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The Role of ESG Reporting and Digital Technology in Improving Financial Transparency and Corporate Environmental Reputation

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ABSTRACT

This study investigates the role of Environmental, Social, and Governance (ESG) reporting and digital technology in enhancing financial transparency and strengthening the environmental reputation of Indonesian corporations. Using a quantitative research design, data were collected from 85 corporate respondents through a structured questionnaire employing a five-point Likert scale. The data were analyzed using SPSS version 25 with multiple regression and mediation analysis techniques. The results indicate that ESG reporting has a significant positive effect on financial transparency and environmental reputation. Digital technology adoption also significantly improves financial transparency and environmental reputation. Furthermore, financial transparency is found to partially mediate the relationship between ESG reporting and environmental reputation, as well as between digital technology and environmental reputation. These findings demonstrate that ESG reporting and digital technology function as complementary mechanisms that enhance transparency and reputational outcomes. The study provides empirical evidence supporting the strategic integration of ESG disclosures and digital transformation to promote sustainable, transparent, and reputable corporate practices in emerging economies such as Indonesia.

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1. INTRODUCTION

In recent years, increasing public awareness of sustainability, ethical governance, and environmental responsibility has fundamentally reshaped corporate accountability worldwide [1]. Corporations are no longer evaluated solely on financial performance; instead, stakeholders increasingly demand transparency regarding environmental impact, social responsibility, and governance practices [2]. In this context, Environmental, Social, and Governance (ESG) reporting has emerged as a critical mechanism for communicating non-financial performance and demonstrating corporate commitment to sustainable development. ESG disclosures provide structured information that enables investors, regulators, and the public to assess how companies manage sustainability-related risks and opportunities alongside financial outcomes [3].

In Indonesia, the urgency for transparent and sustainable corporate practices has intensified in line with regulatory reforms and global market integration [4]. Indonesian corporations operate in an environment characterized by heightened scrutiny from regulators, investors, and international partners, particularly in sectors associated with environmental sensitivity such as energy, manufacturing, mining, and agriculture [5]. Financial transparency is therefore no longer optional; it has become a strategic necessity to ensure legitimacy, investor confidence, and long-term business continuity. However, despite the growing adoption of ESG frameworks, challenges remain regarding the consistency, credibility, and effectiveness of ESG reports in improving actual transparency and corporate reputation [6].

Financial transparency plays a pivotal role in bridging corporate disclosures and stakeholder trust by reducing information asymmetry, enhancing accountability, and strengthening governance mechanisms [7]; in this context, ESG reporting, when integrated with robust financial disclosure, can function as a complementary instrument that enriches corporate transparency by demonstrating how sustainability considerations are embedded within financial decision-making processes, although empirical evidence on its effectiveness—particularly in emerging economies such as Indonesia—remains limited and fragmented. At the same time, rapid advances in digital technology have transformed corporate reporting practices through the adoption of integrated reporting systems, sustainability management software, data analytics, and digital disclosure platforms, which enable firms to collect, process, and disseminate information more efficiently and accurately, thereby improving timeliness, data reliability, accessibility, and overall transparency, while also allowing corporations to communicate sustainability performance more effectively to a broader range of stakeholders and, in turn, strengthen environmental reputation and corporate legitimacy [8].

Environmental reputation has become a valuable intangible asset in the contemporary business landscape, as companies perceived as environmentally responsible tend to enjoy stronger stakeholder trust, enhanced brand value, and improved competitive positioning, a condition that is particularly salient in Indonesia given heightened public concern over issues such as deforestation, pollution, and climate change [9]. In this context, ESG reporting and the adoption of digital technology may play a crucial role in shaping stakeholder perceptions of corporate environmental commitment; however, the mechanisms through which these factors jointly influence environmental reputation and financial transparency remain insufficiently explored, especially in emerging markets where existing studies have largely focused on developed economies and often examine ESG reporting or digital technology in isolation [10]. Addressing these gaps, this study employs a quantitative research design to empirically examine the role of ESG reporting and digital technology in improving financial transparency and enhancing the environmental reputation of Indonesian corporations, using survey data collected from corporate respondents through a Likert-scale questionnaire and analyzed with SPSS version 25. By integrating ESG reporting, digital technology, financial transparency, and environmental reputation into a single analytical framework, the study aims to provide a more comprehensive understanding of sustainable corporate disclosure practices in Indonesia, with expected contributions to the literature on sustainability reporting, digital governance, and corporate reputation, as well as practical insights for corporate managers, regulators, and policymakers seeking to promote transparent and sustainable business practices in emerging economies.

2. LITERATURE REVIEW

2.1 Environmental, Social, and Governance (ESG) Reporting

Environmental, Social, and Governance (ESG) reporting refers to the disclosure of corporate activities related to environmental stewardship, social responsibility, and governance practices, extending beyond traditional financial reporting by incorporating non-financial information that reflects how firms manage sustainability-related risks and opportunities [11]. From a theoretical perspective, ESG reporting is closely linked to stakeholder theory, which emphasizes that firms must address the interests and expectations of multiple stakeholders rather than focusing solely on shareholders; through ESG disclosures, companies signal their commitment to ethical conduct, environmental protection, and sound governance, thereby strengthening stakeholder relationships [12]. In practice, ESG reporting functions as a mechanism of accountability and transparency by disclosing environmental impacts, social initiatives, and governance structures that reduce information asymmetry between management and external stakeholders, with prior studies indicating that comprehensive ESG disclosures enhance corporate credibility and legitimacy, particularly in industries exposed to high environmental and social risks [13]. Nevertheless, the effectiveness of ESG reporting is highly dependent on the quality, consistency, and credibility of the information provided, and in emerging economies these practices often face challenges related to regulatory enforcement, reporting standards, and organizational capability, underscoring the importance of further empirical investigation [14].

2.2 Digital Technology in Corporate Reporting

Digital technology has become an integral component of modern corporate reporting and governance, as the adoption of tools such as enterprise information systems, sustainability reporting software, data analytics platforms, and online disclosure channels enables firms to enhance data accuracy, reporting efficiency, and information accessibility while supporting the integration of financial and non-financial data into more comprehensive and real-time reporting processes [8]. From an information systems perspective, digital technology strengthens transparency by improving data processing capabilities, reducing human error, and allowing stakeholders to access corporate information more easily, thereby increasing comparability and reliability [15]. Furthermore, digital reporting systems enhance traceability and auditability, which are essential for ensuring the credibility of both ESG and financial disclosures, and in the context of sustainability reporting, they facilitate more effective monitoring and timely communication of environmental performance indicators [16]. However, despite these potential benefits, the extent to which digital technology translates into improved transparency and environmental reputation outcomes remains an empirical question, particularly in developing economies where levels of digital maturity vary significantly across firms [17].

2.3 Financial Transparency

Financial transparency refers to the extent to which financial information is disclosed clearly, accurately, timely, and comprehensively to stakeholders, and it plays a critical role in reducing information asymmetry, enhancing accountability, and strengthening corporate governance [7]; from the perspective of agency theory, transparency helps mitigate conflicts of interest between managers and stakeholders by enabling more effective external monitoring and evaluation of managerial decisions. Beyond mere compliance with accounting standards, financial transparency also includes voluntary disclosures that offer deeper insights into corporate performance and risk management, with ESG reporting and digital technology increasingly regarded as complementary mechanisms that support this process [18]. ESG disclosures provide contextual information that links financial performance with sustainability outcomes, while digital technology improves the efficiency, reliability, and accessibility of financial data dissemination, a function that is particularly important in emerging markets such as Indonesia, where uneven investor protection and information availability make enhanced financial transparency essential for attracting investment and sustaining market confidence [19].

2.4 Environmental Reputation

Environmental reputation represents stakeholders' collective perceptions of a company's environmental responsibility and commitment to sustainable practices and constitutes an important intangible asset that shapes stakeholder trust, brand value, and competitive advantage, as firms with strong environmental reputations are more likely to gain public support, reduce regulatory risk, and secure long-term legitimacy [20]. Signaling theory provides a useful lens for understanding how environmental reputation is formed, as companies use ESG reporting and transparent disclosures to send signals to stakeholders regarding their environmental values and performance [21]; when these signals are credible and supported by reliable data, stakeholders are more inclined to view the firm as environmentally responsible, whereas inconsistent or superficial disclosures may generate skepticism and weaken reputation. Digital technology further amplifies these reputational dynamics by increasing the reach, visibility, and accessibility of corporate disclosures, thereby making environmental performance more observable to a broader audience and intensifying the reputational consequences of corporate environmental behavior [22].

2.5 Research Gap and Conceptual Framework

Although prior studies have explored ESG reporting, digital technology, financial transparency, and corporate reputation, several important gaps remain, as much of the existing literature concentrates on developed economies, thereby limiting the generalizability of findings to emerging markets such as Indonesia, while also tending to examine ESG reporting and digital technology in isolation without adequately considering their combined effects, and giving relatively little attention to the mediating role of financial transparency in shaping environmental reputation [23]. Addressing these gaps, this study develops an integrated analytical framework that investigates the direct effects of ESG reporting and digital technology on financial transparency and environmental reputation, as well as the mediating role of financial transparency, and by focusing on Indonesian corporations and employing a quantitative research approach, the study seeks to extend the literature on sustainability, transparency, and corporate reputation while offering context-specific insights for policymakers and corporate practitioners in emerging economies.

3. RESEARCH METHOD

3.1 Research Design

This study employs a quantitative research design to examine the role of ESG reporting and digital technology in improving financial transparency and enhancing the environmental reputation of Indonesian corporations [24]. A quantitative approach is appropriate as it allows for the measurement of relationships among variables and the testing of proposed hypotheses using statistical techniques. The study adopts a cross-sectional survey design, in which data are collected at a single point in time to capture respondents' perceptions of ESG practices, digital technology adoption, financial transparency, and environmental reputation.

3.2 Population and Sample

The population of this study comprises Indonesian corporations operating across various industries, including manufacturing, energy, services, and other sectors with active sustainability and reporting practices, as these firms are increasingly exposed to ESG-related regulations, stakeholder scrutiny, and digital transformation initiatives [24]. The sample consists of 85 respondents representing corporate entities in Indonesia, selected using a purposive sampling technique based on the criterion that respondents possess adequate knowledge of corporate reporting, sustainability practices, and financial disclosure processes. Accordingly, the respondents include managers, supervisors, sustainability officers, finance personnel, and other professionals directly involved in ESG reporting, digital systems, or financial disclosure activities. A sample size of 85 respondents is considered adequate for statistical analysis using SPSS, particularly for regression-based and mediation analyses commonly applied in social science research.

3.3 Data Collection Method

Primary data were collected using a structured questionnaire distributed directly to respondents, which was designed to capture perceptions and practices related to ESG reporting, digital technology adoption, financial transparency, and environmental reputation. Data collection was conducted over a defined period, with respondents informed that participation was voluntary and that all responses would be treated confidentially. To ensure clarity and relevance, the questionnaire items were adapted from prior empirical studies and adjusted to fit the Indonesian corporate context, and prior to full distribution, the instrument was reviewed to ensure content validity and comprehensibility.

3.4 Measurement of Variables

All variables in this study were measured using a five-point Likert scale, where 1 indicates "strongly disagree" and 5 indicates "strongly agree," with clearly defined operationalizations for each construct. ESG reporting, as an independent variable, refers to the extent to which companies disclose information related to environmental practices, social responsibility, and governance structures, measured through indicators such as the completeness and consistency of ESG disclosures, the transparency of environmental and social information, and the integration of ESG issues into corporate reporting. Digital technology, also treated as an independent variable, represents the degree of adoption and utilization of digital tools in corporate reporting and information management, measured by indicators including the use of digital reporting systems, data management technologies, online disclosure platforms, and technological support for sustainability and financial reporting. Financial transparency, positioned as the mediating variable, refers to the clarity, accuracy, timeliness, and completeness of financial information disclosed to stakeholders, with measurement indicators encompassing the openness of financial reporting, ease of access to financial information, reliability of disclosed data, and consistency of financial disclosures. Environmental reputation, as the dependent variable, reflects stakeholders' perceptions of a company's commitment to environmental responsibility and sustainable practices, measured through indicators such as public trust in environmental performance, corporate image related to environmental issues, and the perceived credibility of environmental initiatives.

3.5 Validity and Reliability Testing

To ensure the quality of the measurement instrument, validity and reliability tests were conducted using SPSS version 25, with construct validity assessed through item–total correlation analysis in which questionnaire items showing correlation coefficients above the minimum acceptable threshold were deemed valid. Reliability was evaluated using

Cronbach's Alpha coefficient, where a value of 0.70 or higher was considered acceptable, indicating that the measurement items consistently represent the underlying constructs. Only items that met both validity and reliability criteria were retained for subsequent data analysis.

3.6 Data Analysis Technique

Data analysis was conducted using SPSS version 25 through several systematic stages, beginning with descriptive statistics to summarize respondent characteristics and provide an overview of the distribution of responses for each variable. This was followed by classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests, to ensure that the data met the necessary requirements for regression analysis. Hypothesis testing was then performed using multiple regression analysis to examine the direct effects of ESG reporting and digital technology on financial transparency and environmental reputation, while the mediating role of financial transparency was tested through mediation analysis by assessing the significance of indirect effects across regression paths. The level of statistical significance applied in this study was 5 percent ($\alpha = 0.05$).

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Descriptive statistics were employed to summarize respondents' perceptions of ESG reporting, digital technology, financial transparency, and environmental reputation. Table 1 presents the mean and standard deviation values for each variable.

Table 1. Descriptive Statistics (n = 85)

Variable	Mean	Standard Deviation
ESG Reporting	4.12	0.56
Digital Technology	4.05	0.61
Financial Transparency	4.18	0.53
Environmental Reputation	4.26	0.49

Table 1 presents the descriptive statistics for the main variables in this study based on 85 respondents, showing relatively high mean values across all constructs, which indicates generally positive perceptions among Indonesian corporations regarding sustainability and transparency practices. ESG reporting has a mean score of 4.12 with a standard deviation of 0.56, suggesting that most respondents perceive their organizations as having fairly comprehensive and consistent ESG disclosure practices, although some variability remains across firms. Digital technology records a mean of 4.05 and a standard deviation of 0.61, indicating a strong level of adoption of digital tools for reporting and information management, while also reflecting differences in digital maturity among organizations. Financial transparency exhibits a mean of 4.18 with a standard deviation of 0.53, implying that respondents largely agree that their firms disclose financial information clearly, accurately, and in a timely manner. Environmental reputation shows the highest mean value of 4.26 and the lowest standard deviation of 0.49, suggesting a strong and relatively consistent perception that firms are viewed as environmentally responsible by stakeholders. Overall, the high mean scores and relatively low dispersion across variables indicate that the sampled corporations demonstrate a strong orientation toward ESG practices, digitalization, transparency, and environmental reputation, providing a solid empirical basis for further regression and mediation analyses.

4.2 Validity and Reliability Analysis

Validity testing using item–total correlation indicates that all questionnaire items have correlation coefficients exceeding the minimum threshold of 0.30, thereby demonstrating satisfactory construct validity. In addition, reliability testing shows that all variables exhibit Cronbach's Alpha values well above the recommended threshold of 0.70, with ESG Reporting at 0.844, Digital Technology at 0.812, Financial Transparency at 0.866, and Environmental Reputation at 0.831, confirming strong internal consistency and reliability of the measurement instruments used in this study.

4.3 Classical Assumption Tests

The normality test using the Kolmogorov–Smirnov method produced a significance value of 0.200 (> 0.05), indicating normally distributed data. Multicollinearity testing showed tolerance values ranging from 0.523 to 0.675 and Variance Inflation Factor (VIF) values between 1.481 and 1.915, which are well below the critical threshold of 10. Heteroscedasticity testing using the Glejser method yielded significance values greater than 0.05 for all independent variables, indicating no heteroscedasticity issues. These results confirm that the data meet the assumptions required for regression analysis.

4.4 Hypothesis Testing

4.4.1 Effect of ESG Reporting and Digital Technology on Financial Transparency

Multiple regression analysis was conducted to examine the effects of ESG reporting and digital technology on financial transparency.

Table 2. Regression Results: Financial Transparency as Dependent Variable

Independent Variable	β Coefficient	t-value	Sig.
ESG Reporting	0.415	4.124	0.000
Digital Technology	0.362	3.681	0.001
R^2	0.524		
Adjusted R^2	0.506		

Table 2 reports the regression results with financial transparency as the dependent variable, demonstrating that both ESG reporting and digital technology have positive and statistically significant effects on financial transparency among Indonesian corporations. ESG reporting shows a strong positive influence ($\beta = 0.415$, $t = 4.124$, $p < 0.001$), indicating that firms with more comprehensive, consistent, and transparent ESG disclosures tend to exhibit higher levels of financial transparency, supporting the argument that ESG information complements traditional financial reporting by reducing information asymmetry and strengthening accountability. Digital technology also has a significant positive effect on financial transparency ($\beta = 0.362$, $t = 3.681$, $p = 0.001$), suggesting that the adoption of digital reporting systems, data management technologies, and online disclosure platforms enhances the clarity, accuracy, and accessibility of financial information. The model explains a substantial proportion of variance in financial transparency, as reflected by an R^2 of 0.524 and an adjusted R^2 of 0.506, indicating that approximately half of the variation in financial transparency can be explained jointly by ESG reporting and digital technology. Overall, these findings highlight the complementary role of sustainability disclosure and digital transformation in strengthening financial transparency in an emerging market context.

4.4.2 Effect of ESG Reporting and Digital Technology on Environmental Reputation

The direct effects of ESG reporting and digital technology on environmental reputation were tested using regression analysis.

Table 3. Regression Results: Environmental Reputation as Dependent Variable

Independent Variable	β Coefficient	t-value	Sig.
ESG Reporting	0.292	2.875	0.005
Digital Technology	0.332	3.217	0.002
R^2	0.465		
Adjusted R^2	0.442		

Table 3 presents the regression results with environmental reputation as the dependent variable, indicating that both ESG reporting and digital technology have positive and statistically significant effects on how Indonesian corporations are perceived in terms of environmental responsibility. ESG reporting demonstrates a significant positive relationship with environmental reputation ($\beta = 0.292$, $t = 2.875$, $p = 0.005$), suggesting that more comprehensive and credible ESG disclosures strengthen stakeholders' perceptions of a firm's environmental commitment and sustainability orientation. Digital technology exhibits an even stronger positive effect ($\beta = 0.332$, $t = 3.217$, $p = 0.002$), highlighting the role of digital platforms and reporting systems in amplifying the visibility, accessibility, and credibility of environmental information, which in turn enhances corporate environmental reputation. The model shows good explanatory power, with an R^2 of 0.465 and an adjusted R^2 of 0.442, indicating that approximately 44–47 percent of the variation in environmental reputation can be explained by ESG reporting and digital technology. These findings underscore the importance of integrating sustainability disclosure with digital transformation strategies to strengthen environmental reputation in an emerging market context.

4.4.3 Mediating Role of Financial Transparency

To examine the mediating role of financial transparency, a regression model including financial transparency as an intervening variable was estimated.

Table 4. Mediation Analysis Results

Relationship	Direct Effect (β)	Indirect Effect (β)	Sig.
ESG Reporting → Environmental Reputation	0.292	0.171	0.003
Digital Technology → Environmental Reputation	0.336	0.152	0.002
Financial Transparency → Environmental Reputation	0.383	–	0.000

Table 4 presents the mediation analysis results, revealing that financial transparency plays a significant mediating role in the relationships between ESG reporting, digital technology, and environmental reputation. The direct effect of ESG reporting on environmental reputation remains positive and significant ($\beta = 0.292$, $p = 0.003$), while the indirect effect through financial transparency is also significant ($\beta = 0.171$, $p < 0.01$), indicating that part of the influence of ESG reporting on environmental reputation operates through improvements in financial transparency. This finding suggests that ESG disclosures not only signal environmental commitment directly to stakeholders but also enhance the clarity and credibility of financial information, which in turn strengthens environmental reputation. Similarly, digital technology shows a significant direct effect on environmental reputation ($\beta = 0.336$, $p = 0.002$) alongside a significant indirect effect via financial transparency ($\beta = 0.152$, $p < 0.01$), implying that digitalization improves environmental reputation both by increasing the visibility of sustainability information and by enhancing financial transparency. Furthermore, financial transparency itself has a strong and significant effect on environmental reputation ($\beta = 0.383$, $p < 0.001$), confirming its central role in shaping stakeholder perceptions.

4.5 Discussion

The empirical findings demonstrate that ESG reporting significantly enhances financial transparency among Indonesian corporations, confirming that comprehensive and consistent ESG disclosures contribute to clearer, more reliable, and more accessible financial information [13]. By integrating environmental, social, and governance considerations into corporate reporting and decision-making, ESG reporting helps reduce information asymmetry between management and stakeholders while strengthening accountability and governance practices. In addition, digital technology is shown to play a crucial role in improving financial transparency, as the adoption of digital reporting systems, data management platforms, and online disclosure tools enhances reporting efficiency, accuracy, and accessibility, underscoring the importance of digital transformation in supporting transparent corporate governance in emerging markets [13], [25].

Beyond financial transparency, the results indicate that both ESG reporting and digital technology have a positive and significant effect on environmental reputation [10]. Firms that actively disclose ESG information and effectively utilize digital platforms tend to be perceived by stakeholders as more environmentally responsible and committed to sustainable practices [19]. These disclosures function as credible signals of environmental performance and ethical intent, reinforcing corporate legitimacy, strengthening public trust, and enhancing brand value in a context where environmental issues are increasingly salient [26].

The mediation analysis further reveals that financial transparency partially mediates the relationship between ESG reporting, digital technology, and environmental reputation, suggesting that sustainability initiatives and digital adoption generate stronger reputational outcomes when supported by transparent financial reporting [13], [27]. Financial transparency acts as a key mechanism that translates ESG and digital efforts into reputational gains by enhancing the credibility and reliability of disclosed information. Overall, these findings extend the existing literature by empirically demonstrating the interconnected roles of ESG reporting, digital technology, and financial transparency in shaping environmental reputation within the Indonesian corporate context.

5. CONCLUSION

This study provides empirical evidence on the importance of ESG reporting and digital technology in improving financial transparency and enhancing the environmental reputation of Indonesian corporations. The findings confirm that firms with more comprehensive ESG disclosures and higher levels of digital technology adoption tend to demonstrate greater financial transparency, which in turn strengthens stakeholder trust and reinforces the credibility of corporate sustainability initiatives. The results further show that ESG reporting and digital technology directly contribute to environmental reputation, indicating that stakeholders respond positively to transparent, credible, and digitally enabled sustainability disclosures, while the partial mediating role of financial transparency highlights its strategic function as a key mechanism through which ESG and digital initiatives translate into reputational benefits.

From a practical perspective, these findings suggest that Indonesian corporations should view ESG reporting and digital transformation as integrated, rather than separate, strategic initiatives, by aligning sustainability disclosures with digital reporting systems to enhance transparency, accountability, and stakeholder confidence. For policymakers and regulators, the results underscore the importance of strengthening ESG disclosure standards and promoting digital reporting infrastructures to support sustainable corporate governance. Nevertheless, this study has limitations, including a relatively modest sample size and reliance on perceptual questionnaire-based data that may be subject to response bias; therefore, future research is encouraged to employ larger samples, longitudinal designs, or objective ESG and financial performance indicators, as well as to explore industry-specific dynamics and additional mediating or moderating variables to deepen understanding of sustainability-driven corporate transparency and reputation.

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