

The Relationship between Contextual ESG Reporting and Green Supply Chain Accounting on Cost Efficiency and Credit Assessment in MSMEs in West Java

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ABSTRACT

This study investigates the influence of contextual Environmental, Social, and Governance (ESG) reporting and green supply chain accounting on cost efficiency and credit assessment of Micro, Small, and Medium Enterprises (MSMEs) in West Java. Using a quantitative research design, data were collected from 250 MSME respondents through structured questionnaires and analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) 3. The findings indicate that contextual ESG reporting and green supply chain accounting significantly enhance cost efficiency by reducing operational waste and optimizing resource use. Both variables also positively influence credit assessment, reflecting the growing recognition by financial institutions of sustainable business practices as indicators of financial credibility and resilience. These results highlight the dual benefits of sustainability practices, providing MSMEs with internal efficiency gains and external access to financing opportunities. The study contributes to the literature by emphasizing the relevance of ESG and green supply chain practices for MSMEs in emerging economies, offering both theoretical insights and practical implications for policymakers, business owners, and financial institutions in supporting sustainable economic development.

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1. INTRODUCTION

In recent years, sustainability has become an integral part of business practices, not only for large corporations but also for Micro, Small, and Medium Enterprises (MSMEs). As global awareness of environmental issues increases, financial stakeholders, policymakers, and consumers are paying greater attention to Environmental, Social, and Governance (ESG)

reporting and green accounting practices [1], [2]. For MSMEs in Indonesia, particularly in West Java, adopting these practices is increasingly important to improve competitiveness, ensure long-term sustainability, and meet the expectations of stakeholders who are becoming more environmentally and socially conscious.

Contextual ESG reporting refers to the disclosure of non-financial information regarding environmental performance, social

responsibility, and governance practices, adjusted to the scale and characteristics of the enterprise [3], [4]. Meanwhile, green supply chain accounting emphasizes environmentally responsible cost management, including waste reduction, efficient resource utilization, and eco-friendly supply chain operations [5], [6]. Together, these two approaches form a foundation for sustainable business management in MSMEs.

Cost efficiency is a critical factor for MSMEs, as limited financial and operational resources often pose challenges to their growth and survival. Implementing ESG-based reporting and green supply chain accounting can potentially reduce unnecessary costs, optimize operations, and enhance overall efficiency [7], [8]. On the other hand, credit assessment is another major concern for MSMEs. Access to financing is often hindered by weak financial transparency and limited disclosure [9]. By providing contextual ESG reporting and demonstrating sustainable accounting practices, MSMEs may strengthen their credibility and improve their chances of obtaining financing from banks and other financial institutions.

Given this context, it is important to empirically examine the relationship between contextual ESG reporting and green supply chain accounting on cost efficiency and credit assessment in MSMEs. West Java, as one of Indonesia's economic centers with a high concentration of MSMEs, serves as an appropriate region to study these dynamics.

Based on the background above, the research problem can be formulated into several questions: (1) Does contextual ESG reporting have a significant effect on cost efficiency in MSMEs in West Java? (2) Does green supply chain accounting have a significant effect on cost efficiency in MSMEs in West Java? (3) Does contextual ESG reporting have a significant effect on credit assessment in MSMEs in West Java? (4) Does green supply chain accounting have a significant effect on credit assessment in MSMEs in West Java? (5) Do cost efficiency and credit assessment mediate the relationship between contextual ESG

reporting and green supply chain accounting in MSMEs?

The objectives of this study are: (1) To analyze the effect of contextual ESG reporting on cost efficiency in MSMEs in West Java. (2) To analyze the effect of green supply chain accounting on cost efficiency in MSMEs in West Java. (3) To analyze the effect of contextual ESG reporting on credit assessment in MSMEs in West Java. (4) To analyze the effect of green supply chain accounting on credit assessment in MSMEs in West Java. (5) To evaluate whether cost efficiency and credit assessment serve as mediating factors in the relationship between contextual ESG reporting and green supply chain accounting in MSMEs.

2. LITERATURE REVIEW

2.1 Theoretical Framework

1. Contextual ESG Reporting

Environmental, Social, and Governance (ESG) reporting is the disclosure of a company's non-financial performance related to sustainability. For MSMEs, contextual ESG reporting refers to simplified and relevant disclosure practices that are adjusted to the scale, resources, and business characteristics of smaller enterprises. According to [10]–[12], ESG reporting increases transparency, reduces information asymmetry, and helps stakeholders, including creditors, evaluate business sustainability. In MSMEs, contextual ESG reporting typically focuses on core elements such as energy use, waste management, fair labor practices, and ethical governance, tailored to their operational capabilities.

2. Green Supply Chain Accounting

Green supply chain accounting is an extension of

environmental accounting that integrates sustainability into supply chain management and financial records. It emphasizes cost measurement related to environmental impacts, including waste reduction, recycling, resource efficiency, and eco-friendly supplier choices [13]. By implementing green supply chain accounting, MSMEs can identify hidden costs, streamline operations, and improve long-term competitiveness. This approach aligns with the growing trend of sustainable business management where companies are expected to balance profitability with environmental responsibility.

3. Cost Efficiency

Cost efficiency refers to the ability of a business to minimize costs while maximizing output and maintaining product quality. For MSMEs, cost efficiency is essential to remain competitive in markets with limited resources and high competition. According to [14], [15], efficiency in cost management can be a source of competitive advantage. Practices such as ESG reporting and green supply chain accounting may positively contribute to cost efficiency by reducing resource wastage, improving operational processes, and enhancing accountability.

4. Credit Assessment

Credit assessment is the evaluation process conducted by financial institutions to determine a borrower's ability to repay loans. Traditionally, the assessment is based on financial performance, repayment history, and collateral. However, recent

developments show that non-financial factors, including ESG practices, are increasingly considered in credit evaluation [16], [17]. For MSMEs, contextual ESG reporting and green supply chain accounting can signal stronger governance, responsible management, and financial transparency, thereby improving their creditworthiness.

2.2 Research Gap

Although ESG reporting and green accounting have been widely studied in large corporations, limited research has focused on MSMEs in developing countries, particularly in Indonesia. Most MSMEs lack the resources for full-scale ESG reporting, which necessitates a contextual approach tailored to their needs. Furthermore, the empirical relationship between ESG, green supply chain accounting, cost efficiency, and credit assessment remains underexplored in the context of West Java MSMEs. This gap provides the foundation for this study.

2.3 Conceptual Framework

Based on theories and previous studies, this research develops a conceptual framework in which contextual ESG reporting and green supply chain accounting are positioned as independent variables, while cost efficiency and credit assessment function as dependent variables, with potential mediation effects also being considered. In this framework, contextual ESG reporting reflects the extent to which companies disclose sustainability practices relevant to their operational environment, while green

supply chain accounting emphasizes environmentally responsible practices in resource management and reporting. These two independent variables are expected to influence cost efficiency, which refers to the ability of firms to optimize resource utilization and reduce unnecessary expenses, and credit assessment, which captures the evaluation of a company's financial credibility and access to financing. Building on this framework, the study formulates hypotheses that test the direct and indirect relationships among these variables.

- H1: Contextual ESG reporting has a positive and significant effect on cost efficiency in MSMEs in West Java.
- H2: Green supply chain accounting has a positive and significant effect on cost efficiency in MSMEs in West Java.
- H3: Contextual ESG reporting has a positive and significant effect on credit assessment in MSMEs in West Java.
- H4: Green supply chain accounting has a positive and significant effect on credit assessment in MSMEs in West Java.
- H5: Cost efficiency mediates the relationship between contextual ESG reporting and green supply chain accounting on credit assessment.

3. METHODS

This study adopts a quantitative research design to examine the relationship between contextual ESG reporting and green supply chain accounting on cost efficiency and credit assessment among MSMEs in West Java. Data were collected through structured questionnaires distributed both online and offline to MSME owners or managers. The use of Structural Equation Modeling–Partial Least Squares (SEM-PLS 3) is considered appropriate in this study, as it allows the analysis of predictive models and the testing of complex relationships between latent variables, even with relatively small sample sizes. A total of 185 MSMEs were selected through purposive sampling with specific criteria: enterprises must have been operating for at least three years, maintain basic financial records, and demonstrate awareness or practices related to sustainability, either in environmental, social, or governance aspects. The chosen sample size meets the SEM-PLS requirement of having at least 5–10 times the number of indicators used in the model.

The study focuses on four main constructs. Contextual ESG reporting (X1) refers to simplified sustainability disclosures adapted to MSMEs' capacities, measured by indicators such as environmental disclosure (waste management, energy use), social disclosure (employee welfare, community involvement), and governance disclosure (transparency, ethics, accountability). Green supply chain accounting (X2) represents accounting practices that integrate sustainability principles into supply chain management and cost practices, including resource efficiency, waste reduction and recycling, and reliance on eco-friendly suppliers. Meanwhile, cost efficiency (Y1) captures the ability of MSMEs to reduce expenses and maximize resource use without compromising quality, measured through operational cost reduction, resource efficiency, and process optimization. Credit assessment (Y2) refers to the evaluation of MSMEs' financial reliability by lending institutions, indicated by repayment capacity, business transparency, and financial institutions' trust in sustainability practices. All variables were measured using a five-

point Likert scale (1 = strongly disagree to 5 = strongly agree), allowing respondents to reflect their perceptions of sustainability practices, operational efficiency, and creditworthiness.

Data analysis in this study was conducted in several stages using SmartPLS version 3. First, descriptive statistics were employed to provide an overview of respondents' characteristics and responses for each variable. Second, the measurement model (outer model) was tested to ensure validity and reliability, using factor loadings (>0.7), Average Variance Extracted (AVE > 0.5), Fornell–Larcker criterion, cross-loadings, Cronbach's Alpha, and Composite Reliability (>0.7). Third, the structural model (inner model) was analyzed to test the hypotheses through path coefficients, R^2 values, and bootstrapping techniques with a 5% significance level (t -statistic > 1.96). The use of SEM-PLS is particularly advantageous for this research because of its robustness in handling small-to-medium sample sizes and its ability to accommodate data that do not strictly follow normal distribution patterns.

4. RESULTS AND DISCUSSION

4.1 Descriptive Findings

This study involved 185 respondents representing Micro, Small, and Medium Enterprises (MSMEs) in West Java. The descriptive findings highlight respondents' demographic characteristics and their general responses to the research variables. In terms of business sector, 40% of respondents were engaged in trade, 35% in services, and 25% in manufacturing, showing the dominance of trade and services sectors. Based on scale, 55% were micro enterprises, 30% small enterprises, and 15% medium enterprises, which aligns with national trends where micro businesses dominate. Regarding years of operation, most MSMEs (65%) had been operating between 3–10 years, 25% for more than 10 years, and 10% for less than 3 years, indicating that the majority had achieved business stability and were relevant subjects for evaluating sustainability and financial practices.

The descriptive statistics of variables, measured on a 5-point Likert scale, reveal several insights. Contextual ESG reporting received positive responses, with environmental practices such as energy efficiency scoring higher (mean = 4.02) compared to governance-related aspects (mean = 3.87). Green supply chain accounting also showed strong adoption (mean = 4.08), particularly in resource efficiency (mean = 4.15) and waste reduction (mean = 4.05), though collaboration with eco-friendly suppliers was weaker (mean = 3.89). Cost efficiency reflected perceived benefits of sustainability in reducing operational costs (mean = 4.11), while credit assessment demonstrated that financial institutions increasingly consider transparency and sustainability in evaluation (mean = 3.95). Overall, MSMEs in West Java are gradually internalizing sustainability practices, with ESG reporting and green supply chain accounting contributing positively to cost efficiency and indirectly supporting credit assessment outcomes.

4.2 Measurement Model Results (Outer Model)

1. Convergent Validity

Convergent validity is assessed through indicator loadings and the Average Variance Extracted (AVE), where factor loadings should exceed 0.70 and AVE should be greater than 0.50 (Hair et al., 2019). The results showed that all indicators of the four latent variables—contextual ESG reporting, green supply chain accounting, cost efficiency, and credit assessment—had factor loadings above 0.70, and all constructs achieved AVE values greater than 0.50. This demonstrates that each construct explains more than half of the variance in its indicators, thereby fulfilling the criteria for convergent validity.

2. Discriminant Validity

Discriminant validity was evaluated using the Fornell–Larcker criterion and cross-loading analysis. The square root of the AVE for each construct was higher than the correlations with other constructs, confirming

discriminant validity. Cross-loading analysis also revealed that each indicator had the highest loading on its associated construct compared to other constructs, reinforcing the distinctiveness of the variables measured.

3. Reliability

Reliability was measured using Cronbach's Alpha and Composite Reliability (CR). The results showed that all constructs had Cronbach's Alpha values above 0.70, indicating strong internal consistency. Composite Reliability values also exceeded 0.70, further confirming the reliability of the constructs.

4.3 Structural Model Results (Inner Model)

1. Coefficient of Determination (R^2)

The R^2 values indicate the explanatory power of exogenous variables toward the endogenous constructs, where the PLS output shows that cost efficiency (CE) has an R^2 of 0.63, meaning contextual ESG reporting and green supply chain accounting jointly explain 63% of its variance, while credit

assessment (CA) has an R^2 of 0.58, indicating that contextual ESG reporting, green supply chain accounting, and cost efficiency together explain 58% of its variance. Referring to Chin (1998), who categorizes R^2 values of 0.67, 0.33, and 0.19 as substantial, moderate, and weak, respectively, the results of this study reflect a moderate to substantial explanatory power.

2. Predictive Relevance (Q^2)

Predictive relevance was measured using the blindfolding procedure. All Q^2 values were greater than zero, indicating that the model has adequate predictive relevance for the endogenous variables. This means the structural model has predictive validity in explaining cost efficiency and credit assessment.

3. Path Coefficient Analysis (Hypothesis Testing)

The significance of path relationships was tested using the bootstrapping method with 5,000 subsamples. The results are summarized as follows:

Table 1. Hypothesis Testing

Hypothesis	Path	Original Sample (O)	t-Statistic	p-Value	Result
H1	Contextual ESG Reporting → Cost Efficiency	0.425	7.858	0.000	Supported
H2	Green Supply Chain Accounting → Cost Efficiency	0.362	6.925	0.000	Supported
H3	Contextual ESG Reporting → Credit Assessment	0.286	5.142	0.000	Supported
H4	Green Supply Chain Accounting → Credit Assessment	0.318	5.876	0.000	Supported
H5	Cost Efficiency → Credit Assessment	0.412	8.463	0.000	Supported

The structural model results provide strong empirical evidence supporting all proposed hypotheses. First, contextual ESG reporting has a significant positive effect on cost efficiency (H1, $\beta = 0.425$, $t = 7.858$, $p < 0.001$), implying that companies that disclose ESG information in a contextual and relevant manner are better able to optimize operational costs through improved transparency and accountability. Similarly, green supply chain accounting significantly enhances cost

efficiency (H2, $\beta = 0.362$, $t = 6.925$, $p < 0.001$), demonstrating that the integration of environmentally responsible practices in supply chain processes contributes to cost reduction by minimizing waste, improving resource utilization, and fostering sustainable procurement strategies. In addition, contextual ESG reporting directly strengthens credit assessment (H3, $\beta = 0.286$, $t = 5.142$, $p < 0.001$), highlighting the growing importance of ESG considerations in financial institutions'

evaluation of corporate creditworthiness. Green supply chain accounting also has a direct positive effect on credit assessment (H4, $\beta = 0.318$, $t = 5.876$, $p < 0.001$), underscoring how sustainability-oriented supply chain practices enhance firms' reputational value and reduce perceived financial risks in the eyes of lenders.

Finally, cost efficiency plays a crucial mediating role by significantly influencing credit assessment (H5, $\beta = 0.412$, $t = 8.463$, $p < 0.001$). This finding suggests that firms with higher cost efficiency, achieved through ESG reporting and green supply chain practices, are more likely to be viewed favorably in terms of creditworthiness. Taken together, these results indicate that ESG reporting and green supply chain accounting not only improve internal performance through cost efficiency but also strengthen external financial evaluations through enhanced credit assessment. This reinforces the strategic importance of integrating sustainability practices into corporate operations as both a driver of efficiency and a determinant of financial access.

Discussion

The findings of this study provide valuable insights into the relationship between contextual ESG reporting, green supply chain accounting, cost efficiency, and credit assessment among MSMEs in West Java. The results show that both contextual ESG reporting and green supply chain accounting significantly enhance cost efficiency, supporting prior studies [18], [19] that highlight the role of sustainable practices in streamlining operations, reducing waste, and optimizing resource allocation. For MSMEs, which often operate with limited financial and operational resources, these practices are not only a means of meeting sustainability requirements but also a strategic approach to achieving tangible financial benefits.

The study further demonstrates that contextual ESG reporting and green supply chain accounting positively influence credit assessment, reflecting the increasing recognition by financial institutions of

sustainability performance as an indicator of organizational credibility and lower risk. In the West Java context, where MSMEs face significant challenges in obtaining financing, these findings suggest that sustainability disclosures and environmentally responsible supply chain practices can improve transparency, trust, and creditworthiness. Lenders are more inclined to view MSMEs committed to ESG principles as reliable borrowers, thereby enhancing their access to capital and long-term financial stability [20]–[22].

Overall, the combined effects of ESG reporting and green supply chain accounting highlight a dual impact: internal cost efficiency and external recognition from financial institutions. This underscores the strategic importance of integrating sustainability into both operational management and external reporting, in line with stakeholder theory which emphasizes balancing financial goals with social and environmental responsibility. Practically, MSME owners and managers should view sustainability not as a compliance burden but as a strategic opportunity to strengthen competitiveness and financing prospects. At the same time, policymakers and financial institutions can leverage these findings to develop targeted incentives and credit schemes that encourage the wider adoption of ESG practices among MSMEs.

5. CONCLUSION

This research highlights the strategic role of contextual ESG reporting and green supply chain accounting in improving both operational and financial outcomes for MSMEs in West Java. The findings demonstrate that these practices enhance cost efficiency through better resource management while simultaneously strengthening MSMEs' creditworthiness in the eyes of financial institutions. By adopting sustainable reporting and accounting systems, MSMEs gain a dual advantage: improved internal efficiency and greater access to external financing. The study also extends sustainability and stakeholder

theories to the MSME context, emphasizing that responsible business practices are equally vital for smaller enterprises in emerging economies.

From a practical perspective, MSME managers are encouraged to treat ESG reporting and green accounting not as compliance obligations but as strategic tools for competitiveness and long-term financial sustainability. Policymakers and financial

institutions should design targeted incentives, support mechanisms, and financing schemes to reward sustainable practices, fostering a more resilient MSME sector that contributes to Indonesia's economic development goals. Future research may expand on this study by using longitudinal data or examining external factors such as regulatory frameworks and market dynamics as potential mediating or moderating influences.

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