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The Effect of Green Innovation, Environmental Awareness, and Competitive Advantage on MSME Marketing Performance

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Abstract

Environmental issues and the reduction of natural resources are factors for MSMEs to develop environmentally friendly products. The high level of public awareness of environmental health is one of the factors that drives changes in behavioral consistency in using green products, which of course has an impact on the marketing performance of green product MSMEs. Several factors that influence marketing performance are green innovation, environmental awareness and competitive advantage. Therefore, this study aims to analyze the influence of green innovation, environmental awareness and competitive advantage on the marketing performance of green products of MSMEs in the Special Region of Yogyakarta. The sample in this study was 45 MSMEs. The sampling technique was carried out using the non-probability sampling method, namely purposive sampling. The results of the instrument test in this study were declared valid and reliable. The results of the classical assumption test stated that the research data was normally distributed and produced a regression model that was free from multicollinearity and heteroscedasticity. The results of this study prove that green innovation has a positive and significant effect on marketing performance. Environmental awareness does not have a significant effect on marketing performance. Competitive advantage does not have a significant effect on marketing performance.

Keywords

Green Innovation, Environmental Awareness, Competitive Advantage, Marketing Performance.

1. Introduction

The development of MSMEs in Indonesia is currently growing rapidly considering their important role as the backbone of the national economy. One of the regions in Indonesia that has a large number of MSMEs is in the Special Region of Yogyakarta, namely 324,408 MSMEs. The business sectors in these MSMEs include trade, agriculture, marine and fisheries, communications, health, tourism, real estate, education, creative economy, forestry, mineral resources and energy, and processing industry (Bappeda Jogja Prov, 2023). From a number of these business sectors, there are types of businesses that are oriented towards green products such as eco-printing crafts, and *batik tulis* with natural dyes, various organic agricultural products and organic food, and various natural fiber crafts, bamboo and other products made from natural materials and environmentally friendly. Environmental issues and the decreasing availability of natural resources are one of the factors for MSMEs to develop environmentally friendly products or green products. Green products are products that are made with high resource efficiency with the aim of reducing environmental pollution and have characteristics that can be recycled and used sustainably (Nguyen, 2023).

The high public awareness of environmental health is one of the factors that drives consistent behavioral changes in using green products. This also has an impact on the marketing activities of MSMEs that strive to produce good marketing performance. Marketing performance is a factor used to measure and evaluate the performance of a business organization that has been carried out (Juju & Supriadi, 2024). Good marketing performance can be achieved by focusing on consumer views and profitability (Munir et al. 2024). There are a number of factors that influence marketing performance in businesses that produce green products, namely: green innovation (Nuryakin & Maryati, 2022; Purwanto et al., 2022), environmental awareness (Rama & Susanto, 2024; Vegirawati, 2024), and competitive advantage (Puspaningrum, 2023; Zaini et al., 2023). Green innovation is a product development process that focuses on improving environmental quality and sustainability (Asiaei et al., 2023). Green innovation also improves environmental quality through technological innovation (Ma et al., 2023). The implementation of good green innovation has benefits for MSMEs, in addition to contributing to preserving the environment, it also addresses consumer concerns about the dangers of environmental pollution in purchased products (Febriatmoko et al., 2023). The green innovation process involves several aspects such as understanding green innovation, skills in technology, and improving environmentally friendly production processes, making it have an impact on good marketing performance (Shaukat et al., 2023).

Green innovation has an impact on the production process, marketing strategy, competitive advantage and finances of MSMEs so that it has a significant effect on improving marketing performance (Fitriani, 2015; Zheng et al., 2022). The results of different studies explain that green innovation does not have a significant effect on improving marketing performance, especially in the product production process (Wasiq et al., 2023). The difference in research results shows a research gap so that further research is needed.

The marketing performance of green product MSMEs can also be influenced by environmental awareness (Azzahra et al., 2024; Wahyono et al., 2024). Environmental awareness is an attitude in realizing that there are problems in the environment and trying to fix them (Allan et al., 2020). Individual behavior is related to environmental awareness (Utami et al., 2023; Lubis, 2022). The application of environmental awareness is important for MSMEs in order to provide information about environmentally friendly products to consumers, which of course is useful when they want to buy the products offered (Iftikhar et al., 2022). Several factors such as education level, experience, and product perception can affect environmental

awareness (Daoud et al., 2024). The results of the study showed that environmental awareness has a significant effect on marketing performance, this study explains that the higher the awareness of business actors towards the environment, the better the marketing performance will be (Hamzah et al., 2020). The results of different studies show that environmental awareness does not have a significant effect on improving marketing performance due to the lack of information delivery to consumers (Tang et al., 2024). The difference in research results shows that there is a research gap so that it needs to be studied further.

The rapid development of business today makes the competitive advantage factor the most important part of MSMEs with the aim of improving marketing performance in a better direction. Competitive advantage is the ability of MSMEs to face business challenges, both on a national and international scale (Muniroh et al., 2023; Nofriady et al., 2024; Ekaputri et al., 2024)). Competitive advantage is a crucial part in advancing the marketing performance of MSMEs because it represents the ability to build and maintain a business in a stronger position (Adinata et al., 2023). By implementing competitive advantage well, it has an impact on profitability and productivity and can increase sales and new product development strategies which of course improve marketing performance (Ambarwati et al., 2023). Competitive advantage contributes significantly to marketing performance through several factors such as product quality, affordable prices, and a good service reputation (Musonnafa & Djazuli, 2022). The results of different studies show that competitive advantage does not have a significant effect on marketing performance if it does not have a good management strategy (Ribek et al., 2022). The differences in the results of these studies indicate a research gap so that further research is needed. The increasingly tight competition of green product MSMEs makes business actors have to think about good strategies for the smooth running of long-term business. This is done through marketing performance in the MSMEs. In addition, the existence of gap research in previous studies is the basis for researchers to further research marketing performance.

2. Literature Review

Green innovation is a type of innovation that helps business organizations by increasing resource efficiency and reducing emissions in the production process to achieve maximum environmentally friendly product transformation (Yang et al., 2024). Green innovation is a system that integrates sustainability criteria, including financial, social and environmental considerations into marketing strategies (Bataineh et al., 2023). Green innovation focuses on manufacturing processes and product design to reduce pollution, save resources, minimize waste, and reduce the impact of company activities on the environment (Singh et al., 2022).

Research conducted by Ardyan et al. (2017) proves that green innovation has a significant effect on marketing performance. Green innovation indicators include production capacity, efficiency capacity and product recycling capacity. Marketing performance indicators include sales growth, increased profits, and business growth (Rizqulloh et al., 2024; Pertiwi et al., 2024). Other green innovation research was also conducted by Asad et al. (2023) stated that the application of green orientation and innovation has a significant effect on improving marketing so that it certainly has an impact on company performance. Indicators of green innovation include the use of environmentally friendly materials, resource efficiency, and easy to recycle. Company performance indicators include marketing improvement, revenue improvement, and risk taking.

H1: Green innovation has a positive and significant effect on the marketing performance of MSME green products.

Environmental awareness is a human attitude of responsibility to protect and preserve the environment from the massive impacts of human activities that cause environmental damage (Ayyoub & Radaydeh, 2021). Environmental awareness is an attitude of being aware of threats to the environment through environmental education (Küçükaydın & Ulum, 2023). Environmental awareness also helps the use of resources to be more organized (Vorontsova et al., 2021). Environmental awareness research conducted by Lajevardi et al. (2021) proved that environmental awareness has a significant effect on marketing performance. Environmental awareness indicators include consumer characteristics, environmental protection, and environmentally friendly policies. Marketing performance indicators include innovation, business strategy, and resources. Another environmental awareness study was also conducted by Budaya et al. (2023) showing that the application of environmental awareness has a significant effect on marketing performance. Environmental awareness indicators include knowledge of waste recycling and resource efficiency. While the marketing performance indicators include innovation and production.

H2: Environmental awareness has a positive and significant effect on the marketing performance of MSME green products.

Competitive advantage is a company's strategy in producing goods with high-cost efficiency to generate more sales (Korry et al., 2024). Competitive advantage is a company's position where it outperforms its competitors by offering affordable product prices for consumers (Cegliński, 2017). Competitive advantage can be described as a complex strategy that cannot be imitated by its competitors (Fernandes et al., 2023). Competitive advantage research conducted by Yasa et al. (2020) proves that competitive advantage has a significant effect on marketing performance. Competitive advantage indicators include brand strength, popularity, and product image. While marketing performance indicators include sales growth, stock increases, and operational profits (Thoriq et al., 2024; Artanaya et al., 2024). Another study conducted by Handayani (2023) shows that competitive advantage has a significant effect on the marketing performance of culinary MSMEs. Competitive advantage indicators include costs, quality, product innovation, distribution reliability, and competitiveness. Then the marketing performance indicators include market share, consumer satisfaction, and product quality.

H3: Competitive advantage has a positive and significant effect on the marketing performance of MSME green products.

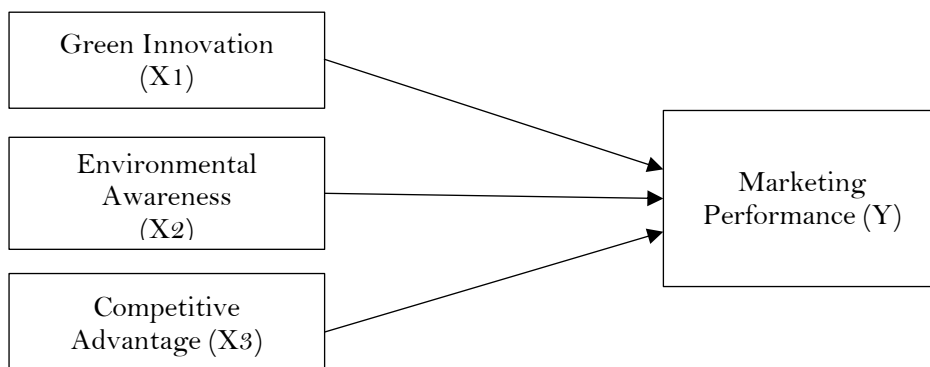


Figure 1. Framework Research

3. Methods

This study uses a quantitative method. The population in this study is MSME green products. The sample in this study was 45 MSMEs. The sampling method used purposive sampling, namely a sampling technique with certain criteria. The criteria are as follows: (1) MSMEs produce green products, namely craft products with the main composition of natural and environmentally friendly materials, (2) MSMEs have been actively operating for at least the last 3 years. The data collection method uses a questionnaire. The measurement scale uses a five-level Likert scale. This study aims to analyze the effect of green innovation, environmental awareness and competitive advantage on the marketing performance of MSME green products. Indicators of green innovation include: utilization of natural raw materials, the production process does not cause pollution, raw materials are easily recycled, developing environmentally friendly products, developing waste management methods (Zhong et al., 2024). Environmental awareness indicators include: being aware of the negative impacts of production waste, contributing to reducing environmental pollution, being effective and efficient in using resources, using natural raw materials to avoid pollution (Basaglia et al., 2023). Competitive advantage indicators include: products that are difficult to imitate, unique products, superior product quality, prioritizing innovation, cost efficiency, price competitiveness, effective promotion (Tewu et al., 2024). Marketing performance indicators include: growth rate, profitability, market share control, satisfying customers, retaining customers, marketing innovation, overall business performance achievement (Nurcaya et al., 2024).

4. Results

Based on the validity test, it is known that all statements have a calculated r value that is greater than the r table of 0.294 so that it can be concluded that all questionnaire statements are valid and suitable for use.

Table 1. Validity Test

Variable	Indicator	r count	r table	Information
Green Innovation (X1)	X1.1	0.914	0.294	Valid
	X1.2	0.842	0.294	Valid
	X1.3	0.823	0.294	Valid
	X1.4	0.900	0.294	Valid
	X1.5	0.691	0.294	Valid
Environmental Awareness (X2)	X2.1	0.684	0.294	Valid
	X2.2	0.919	0.294	Valid
	X2.3	0.925	0.294	Valid
	X2.4	0.872	0.294	Valid
Competitive Advantage (X3)	X3.1	0.732	0.294	Valid
	X3.2	0.736	0.294	Valid
	X3.3	0.667	0.294	Valid
	X3.4	0.708	0.294	Valid
	X3.5	0.740	0.294	Valid
	X3.6	0.688	0.294	Valid
	X3.7	0.598	0.294	Valid
Marketing Performance (Y)	Y.1	0.809	0.294	Valid
	Y.2	0.794	0.294	Valid
	Y.3	0.829	0.294	Valid
	Y.4	0.670	0.294	Valid
	Y.5	0.720	0.294	Valid
	Y.6	0.651	0.294	Valid
	Y.7	0.783	0.294	Valid

The validity test results presented in Table 1 indicate that all indicators for the variables Green Innovation (X1), Environmental Awareness (X2), Competitive Advantage (X3), and Marketing Performance (Y) are valid. Each indicator demonstrates an r count value greater than the r table value of 0.294, confirming their validity at the specified significance level. For Green Innovation (X1), all five indicators (X1.1 to X1.5) have r count values ranging from 0.691 to 0.914, indicating strong validity. Similarly, the four indicators of Environmental Awareness (X2) (X2.1 to X2.4) show r count values between 0.684 and 0.925, demonstrating high levels of validity. In the case of Competitive Advantage (X3), the seven indicators (X3.1 to X3.7) have r count values between 0.598 and 0.740, all exceeding the r table value, ensuring their validity for this construct. Lastly, for Marketing Performance (Y), all seven indicators (Y.1 to Y.7) are valid, with r count values ranging from 0.651 to 0.829. Based on the reliability test, all variable items have an alpha coefficient value greater than the critical value of 0.70, so it can be concluded that all variable items are reliable.

Table 2. Reliability Test

Variable	Cronbach Alpha	Critical Value	Information
Green Innovation	0.814	0.70	Reliable
Environmental Awareness	0.831	0.70	Reliable
Competitive Advantage	0.773	0.70	Reliable
Marketing Performance	0.784	0.70	Reliable

The reliability test results in Table 2 indicate that all variables—Green Innovation, Environmental Awareness, Competitive Advantage, and Marketing Performance—are reliable. Each variable has a Cronbach Alpha value exceeding the critical value of 0.70, which is the threshold for reliability. Specifically, Green Innovation has a Cronbach Alpha value of 0.814, while Environmental Awareness scores 0.831, demonstrating strong internal consistency for these constructs. Competitive Advantage has a reliability coefficient of 0.773, and Marketing Performance records a value of 0.784, both of which confirm their reliability. These results validate that the measurement instruments used for all variables are consistent and suitable for further analysis in this study.

The normality test is used to test whether the data distribution is normal or not. Based on the table below, the significance value is 0.200. This value is > 0.05 so it can be concluded that the data is normally distributed.

Table 3. Normality Test

One-Sample Kolmogorov Smirnov Test		Unstandardized Residual	
N		45	
Normal Parameter ^{ab}	Mean	.0000000	
	Std. Deviation	2.80268631	
Most Extreme Differences	Absolut	.075	
	Positive	.071	
	Negative	-.075	
Test Statistic		0.75	
Asymp. Sig. (2-tailed) ^c		.200 ^d	
Monte Carlo Sig. (2-tailed) ^d	Sig.	.745	
	99% Confidence Interval	Lower Bound	.734
		Upper Bound	.756

The normality test, as shown in Table 3, is conducted to determine whether the data distribution is normal. The results from the One-Sample Kolmogorov-Smirnov Test indicate that the significance value (Asymp. Sig. 2-tailed) is 0.200, which is

greater than the threshold value of 0.05. This confirms that the data is normally distributed. The test was performed on 45 samples, with a mean of 0.000000 and a standard deviation of 2.80268631 for the unstandardized residuals. The test statistic is 0.075, with most extreme differences being 0.075 (absolute), 0.071 (positive), and -0.075 (negative). The Monte Carlo significance value is 0.745, with a 99% confidence interval ranging from 0.734 to 0.756. Based on these findings, it can be concluded that the data satisfies the assumption of normality, making it suitable for further statistical analysis.

Multicollinearity test is conducted to test whether there is a similarity between independent variables. Based on the table below, it is known that all variable items have a VIF value <10 and tolerance > 0.1 so it can be concluded that all variable items do not experience multicollinearity symptoms.

Table 4. Multicollinearity Test

Model	Coefficients ^a						Collinearity Stat.	
	Unstd. Coeff.		Std Coeff.	t	Sig.	Tolerance	VIF	
	B	Std. Error	Beta					
(Constant)	12.600	7.071		1.782	0.082			
Green Innovation	0.855	0.351	0.539	2.434	0.019	0.414	2.414	
Environmental Awareness	-0.581	0.502	-0.268	-1.156	0.254	0.378	2.646	
Competitive Advantage	0.190	0.187	0.156	1.019	0.314	0.867	1.153	

The multicollinearity test aims to evaluate whether there is a similarity or correlation among the independent variables. Based on the results in Table 4, all variable items meet the criteria for avoiding multicollinearity, as their Variance Inflation Factor (VIF) values are less than 10 and Tolerance values are greater than 0.1. For Green Innovation, the VIF value is 2.414, and the Tolerance value is 0.414. For Environmental Awareness, the VIF value is 2.646, and the Tolerance value is 0.378. Lastly, Competitive Advantage shows a VIF value of 1.153 and a Tolerance value of 0.867. These results indicate that none of the independent variables exhibit multicollinearity symptoms, ensuring the validity of the regression analysis. Thus, the independent variables can be used reliably in further statistical modeling.

The heteroscedasticity test is used to ensure that there are differences in residual variables from one observation to another. Based on the table below, it is known that the significance value of all variable items is > 0.05 so that it can be concluded that all variable items do not experience symptoms of heteroscedasticity.

Table 5. Heteroscedasticity Test

Model	Coefficients ^a				
	Unstd. Coeff.		Std. Coeff.	t	Sig.
	B	Std. Error	Beta		
(Constant)	7,166	3,960		1,810	0.078
Green Innovation	-0.208	0.197	-0.249	-1,059	0.296
Environmental Awareness	0.186	0.281	0.163	0.662	0.512
Competitive Advantage	-0.118	0.105	-0.184	-1,127	0.266

The heteroscedasticity test is conducted to determine whether there are differences in the residual variances across observations. Based on the results shown in Table 5, the significance values for all variable items are greater than 0.05, indicating the absence of heteroscedasticity symptoms. Specifically, the Green Innovation variable has a significance value of 0.296, Environmental Awareness has a significance value of 0.512, and Competitive Advantage has a significance value of 0.266. The constant term also has a significance value of 0.078, which is above the threshold. These findings confirm that the residual variances are consistent across

observations, satisfying the assumption of homoscedasticity. Consequently, the regression model is considered appropriate for further analysis. Multiple linear regression test is used to determine the direction of influence of independent and dependent variables. Table 6 showed multiple linear regression test.

Table 6. Multiple Linear Regression Test

Model	Coefficients ^a		Std. Coeff. Beta	t	Sig.
	Unstd. Coeff.				
	B	Std. Error			
(Constant)	12,600	7.071		1.782	0.082
Green Innovation	0.855	0.351	0.539	2.434	0.019
Environmental Awareness	-0.581	0.502	-0.268	-1.156	0.254
Competitive Advantage	0.190	0.187	0.156	1.019	0.314

The multiple linear regression equation obtained is $Y = 12.600 + 0.855 X_1 - 0.581 X_2 + 0.190 X_3 + e$, where Y represents marketing performance, and X1, X2, and X3 represent green innovation, environmental awareness, and competitive advantage, respectively. The constant value of 12.600 indicates that when the variables of green innovation, environmental awareness, and competitive advantage have a value of zero, the baseline level of marketing performance is 12.600.

The regression coefficient for the green innovation variable (X1) is 0.855, suggesting that for every 1-unit increase in the green innovation variable, the marketing performance score increases by 0.855 units. This indicates that green innovation positively influences marketing performance. Conversely, the environmental awareness variable (X2) has a regression coefficient of -0.581, which means that a 1-unit increase in environmental awareness is associated with a 0.581-unit decrease in marketing performance. This demonstrates a negative relationship between environmental awareness and marketing performance.

Lastly, the competitive advantage variable (X3) has a regression coefficient of 0.190, signifying that a 1-unit increase in competitive advantage results in a 0.190-unit increase in marketing performance. This highlights a positive relationship between competitive advantage and marketing performance. Overall, the results indicate that green innovation and competitive advantage positively impact marketing performance, while environmental awareness negatively affects it.

The hypothesis test in the form of a t-test is intended to partially test the significance of the influence of the variables of green innovation, environmental awareness and competitive advantage on the marketing performance of green product MSMEs.

Table 7. t Test

Variable	t	Sig (p)	Information
Green Innovation	2,434	0.019	Accepted
Environmental Awareness	-1,156	0.254	Rejected
Competitive Advantage	1,019	0.314	Rejected

The hypothesis testing results as shown in Table 7 reveal the influence of green innovation, environmental awareness, and competitive advantage on the marketing performance of MSME green products. For the first hypothesis (H1), the significance value obtained is 0.019, which is less than 0.05. This indicates that the hypothesis is accepted. Thus, it can be concluded that green innovation has a positive and significant effect on marketing performance. This finding underscores the importance of adopting innovative green practices to enhance the market competitiveness of MSMEs.

In contrast, the second hypothesis (H2) examines the effect of environmental awareness on marketing performance. The significance value for this test is 0.254,

which is greater than 0.05. Consequently, the hypothesis is rejected, signifying that environmental awareness does not significantly influence the marketing performance of MSMEs green products. This result suggests that while environmental awareness might be essential for consumer perception, it does not directly translate into improved marketing performance in this context.

Similarly, for the third hypothesis (H3), which investigates the impact of competitive advantage on marketing performance, the significance value is 0.314, also greater than 0.05. Therefore, the hypothesis is rejected, leading to the conclusion that competitive advantage does not significantly affect marketing performance. This finding implies that other factors, beyond competitive positioning, may play a more crucial role in shaping the marketing outcomes for MSMEs green products in the region.

The determination coefficient is intended to determine the contribution of the influence of green innovation variables, environmental awareness, and competitive advantage on marketing performance. The results of the determination coefficient test are shown in Table 8.

Table 8. Coefficient of Determination

R	R Square	Adjusted R Square	Std. Error of Estimate
.410 ^a	.168	.108	2.90341

Based on the results of the determination coefficient test, it is known to have an R² value of 0.108, which means that the contribution of the green innovation, environmental awareness and competitive advantage variables to the marketing performance variable is 16.8%, while the remaining 83.2% is influenced by other variables not involved in this study. Thus, the contribution of the influence of the independent variable on the dependent is in the weak category.

Based on the results of the hypothesis test, it is stated that green innovation has a positive and significant effect on the marketing performance of MSME green products. This statement explains that the stronger the green innovation practices in MSMEs, the more it will improve marketing performance. Likewise, conversely, the lower the green innovation practices carried out, the lower the marketing performance of MSMEs. Green innovation practices that are able to encourage increased MSME performance are shown through the use of natural raw materials, the production process does not cause pollution, raw materials are easily recycled, developing environmentally friendly products, and developing waste management methods. The highest green innovation practice in MSMEs engaged in green products is innovation in production waste management techniques where this innovation is not only beneficial for the environment but is also able to encourage increased marketing performance. Green innovation capabilities that include product, process and organizational development have a significant influence on marketing performance if carried out properly (Harini et al., 2020). The results of this study support the results of previous studies conducted by Ardyan et al. (2017), Pratiwi et al. (2024), and Asad et al. (2023) which stated that green innovation has a significant effect on marketing performance.

Based on the results of the t-hypothesis test, the environmental awareness variable does not have a significant effect on the marketing performance of MSME green products. This statement proves that environmental awareness is not a determining factor in the marketing performance of MSME green products. Although the results of the descriptive statistical analysis show that on average, MSME green products already have high environmental awareness, it does not have an impact on marketing performance. This may be due to the lack of knowledge of MSME business actors regarding the importance of environmentally friendly practices so that environmental awareness has not been utilized effectively in supporting increased marketing performance (Laksmi & Perdiana, 2024). The

results of this study support the results of previous studies conducted by Tang et al. (2024) which stated that environmental awareness has no effect on marketing performance.

Based on the results of the t-hypothesis test, it is known that the competitive advantage variable does not have a significant effect on the marketing performance of MSME green products. This statement proves that the competitive advantage variable possessed by green product MSMEs does not guarantee that it can improve marketing performance. Although the results of the descriptive statistical analysis show that green product MSMEs have a strong competitive advantage, it does not affect marketing performance. The causes of this include, among others, the lack of intensive promotion, pricing strategies that are less attractive to consumers, innovations that still need to be improved (Ferdyan & Hartawan, 2024; Widayati et al., 2023). The results of this study also support the results of previous studies conducted by Ribek et al. (2022) which stated that competitive advantage does not affect marketing performance.

5. Conclusion

The findings of this study highlight the varying impacts of green innovation, environmental awareness, and competitive advantage on the marketing performance of MSMEs. The results confirm that green innovation has a positive and significant effect on marketing performance. This indicates that the stronger the adoption and implementation of green innovation practices by MSMEs, the better their marketing performance. Conversely, a lack of green innovation practices corresponds to a decline in marketing outcomes, underscoring the importance of integrating environmentally-friendly innovations into business strategies to remain competitive in the market. On the other hand, environmental awareness does not exhibit a positive influence on marketing performance. This suggests that while awareness about environmental issues may shape consumer perceptions or guide operational decisions, it does not directly contribute to improving marketing performance. As a result, MSMEs may need to complement environmental awareness efforts with actionable strategies that directly impact their market presence and performance metrics. Similarly, competitive advantage does not show a positive effect on marketing performance. This finding implies that having a competitive edge alone is insufficient to drive better marketing results for MSMEs. Other factors, such as product innovation, customer engagement, or operational efficiency, might play more pivotal roles in determining marketing success. These insights emphasize the need for MSMEs to critically evaluate and integrate a combination of strategies tailored to their market dynamics and operational capabilities.

This study has several limitations that need to be acknowledged. First, the sample size used in this research consists of 45 MSMEs, which, although meeting the minimum required sample criteria, is not sufficient to represent the overall condition of green product MSMEs. The relatively small sample size limits the generalizability of the findings to a broader population. Future studies should consider involving a larger sample size to capture a more comprehensive and representative understanding of green product MSMEs and their marketing performance dynamics. Second, the study's coefficient of determination (R^2) reveals that the variables of green innovation, environmental awareness, and competitive advantage contribute only 16.8% to explaining variations in marketing performance. The remaining 83.2% is influenced by other variables not included in this study. This highlights a significant gap in the analysis and suggests that other critical factors, such as pricing strategies, promotional efforts, and broader innovation measures, may play a substantial role in determining marketing performance. Future research should address this limitation by incorporating additional variables to provide a

more holistic view of the factors influencing marketing success in green product MSMEs.

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