. Banking and insurance companies are excluded because they operate under distinct regulatory environments and follow different financial reporting requirements. In addition, firm year observations with incomplete information on ESG disclosure, firm value, or earnings quality are

excluded to maintain consistency in variable measurement. As a result of these selection criteria, the final sample includes only firms that remain continuously listed throughout the study period, apply a consistent fiscal year end, and provide sufficient disclosure to support a clear mathematical representation of ESG performance and earnings quality. This sampling structure yields a fully balanced panel dataset with no temporal gaps, which provides a suitable foundation for estimating the mathematical models used to analyze the relationship between ESG disclosure and firm value and to assess how this relationship varies with accounting earnings quality.

## 2.2 Variables measurements

The *independent variables* in this study comprise accounting disclosures pertaining to Environmental, Social, and Governance (ESG) performance. At first, ESG disclosure is quantified at the dimensional level by making three different indices based on disclosure, environmental disclosure (ENV), social disclosure (SOC), and governance disclosure (GOV). Each index shows how much information is disclosed on its dimension based on what companies say in their annual and sustainability reports. Where, higher numbers mean more complete disclosure. Then, the three individual dimensions are combined to make an overall measure of how well companies are doing with their ESG disclosure. This two-stage measuring method enables both dimension specific analysis and an evaluation of the overall ESG effect, aligning with previous studies that utilized disaggregated and composite ESG measures [35, 36].

The *dependent variable* in this study is firm value, measured by Tobin's Q (TQ), which is derived from the market value of equity added to the book value of total liabilities, divided by the book value of total assets. Tobin's Q is a commonly used measure in accounting and finance research that looks ahead to see how much a company is worth. It shows what the market thinks about a company's future performance and growth potential [37, 38]. Accounting earnings quality is included as a *moderating variable* and is represented by total accruals (TA), which are determined by the difference between accounting earnings and operating cash flows, adjusted for total assets. Higher absolute accrual numbers signify diminished earnings quality, indicating increased managerial latitude in financial reporting. This metric is frequently utilized in the literature to assess fluctuations in earnings quality and to investigate its moderating influence on disclosure and value linkages [11, 39]. To account for firm specific characteristics that may affect firm value, the analysis incorporates firm size (SIZE), quantified as the natural logarithm of total assets; financial leverage (LEV), calculated as total liabilities divided by total assets; and profitability, assessed through return on assets (ROA), determined as net income divided by total assets. Prior studies have extensively used these control variables to discern the impact of ESG disclosure and earning quality on firm value [35, 40].

## 2.3 Hypotheses & Empirical Model

To analyze the relationship between accounting disclosure related to Environmental, Social, and Governance (ESG) performance and firm value, as well as the moderating role of accounting earnings quality, this study formulates a set of mathematical models. Models (1)–(4) examine the direct effect of environmental, social, governance, and aggregate ESG disclosure on firm value, respectively. Model (5) captures the direct relationship between accounting earnings quality and firm value. Models (6)–(9) extend the analysis by incorporating interaction terms between ESG disclosure and earnings quality in order to assess the moderating effect of earnings quality on the ESG–firm value relationship. Firm size, financial leverage, and profitability are included as control variables in all model specifications.

**H1: Environmental disclosure has a significant effect on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 ENV_{it} + \theta_2 SIZE_{it} + \theta_3 LEV_{it} + \theta_4 ROA_{it} + \varepsilon_{3,it} \quad (1)$$

**H2: Social disclosure has a significant effect on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 SOC_{it} + \theta_2 SIZE_{it} + \theta_3 LEV_{it} + \theta_4 ROA_{it} + \varepsilon_{3,it} \quad (2)$$

**H3: Governance disclosure has a significant effect on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 GOV_{it} + \theta_2 SIZE_{it} + \theta_3 LEV_{it} + \theta_4 ROA_{it} + \varepsilon_{3,it} \quad (3)$$

**H4: Score ESG disclosure has a significant effect on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 ESG_{it} + \theta_2 SIZE_{it} + \theta_3 LEV_{it} + \theta_4 ROA_{it} + \varepsilon_{3,it} \quad (4)$$

**H5: Accounting earnings quality has a significant effect on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 TA_{it} + \theta_2 SIZE_{it} + \theta_3 LEV_{it} + \theta_4 ROA_{it} + \varepsilon_{3,it} \quad (5)$$

**H6: Accounting earnings quality moderates the effect of environmental disclosure on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 ENV_{it} + \theta_2 TA + \theta_3 (ENV*TA) + \theta_4 SIZE_{it} + \theta_5 LEV_{it} + \theta_6 ROA_{it} + \varepsilon_{3,it} \tag{6}$$

**H7: Accounting earnings quality moderates the effect of social disclosure on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 SOC_{it} + \theta_2 TA + \theta_3 (SOC*TA) + \theta_4 SIZE_{it} + \theta_5 LEV_{it} + \theta_6 ROA_{it} + \varepsilon_{3,it} \tag{7}$$

**H8: Accounting earnings quality moderates the effect of governance disclosure on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 GOV_{it} + \theta_2 TA + \theta_3 (GOV*TA) + \theta_4 SIZE_{it} + \theta_5 LEV_{it} + \theta_6 ROA_{it} + \varepsilon_{3,it} \tag{8}$$

**H9: Accounting earnings quality moderates the effect of ESG disclosure on firm value in Saudi listed firms.**

$$FV_{it} = \theta_0 + \theta_1 ESG_{it} + \theta_2 TA + \theta_3 (ESG*TA) + \theta_4 SIZE_{it} + \theta_5 LEV_{it} + \theta_6 ROA_{it} + \varepsilon_{3,it} \tag{9}$$

**Where:**

- $FV_{it}$ : Firm value of firm  $i$  in year  $t$
- $ENV_{it}$ : Environmental disclosure
- $SOC_{it}$ : Social disclosure
- $GOV_{it}$ : Governance disclosure
- $ESG_{it}$ : Aggregate ESG disclosure score
- $EQ_{it}$ : Accounting earnings quality
- $SIZE_{it}$ : Firm size
- $LEV_{it}$ : Financial leverage
- $ROA_{it}$ : Return on assets
- $\theta_0$  :constant
- $\varepsilon_{3,it}$  : Error term

### 3. Results & Discussion

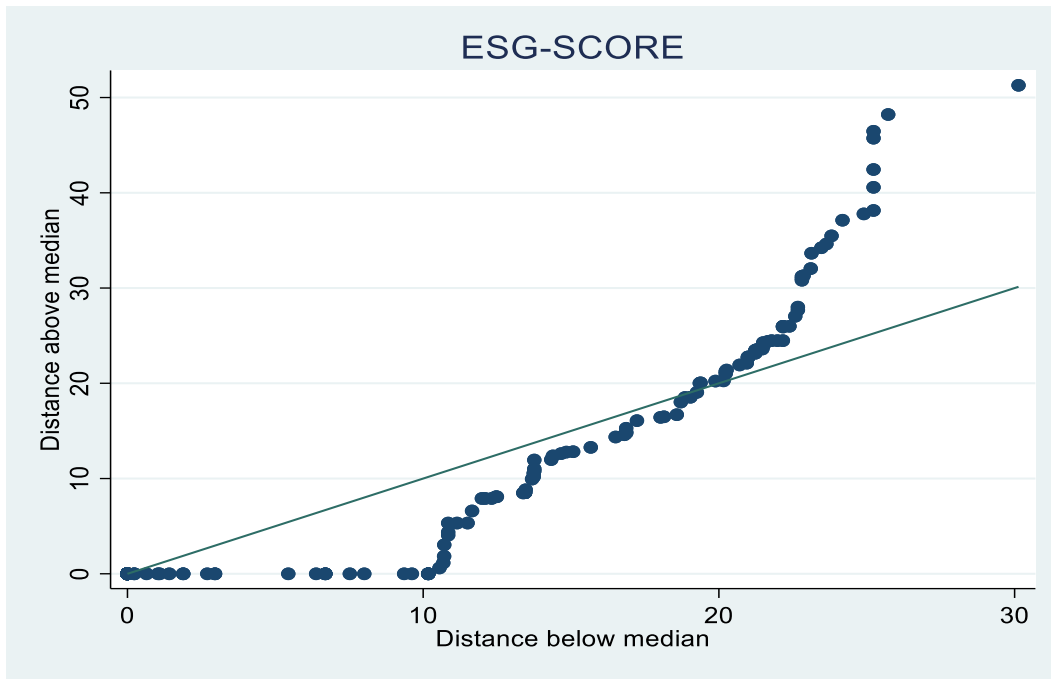
#### 3.1. Descriptive statistics and correlation analysis

Table (1) presents the descriptive statistics for the study variables based on 500 firm-year observations. The mean ESG score is 30.984, with a standard deviation of 13.037, which points to noticeable variation in ESG performance across firms. The environmental and governance dimensions show average values of 30.168 and 35.197, respectively, with similar levels of dispersion, while the social score varies more widely, ranging from -2.489 to 4.591. For firm characteristics, both firm size and total assets appear standardized, with mean values close to zero and unit standard deviations, whereas profitability (ROA) spans a wider range, from -4.958 to 8.547, indicating differences in financial performance across firms. Leverage also shows considerable variation, with values between -2.226 and 2.663. Tobin’s Q has an average value of 1.804 and a standard deviation of 0.786, suggesting that market value generally exceeds book value, albeit with meaningful cross-sectional variation.

**Table 1: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
ESGSCORE	500	30.984	13.037	.85	82.271
Environmental	500	30.168	14.412	0	85.201
SOCIAL	500	0	1	-2.489	4.591
GOVERNANCE	500	35.197	13.526	3.162	91.351
TA	500	0	1	-1.086	11.569
ROA	500	0	1	-4.958	8.547
LEV	500	0	1	-2.226	2.663
SIZE	500	0	1	-2.127	2.85
TOBINSQ	500	1.804	.786	-7.272	3.896

Figure (1) illustrates the distribution of the ESG score around the median using a median-split plot. The figure shows noticeable dispersion and asymmetry in ESG scores across firms, indicating substantial cross-sectional variation in ESG performance.



**Fig. 1:** Median-Split Distribution of ESG Scores

The Pearson correlation coefficients between the study variables are shown in Table (2). where, the overall ESG score exhibits strong and statistically significant correlations with its components, with the environmental, social, and governance dimensions showing correlations of 0.773, 0.816, and 0.665, respectively, while the correlations between the ESG components themselves show related but distinct dimensions, ranging from 0.441 to 0.786. With correlation coefficients of 0.247 and 0.284, respectively, ESGSCORE is positively correlated with firm size and total assets, indicating that larger firms typically demonstrate better ESG performance. However, its correlation with profitability is still relatively weak, as evidenced by a correlation of 0.164 with ROA. Leverage, on the other hand, has a stronger correlation with ROA (-0.374) and a negative correlation with ESGSCORE (-0.067), suggesting that higher debt levels may limit both financial performance and ESG engagement. Lastly, Tobin's Q shows modest but positive correlations with the environmental (0.181), social (0.251), and ESGSCORE (0.166) dimensions, while its correlation with governance is weaker (0.103). Overall, the magnitude of the correlation coefficients does not indicate significant multicollinearity issues.

**Table 2:** Pairwise Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ESGSCORE	1.000								
(2) Environmental	0.773 (0.000)	1.000							
(3) SOCIALSCORE	0.816 (0.000)	0.786 (0.000)	1.000						
(4) GOVERNANCE_SCORE	0.665 (0.000)	0.441 (0.000)	0.568 (0.000)	1.000					
(5) TA	0.284 (0.000)	0.338 (0.000)	0.147 (0.001)	0.365 (0.000)	1.000				
(6) ROA	0.164 (0.000)	0.219 (0.000)	0.056 (0.212)	0.271 (0.000)	0.692 (0.000)	1.000			
(7) LEV	-0.067 (0.133)	-0.114 (0.011)	-0.018 (0.685)	-0.126 (0.005)	-0.194 (0.000)	-0.374 (0.000)	1.000		
(8) SIZE	0.247 (0.000)	0.245 (0.000)	0.170 (0.000)	0.368 (0.000)	0.316 (0.000)	0.322 (0.000)	0.337 (0.000)	1.000	
(9) TOBINSQ	0.166 (0.000)	0.181 (0.000)	0.251 (0.000)	0.103 (0.021)	-0.375 (0.000)	-0.082 (0.067)	-0.062 (0.168)	0.066 (0.140)	1.000

### 3.2 Regression results

Tables (3) to (6) present the regression estimates for the association between ESG performance and firm value, measured by Tobin’s Q, across four alternative model specifications. The results indicate that the environmental dimension is positively and statistically significantly related to Tobin’s Q ( $\beta = 0.009, p < 0.01$ ), while the social dimension exhibits a positive and economically larger coefficient ( $\beta = 0.182, p < 0.01$ ), suggesting that environmental and social practices are the primary channels through which ESG engagement is reflected in market value. By contrast, the coefficient on the governance dimension, although positive, is not statistically significant ( $\beta = 0.004, p = 0.133$ ). When ESG performance is captured using the composite ESG score, the estimated coefficient remains positive and statistically significant ( $\beta = 0.009, p < 0.01$ ), pointing to an overall positive association between ESG engagement and firm value. Moreover, this pattern remains stable across alternative ESG specifications, as the signs and significance levels of the main coefficients remain qualitatively unchanged, and the control variables, particularly leverage and firm size exhibit consistent effects across all models. Overall, the models display modest yet statistically significant explanatory power, with R-squared values ranging from 0.052 to 0.099.

The positive association between the environmental and social dimensions and firm value, alongside the weaker (or insignificant) effect of governance, is consistent with recent evidence documenting heterogeneous pricing of ESG pillars. For ASEAN firms, environmental and social disclosure are positively associated with market valuation (Tobin’s Q), while governance disclosure is reported as insignificant in terms of market valuation, indicating that governance signals may provide limited incremental value relevance in some emerging-market settings[41]. Similarly, evidence from Southern Europe shows that the social dimension is positively and significantly associated with firm valuation, whereas the environmental and governance components do not exhibit statistical significance, reinforcing the view that governance indicators can have limited incremental explanatory power for firm value depending on context and measurement[42]. Moreover, cross-country evidence suggests that the market valuation benefits of ESG engagement may be dampened in environments with strong governance frameworks, where ESG compliance becomes a baseline expectation rather than a differentiating signal[43].

**Table 3:** Linear regression for Environmental Score& TobinsQ

Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Env	.009	.002	3.77	0	.005	.014	***
ROA	-.192	.043	-4.48	0	-.276	-.108	***
LEV	-.149	.044	-3.42	.001	-.234	-.063	***
SIZE	.131	.043	3.01	.003	.045	.216	***
Constant	1.52	.083	18.41	0	1.358	1.682	***
Mean dependent var		1.804		SD dependent var		0.786	
R-squared		0.074		Number of obs		500	
F-test		9.878		Prob > F		0.000	
Akaike crit. (AIC)		1149.060		Bayesian crit. (BIC)		1170.133	

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 4:** Linear regression for Social Score& TobinsQ

Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
SOC	.182	.034	5.33	0	.115	.249	***
ROA	-.173	.042	-4.10	0	-.256	-.09	***
LEV	-.153	.043	-3.60	0	-.237	-.07	***
SIZE	.128	.042	3.04	.002	.045	.211	***
Constant	1.804	.034	53.83	0	1.738	1.87	***
Mean dependent var		1.804		SD dependent var		0.786	
R-squared		0.099		Number of obs		500	
F-test		13.594		Prob > F		0.000	
Akaike crit. (AIC)		1135.346		Bayesian crit. (BIC)		1156.419	

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

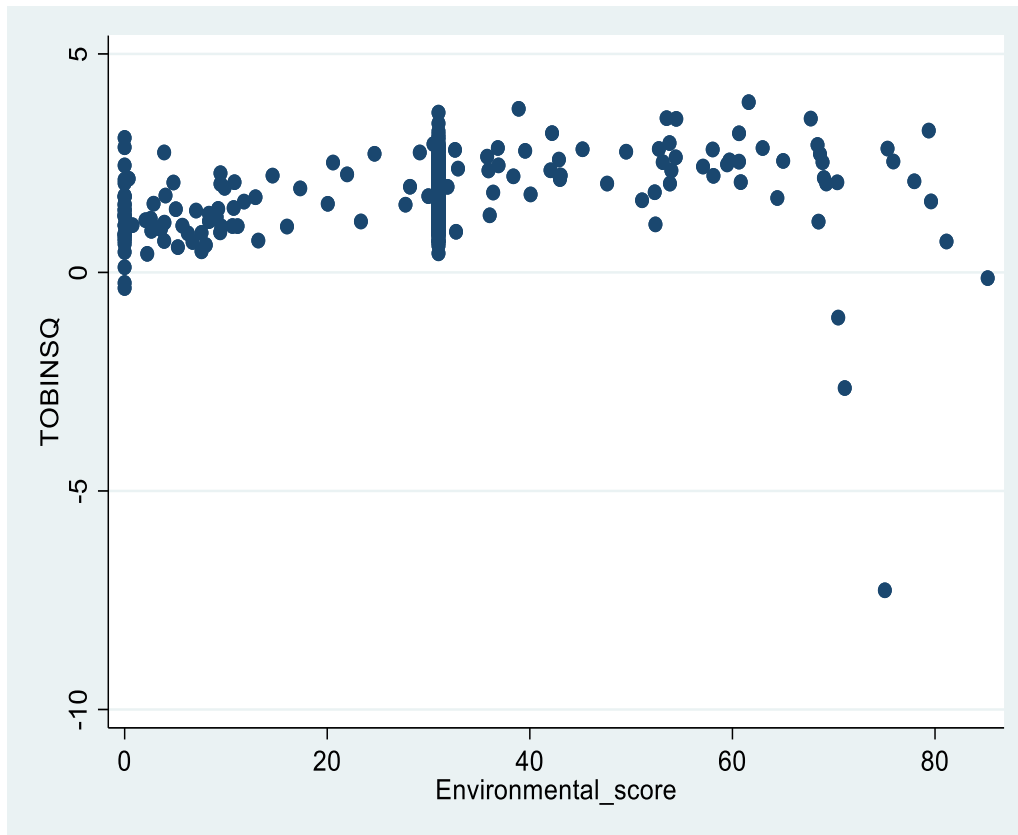
**Table 5:** Linear regression for Governance score& TobinsQ

Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
GOVERNANCE	.004	.003	1.50	.133	-.001	.01	

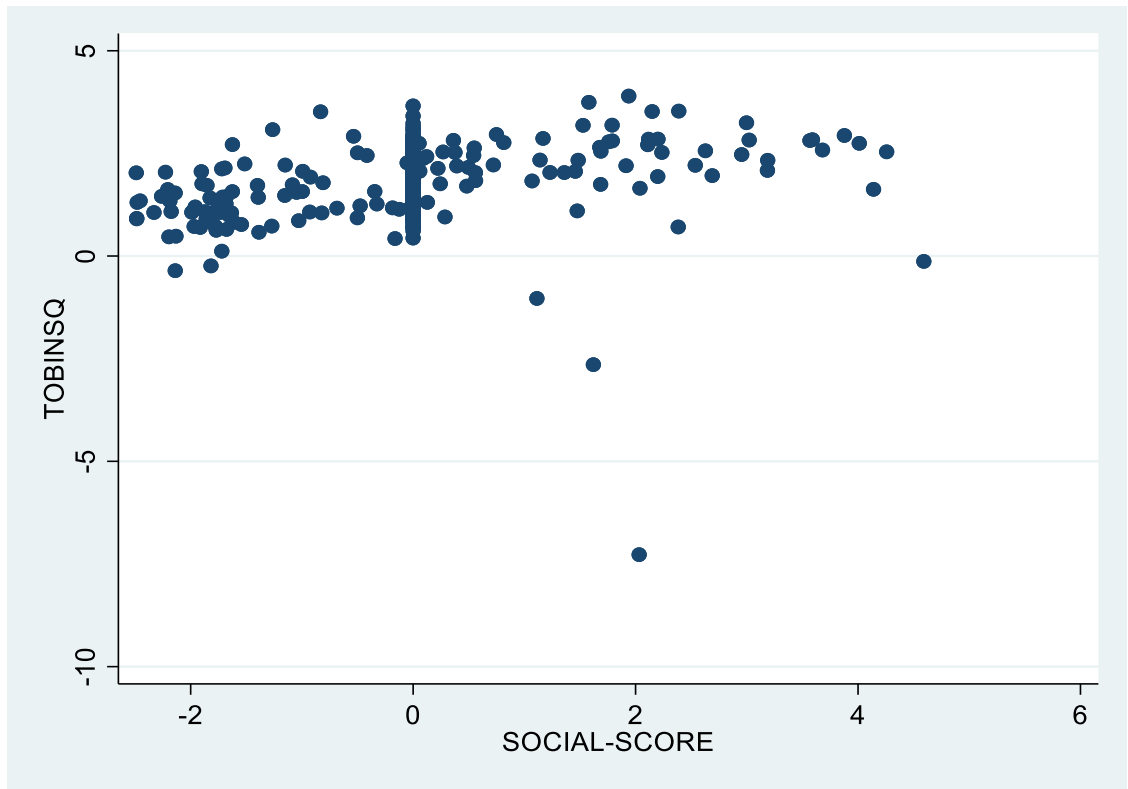
ROA	-.186	.043	-4.30	0	-.271	-.101	***
LEV	-.159	.045	-3.57	0	-.247	-.072	***
SIZE	.144	.046	3.14	.002	.054	.235	***
Constant	1.653	.106	15.56	0	1.444	1.861	***
Mean dependent var		1.804	SD dependent var		0.786		
R-squared		0.052	Number of obs		500		
F-test		6.739	Prob > F		0.000		
Akaike crit. (AIC)		1160.947	Bayesian crit. (BIC)		1182.020		
*** $p < .01$ , ** $p < .05$ , * $p < .1$							

**Table 6:** Linear regression for ESG score& TobinsQ

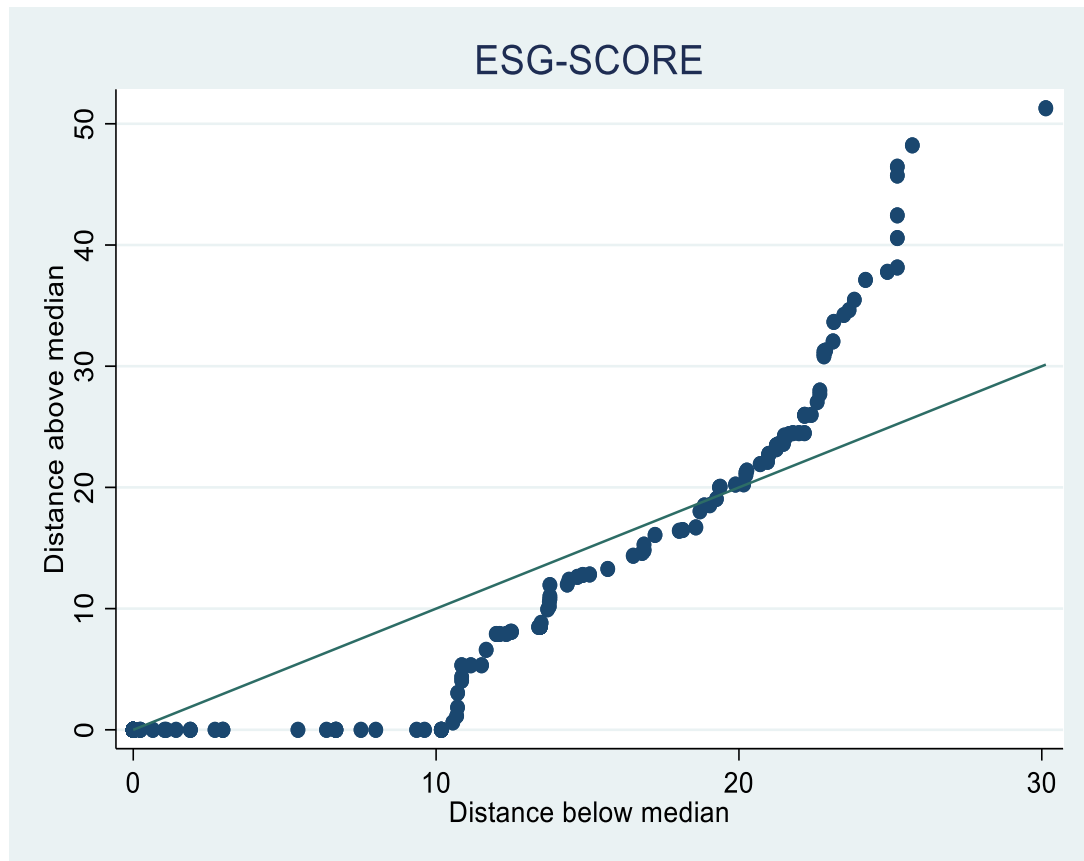
Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ESG SCORE	.009	.003	3.28	.001	.004	.014	***
ROA	-.185	.043	-4.32	0	-.269	-.101	***
LEV	-.155	.044	-3.57	0	-.241	-.07	***
SIZE	.135	.044	3.10	.002	.049	.221	***
Constant	1.526	.091	16.68	0	1.346	1.705	***
Mean dependent var		1.804	SD dependent var		0.786		
R-squared		0.068	Number of obs		500		
F-test		8.967	Prob > F		0.000		
Akaike crit. (AIC)		1152.482	Bayesian crit. (BIC)		1173.555		
*** $p < .01$ , ** $p < .05$ , * $p < .1$							



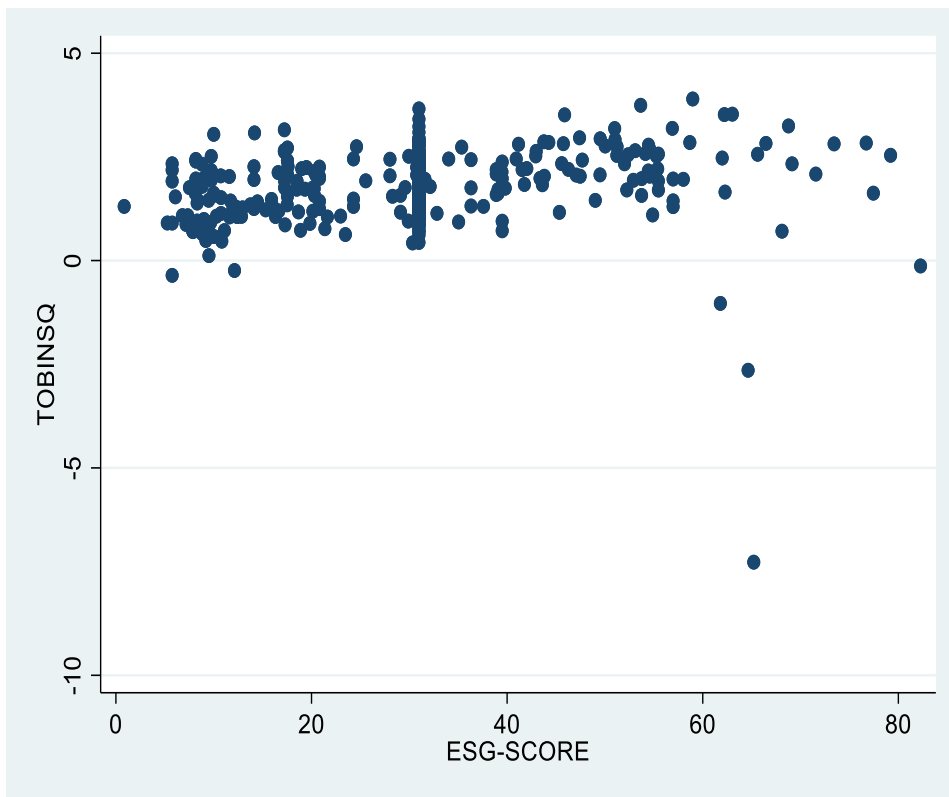
**Fig. 2:** Scatter plot of TOBINSQ against Environmental\_score



**Fig. 3:** Scatter plot of TOBINSQ against SOCIAL\_SCORE



**Fig. 4:** Symmetry plot of ESG\_SCORE



**Fig. 5:** Scatter plot of TOBINSQ against ESG\_SCORE

Figures (2)–(5) illustrate the bivariate relationships between ESG measures and firm value. Figure (2) shows a generally positive association between the environmental score and Tobin’s Q, while Figure (3) indicates a similar positive pattern for the social score. Figure (4) presents the distribution of the ESG score around the median, highlighting noticeable variation across firms. Finally, Figure (5) displays a positive relationship between the overall ESG score and Tobin’s Q, suggesting that higher ESG performance is associated with higher firm value. Table (7) reports the regression results examining the association between earnings quality, proxied by total accruals (TA), and firm value measured by Tobin’s Q. The coefficient on TA is negative and statistically significant ( $\beta = -0.499$ ,  $p < 0.01$ ), indicating that greater reliance on accrual-based earnings, which reflects lower earnings quality, is associated with lower market value. Notably, this result relates to the magnitude of accruals rather than their sign, implying those larger deviations from cash-based earnings, whether positive or negative, are discounted by the market. In addition, profitability (ROA) shows a positive and significant relationship with Tobin’s Q, whereas leverage remains negatively associated with firm value and firm size exhibits a positive effect. Overall, the model explains a meaningful share of the variation in firm value, with an R-squared of 0.253.

**Table 7:** Linear regression for TA& TobinsQ

TOBINSQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
TA	-.499	.043	-11.66	0	-.583	-.415	***
ROA	.151	.048	3.14	.002	.056	.245	***
LEV	-.162	.039	-4.20	0	-.238	-.086	***
SIZE	.216	.038	5.68	0	.141	.291	***
Constant	1.804	.031	59.10	0	1.744	1.864	***
Mean dependent var	1.804		SD dependent var	0.786			
R-squared	0.253		Number of obs	500			
F-test	41.843		Prob > F	0.000			
Akaike crit. (AIC)	1041.826		Bayesian crit. (BIC)	1062.900			

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Tables (7)–(10) report the regression results examining the moderating effect of earnings quality, proxied by total accruals (TA), on the relationship between ESG performance and firm value measured by Tobin’s Q. The results indicate that earnings quality plays a meaningful moderating role in this relationship. In Table (7), the interaction term between the

overall ESG score and TA is negative and statistically significant ( $\beta = -0.047, p < 0.01$ ), indicating that the positive association between ESG performance and firm value weakens as accrual intensity increases. A similar pattern is observed in Tables (8) and (9), where the interaction terms between TA and both the environmental and social dimensions are negative and statistically significant ( $\beta = -0.040$  and  $\beta = -0.355$ , respectively), suggesting that the value relevance of environmental and social performance diminishes when earnings quality deteriorates. This evidence implies that earnings quality acts as a credibility channel through which ESG information is interpreted by the market, as higher reliance on accrual-based earnings appears to reduce investors' responsiveness to ESG-related signals. By contrast, Table (10) reports a positive and statistically significant interaction between governance and TA ( $\beta = 0.013, p < 0.05$ ), indicating a different moderating mechanism whereby improvements in earnings quality strengthen the value effect of governance practices. Across all specifications, leverage remains negatively associated with firm value, while firm size and profitability exhibit positive and significant coefficients, and the models display adequate explanatory power, with R-squared values ranging from 0.294 to 0.564.

**Table 8:** Linear regression for effect TA on ESG& Tobins Q

Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ESGSCORE	.016	.002	8.19	0	.012	.02	***
TA	2.113	.164	12.90	0	1.791	2.435	***
ESG*TA	-.047	.003	-16.69	0	-.052	-.041	***
LEV	-.119	.03	-3.98	0	-.178	-.06	***
SIZE	.169	.03	5.63	0	.11	.228	***
ROA	.22	.037	5.93	0	.147	.293	***
Constant	1.486	.065	22.82	0	1.358	1.614	***
Mean dependent var		1.804		SD dependent var		0.786	
R-squared		0.562		Number of obs		500	
F-test		105.545		Prob > F		0.000	
Akaike crit. (AIC)		778.382		Bayesian crit. (BIC)		807.884	
*** $p < .01$ , ** $p < .05$ , * $p < .1$							

**Table 9:** Linear regression for effect TA on Environmental & Tobins Q

Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Env	.015	.002	7.60	0	.011	.018	***
TA	2.129	.218	9.78	0	1.702	2.557	***
Env*TA	-.04	.003	-12.63	0	-.046	-.034	***
LEV	-.102	.032	-3.18	.002	-.166	-.039	***
SIZE	.155	.032	4.83	0	.092	.218	***
ROA	.221	.04	5.55	0	.143	.299	***
Constant	1.56	.066	23.54	0	1.429	1.69	***
Mean dependent var		1.804		SD dependent var		0.786	
R-squared		0.498		Number of obs		500	
F-test		81.457		Prob > F		0.000	
Akaike crit. (AIC)		847.049		Bayesian crit. (BIC)		876.551	
*** $p < .01$ , ** $p < .05$ , * $p < .1$							

**Table 10:** Linear regression for effect TA on Social & Tobins Q

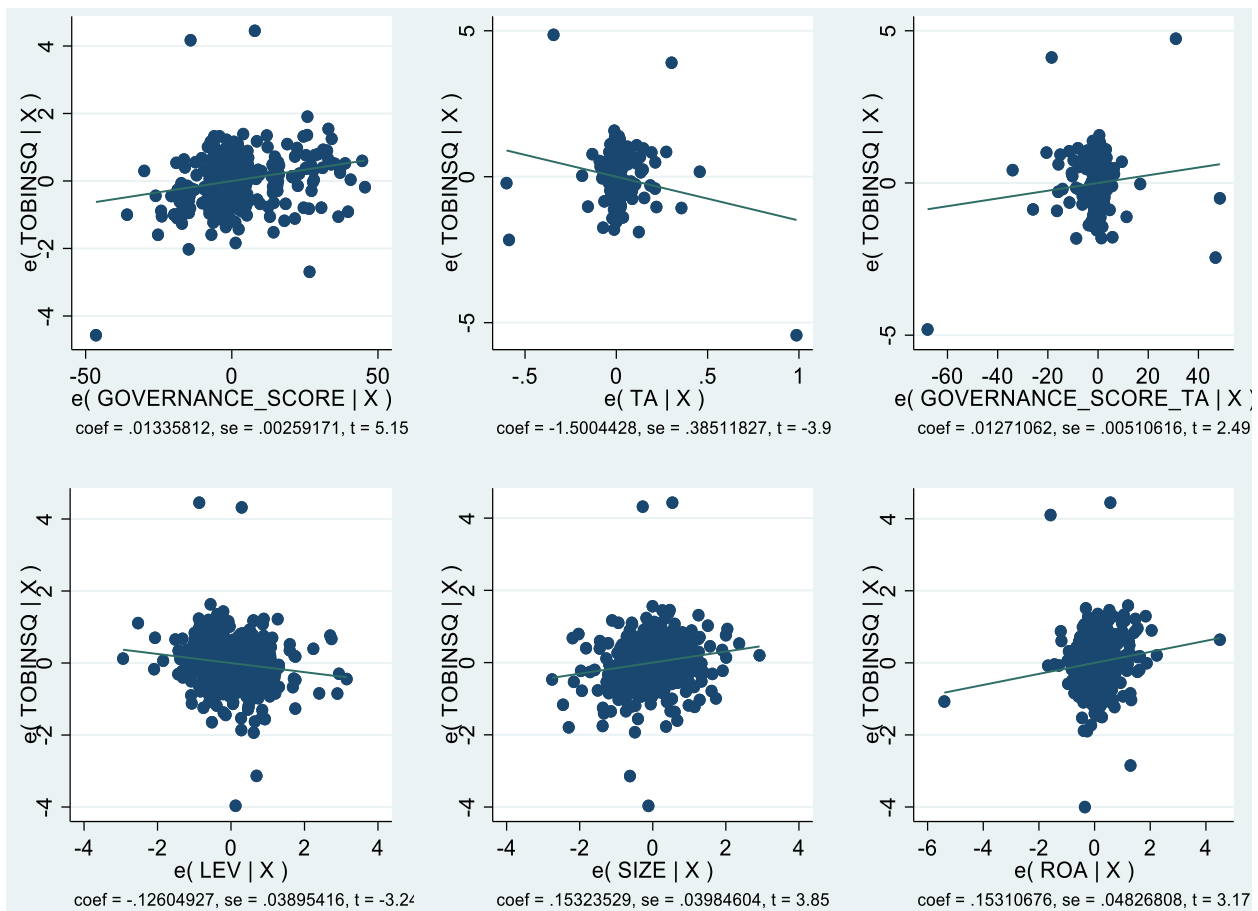
Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
SOC	.314	.022	14.27	0	.271	.358	***
TA	-.279	.032	-8.64	0	-.343	-.216	***
SOC*TA	-.355	.017	-20.72	0	-.388	-.321	***
LEV	-.142	.027	-5.31	0	-.195	-.09	***
SIZE	.185	.027	6.93	0	.132	.237	***
ROA	.199	.033	5.97	0	.134	.264	***
Constant	1.856	.021	87.52	0	1.814	1.897	***
Mean dependent var		1.804		SD dependent var		0.786	
R-squared		0.646		Number of obs		500	

F-test	149.765	Prob > F	0.000
Akaike crit. (AIC)	672.613	Bayesian crit. (BIC)	702.115
*** $p < .01$ , ** $p < .05$ , * $p < .1$			

**Table 11:** Linear regression for effect TA on Governance & Tobins Q

Tobins Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
GOV	.013	.003	5.15	0	.008	.018	***
TA	-1.5	.385	-3.90	0	-2.257	-.744	***
GOV*TA	.013	.005	2.49	.013	.003	.023	**
LEV	-.126	.039	-3.24	.001	-.203	-.05	***
SIZE	.153	.04	3.85	0	.075	.232	***
ROA	.153	.048	3.17	.002	.058	.248	***
Constant	1.271	.104	12.27	0	1.067	1.474	***
Mean dependent var		1.804	SD dependent var		0.786		
R-squared		0.294	Number of obs		500		
F-test		34.227	Prob > F		0.000		
Akaike crit. (AIC)		1017.346	Bayesian crit. (BIC)		1046.849		
*** $p < .01$ , ** $p < .05$ , * $p < .1$							

Figure (6) presents interaction plots illustrating the moderating role of earnings quality (TA) in the relationship between ESG related variables and firm value (Tobin’s Q). In addition, the positive slope of the interaction between governance and TA indicates that the value effect of governance strengthens as earnings quality improves. Consistent with the regression results, leverage exhibits a negative relationship with Tobin’s Q, while firm size and profitability display positive associations. Overall, the plots visually support the moderating role of earnings quality in the ESG and firm value relationship.



**Fig. 6:** shows the interaction plots illustrating the moderating effect of TA on ESG and firm value

## 4. Discussion and Results

This study examines the correlation between accounting disclosures pertaining to Environmental, Social, and Governance performance and company value in publicly listed companies in Saudi Arabia, emphasizing the moderating effect of accounting profits quality. Utilizing a balanced panel of non-financial enterprises from 2019 to 2024, the results offer compelling evidence about the valuation of ESG disclosure within an emerging market context experiencing regulatory and institutional changes. The empirical findings demonstrate a favorable and statistically significant correlation between ESG disclosure and firms' value, as assessed by Tobin's Q. When ESG disclosure is analyzed by its individual dimensions, the environmental and social components demonstrate positive and significant correlations with firms' value, whereas the governance factor reveals a lesser and statistically insignificant impact. This pattern aligns with previous evidence indicating that environmental and social disclosures are more pertinent to investors because of their associations with risk management, stakeholder relations, and long term operational sustainability, whereas governance disclosures typically demonstrate minimal additional value relevance once basic governance standards are established[41, 42].

The positive correlation identified for the composite ESG disclosure score reinforces the notion that enhanced sustainability transparency is esteemed by the market. This finding is consistent with cross-country studies indicating that ESG disclosure is typically linked to enhanced firm valuation, reduced risk exposure, and favorable financing conditions, although the extent of these effects differs across institutional contexts[24, 43]. In Saudi Arabia, where ESG reporting procedures are still developing, these findings indicate that investors react favorably to reliable sustainability disclosures within the corporate information framework. The study importantly shows that the quality of accounting results is a key factor that affects the relationship between ESG and firms' value. Earnings quality, represented by total accruals, exhibits a negative correlation with firm value, suggesting that capital markets devalue firms with inferior earnings quality. This outcome aligns with extensive accounting literature highlighting the significance of earnings quality in influencing valuation results and investor confidence[11, 39]. More importantly, the interaction study shows that the beneficial effects of ESG disclosure on value become less strong when profits quality goes down, especially for the social and environmental aspects. This data corroborates the perspective that ESG disclosure is assessed through a credibility framework, indicating that sustainability information is deemed more valuable when underpinned by high-quality financial reporting[15, 18].

Conversely, the moderating influence of profits quality on governance disclosure is favorable; indicating that governance-related information is more informative to investors when accounting quality is robust. This outcome substantiates the notion that governance disclosure and the credibility of financial reporting are interdependent mechanisms, suggesting that governance signals may possess heightened valuation significance in contexts marked by dependable accounting information[43]. The findings indicate that ESG disclosure is not autonomous from the overall financial reporting context. Investors evaluate sustainability information in conjunction with conventional accounting indicators, especially earnings quality. This observation aligns with recent findings indicating that the value relevance of ESG disclosure is contingent upon both the quality of the disclosure and the institutional framework in which it is situated[1, 2]. The findings endorse further regulatory initiatives to synchronize sustainability disclosures with investor-centric reporting standards, such as IFRS S1, which prioritize decision useful information related to firm value[2]. The findings indicate that for firms, ESG disclosure serves as a value enhancing strategy most effectively when paired with robust earnings quality and reliable financial reporting standards. The results emphasize the necessity for investors to assess ESG disclosure with accounting soundness, rather than regarding sustainability reporting as an isolated indicator.

### 4.1 Theoretical implications

This study adds to the literature on ESG disclosure and firm value by showing that ESG should not be treated as a single uniform concept. The results indicate that the environmental, social, and governance dimensions differ in their relevance for firm valuation. In particular, the stronger valuation effects associated with the environmental and social dimensions suggest that these aspects of ESG disclosure carry greater importance for investors. These dimensions appear to be closely connected to how firms manage risk, engage with stakeholders, and support long term value creation, especially in emerging market settings[41, 42]. The findings also underline the importance of accounting earnings quality in shaping the interpretation of ESG disclosure. Rather than being assessed in isolation, sustainability disclosure is evaluated together with traditional financial reporting signals. When earnings quality is weaker, the valuation benefits linked to ESG disclosure tend to be less pronounced.

This result is consistent with earlier evidence showing that the market response to ESG disclosure depends on the credibility of the broader information environment [15, 18]. Examining ESG disclosure alongside earnings quality therefore helps connect sustainability reporting with established discussions on accounting quality and information risk. In addition, the study contributes evidence from the Middle East and North Africa region, where empirical research on ESG disclosure remains relatively limited. In the Saudi context, where regulatory reforms and sustainability reporting practices are still

developing, the results suggest that ESG disclosure can enhance firm value when it is supported by credible financial reporting. This finding extends cross country evidence on institutional differences in ESG pricing and responds to calls for more context specific research on ESG disclosure and firm value[1, 43].

#### 4.2 Practical implications

From a regulatory standpoint, the findings lend support to current efforts to align sustainability reporting with investor focused disclosure standards such as IFRS S1. The results indicate that ESG disclosure is most relevant for firm value when it provides information that investors can actually use and when it is consistent with firms' existing financial reporting systems[2]. This suggests that regulators may gain more by encouraging closer integration between sustainability disclosure and traditional financial reporting, rather than viewing ESG reporting as a separate compliance requirement. For firms, the evidence shows that ESG disclosure can be associated with higher market valuation, particularly when firms provide clear and credible information on environmental and social issues. At the same time, these valuation benefits are not automatic. Firms with weaker earnings quality appear less able to translate ESG disclosure into higher firm value, which highlights the importance of maintaining strong accounting practices alongside sustainability initiatives. For investors, the findings emphasize the need to evaluate ESG disclosure in combination with earnings quality and other core financial indicators. Relying solely on ESG scores or the volume of disclosure may be misleading. Instead, investors are likely to benefit from assessing whether sustainability information is supported by reliable accounting signals and reflects a credible overall reporting environment.

#### 4.3 Limitations & Future Research

Despite its contributions, this study has several limitations that also point to directions for future research. The analysis focuses on non-financial firms listed on the Saudi Exchange, which means that the findings may not fully generalize to other sectors or institutional contexts. Future research could extend the analysis to financial institutions or conduct comparative studies across Gulf Cooperation Council countries to examine whether similar relationships hold under different regulatory environments. In addition, ESG disclosure is measured using disclosure-based indices constructed from publicly available reports. While this approach captures firms' transparency and reporting practices, it may not fully reflect actual ESG performance. Future studies could therefore combine disclosure-based measures with performance-based indicators or external ESG ratings to better distinguish between reporting behavior and underlying sustainability outcomes.

Another limitation relates to the measurement of earnings quality. In this study, earnings quality is proxied by total accruals, which is widely used in the literature but captures only one aspect of financial reporting quality. Future research could employ alternative measures, such as discretionary accrual models, earnings persistence, or indicators of real earnings management, to provide a more comprehensive view of how reporting quality interacts with ESG disclosure. The study also relies on a linear modeling framework. Future work could explore potential nonlinear or threshold effects in the ESG firm value relationship, particularly in contexts where ESG disclosure standards are becoming mandatory. Longitudinal approaches may also be useful for examining how the value relevance of ESG disclosure evolves over time as sustainability reporting becomes more established. Finally, future research could investigate additional mechanisms that may shape the ESG firm value relationship. Possible avenues include the role of ownership structure, board characteristics, or external assurance of ESG reports, which could help further clarify the channels through which ESG disclosure influences firm value.

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#### Data Availability Statement:

The data presented in this study are available on request from the corresponding author.

#### Conflicts of Interest:

The authors declare no conflict of interest.

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