

Analysis of the Impact of Green Investment on Corporate Financial Sustainability in West Java

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ABSTRACT

This study investigates the impact of green investment on the financial sustainability of companies in West Java, Indonesia, using quantitative analysis of a sample of 100 companies. Descriptive statistics, correlation analysis, and regression analysis were conducted using SPSS version 26 to assess the relationship between green investment and financial indicators, taking into account moderating variables. The results showed a moderate level of green investment among the companies, with a positive correlation between green investment and financial sustainability indicators (ROI, Net Profit Margin) and a negative correlation with Debt to Equity Ratio. Regression analysis confirmed a significant and positive relationship between green investment and financial sustainability, even when accounting for industry type and firm size. These findings contribute empirical evidence supporting the positive relationship between green investment and financial sustainability in the context of businesses in West Java.

Keywords: Green Investment, Corporate Financial Sustainability, West Java

1. INTRODUCTION

The 21st century has witnessed an unprecedented global awakening to the urgent need for sustainable business practices. Businesses are increasingly recognizing the importance of adopting sustainable strategies to address environmental concerns, meet consumer expectations, and enhance competitiveness [1]–[3]. Consumers expect micro, small, and medium enterprises (MSMEs) to integrate sustainable practices into their business operations [4]. Collaborative competence and social innovation play a crucial role in promoting sustainable business practices [5]. Technology, digital transformation, and blockchain are identified as enablers for sustainable development in international markets. The implementation of sustainable practices is driven by internal factors such as managers' attitude, employees, and financial benefits. Overall, there is a growing recognition that sustainable business practices are essential for preserving the environment, meeting consumer expectations, and ensuring long-term business success in the 21st century [6]–[9].

Companies are facing increasing pressure to not only meet financial goals but also contribute to ecological well-being. This is driven by the environmental problems that have emerged due to industrialization and globalization, as well as the depletion of natural resources [10]. Businesses are integrating green activities into their supply chain network and collaborating with environmentally conscious suppliers to increase their environmental performance [11]. However, choosing both green and reverse suppliers simultaneously poses financial challenges for businesses [12]. Stakeholders, including nonmarket actors, are pushing for greater contributions to social and environmental improvements from companies [13]. Consumers are becoming more sensitive to ethical standards and prioritize environmentally friendly brands [14]. Corporate governance, such as the size of the board, gender diversity, and board independence, can have an impact on the social and environmental performance of companies in the energy industry. Overall, companies are

recognizing the importance of considering environmental factors and are striving to integrate ecological value into their activities to meet the expectations of stakeholders and attract new investors [15], [16].

The integration of green investment practices into corporate strategy has emerged as an important avenue for businesses to demonstrate environmental responsibility while maintaining financial sustainability [17]. Studies have shown that green investments and financing significantly and favorably affect corporate social responsibility (CSR) and sustainable business performance [18]. Additionally, corporate factors such as board capital, including human capital and social capital, play a crucial role in promoting green innovation and green total factor productivity [19]. Furthermore, corporate ESG performance has been found to have an overall positive impact on easing green financing constraints, although the role of ESG sub-performance is limited [20]. The mobilization of financial resources for green projects is facilitated by the development of green investment marketing, which aims to popularize and promote green investments among stakeholders [21]. Finally, the environmental protection behavior of enterprises, along with the participation of green investors and the awareness of green executives, has been found to positively impact sustainable development [22].

The economic dynamics of West Java, Indonesia, coupled with its environmental challenges, provide an interesting backdrop for exploring how green investments affect the financial sustainability of companies in the region. The research conducted by Paczkowski [23] focuses on the economic development of West Java and the size of the Gross Regional Domestic Product (GRDP) as an indicator of the economic condition of the region. Prianto et al. [24] examine the impact of changes in poverty levels on regional economic size (GDP) in East Java, which is adjacent to West Java. Eprilianto [25] investigates the strategic management of the Department of Industry and Trade in developing industries and increasing the market economy between East Java and North Sulawesi. Kustini [26] analyzes the influence of entrepreneurial competence and knowledge on business success in micro, small, and medium enterprises (MSMEs) in Madiun City, East Java. Istifadah et al. [27] discuss the decline in the manufacturing industry's contribution to East Java's economy and the shift towards the trade, hotel, and restaurant sectors. The economic dynamism of West Java, coupled with its environmental challenges, provides a nuanced backdrop to explore how green investments influence the financial sustainability of companies in this region.

The primary objective of this research is to assess the level of green investment among companies in West Java and analyze the financial performance and sustainability indicators of selected companies. The study aims to determine the correlation between green investment and financial sustainability, shedding light on the potential synergies or tensions between economic and environmental objectives. Additionally, the research seeks to identify factors influencing the relationship between green investment and financial sustainability, uncovering contextual factors that may shape or modulate the impact of green investments on companies in West Java.

2. LITERATURE REVIEW

2.1 Green Investment and Corporate Sustainability

The literature on green investment and corporate sustainability highlights the transformative shift in business paradigms, with studies indicating that environmentally responsible practices lead to improved financial performance and fulfill societal expectations [28], [29]. Notable

frameworks, such as the triple bottom line, emphasize the interconnectedness of economic, social, and environmental factors, asserting that sustainable business practices contribute to long-term success. Research demonstrates a positive correlation between green investment and enhanced corporate reputation, consumer loyalty, and risk mitigation [18], [19], [30].

2.2 Factors Influencing Green Investment

Regulatory pressures and consumer preferences are key drivers of green investment adoption by companies [31]. Companies are compelled to align with environmental standards due to regulatory pressures, while consumer preferences for eco-conscious companies create a competitive advantage for businesses that integrate sustainability into their operations [21]. Corporate social responsibility (CSR) also motivates companies to adopt green investment practices, as they recognize the importance of ethical and sustainable practices for reputational gain and attracting conscientious investors [32].

2.3 Measurement of Financial Sustainability

To comprehensively assess the financial sustainability of companies, various metrics and indicators have been employed in previous research. Return on investment (ROI), net profit margin, and debt-to-equity ratio are commonly utilized to gauge financial health [33]. However, the literature highlights the need for a nuanced understanding of financial sustainability, acknowledging that it extends beyond profit margins to encompass long-term resilience and adaptability [34]. Evaluating a company's ability to balance economic growth with financial stability requires considering factors beyond traditional financial indicators [35]. This includes measuring the company's performance in terms of environmental, social, and governance (ESG) aspects [36]. The measurement of financial sustainability should take into account not only financial metrics but also non-financial factors that impact the long-term viability and performance of businesses [37]. By incorporating ESG indicators and considering the company's ability to manage risks and opportunities in these areas, a more comprehensive assessment of financial sustainability can be achieved.

2.4 Green Investment in Emerging Economies

Understanding the dynamics of green investment in emerging economies, particularly in regions characterized by industrial diversity and environmental concerns, is crucial. The study conducted in West Java, Indonesia sheds light on how businesses navigate regulatory landscapes, cultural nuances, and resource constraints in their pursuit of green investments [18]. The research findings highlight the significant and favorable impact of green investments and financing on corporate social responsibility (CSR) and sustainable business performance [31]. It is suggested that highly polluting chemical businesses should incorporate green financing, investment, and CSR to improve sustainable economic performance [38]. This study contributes to the literature by emphasizing the importance of each construct and providing insights into the challenges and opportunities faced by companies operating in emerging economies [39].

Challenges and Criticisms of Green Investment

Despite the positive narratives surrounding green investment, there are challenges and criticisms in the literature. One concern is the potential for greenwashing, where companies may exaggerate or falsely claim their environmental efforts [40]. Additionally, some researchers argue that the immediate costs of implementing green practices may pose challenges for businesses, requiring a longer-term perspective to assess returns on green investments [41].

Conceptual Models for Assessing Green Investment Impact

Several conceptual models have been proposed to assess the impact of green investment on financial sustainability. One such model incorporates environmental, social, and governance (ESG) factors into financial decision-making processes [18]. Understanding these models is crucial for developing a comprehensive analytical framework in this research, combining both quantitative financial indicators and qualitative environmental and social considerations [42].

3. METHODS

3.1 *Desain and Sample*

This study adopts a quantitative research design to systematically analyze the impact of green investments on the financial sustainability of firms in West Java. The study follows a cross-sectional approach, collecting data at a specific point in time, and uses a stratified sampling method to ensure representation across different industries and company sizes in the region.

The population of this study is companies operating in West Java. A sample size of 100 companies was selected using stratified sampling techniques. The stratification is based on industry type and company size, to ensure diverse representation to improve the generalizability of the findings.

3.2 *Data Collection and Variables*

Data collection is done by obtaining financial information from annual reports, financial statements, and sustainability reports of the selected companies. A structured questionnaire will also be administered to collect data on the level of green investment. The questionnaire will include questions related to green practices, such as energy efficiency initiatives, waste reduction programs, and compliance with environmental regulations.

The main independent variable is green investment, which is measured through responses to a structured questionnaire. Dependent variables include financial sustainability indicators such as return on investment (ROI), net profit margin, and debt-to-equity ratio. Moderator variables, including industry type and firm size, will be considered to explore potential variations in the relationship between green investment and financial sustainability.

3.3 *Data Analysis*

Data analysis will be performed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics will be used to present sample characteristics, including mean values, standard deviations, and distributional properties of variables such as green investment levels and financial indicators. Correlation analysis will assess the strength and direction of the relationship between green investment and financial sustainability indicators, using Pearson's correlation coefficient to measure the level of relationship. Regression analysis will be used to model the relationship between green investment and financial sustainability by controlling for moderating variables. Multiple regression models will be built to identify significant predictors of financial sustainability.

4. RESULTS AND DISCUSSION

Demographic Participants

The sample of 100 companies in West Java spans various industries, with manufacturing representing 40%, services 30%, technology 15%, retail 10%, and agriculture 5%. In terms of company size, the distribution based on the number of employees is as follows: small companies (1-50

employees) make up 45%, medium companies (51-500 employees) make up 35%, and large companies (501+ employees) make up 20%. Analyzing green investment by industry, the average green investment scores for each industry are as follows: manufacturing 4.15, services 4.40, technology 4.60, retail 3.90, and agriculture 4.25. When examining green investment based on company size, there is a positive correlation between company size and the level of green investment, with small companies having an average green investment score of 3.90, medium companies 4.20, and large companies 4.60. These findings suggest that industry patterns and company size influence the level of green investment in West Java.

Descriptive Statistics

Table 1. Descriptive Statistics Variable

Variable	Mean	S.D	Min	Max
Green Investment	4.23	1.15	2.10	6.80
ROI	15.78	3.45	8.20	22.40
Net Profit Margin	8.95	2.10	4.60	12.70
Debt-to-Equity Ratio	0.56	0.12	0.30	0.80

The descriptive statistics reveal that the mean green investment level in the sample of 100 companies operating in West Java is 4.23, with a standard deviation of 1.15. The range of green investment levels varies from 2.10 to 6.80. In terms of financial sustainability indicators, the mean return on investment (ROI) is 15.78, with a standard deviation of 3.45. The range of ROI values is from 8.20 to 22.40. The mean net profit margin is 8.95, with a standard deviation of 2.10, and the range of net profit margin values is from 4.60 to 12.70. The mean debt-to-equity ratio is 0.56, with a standard deviation of 0.12, and the range of debt-to-equity ratio values is from 0.30 to 0.80. These statistics indicate that the companies in the sample have a moderate level of green investment, with variability in their financial sustainability indicators.

Correlation Analysis

Correlation analysis was conducted to explore the relationships between green investment and financial sustainability indicators. The Pearson correlation coefficients (r) are presented in results green investments have a potentially positive relationship with financial sustainability indicators such as ROI and net profit margin, indicating a positive correlation. However, there seems to be a potential trade-off between green investments and financial leverage, as there is a negative correlation observed with the debt-to-equity ratio.

Regression Analysis

Multiple regression analysis was performed to model the relationship between green investment and financial sustainability, considering moderating variables. The results are presented in Table 2.

Table 2. Regression Results

Variable	Coefficient (β)	Standard Error	T	Sig
Intercept	5.243	1.58	3.324	0.002
Green Investment	2.189	0.64	3.413	0.001
Industry Type	-0.157	0.28	-0.543	0.589
Company Size	1.124	0.41	2.723	0.004

The coefficients and standard errors for the variables in the regression model are as follows: Intercept: 5.243 (SE = 1.583, $t = 3.324$, $p = 0.002$). Green Investment: 2.189 (SE = 0.643, $t = 3.413$, $p =$

0.001). Industry Type: -0.157 (SE = 0.28, $t = -0.543$, $p = 0.589$). Company Size: 1.124 (SE = 0.412, $t = 2.723$, $p = 0.004$). The regression results show that green investment is a significant predictor of financial sustainability ($\beta = 2.185$, $p < 0.001$), even when considering the moderating effects of industry type and company size.

Discussion

The average score of 4.23 on a scale of 1 to 7 indicates a moderate level of green investment among companies in West Java. This indicates a positive trend towards environmentally friendly practices. The positive correlation between green investment and financial indicators (ROI, Net Profit Margin) is in line with existing literature, which indicates that companies with higher green investment tend to show better financial performance. The regression results confirm a statistically significant and positive relationship between green investment and financial sustainability. The positive coefficient ($\beta = 2.18$) indicates that, on average, a one-unit increase in green investment is associated with a 2.185-unit increase in financial sustainability, after controlling for industry type and firm size.

The relationship between green investment and financial sustainability is examined in the provided abstracts. The studies show that green investments and financing have a positive impact on sustainable business performance and economic growth [18], [43], [44]. Additionally, it is found that corporate social responsibility (CSR) mediates the relationship between green investment, green financing, and sustainable performance [45]. The effectiveness of green financing is influenced by both corporate and national level factors, such as formal institutions and financial oversight [46]. Furthermore, the findings suggest that economic freedom plays a role in promoting inclusive green growth (IGG) in sub-Saharan Africa (SSA). The studies emphasize the importance of incorporating green financing, investment, and CSR to improve sustainable economic performance. These findings contribute to the understanding of the dynamics between green investment and financial sustainability, highlighting consistencies and disparities with existing literature.

Implications for Practice and Policy

The practical implications of the results for businesses in West Java will be discussed, offering insights into how companies can integrate green investment strategies to enhance both environmental and financial outcomes. Policy implications for regulators and policymakers aiming to incentivize sustainable business practices will also be addressed.

Limitations and Recommendations

The limitations of the study, such as sample size constraints and potential biases, will be acknowledged. Recommendations for future research will be proposed to address these limitations and expand the knowledge in this field.

CONCLUSION

In summary, this research provides insight into the critical significance of green investment in augmenting the financial viability of enterprises situated in West Java. According to the findings of a rigorous quantitative analysis, businesses that allocate greater resources towards environmentally friendly initiatives generally demonstrate enhanced financial performance. Despite controlling variables such as industry classification and firm magnitude, the positive correlation endured. The observed moderate level of green investment indicates a favorable trajectory towards the adoption of environmentally sustainable practices within the region. The implications of these findings are practical for businesses that strive to strike a balance between environmental responsibility and economic growth. Additionally, they provide policymakers with valuable insights that can be utilized to encourage sustainable business practices. Although the cross-sectional design of the data and other limitations of the study are duly recognized, the findings nonetheless offer a

significant contribution to the ongoing dialogue concerning the convergence of financial sustainability and green investment. Subsequent investigations may wish to examine longitudinal data and conduct more in-depth analyses of particular industries or company sizes in order to unveil intricate connections and augment our comprehension of sustainable business practices.

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