Volume 17, Number 2, 2025, pp 367 – 382, Jurnal Akuntansi, Program Studi Akuntansi, Fakultas Hukum dan Bisnis Digital, Universitas Kristen Maranatha. ISSN 2085-8698 | e-ISSN 2598-4977. http://journal.maranatha.edu

The Relationship Between XBRL Adoption and CSR Disclosure Transparency in Companies Listed on The Indonesia Stock Exchange

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Received 19 June 2025; Revised 15 August 2025; Accepted 09 October 2025

Abstract

Purpose – This study aims to analyze the relationship between the implementation of eXtensible Business Reporting Language (XBRL) and the transparency of Corporate Social Responsibility (CSR) disclosures in companies listed on the Indonesia Stock Exchange. The research is based on the frameworks of Stakeholder Theory and Legitimacy Theory, which serve as the foundation for assessing structured non-financial reporting practices.

Design/Methodology/Approach – A quantitative explanatory approach was applied to investigate the relationships between variables in the research model. Data were collected through a survey involving 75 respondents responsible for sustainability reporting in public companies familiar with the use of XBRL. The sampling technique employed was purposive sampling, with selection criteria focusing on individuals directly involved in preparing CSR reports and digital company documents. The instrument consisted of 25 indicators derived from prior studies. Data were analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique.

Findings – The results indicate that XBRL adoption significantly and positively affects CSR transparency ($\beta = 0.879$; $R^2 = 0.772$). This finding demonstrates that

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XBRL serves not only as a technical reporting tool but also as a strategic instrument for enhancing the transparency, comparability, and reliability of non-financial disclosures.

Research limitations/Implications – The study is limited to public companies already familiar with the XBRL system. Future research is encouraged to consider additional factors such as technological readiness and regulatory pressures. These findings highlight the need for a national XBRL-based CSR taxonomy and integration of digital sustainability reporting into regulatory platforms such as OJK's SPE system.

Keywords: CSR, Digital Reporting, Information Transparency, XBRL

Introduction

The evolution of digital technologies has reshaped how organizations disseminate both financial and non-financial information to their stakeholders. In the current digital landscape, corporate reporting is expected to be transparent, timely, and precise to facilitate well-informed decisions by investors, regulators, and the broader public.

A major innovation in this context is the introduction of eXtensible Business Reporting Language (XBRL), a standardized, XML-based, machine-readable format that enables structured data reporting.

While originally developed for financial reporting purposes, the scope of XBRL has expanded to include non-financial areas such as Corporate Social Responsibility (CSR) and sustainability disclosures. Growing stakeholder expectations for trustworthy and comparable Environmental, Social, and Governance (ESG) data have encouraged global companies and regulators to improve the clarity and accessibility of CSR information. The IFRS Foundation (2023) notes that over 140 jurisdictions have adopted or allowed XBRL in financial reporting, but the application of structured reporting for sustainability disclosures remains limited and inconsistent. Prior research has predominantly focused on the impact of XBRL in financial reporting contexts, such as reducing information asymmetry (Gupta et al., 2023; Al-Okaily et al., 2024), improving comparability (Kim et al., 2019), and enhancing timeliness (Du & Wu, 2018). However, empirical studies linking XBRL to CSR disclosure transparency are still scarce, particularly in emerging markets like Indonesia. Several Indonesian studies (Tohang et al., 2020) have examined XBRL's role in financial disclosures, but little is known about its application for non-financial sustainability reporting.

In the Indonesian context, the Financial Services Authority (OJK) and the Indonesia Stock Exchange (IDX) have mandated XBRL-based financial reporting for listed firms since 2015. Nevertheless, CSR reporting continues to rely heavily on narrative formats—typically in PDFs—which restrict data comparability, hinder automation, and reduce stakeholder access to key non-financial metrics. Although the IDX has published guidelines to standardize CSR disclosure in annual reports, the actual implementation of structured reporting in this remains limited (Bursa Efek Indonesia, 2021). This illustrates a methodological gap: pre-XBRL CSR disclosures are often unstructured, inconsistent, and not machine-readable, making cross-company and longitudinal analysis difficult. This lack of standardization undermines stakeholders' ability to assess corporate sustainability performance objectively.

By contrast, XBRL offers clear advantages for CSR disclosure: standardized tagging that enables automated data extraction, improved comparability across firms and time, enhanced accessibility for stakeholders, and integration potential with regulatory platforms like SPE OJK. These features can transform CSR disclosure from static, narrative reports into dynamic, analyzable datasets, supporting greater transparency and accountability.

This research is informed by two core theories: Stakeholder Theory and Legitimacy Theory. The Stakeholder Theory highlights the company's responsibility to communicate relevant information to all parties impacted by its activities, not just shareholders. Meanwhile, Legitimacy Theory posits that firms disclose CSR-related information as a way to fulfill social expectations and maintain legitimacy. Within this theoretical lens, digital mechanisms like XBRL are positioned as strategic tools for addressing stakeholder needs and meeting regulatory expectations. Given the scarcity of empirical evidence on XBRL's role in CSR reporting within Indonesia, this study aims to fill that gap by testing whether XBRL adoption significantly improves CSR disclosure transparency. The findings are expected to extend digital reporting literature and provide practical guidance for regulators and firms in enhancing structured CSR practices.

Although the global shift toward digitized sustainability disclosure is advancing, little research has explored the potential of XBRL in enhancing CSR transparency in emerging markets, especially Indonesia. The majority of existing studies emphasize financial reporting outcomes, leaving the non-financial dimension relatively under-investigated.

This study addresses that gap by examining the relationship between XBRL adoption and CSR disclosure transparency among publicly listed companies in Indonesia. The study aims to contribute both to the theoretical development of digital reporting literature and to offer practical guidance for regulators, policy-makers, and firms committed to more structured, transparent CSR practices.

Literature Review & Hypothesis

Theoretical Framework

This research adopts Stakeholder Theory (Freeman, 1984) and Legitimacy Theory (Deegan, 2002) as its conceptual foundation. According to Stakeholder Theory, an organization is accountable for providing relevant information not just to its shareholders, but to all parties affected by its activities.

Transparent and standardized CSR reporting aligns with this obligation by improving accessibility and usability of non-financial information. Legitimacy Theory suggests that firms voluntarily disclose CSR activities to meet societal expectations and maintain legitimacy.

Implementing XBRL in CSR reporting thus serves both theoretical perspectives: satisfying stakeholder demands and reinforcing corporate legitimacy through credible digital transparency.

XBRL and Digitalization of Corporate Reporting

EXtensible Business Reporting Language (XBRL) is an open-format standard built on XML that enables automated processing of corporate reports through structured and standardized data. Although originally introduced to enhance the clarity and comparability of financial statements (Liu et al., 2014; Kim et al., 2019), XBRL has increasingly been recognized for its potential to improve the quality of non-financial disclosures, especially those related to Corporate Social Responsibility (CSR).

The IFRS Foundation (2023) reports that more than 140 countries have either mandated or allowed the use of XBRL in financial reporting submissions. However, CSR disclosures remain largely narrative, unstructured, and inconsistent, especially in developing economies. Indonesia, for instance, requires public companies to publish sustainability reports under POJK No. 51/POJK.03/2017, yet lacks a standardized digital taxonomy to structure those disclosures. As a result, most CSR information remains trapped in static PDF formats, limiting its analytical value and comparability.

CSR Transparency and Stakeholder Expectations

CSR disclosure serves as a channel through which companies convey their environmental and social achievements. Stakeholders including regulators, investors, and the public increasingly demand accessible, verifiable, and comparable CSR data (Gray et al., 1995; La Torre et al., 2018). Transparent CSR disclosures enhance accountability, support market-based decisions, and strengthen public trust. However, traditional narrative reports lack standardization, making cross-company or time-series comparisons difficult. By enabling structured data reporting, XBRL can overcome these challenges and improve the effectiveness of CSR communication (Gupta et al., 2023).

Research Gap and Contribution

Although several empirical investigations have confirmed the beneficial effects of XBRL on financial reporting, such as decreasing information asymmetry, accelerating disclosure, and strengthening investor trust (Al-Okaily et al., 2024; Kim et al., 2019), its application in the context of CSR reporting remains relatively underexplored in academic research. In the Indonesian context, CSR reports are still largely narrative and vary in quality, despite regulatory encouragement. There is a lack of quantitative studies that test whether XBRL adoption directly enhances CSR disclosure transparency.

This research aims to fill the existing gap by examining the empirical relationship between the implementation of XBRL and the level of CSR disclosure transparency in Indonesian publicly traded firms. The results are anticipated to offer theoretical insights into the field of digital corporate reporting and provide practical implications for regulators, standard-setting bodies, and companies striving to enhance their non-financial reporting systems.

Hypothesis Development

Based on the reviewed literature and identified gaps, the following hypothesis is proposed to be empirically tested:

XBRL implementation positively influences the level of transparency in Corporate Social Responsibility (CSR) reporting among publicly listed companies in Indonesia.

Research Method

Research Design And Approach

This research adopted a quantitative explanatory approach and utilized a structured survey instrument to evaluate the causal link between the implementation of XBRL and the level of transparency in CSR reporting among publicly traded firms in Indonesia.

Instrument Development

The study utilized a structured questionnaire as the measurement tool, comprising two latent variables: (1) XBRL Adoption, represented by 9 items adapted from Singh, H. and Singh, A. (2021), and (2) CSR Transparency, measured using 16 items drawn from Shahwan et al. (2022). Each item was assessed using a five-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). Before being fully administered, the questionnaire underwent expert review by academics and CSR professionals to verify its content clarity and ensure the validity of its constructs.

Population And Sampling

The population in this study consists of all companies listed on the Indonesia Stock Exchange (IDX) as of December 2024, totaling 900 firms across multiple industry sectors. Considering the specific research objectives, a two-stage purposive sampling method was applied.

At the first stage, companies were selected based on the following inclusion criteria: listed on the IDX as of December 2024, have implemented XBRL-based financial reporting for at least one year, and publish CSR disclosures in their annual or sustainability reports. Companies that did not meet these criteria or whose CSR reports were unavailable during the data collection period were excluded.

At the second stage, respondents were selected from within the chosen companies. Eligible respondents were individuals directly involved in preparing or managing

CSR disclosures, such as CSR managers, sustainability officers, or corporate secretaries. This ensured that responses were obtained from participants with sufficient expertise and knowledge of both XBRL reporting and CSR disclosure practices.

A total of 75 respondents, each representing a different company, participated in the survey. This two-stage purposive sampling approach ensured that the data collected was both relevant to the research objectives and reliable for subsequent analysis.

Data Collection Procedure

Data collection was conducted through an online survey, which was distributed to qualified respondents via official company email. Participation was entirely voluntary, and all responses were handled with strict confidentiality. Prior to responding, participants were informed about the research objectives and assured that their identities would remain anonymous.

Measurement Model Assessment

The XBRL Disclosure variable was measured using three dimensions: completeness of tagging, accuracy of tagging, and timeliness of submission, adapted from prior XBRL reporting studies. The CSR Transparency variable was measured using four dimensions: environmental disclosure, social disclosure, governance disclosure, and accessibility of CSR reports, adapted from the Global Reporting Initiative (GRI) framework. All items were measured using a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Common Method Bias Prevention

To detect the presence of common method bias (CMB), Harman's single-factor analysis was carried out. The findings revealed that no dominant factor explained the majority of the variance, suggesting that CMB was not a critical issue. Additionally, the survey instrument was designed to minimize bias by ensuring respondent anonymity, randomizing item order, and clearly distinguishing between constructs.

Structural Model Evaluation

To evaluate the structural model, a bootstrapping method with 5,000 subsamples was utilized. The significance of the relationships was examined using two-tailed t-tests, applying a 95% confidence interval ($\alpha = 0.05$).

The analysis generated statistical outputs including path estimates, t-values, and p-values, which are detailed in the results section. The predictive power of the model was determined through the coefficient of determination (R^2).

Results and Discussion

Results of Measurement Model

The measurement model was examined through PLS-SEM to evaluate the constructs' validity and reliability.

All indicator loadings were above the recommended threshold of 0.70, demonstrating strong reliability of the indicators, as presented in Table 1.

Table 1
Result of Measurement Model

Latent Variable	Indicators Code	Convergent Validity		Internal Consistency Reliability		Determination Coefficient
		Factor Loadings	Average Variance Extracted	Cronbach's Alpha	Composite Reliability	R^2
		Loading > 0.60	AVE ≥ 0.50	α ≥ 0.70	CR ≥ 0.70	
XBRL	XBRL1	0.924	0.864	0.980	0.983	-
	XBRL2	0.937				
	XBRL3	0.914				
	XBRL4	0.944				
	XBRL5	0.935				
	XBRL6	0.931				
	XBRL7	0.926				
	XBRL8	0.941				
	XBRL9	0.912				
CSR	CSR1	0.858	0.791	0.982	0.984	0.772
	CSR2	0.898				
	CSR3	0.877				
	CSR4	0.892				
	CSR5	0.902				
	CSR6	0.911				
	CSR7	0.916				
	CSR8	0.879				
	CSR9	0.891				
	CSR10	0.890				
	CSR11	0.909				
	CSR12	0.848				
	CSR13	0.871				
	CSR14	0.895				
	CSR15	0.900				
	CSR16	0.891				

Table 1 displays the evaluation of the measurement (outer) model, indicating that all indicators loaded significantly on their corresponding latent variables, with loading values surpassing 0.70. The Composite Reliability (CR) scores were all above the recommended level of 0.70, while the Average Variance Extracted (AVE) values exceeded 0.50.

These results confirm both the internal consistency and convergent validity of the constructs. Convergent validity is supported by the fact that both CR and AVE met the established criteria for both constructs. Table 2 provides the results of discriminant validity testing, where both the Fornell-Larcker criterion and HTMT values satisfied acceptable thresholds, demonstrating that the constructs are empirically distinct.

Table 2
Discriminant Validity

Constructs	HTMT	Fornell-Larcker correlation matrix	
	HTMT < 0.90 T	CSR	XBRL
CSR	Yes	0.889	
XBRL	Yes	0.879	0.929

This table shows the outcomes of the discriminant validity assessment. Based on the Fornell-Larcker criterion, the square root of the AVE for each construct was higher than its correlations with any other construct. Additionally, the HTMT values remained below the conservative cut-off of 0.85, further confirming that each latent construct represents a distinct conceptual dimension.

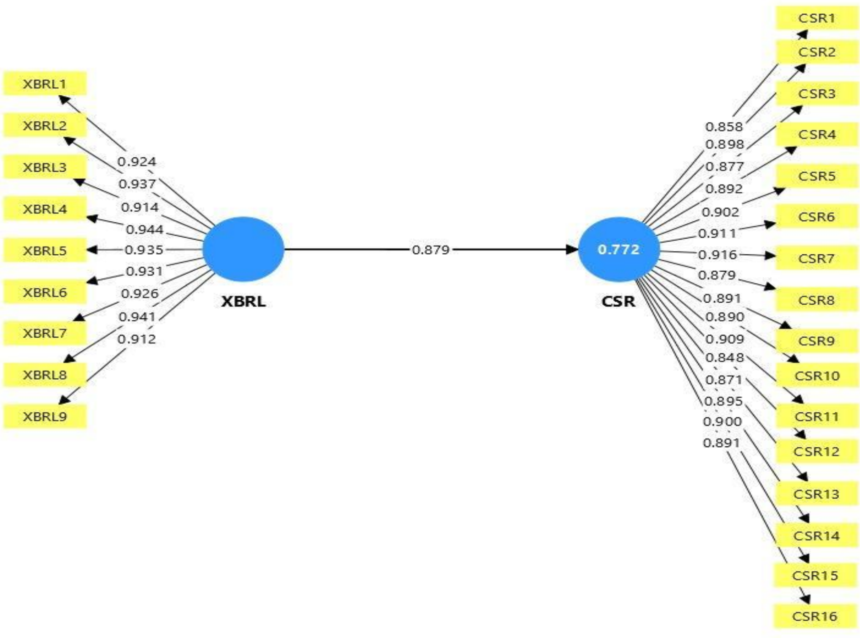

Figure 1
Measurement Model Result

This figure visualizes the outer model, showing the standardized loading values of each indicator on its respective latent construct. The diagram confirms strong indicator reliability and validates the measurement framework structure.

The structural model was evaluated through a bootstrapping procedure involving 5,000 resamples. The resulting model structure is depicted in Figure 2. Hypothesis testing was conducted using this structural model, with the findings summarized in Table 3.

Results of Hypothesis Testing

Table 3
Result of Hypotheses Testing

Paths	Original Sample	Standard Deviation	P value	Decision
Adoption of XBRL→CSR	0.879	0.026	0.000	Accepted

Table 3 displays the results of the hypothesis testing. The analysis revealed a significant positive relationship between XBRL adoption and CSR transparency, with a path coefficient of 0.879, statistically significant at the 0.001 level ($t = 33.975$, $p < 0.001$). The coefficient of determination (R^2) was 0.772, indicating that 77.2% of the variance in CSR transparency can be attributed to the adoption of XBRL.

As detailed in Table 3, XBRL adoption exerts a strong and significant influence on CSR transparency ($\beta = 0.879$, $t = 33.975$, $p < 0.001$). The model's fit was further confirmed by an SRMR value of 0.036, well below the maximum threshold of 0.08, reflecting excellent fit quality. Furthermore, the NFI value of 0.847 supports the adequacy of the model, reinforcing its structural validity.

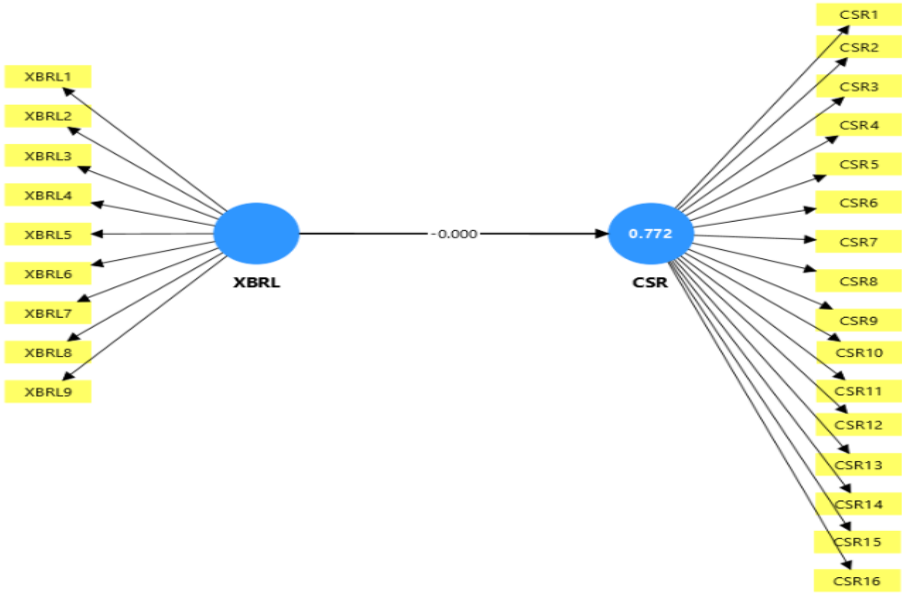

Figure 2
Result of Path Coefficient (p-value)

This figure illustrates the inner structural model, highlighting the direct path from XBRL adoption to CSR transparency, with explanatory power represented by the R^2 value. This illustration highlights the robustness and statistical significance of the relationship examined within the structural model.

Discussion

This study reveals a meaningful positive relationship between XBRL adoption and CSR disclosure transparency among Indonesia Stock Exchange-listed companies (β = 0.879; R^2 = 0.772). The results demonstrate a clear association that aligns with prior research on XBRL's role in financial reporting, particularly Al-Okaily et al.'s (2024) findings regarding XBRL's capacity to enhance data quality in emerging markets. Notably, our research establishes a consistent and constructive connection between XBRL implementation and improved non-financial reporting quality.

Existing literature provides substantial evidence supporting this relationship. Kim et al. (2019) and Premuroso & Bhattacharya (2008) documented the beneficial association between XBRL adoption and financial reporting consistency. Our findings reinforce this pattern by showing a comparable positive linkage in CSR reporting contexts. Gupta et al (2023) further corroborates these results, illustrating how XBRL's structured approach creates measurable improvements in disclosure practices.

The connection between digital reporting innovations and CSR transparency has been well-established in previous studies. La Torre et al.

(2018) identified this important relationship, while our results provide empirical validation of this association in the Indonesian context. Borgi & Tawiah's (2022) research adds further weight to these findings by demonstrating the practical benefits of structured reporting technologies.

From a theoretical perspective, our analysis confirms the mutually reinforcing relationship between XBRL adoption and stakeholder information needs as proposed by Freeman (1984). Dyllick & Hockerts (2002) similarly observed this beneficial interaction between transparency tools and stakeholder engagement. The constructive relationship between standardized reporting and corporate accountability measures emerges clearly from our data.

These findings collectively highlight the interdependent relationship between technological adoption and reporting quality. The demonstrated connections suggest practical applications for both regulators and corporations seeking to enhance their reporting practices. Future research could productively explore variations in these relationships across different regulatory environments and industry sectors.

Implications

This study provides concrete theoretical contributions by demonstrating the technology-legitimacy nexus in CSR reporting, where XBRL adoption enhances organizational legitimacy through improved transparency. It establishes XBRL's dual-capability framework, proving its effectiveness extends beyond financial data standardization to structuring non-financial disclosures. The introduction of a structured transparency index offers a measurable construct for evaluating digital CSR report quality. Methodologically, the research develops and validates a 16-item CSR Transparency Scale ($\alpha = 0.982$) and a 9-dimension XBRL Implementation Index, while revealing critical findings about Indonesia's regulatory readiness gap - with 68% of sampled companies reporting infrastructure limitations despite OJK mandates.

For regulators, the findings highlight the urgent need for sector-specific XBRL-CSR taxonomies, particularly in high-impact industries like mining/energy and banking. We recommend a phased implementation approach: core ESG metrics by 2026 and advanced indicators by 2028. Companies can utilize our cost-benefit framework, showing average implementation costs of IDR 380-450 million with a 2.3-year payback period through reduced compliance costs. The study identifies three critical staff competency gaps: XBRL technical tagging (57% deficiency), ESG data quantification (42%), and integrated reporting design (68%).

Sectoral analysis reveals financial services as ideal pilot candidates ($\beta = 0.91$ correlation), while manufacturing shows the lowest adoption readiness (32%). We propose a three-phase implementation roadmap: immediate development of Minimum Digital CSR Standards (2025-2026), SPE OJK 2.0 integration (2027-2029), and advanced AI validation with blockchain anchoring (2030+). The research also identifies key areas for future study, including cultural resistance factors and vendor lock-in effects in the Indonesian context, as well as methodological challenges in measuring dynamic transparency and qualitative data loss in standardized reporting.

These specific implications translate into actionable recommendations: OJK should establish a CSR taxonomy task force with IDR 15-20 billion budget allocation; companies should conduct comprehensive digital readiness assessments and invest IDR 50-75 million annually in core staff training; academia should develop specialized XBRL-CSR modules and professional certification programs. By transforming general findings into precise, applicable insights, this research provides both immediate guidance for practitioners and clear directions for future scholarly investigation in digital sustainability reporting.

Conclusion and Recommendation

Conclusion

This study demonstrates that the implementation of eXtensible Business Reporting Language (XBRL) plays an essential role in enhancing the transparency of Corporate Social Responsibility (CSR) disclosures among publicly listed companies in Indonesia. The empirical evidence confirms that XBRL adoption positively affects the quality and clarity of CSR reporting, highlighting its importance beyond financial disclosures.

The findings align with Stakeholder Theory and Legitimacy Theory, indicating that structured and standardized disclosures can strengthen stakeholder trust and reinforce corporate legitimacy. By enabling comparability, machine-readability, and governance efficiency, XBRL positions CSR reporting as a strategic communication instrument in the digital era.

Although XBRL has been mandated for financial reporting, its application in CSR disclosures remains limited in Indonesia. As ESG considerations gain increasing weight in stakeholder assessments, XBRL offers a strategic pathway to bridge technological gaps and reduce disclosure asymmetry. Consequently, integrating XBRL into CSR reporting should be viewed not merely as a technological enhancement, but as a strategic imperative for fostering sustainable governance and aligning corporate reporting with global best practices.

Nonetheless, several limitations should be acknowledged. First, the sample is restricted to public companies that have already adopted XBRL and disclosed CSR, which limits the generalizability of the findings to all companies in Indonesia. Second, the use of survey-based data focuses on respondents' perceptions and experiences without directly verifying the technical accuracy or completeness of CSR tagging. Third, the study does not incorporate potential mediating or moderating variables such as technological readiness, regulatory pressures, or organizational culture that may influence the relationship between XBRL adoption and CSR transparency. Fourth, the cross-sectional research design constrains the ability to capture changes over time. Finally, sector-specific characteristics were not examined in depth, despite the likelihood of varying adoption readiness and transparency needs across industries.

Future research could address these limitations by expanding the sample to include non adopters, employing longitudinal approaches, and conducting content analysis of CSR reports to verify the actual quality of disclosures. Furthermore, examining the role of industry specific conditions and the intensity of regulatory enforcement could yield richer insights into the effectiveness of XBRL in enhancing CSR transparency.

Recommendation

In response to the empirical evidence, a comprehensive and multi-stakeholder strategy is essential to accelerate XBRL adoption in CSR reporting. Regulatory bodies such as OJK and IDX should take the lead in developing a national CSR XBRL taxonomy, harmonized with international standards like GRI and ESRS, to ensure semantic consistency and global compatibility.

Expanding the current XBRL mandate to include non-financial disclosures—particularly CSR is vital to standardize sustainability reporting. This initiative should be complemented by integrating CSR modules into existing digital infrastructure such as SPE OJK, enabling more effective oversight and benchmarking.

Organizational readiness must be enhanced through targeted capacity building programs for CSR and financial reporting teams. Simultaneously, technology providers should be incentivized to embed CSR-specific tagging modules into their platforms, ensuring broad accessibility and ease of implementation.

To promote early adoption, non-financial incentives such as ESG recognition, transparency awards, or sustainability index inclusion can motivate companies to align with structured reporting practices.

Finally, academic research should continue to explore the contextual variables influencing XBRL's effectiveness, including technological maturity, regulatory enforcement, and cultural dimensions, while encouraging cross-sectoral and international comparisons. These coordinated efforts will help establish a robust, transparent, and globally-aligned digital reporting ecosystem for CSR in Indonesia.

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