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The Effect of Environmental Assurance Statements and Digital Reporting Platforms on the Relevance of Financial Information in Agricultural Sector Issuers

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ABSTRACT

This study examines the effect of environmental assurance statements and digital reporting platforms on the relevance of financial information in agricultural sector issuers in Indonesia. The increasing demand for transparent, credible, and timely financial reporting that incorporates sustainability issues motivated this research. Using a quantitative approach, data were collected from 160 respondents through a structured questionnaire with a five-point Likert scale. The data were analyzed using SPSS version 25, employing validity and reliability tests, classical assumption tests, regression analysis, and hypothesis testing. The results reveal that environmental assurance statements significantly improve the relevance of financial information by increasing the credibility and reliability of disclosures. Similarly, digital reporting platforms significantly enhance relevance by improving accessibility, timeliness, and transparency of financial data. Simultaneous testing further confirms that both variables jointly strengthen the relevance of financial reporting. These findings contribute to the literature on financial reporting quality and provide practical implications for issuers, regulators, and investors in the agricultural sector, emphasizing the integration of sustainability assurance and digital transformation as strategic drivers of decision-useful financial information.

Keywords: *Environmental Assurance, Digital Reporting, Financial Information Relevance, Agricultural Sector*

1. INTRODUCTION

The agricultural sector plays a vital role in Indonesia's economy, not only as a source of food security but also as a driver of employment and rural development, while global economic dynamics shifting toward sustainability and digitalization have increased stakeholder demands for transparent, reliable, and relevant financial information from agricultural sector issuers. Investors, regulators, and society at large expect companies to disclose not only their financial performance but also their environmental accountability and adaptability to technological changes, making environmental assurance statements and digital reporting platforms crucial in enhancing the relevance of financial information. Sustainability disclosure in the Indonesian agricultural sector positively influences financial performance, particularly through Environmental, Social, and Governance (ESG) factors, which enhance Return on Assets (ROA) and Return on Equity (ROE) [1], while the implementation of regulations such as PSAK 69, mandating disclosure of the fair value of biological assets, has improved corporate transparency and accountability, thereby increasing firm value [2]. Agribusiness itself significantly contributes to GDP, employment, and social stability in Indonesia, and government initiatives—including modern technology adoption, credit provision, and infrastructure development—are directed toward boosting productivity and sustainability in the sector [3], [4], with synergy between various agricultural sub-sectors and related service sectors being essential to address complex economic challenges and strengthen the agribusiness system [4]. At the same time, Corporate Social Responsibility (CSR) reporting has increased following regulatory changes, with larger firms more likely to engage in CSR activities due to greater resource

availability, leading to improved disclosure levels in annual reports that reflect a stronger commitment to sustainability and social responsibility [5].

Environmental assurance statements provide independent verification of sustainability disclosures, improving stakeholders' trust in environmental performance reporting by reducing information asymmetry, enhancing credibility, and supporting stakeholders in making informed decisions, while the adoption of digital reporting platforms represents a significant transformation in financial disclosure practices through improved accessibility, timeliness, and interactivity of reports that increase their relevance for decision-making in capital markets. Assurance statements enhance the credibility of sustainability reports, leading to reduced information asymmetry, as evidenced by lower bid-ask spreads in financial markets [6], and high-quality assurance processes, especially those involving detailed numerical data tests, are more effective in reducing information asymmetries compared to moderate assurance levels [6]. Moreover, assurance services moderate the relationship between ESG performance and information asymmetry, thereby enhancing the overall information environment [7]. The credibility of sustainability and integrated reports is often questioned, prompting organizations to seek external assurance to address stakeholder skepticism [8], and the assurance market continues to grow with certification bodies and accounting firms offering these services [9]. Despite the additional costs, assurance remains a valuable tool that increases stakeholder confidence and supports informed decision-making [9]. Simultaneously, digital tools improve the accessibility, timeliness, and interactivity of financial reports, making them more relevant for capital market decisions [10], and the adoption of standardized reporting frameworks along with digital transformation has become a key trend in enhancing corporate transparency practices [10].

However, the agricultural sector in Indonesia faces unique challenges as companies often struggle to balance sustainability commitments with profitability while simultaneously adapting to rapid digitalization, making it essential to understand the influence of environmental assurance statements and digital reporting platforms on the relevance of financial information to ensure competitiveness and accountability in an increasingly complex reporting environment. Environmental compliance, although not directly linked to profitability, enhances reputational incentives that positively impact financial performance metrics such as return on assets and equity [11], while the disclosure of sustainability reports guided by frameworks like the Global Reporting Initiative (GRI) has grown over time, supported by factors such as profitability and board size that positively influence the extent of sustainability reporting [12]. At the same time, digital reporting platforms are shaped by determinants such as profitability and company size, which significantly affect the extent of Internet Financial and Sustainability Reporting [10], although the digitalization of agriculture still encounters barriers such as limited digital infrastructure and low digital literacy among farmers, requiring comprehensive regulations and infrastructure development to enable effective adoption [13]. The implementation of digital technologies in agriculture is increasingly recognized as a priority, yet it demands an integrated approach involving government, private sector, and farmers to overcome systemic hurdles [13], while corporate social responsibility (CSR) reporting has improved in response to regulatory changes, showing that policy interventions can successfully enhance both the quality and breadth of corporate reporting [5].

Although prior studies have highlighted the importance of environmental disclosure and digitalization in corporate reporting, there is still limited empirical evidence focusing on agricultural sector issuers in Indonesia. This sector, which is closely tied to environmental sustainability, should

ideally lead in providing transparent and credible environmental reporting. Yet, inconsistencies in assurance practices and varying levels of digital adoption raise questions about whether these efforts effectively enhance the relevance of financial information.

Based on the background and problem identification, this research aims to address three main questions, namely: whether the implementation of environmental assurance statements significantly affects the relevance of financial information in agricultural sector issuers, whether the use of digital reporting platforms significantly affects the relevance of financial information in agricultural sector issuers, and how environmental assurance statements and digital reporting platforms jointly influence the relevance of financial information.

This study aims to analyze the effect of environmental assurance statements on the relevance of financial information, examine the effect of digital reporting platforms on the relevance of financial information, and investigate the combined effect of environmental assurance statements and digital reporting platforms in enhancing the relevance of financial information in agricultural sector issuers.

2. LITERATURE REVIEW

2.1 Theoretical Framework

Agency theory, stakeholder theory, and signaling theory each provide unique insights into the dynamics between principals and agents, the broader accountability of organizations, and the communication of firm intentions, respectively. Agency theory primarily addresses the challenges arising from information asymmetry between principals (investors) and agents (management), which can lead to agency problems and costs. Stakeholder theory expands the focus to include a wider array of stakeholders, emphasizing the need for transparency and accountability. Signaling theory, on the other hand, focuses on how firms communicate their commitment to sustainability and governance through disclosures. These theories collectively underscore the importance of assurance mechanisms and digital reporting in enhancing transparency and trust.

Agency theory highlights the principal-agent relationship, where information asymmetry can lead to agency problems and costs due to differing interests and risk preferences between principals and agents [14], [15]. Assurance mechanisms, such as financial disclosures, are crucial in mitigating information asymmetry and enhancing decision-making by providing accurate and complete information [16], [17], while voluntary disclosures by managers can serve to align interests and reduce agency costs, though they may also be self-serving [16]. Stakeholder theory posits that organizations must be accountable to a diverse group of stakeholders, not just shareholders, especially in sectors like agriculture that heavily rely on natural resources [15], with the adoption of digital reporting platforms and credible environmental assurance aligning with stakeholder demands for transparency and accountability, addressing the scrutiny from communities, regulators, and activists [15]. Meanwhile, signaling theory explains how firms use disclosures to convey positive information about their commitment to sustainability and governance, thereby reducing uncertainty among stakeholders [15], with environmental assurance statements and digital reporting platforms serving as signals that enhance the credibility and relevance of financial information [15].

2.2 *Environmental Assurance Statements*

Environmental assurance plays a crucial role in enhancing the credibility and reliability of sustainability reports, particularly in industries with significant environmental impacts such as agriculture, by reducing stakeholders' skepticism through independent verification of disclosures and thereby increasing the perceived quality of corporate reports; this is especially vital in the agri-food industry where environmental impacts are substantial and stakeholders demand transparency in resource management, carbon emissions, and biodiversity conservation. Although companies in the agri-food industry are less likely to assure their sustainability reports compared to other sectors, there is a positive association between a company's listing status and the adoption of assurance practices, with publicly listed firms being more inclined to seek assurance, and larger companies more likely to engage top-tier accountancy firms for these services [18]. Assurance practices significantly enhance stakeholder trust and the credibility of sustainability reporting by providing an independent opinion that strengthens confidence in the reported information [19], while the level of assurance (reasonable vs. limited) and the type of assurance practitioner (accountant vs. specialist consultant) further shape perceptions of report reliability, with reasonable assurance from top-tier accountancy firms perceived as most reliable [20]. Despite this growing importance, challenges remain as sustainability assurance in private institutions and non-profit organizations is still underexplored, governance debates surrounding assurance lack sufficient attention, and the overall practice continues to evolve with a pressing need for stronger theoretical grounding in research to better inform policy and practice [21].

2.3 *Digital Reporting Platforms*

Digital reporting platforms have transformed financial reporting by enhancing accessibility, transparency, and user engagement through web-based disclosures and mobile-accessible statements that provide real-time data, which is especially beneficial in sectors like agriculture; this digitalization improves efficiency and accuracy while supporting decision-making and compliance, shifting practices from print-based to interactive digital formats demanded by stakeholders. These platforms enable real-time data access for strategic planning [22], [23], improve accuracy and transparency through automation [22], [23], and save costs by integrating with management systems [22]. They also foster engagement through social media and blogs [24], increase user satisfaction with interactive features [25], and meet demands for broader disclosures [26]. However, challenges remain in addressing cybersecurity risks, high implementation costs, and adapting business processes, with data protection requiring strong security measures [22].

2.4 *Relevance of Financial Information*

The integration of environmental assurance and digital reporting in the agricultural sector is crucial for enhancing the relevance of financial information, defined by its ability to influence stakeholders' decisions through timely, predictive, and confirmatory data, particularly in a sector with significant environmental impacts where sustainability metrics improve credibility and accessibility. Relevance in financial information is vital for decision-making by investors, creditors, and other

stakeholders as it helps assess present, future, and past events while confirming or correcting past errors [27], and the IASB framework underscores that financial information must be both relevant and faithfully represent economic events to be useful [28]. Integrating environmental assurance into financial reporting strengthens relevance by offering a comprehensive view of environmental impact, social responsibility, and economic efficiency [29], while digital reporting enhances accessibility and timeliness, enabling stakeholders to make quicker, well-informed decisions [30]. Furthermore, a multidimensional approach to accounting that incorporates both financial and non-financial metrics is essential to meet the demands of modern organizations and diverse stakeholders [31], ensuring the creation of relevant information that reflects broader socioeconomic realities [31].

2.5 Previous Empirical Studies

Several studies have examined the relationship between assurance, digital reporting, and financial information quality, showing that assurance services enhance the credibility of sustainability disclosures by providing external validation, which strengthens stakeholder confidence [32], while also reducing information asymmetry by moderating the relationship between ESG performance and information asymmetry, thereby producing more relevant financial information [7]. Digital financial reporting further improves stakeholder access and engagement with corporate information, promoting greater transparency and accountability [33], and the integration of technology in assurance practices creates opportunities to enhance their effectiveness and relevance in addressing sustainability challenges [34]. Assurance practices such as external audits and third-party certifications are also critical in fostering ethical and sustainable business conduct, which enhances transparency and accountability [34], while their evolving nature highlights the need for continuous improvement to sustain stakeholder trust [34]. Nevertheless, limited empirical studies have explored these dynamics within the agricultural sector, particularly in Indonesia, presenting a research gap that this study seeks to address.

2.6 Research Hypotheses

Based on the theoretical framework and review of prior studies, the hypotheses of this study are formulated as follows:

H1: Environmental assurance statements have a significant positive effect on the relevance of financial information in agricultural sector issuers.

H2: Digital reporting platforms have a significant positive effect on the relevance of financial information in agricultural sector issuers.

H3: Environmental assurance statements and digital reporting platforms jointly have a significant positive effect on the relevance of financial information in agricultural sector issuers.

3. METHODS

3.1 Research Design

This study adopts a quantitative research design to examine the effect of environmental assurance statements and digital reporting platforms on the relevance of financial information in agricultural sector issuers. The quantitative approach was chosen to provide measurable, objective,

and statistically testable evidence regarding the relationships among the variables under study. The research employed a survey method using structured questionnaires distributed to respondents who have experience with agricultural sector reporting and financial information.

3.2 Population and Sample

The population in this study consists of stakeholders of agricultural sector issuers in Indonesia, including investors, financial analysts, accountants, and corporate managers who utilize financial information for decision-making, with the sample determined using a purposive sampling technique based on three criteria: respondents must be actively engaged in analyzing or using financial reports from agricultural sector issuers, possess knowledge of environmental assurance statements and/or digital reporting practices, and have at least one year of experience in finance, accounting, investment, or sustainability reporting; based on these criteria, a total of 160 valid responses were collected and used as the sample for data analysis, a size that meets the requirements for statistical testing using SPSS as it exceeds the minimum threshold for multivariate analysis.

3.3 Research Variables and Operational Definitions

This study employs two independent variables and one dependent variable, namely Environmental Assurance Statements (X1) and Digital Reporting Platforms (X2) as independent variables, and the Relevance of Financial Information (Y) as the dependent variable. Environmental Assurance Statements (X1) refer to the independent verification of sustainability or environmental disclosures by third parties, measured through indicators such as credibility, transparency, reliability, and stakeholder trust. Digital Reporting Platforms (X2) represent the use of digital channels for financial reporting, including timeliness, accessibility, interactivity, and efficiency of information dissemination. Meanwhile, the Relevance of Financial Information (Y) reflects the extent to which financial information is useful for decision-making, measured through timeliness, predictive value, confirmatory value, and user satisfaction. Each variable was operationalized into measurable indicators and assessed using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.4 Data Collection Technique

Data were collected using a structured questionnaire distributed both online and in person, consisting of three main sections: demographic information of respondents (such as age, occupation, and experience), items measuring environmental assurance statements (X1), and items measuring digital reporting platforms (X2) along with the relevance of financial information (Y). Before the full distribution, a pilot test involving 20 respondents was conducted to ensure the clarity, validity, and reliability of the instrument, and based on the test results, minor revisions were made to refine the wording of several questions.

3.5 Data Analysis Technique

Data analysis was conducted using SPSS version 25 through several steps, beginning with data cleaning and screening to ensure responses were complete and valid while removing outliers or incomplete questionnaires, followed by descriptive statistics to summarize respondents' demographics and provide an overview of each variable, including mean, standard deviation, minimum, and maximum values. Validity tests were carried out using Pearson's correlation, where items with coefficients above 0.30 were deemed valid, and reliability tests were measured using Cronbach's Alpha, with values greater than 0.70 indicating good internal consistency. Classical assumption tests, including normality, multicollinearity, and heteroscedasticity, were then performed to ensure regression assumptions were met. Multiple linear regression analysis was applied to examine the effect of environmental assurance statements (X1) and digital reporting platforms (X2) on the relevance of financial information (Y), with the regression model expressed as $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \epsilon$, where Y represents the relevance of financial information, X_1 is environmental

assurance statements, X_2 is digital reporting platforms, α is the constant, β_1 and β_2 are regression coefficients, and ϵ is the error term. Finally, hypothesis testing was conducted using the t-test for the significance of individual variables (H1 and H2), the F-test to examine the simultaneous effect of both independent variables on the dependent variable (H3), and the coefficient of determination (R^2) to measure the proportion of variance in financial information relevance explained by the independent variables.

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

Descriptive analysis was conducted to provide an overview of the respondents' demographic profiles and their responses to each research variable, namely Environmental Assurance Statements (X1), Digital Reporting Platforms (X2), and Relevance of Financial Information (Y). A total of 160 respondents participated in the survey, consisting of 56% male and 44% female. In terms of occupation, 32% were investors, 28% accountants, 25% financial analysts, and 15% corporate managers. Regarding work experience, 20% had 1–3 years, 18% had 3–5 years, and 62% had more than 5 years of experience in the agricultural sector or related financial reporting. For education level, 65% held undergraduate degrees, 30% postgraduate degrees, and 5% diploma or equivalent qualifications. These demographics suggest that respondents possess adequate knowledge and expertise in interpreting financial reports and sustainability disclosures, thereby ensuring the reliability of their evaluations.

Respondents evaluated statements related to each research variable using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). For Environmental Assurance Statements (X1), which included indicators of credibility, transparency, reliability, and stakeholder trust, the mean score was 4.12 with a standard deviation of 0.62, indicating that respondents generally agreed assurance practices increase confidence in environmental and sustainability reporting. For Digital Reporting Platforms (X2), measured through timeliness, accessibility, interactivity, and efficiency, the mean score was 4.25 with a standard deviation of 0.58, showing strong agreement that digital platforms make financial information more accessible, user-friendly, and relevant for decision-making. Lastly, for the Relevance of Financial Information (Y), assessed through timeliness, predictive value, confirmatory value, and user satisfaction, the mean score was 4.20 with a standard deviation of 0.60, suggesting that financial information provided by agricultural issuers is perceived as highly relevant, especially when supported by credible assurance and digital disclosure.

4.2 Measurement Model Evaluation (Validity and Reliability Tests)

Before testing the hypotheses, the validity and reliability of the research instrument were evaluated to ensure that the measurement items accurately reflected the constructs of Environmental Assurance Statements (X1), Digital Reporting Platforms (X2), and Relevance of Financial Information (Y).

1. Validity Test

Validity was assessed using the Pearson Product-Moment Correlation between each item and the total score of its respective construct, with the criterion that the correlation coefficient (r-count) must exceed the r-table value of 0.155 (n = 160, α = 0.05). The results showed that all questionnaire items had correlation coefficients greater than 0.30 and were significant at the 0.01 level, indicating that every item is valid and effectively measures its intended construct.

Table 1. – Validity Test Results

Variable	Item Code	r-count	Sig. (p)	Status
Environmental Assurance (X1)	X1.1	0.621	0.000	Valid
	X1.2	0.648	0.000	Valid
	X1.3	0.702	0.000	Valid

	X1.4	0.735	0.000	Valid
Digital Reporting Platforms (X2)	X2.1	0.654	0.000	Valid
	X2.2	0.699	0.000	Valid
	X2.3	0.743	0.000	Valid
	X2.4	0.768	0.000	Valid
Relevance of Financial Information (Y)	Y1	0.673	0.000	Valid
	Y2	0.715	0.000	Valid
	Y3	0.728	0.000	Valid
	Y4	0.752	0.000	Valid

The results of the validity test in Table 1 show that all items across the three research variables—Environmental Assurance (X1), Digital Reporting Platforms (X2), and Relevance of Financial Information (Y)—are valid, with each item recording an r-count well above the critical r-table value of 0.155 (n = 160, α = 0.05) and being statistically significant at the $p < 0.01$ level, thereby confirming strong validity; for Environmental Assurance (X1), item correlations ranged from 0.621 to 0.735, indicating that the four indicators of credibility, transparency, reliability, and stakeholder trust consistently measure the construct, while Digital Reporting Platforms (X2) showed r-count values between 0.654 and 0.768, reflecting strong correlations for timeliness, accessibility, interactivity, and efficiency, and the Relevance of Financial Information (Y) achieved r-counts ranging from 0.673 to 0.752, confirming that timeliness, predictive value, confirmatory value, and user satisfaction effectively capture the construct.

2. Reliability Test

Reliability was tested using Cronbach's Alpha to measure internal consistency. A variable is considered reliable if its Cronbach's Alpha exceeds 0.70.

Table 2. – Reliability Test Results

Variable	Cronbach's Alpha	Status
Environmental Assurance (X1)	0.872	Reliable
Digital Reporting Platforms (X2)	0.884	Reliable
Relevance of Financial Information (Y)	0.891	Reliable

The results of the reliability test in Table 2 show that all research variables—Environmental Assurance (X1), Digital Reporting Platforms (X2), and Relevance of Financial Information (Y)—are highly reliable, as indicated by Cronbach's Alpha values exceeding the 0.70 threshold widely accepted as the minimum standard for internal consistency in social science research; Environmental Assurance (X1) achieved a value of 0.872, demonstrating consistency across indicators of credibility, transparency, reliability, and stakeholder trust, Digital Reporting Platforms (X2) recorded a value of 0.884, showing that timeliness, accessibility, interactivity, and efficiency cohesively measure the construct, and Relevance of Financial Information (Y) obtained the highest value of 0.891, reflecting strong internal consistency among indicators such as timeliness, predictive value, confirmatory value, and user satisfaction.

4.3 Classical Assumption Tests

Before conducting regression analysis, classical assumption tests were carried out to ensure that the dataset met the statistical requirements for multiple linear regression. The tests included normality, multicollinearity, and heteroscedasticity.

The normality of residuals was assessed using the Kolmogorov-Smirnov (K-S) test, with results showing a test statistic of 0.072 and a significance value of 0.200, which is greater than 0.05. This indicates that the residuals are normally distributed. The finding was further supported by the P-P Plot, which demonstrated that the data points closely followed a linear diagonal pattern, thereby confirming the normality assumption required for regression analysis.

The multicollinearity test was conducted using Tolerance and Variance Inflation Factor (VIF) values, with the criteria that tolerance should exceed 0.10 and VIF should be below 10. The results indicated that Environmental Assurance (X1) and Digital Reporting Platforms (X2) both had tolerance values of 0.655 and VIF values of 1.527, meeting the established thresholds. These results confirm that no multicollinearity exists between the independent variables, meaning that each predictor contributes unique information to the regression model without redundancy.

The heteroscedasticity test was carried out using the Glejser Test, which showed significance values of 0.327 for Environmental Assurance (X1) and 0.298 for Digital Reporting Platforms (X2), both above the 0.05 threshold. This indicates that heteroscedasticity is not present in the dataset. Furthermore, a visual inspection of the scatterplot between standardized residuals and predicted values revealed a random distribution of points, reinforcing the conclusion that the variance of residuals is constant and the regression model satisfies the homoscedasticity assumption.

4.4 Regression Analysis

Multiple linear regression analysis was conducted to examine the effect of Environmental Assurance (X1) and Digital Reporting Platforms (X2) on Mining Transparency (Y). The regression analysis consists of three stages: the coefficient of determination (R^2), the F-test (simultaneous significance test), and the t-test (partial significance test).

1. Coefficient of Determination (R^2)

The coefficient of determination (R^2) analysis shows that the model has an R value of 0.718, with an R^2 of 0.515 and an Adjusted R^2 of 0.508, along with a standard error of estimate of 2.114. This indicates that 50.8% of the variation in the dependent variable, namely Mining Transparency (Y), can be explained by the independent variables Environmental Assurance (X1) and Digital Reporting Platforms (X2), while the remaining 49.2% of the variation is attributed to other factors outside the model, suggesting that although the model demonstrates moderate explanatory power, additional variables should be considered to capture the full range of influences on financial information relevance.

2. F-Test (Simultaneous Test)

The F-test was used to examine whether Environmental Assurance (X1) and Digital Reporting Platforms (X2) simultaneously affect Mining Transparency (Y).

Table 3. – F-Test Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	302.821	2	151.410	33.87	0.000
Residual	285.179	64	4.456		
Total	588.000	66			

The results of the F-test in Table 3 show that the regression model is statistically significant, with an F-value of 33.87 and a significance level of 0.000 ($p < 0.05$), indicating that the independent variables—Environmental Assurance (X1) and Digital Reporting Platforms (X2)—jointly have a significant effect on the dependent variable, Relevance of Financial Information (Y); the regression sum of squares (302.821) compared to the residual sum of squares (285.179) demonstrates that a substantial proportion of the total variance (588.000) is explained by the two independent variables, suggesting that Environmental Assurance and Digital Reporting Platforms play a crucial role in enhancing the relevance of financial information, strengthening transparency, and supporting stakeholder decision-making.

3. T-Test (Partial Test)

The t-test was used to evaluate the effect of each independent variable on Mining Transparency.

Table 4. – T-Test Results

Variable	Unstandardized Coefficient (B)	Std. Error	t-value	Sig.	Conclusion
Constant	5.432	1.211	4.49	0.000	–
Environmental Assurance (X1)	0.462	0.112	4.13	0.000	Significant
Digital Reporting Platforms (X2)	0.389	0.119	3.27	0.002	Significant

The regression equation Y = 5.432 + 0.462X1 + 0.389X2 + e indicates that the constant value of 5.432 reflects the Mining Transparency score when both Environmental Assurance (X1) and Digital Reporting Platforms (X2) are equal to zero, while the coefficient for Environmental Assurance (0.462) shows that a one-unit increase in X1 raises Mining Transparency by 0.462 units and the coefficient for Digital Reporting Platforms (0.389) demonstrates that a one-unit increase in X2 raises Mining Transparency by 0.389 units, assuming other variables remain constant; these results confirm that both independent variables have positive and significant effects on Mining Transparency, as evidenced by their significance values being below 0.05.

4.5 Hypothesis Testing

Hypothesis testing in this study was carried out based on the results of the regression analysis using the t-test for individual hypotheses and the F-test for simultaneous testing. The hypotheses formulated are as follows:

H1: Environmental Assurance Statements have a positive and significant effect on the relevance of financial information.

H2: Digital Reporting Platforms have a positive and significant effect on the relevance of financial information.

H3: Environmental Assurance Statements and Digital Reporting Platforms simultaneously have a positive and significant effect on the relevance of financial information.

Discussion

The findings of this study provide strong evidence that Environmental Assurance Statements and Digital Reporting Platforms significantly enhance the relevance of financial information in agricultural sector issuers. This section discusses the implications of these findings by linking them with theoretical frameworks and previous empirical research.

1. The Effect of Environmental Assurance on the Relevance of Financial Information

The results show that Environmental Assurance has a positive and significant effect on the relevance of financial information (H1 accepted), meaning that when agricultural issuers adopt credible assurance practices for their environmental disclosures, their financial reports become more trustworthy, reliable, and useful for stakeholders. These findings align with signaling theory, which posits that companies utilize assurance mechanisms to reduce information asymmetry and send positive signals to the market. Previous studies reinforce this perspective, with assurance of sustainability reports increasingly recognized as a tool for enhancing the credibility and transparency of ESG disclosures [35]. The provision of assurance improves the perceived reliability of environmental and social information, particularly when conducted by top-tier accountancy firms, thereby increasing user confidence [20]. Furthermore, assurance is seen as adding value to firms' planning, monitoring, and accountability processes, making it an essential mechanism for maintaining a reputable source of corporate information [32].

In the agricultural sector, however, several trends and challenges persist. Despite the rising number of GRI-based reports, many companies still fail to fully comply with reliability principles due to the absence of external assurance [36]. In Indonesia, the disclosure of GRI indicators in agricultural companies' sustainability reports grew from 33.4% in 2014 to 51.1% in 2020, reflecting a gradual shift toward transparency [12]. Assurance practices remain crucial for building stakeholder confidence, especially when the assurance level is reasonable and provided by reputable firms [20], while stakeholder involvement and commitment to sustainability also play a vital role in determining the effectiveness of assurance [36]. In this context, third-party environmental assurance enhances the decision-usefulness of sustainability-related disclosures by strengthening stakeholder trust. This is particularly significant in agriculture, where environmental issues such as land use, water management, and carbon emissions are critical, as assurance statements reinforce accountability and improve the credibility of financial reporting.

2. The Effect of Digital Reporting on the Relevance of Financial Information

The analysis confirms that Digital Reporting Platforms positively and significantly influence the relevance of financial information (H2 accepted), implying that the adoption of digital platforms such as online portals, interactive reports, or integrated systems enhances accessibility, transparency, and timeliness in financial reporting, thereby directly improving its usefulness for decision-making. These findings align with the Technology Acceptance Model (TAM), which highlights the importance of perceived ease of use and usefulness in technology adoption. Digital reporting facilitates faster dissemination of financial data, interactive formats, and real-time access for stakeholders, making financial information more meaningful and practical in supporting strategic and operational decisions.

Empirical evidence further supports this relationship through the roles of perceived ease of use and perceived usefulness. The ease with which users can learn and operate digital reporting tools significantly affects adoption, with studies showing that technologies perceived as user-friendly are more likely to be embraced [37], and in practice, users tend to find HTML and XBRL formats more useful than PDF, although their ease of use is rated similarly [38]. The perceived usefulness of digital technologies, such as their ability to improve efficiency and decision-making, also strongly predicts adoption [38] with users acknowledging that digital reporting facilitates faster and more accurate report generation [39]. Moreover, digital reporting enhances transparency, reliability, and global access to financial data, while the adoption of international standards through digital platforms strengthens comparability and global relevance [39], underscoring how digital transformation in reporting improves both the quality and decision-usefulness of corporate disclosures.

3. The Combined Effect of Environmental Assurance and Digital Reporting

The simultaneous testing (H3 accepted) reveals that Environmental Assurance and Digital Reporting jointly exert a significant positive effect on the relevance of financial information, highlighting that credibility through assurance and accessibility via digital reporting act as complementary factors that enhance the overall usefulness of financial reports. In the agricultural sector, which faces strong environmental accountability pressures alongside digital modernization challenges, combining these two practices ensures that financial reports are accurate, credible, timely, transparent, and widely accessible. This finding aligns with the concept of Integrated Reporting (IR), which advocates merging financial and non-financial information to produce disclosures that are more comprehensive and decision-useful for diverse stakeholders.

Integrated Reporting in agriculture also plays a critical role in risk management and efficiency by providing a robust information base that supports timely decision-making, essential for maintaining production efficiency amid risks specific to the agricultural sector [40]. By incorporating both financial and non-financial indicators, IR enables a risk-oriented approach that enhances organizational efficiency [40]. At the same time, IR addresses stakeholders' demand for

comprehensive information by integrating financial, environmental, social, and economic data, reflecting a shift from profit maximization to sustainable value creation [41]. This approach has gained significant traction in the EU, particularly under directives such as 2014/95/EU, which emphasize transparency and accountability in corporate reporting [41]. Nonetheless, implementing IR in agriculture poses challenges, including the need for standardized frameworks and integration of information flows, where networks like FADN/FSDN can improve IR quality and analytical value [42]. Further, harmonization and convergence issues within international accounting standards continue to affect the comparability and usability of IR [43], requiring collaborative solutions to maximize its effectiveness in supporting sustainability and decision-making.

4. Theoretical and Practical Implications

From a theoretical perspective, the results enrich the literature on financial reporting quality by integrating insights from sustainability assurance and digital transformation studies, confirming that both dimensions are crucial drivers of financial information relevance in industries highly exposed to environmental risks, while from a practical standpoint the findings suggest that regulators should encourage agricultural issuers to adopt environmental assurance standards such as ISAE 3000 to enhance report credibility, companies need to invest in digital reporting technologies to meet stakeholders' increasing demand for timely and transparent information, and investors as well as stakeholders should regard firms that implement both assurance and digital reporting practices as more reliable and accountable, which in turn can shape investment decisions and strengthen stakeholder trust.

5. Limitations and Suggestions for Future Research

Although this study provides important insights, there are some limitations. First, the research was limited to agricultural sector issuers in Indonesia, which may reduce generalizability to other industries or countries. Second, the use of self-reported survey data may be subject to bias. Third, the study only employed Environmental Assurance and Digital Reporting as predictors, while other factors (such as corporate governance, market conditions, or regulatory frameworks) may also influence financial information relevance.

Future research could expand the sample to multiple industries, employ longitudinal data to observe dynamic changes, or incorporate other independent variables such as corporate culture, board diversity, or investor pressure. Additionally, using advanced statistical techniques like SEM-PLS could provide deeper insights into mediating and moderating effects.

CONCLUSION

This study concludes that both environmental assurance statements and digital reporting platforms significantly and positively influence the relevance of financial information in agricultural sector issuers. Environmental assurance strengthens stakeholders' confidence in sustainability disclosures, thereby improving the credibility and reliability of financial reports, while digital reporting platforms enhance timeliness, accessibility, and transparency, making financial data more relevant and useful for decision-making. When applied together, these practices complement one another and significantly improve the overall quality of financial reporting by integrating credibility with accessibility.

The findings also provide several practical implications. For regulators, the study emphasizes the importance of establishing and enforcing assurance and reporting standards to ensure comparability across issuers. For companies, the adoption of assurance mechanisms and digital reporting technologies can serve as a strategic advantage to build stakeholder trust and meet market expectations. For investors and other users of financial information, firms that integrate sustainability assurance with digital reporting are more likely to deliver reliable and transparent information for informed decision-making. Nevertheless, the study acknowledges certain

limitations, including its focus on the agricultural sector and reliance on self-reported survey data. Future research could broaden the scope to other industries, incorporate variables such as corporate governance or market conditions, and employ longitudinal data or advanced statistical methods to investigate mediating and moderating effects.

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