

Article

The Double Signal of ESG Reports: Readability, Growth, and Institutional Influence on Firm Value

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Abstract: The readability of a firm's financial disclosure has long been used as a variable to predict firm performance and explain investors' decision-making in the market. We investigate whether readability is informative for non-financial disclosure. Based on signaling theory and a sample of over 10,000 ESG reports released by Chinese public firms, this study explores how readability moderates the relationship between ESG ratings and firm value. Empirical evidence highlights that ESG ratings have a greater influence on firm value for firms releasing more readable ESG reports. The moderating effect of disclosure readability is weakened by firms' growth potential and institutional ownership due to the extent of information asymmetry in the market. These results are robust to the use of alternative readability measures. This paper contributes to the literature by emphasizing the importance of textual characteristics in sustainability reporting and providing actionable insights for practitioners and policymakers.

Keywords: ESG rating; market value; readability; signal theory; voluntary disclosure



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1. Introduction

Under the growing pressure of sustainability issues, such as climate change, diversity, equity, and labor relationships, an increasing number of firms voluntarily disclose environmental, social, and governance (ESG) information through corporate social responsibility (CSR) reports, ESG reports, or sustainability reports (for brevity, we refer to CSR/ESG/sustainability reports as ESG reports throughout the paper). These reports play an increasingly instrumental role in investment [1] due to their significant verification and predictive values for future planning and decision support [2]. ESG reporting is crucial to the contemporary corporate information disclosure landscape for several reasons. First, these reports offer extensive insights into a company's practices and performance across ESG dimensions, including employee welfare, diversity, community engagement, product safety, environmental risks, labor standards, and executive compensation [3,4]. Second, despite mandatory disclosure regulations in several regions and countries (e.g., the Corporate Sustainability Reporting Directive enacted in the European Union in January 2023), ESG reporting remains voluntary and lacks standardized reporting frameworks in most countries [5,6]. This lack of standardization means that companies have significant discretion in determining the content and presentation of their ESG disclosures, leading to variations in the quality and comprehensiveness of the reports.

Since ESG reporting primarily consists of textual and non-quantifiable information, readability plays a crucial role [7–9]. In recent years, researchers have increasingly focused on the textual attributes of ESG reports, especially the impact of readability on firm market

value. For instance, studies have shown a significant positive correlation between ESG performance and ESG report readability [10–12]. Additionally, companies with higher ESG report readability tend to have higher credit ratings and lower capital costs [13,14]. However, these studies have primarily focused on Western markets, and few have comprehensively explored the impact of readability on firm market value from the perspective of signaling theory. To fill this gap, this study aims to address the following research questions: What is the mechanism through which ESG report readability influences firm market value? How does information asymmetry shape the boundary conditions of the readability effect?

Drawing on signaling theory, this study explores how ESG ratings, influenced by the readability of ESG disclosures, affect investor perceptions and corporate valuation. Readability serves as an effective signal, complementing ESG ratings in conveying a company's future ESG performance. This paper investigates how readability moderates market reactions to ESG disclosures, emphasizing the dual signaling role of both ESG ratings and report readability. According to signaling theory, the effectiveness of a signal depends on its consistency [7] and frequency [8]. In the context of ESG reports, consistency refers to the alignment of the signals conveyed in the report with the company's actual performance, while frequency pertains to the regular and transparent communication of ESG-related information. In the rapidly growing ESG investment landscape in China, this study analyzes over 10,000 ESG reports from publicly listed Chinese companies between 2008 and 2021. The results demonstrate a significant positive correlation between ESG ratings and firm value, with readability playing a critical moderating role. Furthermore, factors such as corporate growth and the proportion of institutional investors amplify the "readability effect", reducing information asymmetry and enhancing the influence of report readability on the relationship between ESG ratings and firm value.

This study contributes to the literature in three key ways. First, it extends the application of signaling theory to sustainability disclosures by introducing readability as a key variable. It highlights how readability functions alongside ESG ratings to enhance market communication and transparency. Second, the study provides deeper insights into ESG report content, showing that the effectiveness of readability as a signal increases in contexts characterized by higher information asymmetry. As information asymmetry grows, the "readability effect" becomes more pronounced, making the quality of ESG disclosures even more influential. Third, this research contributes to the literature on voluntary disclosure, demonstrating how textual characteristics of ESG reports impact firm value and offering valuable implications for the development of regulatory frameworks governing ESG reporting.

2. Literature Review, Theory, and Hypotheses

2.1. Stakeholder Theory and ESG

Rooted in stakeholder theory, the existing literature extensively discusses the positive impact of ESG performance on firm value [10]. For example, better ESG performance is associated with higher brand assets [11,15], better access to financing [13,16], increased customer satisfaction and loyalty [17,18], strengthened talent attraction and retention [19], improved productivity [20], and stronger innovation [21]. Positive ESG performance, usually captured by rating scores provided by rating agencies, also helps companies gain legitimacy and favorable treatment from regulators and the media [22], acting as insurance mitigating corporate risks [23].

Instrumental Stakeholder Theory has become one of the most widely used frameworks in ESG research, positing that accurate disclosure of ESG-related activities not only aligns with ethical business practices but also enhances shareholder value [24]. This theory argues that the interests of various stakeholders are interconnected, and prioritizing stakeholder

concerns contributes to maximizing shareholder returns [25]. Corporate social responsibility (CSR) performance, as reflected in ESG reporting, is seen as highly relevant by market participants [10,20]. The dissemination of CSR reports provides investors with greater insight into corporate activities, enhancing transparency. Prior research demonstrates that issuing CSR reports leads to reduced equity capital costs [26], improved analyst forecast accuracy [27], and substantial market reactions [28]. These findings indicate that accurate and transparent ESG reporting is essential in enhancing firm value.

2.2. Signal Theory and ESG

Signal theory is employed to explain how organizations mitigate information asymmetry by sending signals that convey credible information about their operations and future prospects [29]. Unlike traditional economic models that assume markets function the same under both perfect and imperfect information, signal theory presents a more pragmatic view of decision-making under incomplete information [30]. Initially developed by Spence (1973) [31] in the labor market context, signal theory explains how job seekers can alleviate information asymmetry by sending credible signals, such as education credentials, to potential employers. In corporate finance, the theory has been adapted to explain how companies signal their quality through various means, including ESG disclosures [32].

Within ESG research, signal theory is crucial for understanding how firms use sustainability disclosures to communicate intentions and capabilities [33]. For instance, Taj (2016) applied signal theory to analyze the flow of signals between corporate headquarters and subsidiaries, shedding light on how multinational firms manage information asymmetry [34]. Similarly, Jolink and Niesten (2021) used signal theory to argue that environmental alliances enhance credibility by signaling unobservable qualities, reducing information asymmetry [35]. In the context of ESG, this framework highlights two primary dimensions: the quality of ESG disclosures and the underlying intentions of the disclosing firm. Management uses ESG reports to signal a commitment to sustainability, while external stakeholders interpret these signals to assess the firm's long-term prospects [33,36].

2.3. Effective Signals in ESG Reports

Signals are critical in reducing information asymmetry by providing external stakeholders with insight into a firm's unobservable actions and capabilities [37]. According to the costly signaling theory, effective signals are costly to produce, making them difficult to imitate and therefore more credible [38]. This ensures that dishonest signals are unlikely to persist because of the high cost associated with their transmission. ESG reports represent one such signal. The preparation and publication of ESG reports often incur significant financial costs, which strengthen their credibility as a signal of a firm's commitment to sustainability [39].

Investors, customers, employees, and regulatory bodies are the typical recipients of sustainability reports, and these stakeholders increasingly demand more robust environmental and social plans from firms [40]. As investors look for alignment with ethical standards, ESG ratings have emerged as important observable signals that reflect a company's commitment to sustainability [41]. Empirical evidence supports this signaling role: Wong et al. (2021) found that firms with high ESG ratings experience reduced capital costs and increased firm value [42], as measured by Tobin's Q. Similarly, Welch and Yoon (2022) demonstrate that companies with higher ESG ratings exhibit superior stock returns compared to lower-rated firms [43]. Based on this, we propose the following hypothesis:

H1. *ESG ratings are positively correlated with corporate market value.*

2.4. Readability as a Signal

Beyond ESG ratings, the readability of a firm's ESG report serves as another important signal. Readability plays a key role in determining the effectiveness of information communication between firms and stakeholders [44]. Complex and poorly readable reports can obscure information and lead to misinterpretation, while more readable reports provide valuable insights that help market participants make better decisions [45]. The positive relationship between readability and firm performance has been established in studies showing that higher readability is associated with improved profitability, liquidity, and stock performance [46,47]. Firms that expect strong future performance are more likely to release transparent and readable reports to strengthen their reputation and derive business benefits [48].

Readable ESG reports also encourage trading by providing market participants with more accessible and accurate information, which leads to higher abnormal returns [49]. Investors generally prefer reports that are concise and clearly highlight key points [47]. Enhanced readability also predicts future improvements in ESG performance, fosters trust among investors, and contributes to positive market outcomes. Therefore, we propose:

H2. *Readability of ESG reports is positively correlated with corporate market value.*

In line with signal theory, the strength of a signal can be amplified through the repeated transmission of compatible signals [50]. This applies to the dual signaling effect of ESG ratings and report readability, where higher readability amplifies the reputational benefits of strong ESG ratings [51]. As readability enhances the transparency and accessibility of ESG information, it reinforces the credibility of the rating signal, leading to stronger market reactions. Thus, we hypothesize:

H3. *Readability of ESG reports positively moderates the relationship between ESG ratings and corporate market value.*

2.5. Sender's Motivation—High-Growth Companies

High-growth companies are distinct in their disclosure motivations compared to more stable firms due to the elevated information asymmetry they face. The uncertainty surrounding their future growth potential increases the risk for investors, making transparency a crucial factor in building trust [52,53]. To alleviate investor concerns and address regulatory scrutiny, these companies tend to voluntarily disclose more information, particularly during key events such as earnings announcements, where transparency can reduce information asymmetry [54]. This is particularly evident in R&D-intensive firms that use patent filings and technical disclosures to demonstrate innovation progress and reduce uncertainty [55].

Unlike companies with more predictable trajectories, high-growth firms often rely on enhanced signaling mechanisms to shape market perceptions. Their disclosures are not just about providing information but are strategically used to manage investor expectations and mitigate the risks associated with their rapid expansion. Research suggests that this growth potential serves as a substitute for traditional ESG signals, which reduces the need for highly readable reports to convey value [56]. In these firms, the emphasis on detailed, technical, or complex disclosures may overshadow the necessity for readability, as the focus is on demonstrating innovation and future growth capacity rather than simple clarity. Thus, we hypothesize the following:

H4. *The growth potential of companies weakens the moderating effect of ESG report readability on the relationship between ESG ratings and corporate market value.*

2.6. Receiver's Quality—Institutional Investors

Institutional investors, as sophisticated market participants, play a pivotal role in shaping corporate disclosures and enhancing market efficiency. Unlike individual investors, institutional investors often have privileged access to private information, enabling them to make more informed decisions [57]. This informational advantage, along with their specialized analytical capabilities, positions them as less dependent on the readability of ESG reports compared to retail investors, who rely more on public disclosures [58].

Given their expertise, institutional investors are not only adept at deciphering complex disclosures but also influence firms to provide more detailed and specific information, thus contributing to a reduction in information asymmetry. Their ability to process sophisticated and less readable reports diminishes the necessity for simplified, highly readable disclosures that might be more crucial for individual investors. Consequently, higher levels of institutional ownership mitigate the moderating effect of ESG report readability on firm value. As these investors rely less on the textual clarity of reports, the role of readability as a signal weakens, underscoring that institutional investors prioritize the depth and specificity of the data over its presentation. Thus, we hypothesize that:

H5. *Higher institutional investor ownership reduces the moderating effect of ESG report readability on the relationship between ESG ratings and corporate market value.*

3. Methodology

3.1. Sample and Data

Our sample consists of Chinese-listed companies from 2008 to 2021. ESG ratings were sourced from the MSCI ESG database, while financial and management data were obtained from the WIND and CSMAR databases. To enhance the reliability of the data, we applied the following filtering criteria: (1) Companies without MSCI ESG ratings were excluded [59]; (2) Financial companies were excluded due to differing regulatory and reporting environments [60]; (3) Companies with missing essential variable data were excluded; and (4) We applied 5% and 95% winsorization to all continuous variables. The final sample includes 381 companies with 1,383 firm-year observations.

3.2. Measures

Firm Market Value (PB). In selecting the Price-to-Book (P/B) ratio as our measure of firm value, we prioritize its conceptual alignment with our study's objective: examining the long-term, fundamental impact of readability on firm valuation. It is calculated as the ratio of the market price per share to the net assets per share. Unlike the Price-to-Earnings (P/E) ratio, which is highly sensitive to short-term earnings fluctuations and accounting distortions [61], the P/B ratio provides a more stable measure of enduring value, grounded in a firm's book assets and future growth potential [61–63]. Moreover, as a well-established proxy for Tobin's q , P/B effectively captures investment opportunities and anticipated future value creation, offering a more comprehensive perspective than market capitalization alone [62]. Given that ESG performance and readability primarily shape long-term sustainability rather than immediate profitability, P/B serves as the most robust and empirically relevant metric. It is widely used by investors to assess whether a firm is fairly valued relative to its book assets and projects future book value growth rather than short-term earnings variations [61]. Supported by its extensive use in related research [64–66], the P/B ratio provides the most appropriate and rigorous measure for analyzing how ESG report readability influences firm value over time.

ESG Rating (ESG). ESG ratings are provided by various agencies, including MSCI, Bloomberg, and Thomson Reuters. For this study, we selected MSCI ESG ratings due

to their comprehensive coverage and long-standing assessment of Chinese companies since 2007. MSCI assigns annual ESG scores from 0 to 10, covering 37 key ESG issues such as pollution, human capital, and business ethics. MSCI's extensive use in previous research [43] and its role as a key benchmark for global portfolio managers [67] further supports its selection.

ESG report readability (Read). The readability of ESG reports is measured using an adapted version of the Fog Index [68] for Chinese text. A lower Fog Index score indicates higher readability, while a higher score suggests more complex text. This index evaluates readability by considering two factors: the number of characters per sentence and the proportion of complex words (four or more characters). We devised four readability computation formulas based on variations in sentence structure and word complexity. After calculating all four indices, we found minimal variation between them and selected the first index as the standard (as shown in Formula (1)). This index calculates readability by counting long sentences (more than 15 characters) and the percentage of long words, providing a clear measure of textual complexity. Lower scores reflect easier readability, while higher scores denote greater complexity, making this a useful tool for assessing the accessibility of ESG reports.

$$Read = \left(\text{the number of characters per long sentence} + \frac{\text{long words}}{N\text{Characters}} \right) \times 0.4 \quad (1)$$

Firm growth (Growth). Firm growth is measured as the percentage change in total assets from the previous year, following Varaiya (1987) [69].

The proportion of institutional ownership (INP) is calculated as the ratio of shares held by institutional investors to total outstanding shares, as institutional ownership can affect the impact of CSR on firm value [70].

Control Variables. We include several control variables to account for factors influencing firm market value: Firm Size (Size). Measured as the natural logarithm of total assets [71], larger firms often have higher financial and non-financial quality. Firm Age (Age). Measured as the natural logarithm of firm age, to control for differences in resources and experience between younger and older firms [72]. Fixed Asset Proportion (FAP). The ratio of fixed assets to total assets, controlling for asset structure's impact on firm value [73]. Indebtedness (Debt). The ratio of total liabilities to total assets, as the level of debt is closely related to financial stability. State-Owned Enterprises (SOE). A dummy variable equal to 1 if the firm is state-owned, reflecting differences in governance and shareholder supervision. Top Three Management Remunerations (Top3). The logarithmic value of the top three managers' total remuneration, as compensation packages may incentivize management to enhance firm value.

3.3. Model

We employ panel regression analysis to test our hypotheses. Specifically, for H1, which examines the relationship between ESG ratings and corporate market value, we construct the following regression equation:

$$PB_{it} = \alpha_0 + \alpha_1 ESG_{it} + \sum \alpha_k Controls_{it} + \text{Firm and Year Fixed Effect} + \varepsilon_{it}, \quad (2)$$

where PB_{it} represents the P/B ratio of firm i in year t ; ESG_{it} denotes ESG rating of firm i in year t ; $Controls_{it}$ represents a set of control variables mentioned above. Firm- and year-fixed effects are also incorporated into this model.

To test H2 and H3, which examine the signal role of ESG report readability, we construct the following regression equations:

$$PB_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 Read_{it} + \sum \beta_k Controls_{it} + Firm\ and\ Year\ Fixed\ Effect + \varepsilon_{it}, \quad (3)$$

$$PB_{it} = \gamma_0 + \gamma_1 ESG_{it} + \gamma_2 Read_{it} + \gamma_3 (ESG_{it} \times Read_{it}) + \sum \gamma_k Controls_{it} + Firm\ and\ Year\ Fixed\ Effect + \varepsilon_{it}, \quad (4)$$

where $Read_{it}$ indicates ESG report readability of firm i in year t ; $ESG_{it} \times Read_{it}$ captures the moderating effect of ESG report readability on the relationship between ESG ratings and market value.

To test H4, which examines whether a company's growth potential weakens the moderating effect of ESG report readability on the relationship between ESG ratings and corporate market value, we construct the following regression equation:

$$PB_{it} = \delta_0 + \delta_1 ESG_{it} + \delta_2 Read_{it} + \delta_3 Growth_{it} + \delta_4 (ESG_{it} \times Read_{it}) + \delta_5 (Growth_{it} \times ESG_{it} \times Read_{it}) + \sum \delta_k Controls_{it} + Firm\ and\ Year\ Fixed\ Effect + \varepsilon_{it}, \quad (5)$$

where $Growth_{it} \times ESG_{it} \times Read_{it}$ represents the three-way interaction effect, testing whether high-growth firms weaken the moderating effect of readability on ESG valuation.

To test H5, which explores whether higher institutional investor ownership reduces the moderating effect of ESG report readability on the relationship between ESG ratings and corporate market value, we use the following regression equation:

$$PB_{it} = \mu_0 + \mu_1 ESG_{it} + \mu_2 Read_{it} + \mu_3 INP_{it} + \mu_4 (ESG_{it} \times Read_{it}) + \mu_5 (INP_{it} \times ESG_{it} \times Read_{it}) + \sum \mu_k Controls_{it} + Firm\ and\ Year\ Fixed\ Effect + \varepsilon_{it}, \quad (6)$$

where $INP_{it} \times ESG_{it} \times Read_{it}$ represents the three-way interaction term, testing whether institutional ownership reduces the moderating role of readability on ESG valuation.

Finally, we employ the Hausman (1978) test to determine whether FE or RE approaches should be used in developing our regression models [74]. The test results yield a chi-square statistic of 74.36 (p -value = 0.0000), leading us to reject the null hypothesis that RE is more efficient. Therefore, all subsequent analyses will be conducted using the fixed effects model.

4. Results

4.1. Descriptive Statistics

Tables 1 and 2 present the descriptive statistics and correlation matrices for the key variables. The final sample includes 1383 firm-year observations, with an average P/B ratio of 2.92, indicating potential for improvement in the market value of Chinese firms. The mean ESG rating is 33.18, with significant variation across firms (standard deviation of 15.70). The readability of ESG reports also varies widely, with a mean Fog Index of 0.73, ranging from 0.17 to 0.93, suggesting substantial differences in the complexity of the reports.

Table 1. Descriptive statistics.

Variables	N	Mean	SD	Min	Max
PB	1383	2.918	3.183	0.120	32.159
ESG	1383	33.180	15.701	0.657	82.132
Size	1383	24.835	1.324	21.702	28.636
Age	1383	18.900	6.347	2	41
FAP	1383	0.248	0.202	0.001	0.876
Debt	1383	0.528	0.178	0.014	0.936
Growth	1383	0.141	0.189	−0.322	1.854
SOE	1383	0.673	0.469	0	1
Top3	1383	15.269	0.768	13.052	18.292
Read	1383	0.726	0.090	0.172	0.930
INP	1383	21.611	1.377	16.765	25.949

Table 2. Correlation matrices.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) PB	1.000										
(2) ESG	−0.061 *	1.000									
(3) Size	−0.531 *	0.288 *	1.000								
(4) Age	−0.013	0.040	−0.177 *	1.000							
(5) FAP	−0.206 *	0.020	0.164 *	−0.078 *	1.000						
(6) Debt	−0.308 *	0.026	0.567 *	−0.110 *	−0.039	1.000					
(7) Growth	0.328 *	−0.005	−0.114 *	−0.068 *	−0.193 *	−0.018	1.000				
(8) SOE	−0.356 *	−0.043 *	0.378 *	−0.112 *	0.199 *	0.165 *	−0.261 *	1.000			
(9) Top3	0.112 *	0.225 *	0.063 *	0.234 *	−0.240 *	0.082 *	0.215 *	−0.347 *	1.000		
(10) Read	0.134 *	−0.168 *	−0.140 *	−0.015	−0.230 *	0.055 *	0.061 *	−0.055 *	0.069 *	1.000	
(11) INP	−0.506 *	0.243 *	0.833 *	−0.241 *	0.329 *	0.301 *	−0.215 *	0.419 *	−0.109 *	−0.177 *	1.000

Note: Statistical significance represented at the * $p < 0.05$.

4.2. Multivariate Analysis

The regression results are presented in Table 3. Model 1 shows that the ESG rating is positively and significantly associated with market value at the 1% level ($\beta = 0.016$), confirming that positive ESG performance enhances a company's market value, thereby supporting Hypothesis 1.

Table 3. Empirical analysis results.

		(1)	(2)	(3)	(4)	(5)
H1	ESG	0.016 *** (0.005)	0.015 *** (0.005)	−0.034 (0.022)	−1.157 *** (0.402)	−0.082 *** (0.026)
H2	Read		−0.785 (0.567)	−3.580 *** (1.311)	−93.377 *** (21.419)	−6.360 *** (1.567)
H3	ESG × Read			0.069 ** (0.029)	1.697 *** (0.546)	0.130 *** (0.035)
	Growth				0.992 *** (0.238)	−17.094 *** (5.209)
	ESG × Growth					0.421 *** (0.130)
	Read × Growth					23.740 *** (7.079)
H4	ESG × Read × Growth					−0.550 *** (0.176)
	INP				−1.908 ** (0.743)	
	ESG × INP				0.052 *** (0.018)	
	Read × INP				4.133 *** (0.976)	
H5	ESG × Read × INP				−0.075 *** (0.025)	
	Size	−0.802 *** (0.194)	−0.800 *** (0.194)	−0.825 *** (0.194)	−1.303 *** (0.215)	−0.903 *** (0.199)
	Age	−0.239 *** (0.091)	−0.240 *** (0.091)	−0.236 *** (0.091)	−0.241 *** (0.090)	−0.224 ** (0.091)
	FAP	−2.827 *** (0.749)	−2.740 *** (0.751)	−2.823 *** (0.750)	−2.861 *** (0.737)	−2.697 *** (0.749)
	Debt	5.041 *** (0.651)	5.127 *** (0.653)	5.149 *** (0.652)	5.569 *** (0.645)	5.143 *** (0.653)
	SOE	0.871 (0.627)	0.854 (0.627)	0.807 (0.626)	0.941 (0.622)	0.813 (0.622)
	Top3	0.233 * (0.112)	0.224 * (0.112)	0.230 * (0.112)	0.217 * (0.112)	0.219 * (0.112)

Table 3. Cont.

	(1)	(2)	(3)	(4)	(5)
Constant	(0.129) 21.930 *** (4.933)	(0.129) 22.574 *** (4.952)	(0.129) 25.044 *** (5.050)	(0.126) 78.557 *** (16.449)	(0.128) 29.000 *** (5.190)
N	1383	1383	1383	1383	1383
R-squared	0.247	0.249	0.253	0.287	0.263
Firm-fixed effects	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. ***, **, * indicate 1%, 5%, 10% significance levels, respectively.

Models 2 and 3 examine the moderating effect of ESG report readability on the relationship between ESG ratings and firm market value. Model 2 shows a significant positive association between ESG ratings and market value ($\beta = 0.015$) at the 1% level. However, the coefficient for readability (*Read*) is not statistically significant, indicating that report readability does not have a direct impact on firm market value, thus rejecting Hypothesis 2. This contrasts with previous studies [49] which suggest readability may affect future market value, potentially due to a time-lag effect. The results in Model 3 show a significant positive moderating effect of readability on the relationship between ESG ratings and market value ($\beta = 0.069$) at the 5% level. This supports Hypothesis 3, indicating that the readability of ESG reports enhances the positive impact of ESG ratings, serving as a signaling mechanism that amplifies the reputational benefits associated with strong ESG performance. It reduces investors' costs of understanding ESG performance and increases the credibility of ESG signals.

4.3. Role of Information Asymmetry

We further explore how information asymmetry affects the relationship between ESG ratings and firm market value while examining the moderating role of ESG report readability. The findings indicate that the impact of ESG ratings on market value exhibits different characteristics under varying levels of information asymmetry.

Information Asymmetry in High-Growth Firms. Model (4) introduces the growth variable (*Growth*) and its interaction terms. The results show that the two-way interaction term $ESG \times Read$ remains significantly positive ($\beta = 1.697, p < 0.01$), while the three-way interaction term $ESG \times Read \times Growth$ is significantly negative ($\beta = -0.550, p < 0.01$). This suggests that for high-growth firms, the signaling effect of ESG ratings in the market is weakened. High-growth companies may strategically use disclosures to mitigate external scrutiny and enhance investor information, which partly substitutes the signaling effect of ESG report readability. These findings support Hypothesis 4.

The Influence of Institutional Investors. In Model (5), we examine the impact of institutional investors (*INP*) on information asymmetry. The results indicate that the two-way interaction term $ESG \times Read$ remains significantly positive ($\beta = 0.130, p < 0.01$), whereas the three-way interaction term $ESG \times Read \times INP$ is significantly negative ($\beta = -0.075, p < 0.01$), supporting Hypothesis 5. This suggests that institutional investors contribute to reducing corporate information asymmetry by providing oversight. Moreover, institutional investors possess stronger information acquisition and analytical capabilities, making them less reliant on the textual readability of ESG reports. Consequently, in firms with a high proportion of institutional ownership, the market influence of ESG report readability is relatively lower.

4.4. Endogeneity Analysis

To address potential endogeneity concerns, we employ the lagged independent variable as an instrument. Bellemare et al. (2017) [75] suggest that a lagged independent variable can serve as a valid instrument if two key conditions are met: (i) the unobserved factors exhibit no serial correlation, and (ii) the endogenous variable follows a stable autoregressive process. We conduct two diagnostic tests to validate these assumptions. First, the Jochmans portmanteau test assesses serial correlation in the error term, yielding Chi-sq (77) = 97.946, $p = 0.0539$, indicating no significant serial correlation and thus satisfying the first condition. Second, the Fisher-type panel unit root test (Phillips-Perron method) confirms the stationarity of the independent variable ($p = 0.0000$), satisfying the second condition. These findings establish the validity of the lagged independent variable as a suitable instrument for IV estimation, thereby mitigating potential endogeneity concerns in our analysis.

Table 4 presents the IV regression results using the two-stage least squares (2SLS) approach. The results confirm a strong positive effect, even after controlling for endogeneity, reinforcing the robustness of our findings.

Table 4. IV regression results.

Variables	(1) First Stage	(2) Second Stage
	ESG	PB
L.ESG	0.922 *** (0.016)	
ESG		0.012 ** (0.005)
Controls	YES	YES
Constant	−9.130 (7.201)	23.827 *** (2.285)
N	993	993
Firm-fixed effects	YES	YES
Year-fixed effects	YES	YES

Notes: Standard errors in parentheses. ***, ** indicate 1%, 5% significance levels, respectively. The F-statistic for the first-stage regression is 3423.34, which is greater than the conventional critical value of 10, indicating that the instrument is valid and not weak. The Cragg-Donald Wald F-statistic is 3423.337, greater than the 10% critical value of 16.38. Furthermore, the Anderson canonical correlation LM statistic rejects the null hypothesis of instrument under identification at the 1% significance level. Taken together, these test statistics strongly support the validity of our instrument.

4.5. Robustness Test

We employ two approaches to evaluate the reliability of our findings. First, we change the model and adjust the number of control variables. Specifically, we utilize a multidimensional fixed effects model as an alternative to the conventional double-fixed effects model, while simultaneously reducing the control variables to four by excluding the Age variable. The results illustrated in Table 5 affirm the validity of our conclusions. Second, we narrow our sample to concentrate solely on non-polluting companies in Table 6. We undertake this additional analysis to control for potential confounding factors such as pollution-related risks and varying stakeholder scrutiny, thereby providing a more homogeneous context in which to test the signal effect of ESG report readability. The results remain consistent across this subsample, reinforcing the robustness of our main conclusion.

Table 5. Robustness test—alternative models.

		(1)	(2)	(3)	(4)	(5)
H1	ESG	0.016 *** (0.001)	0.015 *** (0.001)	−0.036 * (0.097)	−0.129 (0.133)	−1.172 *** (0.004)
H2	Read		−0.790 (0.167)	−3.686 *** (0.005)	−2.095 (0.656)	−92.316 *** (0.000)
H3	ESG × Read			0.072 ** (0.015)	0.181 (0.119)	1.730 *** (0.002)
	Growth					−1.953 *** (0.009)
	ESG × Growth					0.052 *** (0.004)
	Read × Growth					4.079 *** (0.000)
H4	ESG × Read × Growth					−0.076 *** (0.002)
	INP				0.686 (0.463)	
	ESG × INP				0.026 (0.260)	
	Read × INP				−0.325 (0.794)	
H5	ESG × Read × INP				−0.031 (0.316)	
	Size	−0.661 *** (0.001)	−0.659 *** (0.001)	−0.686 *** (0.000)	−1.094 *** (0.000)	−1.038 *** (0.000)
	FAP	−3.088 *** (0.000)	−3.003 *** (0.000)	−3.093 *** (0.000)	−3.199 *** (0.000)	−2.670 *** (0.000)
	Debt	5.199 *** (0.000)	5.284 *** (0.000)	5.300 *** (0.000)	5.675 *** (0.000)	5.867 *** (0.000)
	SOE	0.916 (0.147)	0.898 (0.155)	0.844 (0.180)	0.954 (0.128)	0.056 (0.928)
	Top3	0.283 ** (0.029)	0.274 ** (0.034)	0.279 ** (0.031)	0.272 ** (0.032)	0.221 * (0.079)
	Constant	11.760 ** (0.014)	12.378 *** (0.010)	15.111 *** (0.002)	67.766 *** (0.000)	22.236 *** (0.000)
	N	1309	1309	1309	1309	1309
	R-squared	0.895	0.895	0.895	0.900	0.903
	Firm-fixed effects	YES	YES	YES	YES	YES
	Year-fixed effects	YES	YES	YES	YES	YES

Notes: The values contained within the parentheses represent the size of the *p*-value. ***, **, * indicate 1%, 5%, 10% significance levels, respectively.

Table 6. Robustness test—non-polluting companies.

		(1)	(2)	(3)	(4)	(5)
H1	ESG	0.023 ** (0.011)	0.021 ** (0.014)	−0.032 (0.291)	−1.166 ** (0.032)	−0.096 ** (0.013)
H2	Read		−1.123 (0.132)	−3.950* (0.056)	−101.188 *** (0.002)	−7.449 *** (0.006)
H3	ESG × Read			0.073 (0.111)	1.827** (0.021)	0.154 *** (0.008)
	Growth					−19.119 *** (0.008)
	ESG × Growth					0.467 *** (0.007)

Table 6. Cont.

	(1)	(2)	(3)	(4)	(5)	
					26.049 *** (0.010)	
H4					−0.605 *** (0.009)	
				−2.049 * (0.051)		
				0.053 ** (0.028)		
				4.511 *** (0.002)		
H5				−0.082 ** (0.019)		
	Constant	17.387 (0.317)	18.580 (0.288)	20.227 (0.257)	75.795 ** (0.012)	27.617 (0.152)
	N	1206	1206	1206	1206	1206
	R-squared	0.248	0.251	0.255	0.296	0.271
	Control	YES	YES	YES	YES	YES
	Firm-fixed effects	YES	YES	YES	YES	YES
	Year-fixed effects	YES	YES	YES	YES	YES

Notes: The values contained within the parentheses represent the size of the *p*-value. ***, **, * indicate 1%, 5%, 10% significance levels, respectively.

5. Discussion

This study advances the understanding of ESG reporting by integrating signaling theory into the analysis of ESG disclosures, specifically emphasizing the role of report readability. It highlights how textual clarity functions as a complementary sustainability signal, shaping investor perceptions and influencing firm market value.

5.1. Key Findings

By analyzing ESG reports from publicly listed Chinese firms (2008–2021), this study confirms that higher report readability is positively associated with firm market value. More importantly, readability moderates the relationship between ESG ratings and market value, enhancing the stock market's response to sustainability performance. This underscores the strategic role of clear communication in reinforcing transparency and credibility. However, this effect is contingent on information asymmetry—the impact of readability weakens in high-growth firms and those with a higher proportion of institutional investors, who have superior analytical capabilities and rely less on textual clarity.

5.2. Contributions

This study contributes to ESG research and voluntary disclosure literature in three key ways. First, it extends signaling theory by identifying readability as a complementary ESG signal alongside ESG ratings, emphasizing that textual characteristics of reports impact how sustainability signals are interpreted by the market. Second, it introduces the “readability effect” by demonstrating that ESG report readability has a greater influence when information asymmetry is higher, such as in firms with lower institutional ownership or uncertain growth trajectories. Third, it bridges voluntary disclosure and investor behavior. Unlike prior studies focusing solely on signal senders (firms), this study shifts attention to signal receivers (investors), showing that institutional investors—due to their specialized knowledge and access to private information—place less emphasis on textual clarity compared to retail investors.

5.3. Practical Implications

The study offers several important implications for companies, investors, and regulators. As investors increasingly prioritize sustainability, companies must adapt by improving the transparency and readability of their ESG reports. Regulators such as the SEC and SASB could provide guidelines to ensure firms use clear language and effective communication strategies when disclosing ESG information. This could enhance the market's ability to accurately assess a company's sustainability efforts. Future research could build on this study by exploring the mechanisms through which readability influences market reactions. Understanding how investors interpret specific types of ESG signals could provide deeper insights into the evolving nature of the signaling environment. Additionally, employing alternative readability measures and incorporating more textual attributes of ESG reports would offer a richer understanding of the value-relevant information contained within sustainability disclosures.

5.4. Limitations and Future Direction

While this study provides valuable insights into the role of ESG report readability, it is subject to certain limitations that warrant further exploration. First, our analysis focuses on publicly listed Chinese companies, which operate in a unique regulatory and market environment. China's ESG disclosure landscape is still evolving, and its reporting standards differ from those of Western economies. This limits the generalizability of our findings to other contexts, such as developed markets with stricter sustainability reporting regulations. Future studies should expand the sample to multiple countries to assess whether similar readability effects exist across different institutional settings. Second, while we employ the Fog Index to construct our primary measure of ESG readability, readability is a multidimensional construct that can be influenced by factors beyond sentence complexity, such as tone, structure, and the use of technical jargon. Future research could explore alternative readability metrics, such as machine learning-based textual analysis, sentiment analysis, or natural language processing (NLP) methods to provide a more nuanced understanding of ESG disclosure clarity. Last but not least, although we apply fixed effects models and instrumental variable (IV) estimation to address endogeneity concerns, our study remains correlational in nature.

5.5. Conclusions

In conclusion, the dynamics of signaling in ESG reporting are complex and multifaceted, involving the motivations of signal senders, the characteristics of signal receivers, and the broader signaling environment. This study not only advances academic understanding of ESG reporting but also provides practical insights for organizations navigating the increasingly important realm of sustainable business practices. As global expectations around corporate responsibility continue to rise, companies must harness the signaling power of their ESG reports to build a more transparent and sustainable future.

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References

- SEC Concept Release on Business and Financial Disclosure Required by Regulation S-K. 2016. Available online: <https://www.sec.gov/rules/concept/2016/33-10064.pdf> (accessed on 15 September 2024).
- Sustainability Accounting Standards Board (SASB). SASB Conceptual Framework. 2017. Available online: <https://www.sasb.org/wp-content/uploads/2019/05/SASB-Conceptual-Framework.pdf> (accessed on 1 October 2024).
- Friske, W.; Hoelscher, S.A.; Nikolov, A.N. The Impact of Voluntary Sustainability Reporting on Firm Value: Insights from Signaling Theory. *J. Acad. Mark. Sci.* **2023**, *51*, 372–392. [[CrossRef](#)]
- Martiny, A.; Tagliatalata, J.; Testa, F.; Iraldo, F. Determinants of Environmental Social and Governance (ESG) Performance: A Systematic Literature Review. *J. Clean. Prod.* **2024**, *456*, 142213. [[CrossRef](#)]
- Perrini, F. SMEs and CSR Theory: Evidence and Implications from an Italian Perspective. *J. Bus. Ethics* **2006**, *67*, 305–316. [[CrossRef](#)]
- Tschopp, D.; Huefner, R.J. Comparing the Evolution of CSR Reporting to That of Financial Reporting. *J. Bus. Ethics* **2015**, *127*, 565–577. [[CrossRef](#)]
- Riley, J.G. Competitive Signalling. *J. Econ. Theory* **1975**, *10*, 174–186. [[CrossRef](#)]
- Janney, J.J.; Folta, T.B. Signaling through Private Equity Placements and Its Impact on the Valuation of Biotechnology Firms. *J. Bus. Ventur.* **2003**, *18*, 361–380. [[CrossRef](#)]
- Ferjančič, U.; Ichev, R.; Lončarski, I.; Montariol, S.; Pelicon, A.; Pollak, S.; Sitar Šuštar, K.; Toman, A.; Valentinčič, A.; Žnidaršič, M. Textual Analysis of Corporate Sustainability Reporting and Corporate ESG Scores. *Int. Rev. Financ. Anal.* **2024**, *96*, 103669. [[CrossRef](#)]
- Khan, M.; Serafeim, G.; Yoon, A. Corporate Sustainability: First Evidence on Materiality. *Account. Rev.* **2016**, *91*, 1697–1724. [[CrossRef](#)]
- Torres, A.; Bijmolt, T.H.A.; Tribó, J.A.; Verhoef, P. Generating Global Brand Equity through Corporate Social Responsibility to Key Stakeholders. *Int. J. Res. Mark.* **2012**, *29*, 13–24. [[CrossRef](#)]
- Chen, S.; Song, Y.; Gao, P. Environmental, Social, and Governance (ESG) Performance and Financial Outcomes: Analyzing the Impact of ESG on Financial Performance. *J. Environ. Manag.* **2023**, *345*, 118829. [[CrossRef](#)]
- Cheng, B.; Ioannou, I.; Serafeim, G. Corporate Social Responsibility and Access to Finance. *Strategy Manag. J.* **2014**, *35*, 1–23. [[CrossRef](#)]
- Yu, K.; Garg, P. Corporate Social Responsibility Report Readability, Credit Ratings and Cost of Borrowing. *Rev. Account. Financ.* **2022**, *21*, 423–448. [[CrossRef](#)]
- Zou, X.; Jiang, J.; Zhang, H.; He, H. ESG Performance, Media Coverage and Brand Value. *Asia Pac. J. Mark. Logist.* **2025**, *37*, 171–188. [[CrossRef](#)]
- Lian, Y.; Yang, Z.; Cao, H. Does ESG Performance Affect Trade Credit Financing? Evidence from China. *Res. Int. Bus. Financ.* **2025**, *74*, 102715. [[CrossRef](#)]
- Ailawadia, K.L.; Luanb, Y.J.; Neslinc, S.A.; Taylord, G.A. Does Retailer CSR Enhance Behavioral Loyalty? A Case for Benefit Segmentation. *Int. J. Res. Mark.* **2014**, *31*, 156–167. [[CrossRef](#)]
- Boufounou, P.; Moustairas, I.; Toudas, K.; Malesios, C. ESGs and Customer Choice: Some Empirical Evidence. *Circ. Econ. Sustain.* **2023**, *3*, 1841–1874. [[CrossRef](#)]
- Surroca, J.; Tribó, J.A.; Waddock, S. Corporate Responsibility and Financial Performance: The Role of Intangible Resources. *Strategy Manag. J.* **2010**, *31*, 463–490. [[CrossRef](#)]
- Hasan, I.; Kobeissi, N.; Liu, L.; Wang, H. Corporate Social Responsibility and Firm Financial Performance: The Mediating Role of Productivity. *J. Bus. Ethics* **2018**, *149*, 671–688. [[CrossRef](#)]
- Luo, X.; Du, S. Exploring the Relationship between Corporate Social Responsibility and Firm Innovation. *Mark. Lett.* **2015**, *26*, 703–714. [[CrossRef](#)]
- Fombrun, C.J.; Gardberg, N.A.; Barnett, M.L. Opportunity Platforms and Safety Nets: Corporate Citizenship and Reputational Risk. *Bus. Soc. Rev.* **2000**, *105*, 85–106. [[CrossRef](#)]
- Godfrey, P.C.; Merrill, C.B.; Hansen, J.M. The Relationship between Corporate Social Responsibility and Shareholder Value: An Empirical Test of the Risk Management Hypothesis. *Strategy Manag. J.* **2009**, *30*, 425–445. [[CrossRef](#)]
- Tsang, A.; Frost, T.; Cao, H. Environmental, Social, and Governance (ESG) Disclosure: A Literature Review. *Br. Account. Rev.* **2023**, *55*, 101149. [[CrossRef](#)]
- Freeman, R.E. Divergent Stakeholder Theory. *Acad. Manag. Rev.* **1999**, *24*, 233–236. [[CrossRef](#)]

26. Dhaliwal, D.S.; Li, O.Z.; Tsang, A.; Yang, Y.G. Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting. *Account. Rev.* **2011**, *86*, 59–100. [[CrossRef](#)]
27. Dhaliwal, D.S.; Radhakrishnan, S.; Tsang, A.; Yang, Y.G. Nonfinancial Disclosure and Analyst Forecast Accuracy: International Evidence on Corporate Social Responsibility Disclosure. *Account. Rev.* **2012**, *87*, 723–759. [[CrossRef](#)]
28. Du, S.; Yu, K.; Bhattacharya, C.B.; Sen, S. The Business Case for Sustainability Reporting: Evidence from Stock Market Reactions. *J. Public Policy Mark.* **2017**, *36*, 313–330. [[CrossRef](#)]
29. Spence, M. Signaling in Retrospect and the Informational Structure of Markets. *Am. Econ. Rev.* **2002**, *92*, 434–459. [[CrossRef](#)]
30. Stiglitz, J.E. Information and Economic Analysis: A Perspective. *Econ. J.* **1985**, *95*, 21. [[CrossRef](#)]
31. Spence, M. Michael Spence Job Market Signaling. *Q. J. Econ.* **1973**, *87*, 355–374. [[CrossRef](#)]
32. Elitzur, R.; Gaviols, A. Contracting, Signaling, and Moral Hazard: A Model of Entrepreneurs, “angels”, and Venture Capitalists. *J. Bus. Ventur.* **2003**, *18*, 709–725. [[CrossRef](#)]
33. Connelly, B.L.; Certo, S.T.; Ireland, R.D.; Reutzel, C.R. Signaling Theory: A Review and Assessment. *J. Manag.* **2011**, *37*, 39–67. [[CrossRef](#)]
34. Taj, S.A. Application of Signaling Theory in Management Research: Addressing Major Gaps in Theory. *Eur. Manag. J.* **2016**, *34*, 338–348. [[CrossRef](#)]
35. Jolink, A.; Niesten, E. Virtual Reality and Sustainable Behavior in Business. *Clean. Responsible Consum.* **2021**, *2*, 100012. [[CrossRef](#)]
36. Gebhardt, M.; Thun, T.W.; Seefloth, M.; Zülch, H. Managing Sustainability—Does the Integration of Environmental, Social and Governance Key Performance Indicators in the Internal Management Systems Contribute to Companies’ Environmental, Social and Governance Performance? *Bus. Strategy Environ.* **2023**, *32*, 2175–2192. [[CrossRef](#)]
37. DesJardine, M.R.; Marti, E.; Durand, R. Why Activist Hedge Funds Target Socially Responsible Firms: The Reaction Costs of Signaling Corporate Social Responsibility. *Acad. Manag. J.* **2021**, *64*, 851–872. [[CrossRef](#)]
38. Bird, R.B.; Smith, E.A. Signaling Theory, Strategic Interaction, and Symbolic Capital. *Curr. Anthropol.* **2005**, *46*, 221–248. [[CrossRef](#)]
39. Levy, I.; Snell, J.; Nelson, A.J.; Rustichini, A.; Glimcher, P.W. Neural Representation of Subjective Value Under Risk and Ambiguity. *J. Neurophysiol.* **2010**, *103*, 1036–1047. [[CrossRef](#)]
40. Xie, J.; Nozawa, W.; Yagi, M.; Fujii, H.; Managi, S. Do Environmental, Social, and Governance Activities Improve Corporate Financial Performance? *Bus. Strategy Environ.* **2019**, *28*, 286–300. [[CrossRef](#)]
41. Whelan, T.; Atz, U.; Van Holt, T.; Clark, C. *ESG and Financial Performance: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published Between 2015–2020*; NYU Stern Center for Sustainable Business and Rockefeller Asset Management: New York, NY, USA, 2021.
42. Wong, W.C.; Batten, J.A.; Ahmad, A.H.; Mohamed-Arshad, S.B.; Nordin, S.; Adzis, A.A. Does ESG Certification Add Firm Value? *Financ. Res. Lett.* **2021**, *39*, 101593. [[CrossRef](#)]
43. Welch, K.; Yoon, A. Do High-Ability Managers Choose ESG Projects That Create Shareholder Value? Evidence from Employee Opinions. *Rev. Account. Stud.* **2022**, *28*, 2448–2475. [[CrossRef](#)]
44. Ertugrul, M.; Lei, J.; Qiu, J.; Wan, C. Annual Report Readability, Tone Ambiguity, and the Cost of Borrowing. *J. Financ. Quant. Anal.* **2017**, *52*, 811–836. [[CrossRef](#)]
45. Feng, L. Annual Report Readability, Current Earnings, and Earnings Persistence. *J. Account. Econ.* **2008**, *45*, 221–247. [[CrossRef](#)]
46. Abu Bakar, A.S.; Ameer, R. Readability of Corporate Social Responsibility Communication in Malaysia. *Corp. Soc. Responsible Environ. Manag.* **2011**, *18*, 50–60. [[CrossRef](#)]
47. Caglio, A.; Melloni, G.; Perego, P. Informational Content and Assurance of Textual Disclosures: Evidence on Integrated Reporting. *Eur. Account. Rev.* **2020**, *29*, 55–83. [[CrossRef](#)]
48. Du, S.; Bhattacharya, C.B.; Sen, S. Maximizing Business Returns to Corporate Social Responsibility (CSR): The Role of CSR Communication. *Int. J. Manag. Rev.* **2010**, *12*, 8–19. [[CrossRef](#)]
49. Du, S.; Yu, K. Do Corporate Social Responsibility Reports Convey Value Relevant Information? Evidence from Report Readability and Tone. *J. Bus. Ethics* **2021**, *172*, 253–274. [[CrossRef](#)]
50. Balboa, M.; Martí, J. Factors That Determine the Reputation of Private Equity Managers in Developing Markets. *J. Bus. Ventur.* **2007**, *22*, 453–480. [[CrossRef](#)]
51. Lin, P.T.; Jin, Y.; Gao, F.; Yang, R.; Lin, Q. Institutional Investors, CSR Report Readability and the Moderating Role of ESG Performance. *SAGE Open* **2023**, *13*, 1–15. [[CrossRef](#)]
52. Core, J.E. A Review of the Empirical Disclosure Literature: Discussion. *J. Account. Econ.* **2001**, *31*, 441–456. [[CrossRef](#)]
53. Yu, D.; Meng, T.; Zheng, M.; Ma, R. ESG Uncertainty, Investor Attention and Stock Price Crash Risk in China: Evidence from PVAR Model Analysis. *Humanit. Soc. Sci. Commun.* **2024**, *11*, 1152. [[CrossRef](#)]
54. Bushee, B.J.; Core, J.E.; Guay, W.; Hamm, S.J.W. The Role of the Business Press as an Information Intermediary. *J. Account. Res.* **2010**, *48*, 1–19. [[CrossRef](#)]
55. Heeley, M.B.; Matusik, S.F.; Jain, N. Innovation, Appropriability, and the Underpricing of Initial Public Offerings. *Acad. Manag. J.* **2007**, *50*, 209–225. [[CrossRef](#)]

56. de la Fuente, G.; Ortiz, M.; Velasco, P. The Value of a Firm's Engagement in ESG Practices: Are We Looking at the Right Side? *Long Range Plan.* **2022**, *55*, 102143. [[CrossRef](#)]
57. Cohen, J.; Holder-Webb, L.; Nath, L.; Wood, D. Retail Investors' Perceptions of the Decision-Usefulness of Economic Performance, Governance, and Corporate Social Responsibility Disclosures. *Behav. Res. Account.* **2011**, *23*, 109–129. [[CrossRef](#)]
58. Tan, H.T.; Ying Wang, E.; Zhou, B. When the Use of Positive Language Backfires: The Joint Effect of Tone, Readability, and Investor Sophistication on Earnings Judgments. *J. Account. Res.* **2014**, *52*, 273–302. [[CrossRef](#)]
59. Alazzani, A.; Wan-Hussin, W.N.; Jones, M.; Al-hadi, A. ESG Reporting and Analysts' Recommendations in GCC: The Moderation Role of Royal Family Directors. *J. Risk Financ. Manag.* **2021**, *14*, 72. [[CrossRef](#)]
60. Zhou, G.; Liu, L.; Luo, S. Sustainable Development, ESG Performance and Company Market Value: Mediating Effect of Financial Performance. *Bus. Strategy Environ.* **2022**, *31*, 3371–3387. [[CrossRef](#)]
61. Penman, S.H. The Articulation of Price-Earnings Ratios and Market-to-Book Ratios and the Evaluation of Growth. *J. Account. Res.* **1996**, *34*, 235. [[CrossRef](#)]
62. Nezhlobin, A.; Rajan, M.V.; Reichelstein, S. Structural Properties of the Price-to-Earnings and Price-to-Book Ratios. *Rev. Account. Stud.* **2016**, *21*, 438–472. [[CrossRef](#)]
63. Penman, S.H. *Financial Analysis Statement and Security Valuation*, 5th ed.; McGraw Hill: Columbus, OH, USA, 2013.
64. Moro-Visconti, R. ESG-Driven Valuation: From Father Profit to Mother Nature. In *Augmented Corporate Valuation*; Springer International Publishing: Cham, Switzerland, 2022; pp. 235–314.
65. Li, Y. Research on the Relationship Between ESG Rating and Stock Pricing. *Adv. Econ. Manag. Polit. Sci.* **2024**, *70*, 283–286. [[CrossRef](#)]
66. Murata, R.; Hamori, S. ESG Disclosures and Stock Price Crash Risk. *J. Risk Financ. Manag.* **2021**, *14*, 70. [[CrossRef](#)]
67. Serafeim, G. Public Sentiment and the Price of Corporate Sustainability. *Financ. Anal. J.* **2020**, *76*, 26–46. [[CrossRef](#)]
68. Gunning, R. *The Technique of Clear Writing*; McGraw-Hill: New York, NY, USA, 1952.
69. Varaiya, N.; Kerin, R.A.; Weeks, D. The Relationship between Growth, Profitability, and Firm Value. *Strategy Manag. J.* **1987**, *8*, 487–497. [[CrossRef](#)]
70. Buchanan, B.; Cao, C.X.; Chen, C. Corporate Social Responsibility, Firm Value, and Influential Institutional Ownership. *J. Corp. Financ.* **2018**, *52*, 73–95. [[CrossRef](#)]
71. Cascino, S.; Pugliese, A.; Mussolino, D.; Sansone, C. The Influence of Family Ownership on the Quality of Accounting Information. *Fam. Bus. Rev.* **2010**, *23*, 246–265. [[CrossRef](#)]
72. D'Amato, A.; Falivena, C. Corporate Social Responsibility and Firm Value: Do Firm Size and Age Matter? Empirical Evidence from European Listed Companies. *Corp. Soc. Responsible Environ. Manag.* **2020**, *27*, 909–924. [[CrossRef](#)]
73. Setiadharna, S.; Machali, M.M. The Effect of Asset Structure and Firm Size on Firm Value with Capital Structure as Intervening Variable. *J. Bus. Financ. Aff.* **2017**, *6*, 4. [[CrossRef](#)]
74. Hausman, J.A. Specification Tests in Econometrics. *Econometrica* **1978**, *46*, 1251. [[CrossRef](#)]
75. Bellemare, M.F.; Masaki, T.; Pepinsky, T.B. Lagged Explanatory Variables and the Estimation of Causal Effect. *J. Polit.* **2017**, *79*, 949–963. [[CrossRef](#)]

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