

Analysis of the Impact of ESG Integration and Risk Governance on Cost of Capital and Company Value in Manufacturing Issuers in West Java

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ABSTRACT

This study analyzes the impact of Environmental, Social, and Governance (ESG) integration and risk management on capital costs and company value among manufacturing issuers in West Java. Using a quantitative approach with 110 samples, data were collected through a Likert scale (1–5) questionnaire and analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS 3). The results show that both ESG integration and risk management have a significant positive influence on reducing capital costs and enhancing company value. Furthermore, the analysis reveals an indirect effect, where capital costs mediate the relationship between ESG integration, risk management, and company value. These findings highlight the strategic importance of sustainability and risk control in improving financial outcomes and ensuring long-term corporate growth. The study contributes to the literature by providing empirical evidence from the Indonesian manufacturing sector, while offering practical implications for managers, investors, and policymakers in promoting responsible and resilient business practices.

Keywords: *ESG Integration, Risk Management, Capital Costs, Company Value, Manufacturing Issuers.*

1. INTRODUCTION

In recent years, the integration of Environmental, Social, and Governance (ESG) principles has become a strategic priority for companies across various industries, particularly in the manufacturing sector. ESG integration is no longer viewed solely as a matter of corporate social responsibility but as a critical factor influencing financial performance, risk profile, and long-term sustainability [1], [2]. In emerging markets such as Indonesia, especially in the province of West Java which hosts a large concentration of manufacturing issuers, the demand for responsible business practices is increasing in response to global investor expectations, regulatory frameworks, and stakeholder pressures. As a result, companies that successfully adopt ESG principles are believed to gain better access to capital, reduce financing costs, and enhance firm value [3], [4].

At the same time, risk management has become an equally vital aspect of corporate strategy. Manufacturing companies face numerous risks, including market volatility, supply chain disruptions, environmental challenges, and regulatory compliance issues [5]. Effective risk management systems are essential to safeguard financial stability, ensure business continuity, and build investor confidence. Studies have shown that companies with robust risk management frameworks tend to minimize financial losses, enhance operational efficiency, and achieve stronger reputations in the eyes of investors and stakeholders. Consequently, both ESG integration and risk management are expected to contribute not only to reduced capital costs but also to improved company value [6], [7].

In the Indonesian context, the Financial Services Authority (OJK) and the Indonesia Stock Exchange (IDX) have introduced sustainability reporting regulations, encouraging issuers to adopt transparent ESG practices [8]. This policy shift underscores the importance of sustainability in capital markets and signals to investors that companies with strong ESG performance may represent lower

risk profiles. For manufacturing issuers in West Java, which face heightened scrutiny due to environmental concerns and labor-intensive operations, the adoption of ESG and risk management practices is particularly relevant. Nevertheless, empirical research examining the relationship between ESG integration, risk management, capital costs, and company value in this specific regional and sectoral context remains limited [9].

Therefore, this study aims to analyze the impact of ESG integration and risk management on capital costs and company value among manufacturing issuers in West Java. By employing a quantitative approach with 110 samples and data analysis using Structural Equation Modeling–Partial Least Squares (SEM-PLS 3), this research seeks to provide empirical evidence on how sustainability-oriented strategies and risk control mechanisms influence financial outcomes. The findings are expected to contribute to the academic discourse on corporate finance and sustainability while offering practical recommendations for managers, policymakers, and investors in fostering resilient and value-driven manufacturing companies in Indonesia.

2. LITERATURE REVIEW

2.1 *Environmental, Social, and Governance (ESG) Integration*

ESG integration refers to the incorporation of environmental, social, and governance factors into corporate strategies, investment decisions, and operational activities. The environmental dimension emphasizes sustainable resource management, waste reduction, and emission control. The social aspect focuses on labor rights, community engagement, and customer relations, while governance addresses corporate transparency, accountability, and ethical management practices. According to [10], companies with strong ESG performance tend to achieve superior financial outcomes as they reduce exposure to regulatory risks and enhance stakeholder trust. In the Indonesian context, the Financial Services Authority (OJK) has issued sustainability reporting guidelines, underscoring the growing importance of ESG practices for issuers in capital markets. Manufacturing companies in West Java, which face environmental and social challenges, are particularly influenced by ESG integration as a determinant of investor perception and long-term performance [11], [12].

2.2 *Risk Management*

Risk management involves the identification, assessment, and mitigation of potential threats that may affect organizational objectives. In manufacturing industries, risks can arise from fluctuating raw material prices, supply chain disruptions, technological changes, and compliance with environmental regulations. According to the Committee of Sponsoring Organizations of the Treadway Commission, effective risk management systems enable companies to reduce uncertainty, enhance decision-making, and protect stakeholder interests. Empirical studies, such as those by [13], [14], show that firms with structured risk management frameworks are more resilient and capable of minimizing capital costs by presenting a lower risk profile to investors and creditors. Thus, risk management plays a central role in strengthening financial performance and maintaining corporate value in volatile markets [15].

2.3 *Capital Costs*

Capital costs represent the return expected by investors and creditors when providing funds to a company. They are a critical measure of financial health and

efficiency in resource allocation. According to [16] capital structure theory, financing decisions influence the cost of capital and firm value. In practice, firms that demonstrate lower risks, strong governance, and sustainable practices are more likely to access cheaper financing sources. Studies by [17], [18] found that companies with strong ESG disclosure enjoy reduced costs of equity and debt financing, as they are perceived as more transparent and responsible. Similarly, robust risk management contributes to reducing capital costs by mitigating default risks and ensuring business continuity.

2.4 Company Value

Company value reflects the market's perception of a firm's future cash flow, profitability, and sustainability. It is often measured using indicators such as stock prices, market capitalization, or valuation ratios. According to [19], firm value is maximized when managers align corporate strategies with shareholder interests. Recent studies have expanded this perspective by recognizing the role of ESG practices and risk management in enhancing intangible assets, such as reputation and stakeholder trust, which ultimately influence market valuation. Research by [20] demonstrated that companies with high ESG performance in material sectors experienced higher stock returns, while [21] highlighted the positive link between enterprise risk management and firm value.

2.5 Relationship among ESG Integration, Risk Management, Capital Costs, and Company Value

Prior research suggests that ESG integration and risk management have interrelated effects on financial outcomes. ESG practices can reduce environmental and social risks, improving stakeholder confidence and lowering financing costs [22]. Similarly, effective risk management ensures operational efficiency and financial stability, further contributing to favorable financing conditions. Both ESG integration and risk management are expected to enhance company value by improving transparency, reducing uncertainty, and creating sustainable competitive advantages [23], [24]. However, in the Indonesian manufacturing context, empirical evidence remains scarce, particularly at the regional level in West Java. This study aims to fill this research gap by empirically testing these relationships using quantitative methods.

3. METHODS

3.1 Research Design

This study employs a quantitative research design to analyze the impact of ESG integration and risk management on capital costs and company value. The approach was chosen because it allows for objective measurement of relationships between variables and statistical testing of hypotheses. Data were collected through a structured questionnaire using a Likert scale (1–5), where respondents indicated their level of agreement with statements representing each research construct. The analysis was conducted using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS 3 software, which is appropriate for testing complex causal relationships with relatively small to medium sample sizes.

3.2 Population and Sample

The population of this research consists of manufacturing issuers located in West Java and listed on the Indonesia Stock Exchange (IDX). These companies were selected due to their significant contribution to Indonesia's industrial output and their exposure to environmental and social

challenges that make ESG integration and risk management highly relevant. A purposive sampling method was employed, targeting managerial-level respondents with knowledge of corporate strategy, finance, and sustainability practices. A total of 110 valid responses were obtained, meeting the minimum requirement for SEM-PLS analysis based on the “10-times rule,” which considers the number of indicators linked to the most complex construct.

3.3 Data Collection

Primary data were collected using a structured questionnaire distributed to respondents through both online and direct communication channels, consisting of four main sections corresponding to the research variables, namely ESG Integration (covering environmental responsibility, social engagement, and governance transparency), Risk Management (covering identification, assessment, and mitigation practices), Capital Costs (covering perceptions of financing costs, access to funding, and investor trust), and Company Value (covering financial performance, market perception, and long-term growth). Each indicator was measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), and prior to distribution, the questionnaire was validated through expert review and pilot testing to ensure clarity and reliability.

3.4 Variable Operationalization

The operationalization of variables in this study is summarized as follows: ESG Integration (X1) is measured through environmental initiatives, social responsibility programs, and governance transparency; Risk Management (X2) is measured through systematic risk identification, risk assessment, and control mechanisms; Capital Costs (Y1) is measured through cost of debt, cost of equity, and ease of obtaining capital; and Company Value (Y2) is measured through profitability, stock price performance, and market reputation.

3.5 Data Analysis Technique

Data were analyzed using SEM-PLS 3 to evaluate both the measurement model (validity and reliability of indicators) and the structural model (hypothesis testing). The analysis involved several stages, including Outer Model Evaluation, which assessed indicator reliability (loading factors >0.70), internal consistency reliability (Cronbach's Alpha and Composite Reliability >0.70), and validity (Average Variance Extracted >0.50 and discriminant validity using Fornell-Larcker and HTMT); Inner Model Evaluation, which examined R-square values, path coefficients, and significance levels using bootstrapping with 5,000 resamples; and Hypothesis Testing, which tested the direct effects of ESG integration and risk management on capital costs and company value, as well as indirect relationships mediated through capital costs. The results obtained from this method provide empirical evidence of the causal relationships among the studied variables, thereby supporting both theoretical and practical implications in the manufacturing sector of West Java.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Descriptive statistics were used to provide an overview of the respondents' characteristics and the general tendency of responses toward each research variable, including mean, standard deviation, minimum, and maximum values of the indicators measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The sample of 110 respondents was drawn from managerial-level employees of manufacturing issuers in West Java, consisting of 68% male and 32% female, with age distribution of 21% aged 25–34 years, 47% aged 35–44 years, 24% aged 45–54 years, and 8% above 55 years. In terms of position, 40% were finance managers, 35% sustainability/CSR managers, and 25% risk management officers or related roles, while years of service showed 30% with less than 5 years, 44% with 5–10 years, and 26% with more than 10 years. These characteristics indicate that the majority of respondents were mid-level to senior professionals with substantial

experience in finance, sustainability, and risk-related functions, thereby ensuring the reliability of the data collected. The descriptive statistics for each construct are presented in the following table.

Variable	N	Mean	Std. Deviation	Min	Max	Interpretation
ESG Integration	110	3.98	0.67	2.60	5.00	High
Risk Management	110	3.85	0.71	2.40	5.00	High
Capital Costs	110	3.21	0.74	2.00	4.80	Moderate
Company Value	110	3.89	0.69	2.40	5.00	High

The interpretation of descriptive statistics shows that the mean value for ESG integration (3.98) indicates most manufacturing issuers in West Java have implemented ESG principles at a relatively high level, reflecting good practices in environmental responsibility, social engagement, and governance transparency. The mean value for risk management (3.85) suggests that respondents perceive their companies as having structured and effective risk identification and mitigation frameworks. Meanwhile, the mean capital costs (3.21) reflect moderate perceptions, implying that although ESG and risk management practices help reduce financing costs, companies still face challenges in obtaining optimal funding conditions. Lastly, the mean value for company value (3.89) demonstrates that most respondents view their firms as having strong market performance, profitability, and reputational standing.

4.2 Measurement Model (Outer Model) Evaluation

The measurement model (outer model) evaluation was conducted to assess the reliability and validity of the constructs used in this study. This stage ensures that the indicators used to measure ESG integration, risk management, capital costs, and company value are valid and reliable before proceeding with structural model testing. The evaluation includes tests for indicator reliability, internal consistency reliability, convergent validity, and discriminant validity.

1. Indicator Reliability

Indicator reliability is assessed using factor loadings. A loading factor of 0.70 or higher is considered acceptable, while values between 0.60–0.70 may be retained in exploratory research. The results show that all indicators of ESG integration, risk management, capital costs, and company value have loadings greater than 0.70, thus meeting the reliability requirements. This indicates that each indicator consistently represents the construct being measured.

2. Internal Consistency Reliability

Internal consistency was tested using Composite Reliability (CR) and Cronbach's Alpha, with both values required to exceed 0.70 to demonstrate reliability. The results show that ESG Integration (Cronbach's Alpha = 0.873; CR = 0.905), Risk Management (Cronbach's Alpha = 0.861; CR = 0.892), Capital Costs (Cronbach's Alpha = 0.814; CR = 0.866), and Company Value (Cronbach's Alpha = 0.889; CR = 0.917) all surpassed the threshold, indicating that the measurement items for each construct are internally consistent and reliable.

3. Convergent Validity

Convergent validity was evaluated using the Average Variance Extracted (AVE), where a value greater than 0.50 indicates that more than 50% of the variance in the indicators is explained by the construct. The results show that ESG Integration (0.621), Risk Management (0.608), Capital Costs (0.565), and Company Value (0.684) all achieved AVE values above the required threshold, confirming that all constructs possess good convergent validity.

4. Discriminant Validity

Discriminant validity was assessed to ensure that the constructs are distinct from one another using two tests. First, the Fornell-Larcker Criterion showed that the square root of AVE for

each construct was greater than its correlations with other constructs, indicating uniqueness. Second, the HTMT Ratio (Heterotrait-Monotrait) values for all constructs were below the threshold of 0.85, further confirming that discriminant validity was established.

4.3 Structural Model (Inner Model) Evaluation

The structural model (inner model) evaluation was conducted to analyze the causal relationships among ESG integration, risk management, capital costs, and company value. The evaluation includes the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), path coefficients, and hypothesis testing.

1. Coefficient of Determination (R^2)

The R^2 value reflects the extent to which exogenous variables explain the variance of endogenous variables, and the results show that the R^2 value for capital costs is 0.412, indicating that ESG integration and risk management together explain 41.2% of its variance, while the R^2 value for company value is 0.528, meaning that ESG integration, risk management, and capital costs collectively explain 52.8% of the variance. Both values are categorized as moderate to substantial (Chin, 1998), suggesting that the model possesses good explanatory power.

2. Effect Size (f^2)

Effect size measures the contribution of each exogenous variable to the R^2 of endogenous variables, and the analysis shows that ESG integration has a medium effect size on both capital costs and company value, while risk management also has a medium effect size on capital costs and company value. Capital costs, in turn, have a small to medium effect size on company value. These results indicate that ESG integration and risk management play important roles in reducing capital costs and enhancing company value.

3. Predictive Relevance (Q^2)

The Stone-Geisser Q^2 test using the blindfolding procedure was conducted to assess predictive relevance. The Q^2 values for both capital costs and company value were greater than zero, indicating that the model has predictive relevance and can be used to predict the relationships among the variables.

4. Path Coefficients and Hypothesis Testing

The bootstrapping procedure (5,000 subsamples) was used to test the significance of path coefficients.

	Path	Original Sample (O)	Sample Mean (M)	Std. Deviation (STDEV)	T Statistics	P Values	Result
H1	ESG Integration → Capital Costs	-0.327	-0.322	0.102	3.214	0.001	Supported
H2	Risk Management → Capital Costs	-0.291	-0.287	0.102	2.845	0.004	Supported
H3	ESG Integration → Company Value	0.355	0.351	0.100	3.556	0.000	Supported
H4	Risk Management → Company Value	0.298	0.293	0.099	2.997	0.003	Supported
H5	Capital Costs → Company Value	-0.276	-0.271	0.101	2.741	0.006	Supported

The hypothesis testing results indicate that all proposed relationships in the model are statistically significant and supported. Hypothesis 1 shows that ESG integration has a negative and

significant effect on capital costs ($OS = -0.327$, $t = 3.214$, $p = 0.001$), suggesting that stronger ESG practices help reduce financing expenses by improving investor confidence and lowering perceived risk. Similarly, Hypothesis 2 confirms that risk management negatively and significantly affects capital costs ($OS = -0.291$, $t = 2.845$, $p = 0.004$), indicating that companies with effective risk identification and mitigation frameworks can achieve lower financing costs. Hypothesis 3 demonstrates a positive and significant effect of ESG integration on company value ($OS = 0.355$, $t = 3.556$, $p = 0.000$), highlighting that sustainable practices contribute to enhanced market perception, profitability, and long-term growth. Hypothesis 4 shows that risk management also positively and significantly influences company value ($OS = 0.298$, $t = 2.997$, $p = 0.003$), confirming that robust risk management strengthens firm performance and stakeholder confidence. Finally, Hypothesis 5 reveals that capital costs negatively and significantly affect company value ($OS = -0.276$, $t = 2.741$, $p = 0.006$), emphasizing that lower financing costs are associated with higher firm valuation. Collectively, these results confirm that ESG integration and risk management are crucial drivers of both financial efficiency and corporate value in manufacturing issuers in West Java, with capital costs acting as a key intermediary in enhancing overall firm performance.

Discussion

The results of this study highlight the significant role of ESG integration and risk management in shaping financial outcomes and company value among manufacturing issuers in West Java. The findings indicate that ESG integration positively influences both capital costs and company value, supporting the notion that companies adopting sustainability practices are more likely to attract investor trust and access cheaper financing. This is consistent with the stakeholder theory, which argues that firms engaging in socially and environmentally responsible behavior enhance their legitimacy and reduce agency costs. In line with previous research by [25], ESG performance is positively correlated with financial performance, demonstrating that sustainable practices reduce reputational risk and improve investor perception.

Risk management was also found to have a significant positive impact on reducing capital costs and enhancing company value. This suggests that companies with strong internal control mechanisms and proactive risk mitigation strategies are perceived as more stable and reliable by financial institutions and investors. These findings align with studies such as [26], which demonstrated that enterprise risk management contributes to firm value by minimizing exposure to unexpected losses and improving operational efficiency. For manufacturing issuers in West Java, where operational and environmental risks are prevalent, strong risk management frameworks provide a competitive advantage by ensuring resilience and continuity.

The mediation effects further enrich the discussion. The evidence shows that both ESG integration and risk management influence company value indirectly through their impact on capital costs. This finding underscores the importance of capital structure as a transmission mechanism between non-financial practices and financial outcomes. Companies that adopt ESG principles and strengthen risk management practices tend to achieve lower capital costs, which subsequently enhances firm value. This is consistent with the trade-off theory of capital structure, where lower risk perception leads to cheaper financing and higher overall firm valuation [27]–[29].

The study also provides sector-specific insights. Manufacturing issuers in West Java operate in a highly competitive and environmentally sensitive industry. Thus, ESG practices such as waste reduction, energy efficiency, and labor welfare are not only ethical obligations but also strategic tools to improve financial performance. Similarly, comprehensive risk management systems are essential to navigate uncertainties in supply chains, regulatory changes, and market fluctuations. The results imply that firms in this sector cannot afford to neglect sustainability and risk control if they wish to remain competitive in attracting capital and maximizing shareholder value.

CONCLUSION

This research provides strong evidence that ESG integration and risk management play critical roles in influencing financial and strategic outcomes for manufacturing issuers in West Java. The results demonstrate that companies adopting ESG practices and implementing effective risk management frameworks can achieve lower capital costs, which in turn enhances company value. The mediation effect of capital costs emphasizes the importance of financial efficiency as a channel linking non-financial practices with firm performance.

From a practical perspective, these findings suggest that managers should prioritize ESG adoption and risk management as part of their corporate strategy to strengthen investor confidence and secure long-term competitiveness. For investors, the results underscore the importance of evaluating ESG and risk management disclosures when assessing firm value and investment risk. Meanwhile, policymakers and regulators are encouraged to continue promoting sustainability reporting and risk governance to improve market efficiency and resilience in Indonesia's capital markets.

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