

## **Analysis of Financial Technology and Green Marketing On Brand Loyalty (Study Case on Starbucks Multatuli Medan Branch)**

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### **ABSTRACT**

In today's digital world, alongside worldwide problems like environmental harm from human actions and rising global temperatures, there's a growing understanding of the need to protect our environment. The extensive reporting on waste-related issues has captured widespread attention, leading to heightened public worry and greater environmental consciousness. This situation has motivated businesses to actively participate in environmental preservation efforts, working alongside the community. This research seeks to determine how financial technology impacts brand loyalty, to explore green marketing's effect on brand loyalty, and to assess the combined effect of financial technology and green marketing on brand loyalty. This study will survey all Starbucks customers in 2024, using a sample group of 160 individuals, obtained using Hair et al collected using questionnaire. The study's findings indicate that financial technology variable has a partial, direct impact on boosting brand loyalty at Starbucks, green marketing variable has a partial, direct impact on boosting brand loyalty at Starbucks, and that together, they have a combined impact on brand loyalty partially or simultaneously.

**Keywords:** brand loyalty, environmental concern, financial technology, green marketing, Starbucks.

### **INTRODUCTION**

In our modern digital age, facing global issues such as ecological destruction caused by people and the earth getting warmer, there's an upswing in consciousness regarding the importance of protecting our ecosystems (Situmorang & Wilbert, 2025). Indonesia, a vast archipelago, is composed of around 17.508 islands (Fikriansyah, 2025). Beyond its expansive seas, Indonesia is rich in natural resources and different forms of energy. This richness enables Indonesia to keep growing by using its resources effectively. Yet, this growth brings forth a fresh challenge for the country: the ongoing need to keep the environment unpolluted.

Across Indonesia, environmental contamination is becoming more prominent, due to a collective absence of care for environmental issues among the population (Lie et al., 2024). A multitude of news stories centered on waste-related matters have garnered public notice, creating a stronger sense of concern and awareness concerning the environment among people. According to Yonatan (2024), Indonesia is responsible for producing 14.73 million tons of wasted food annually. Facts presented by Sakinah (2024) also highlight that the total national waste pile from 290 regions is as high as 31.9 million tons. Given the increasing environmental awareness among the public, companies are modifying their strategies to match these evolving consumer behaviors by adding green marketing into their marketing efforts. The green marketing idea, a strategy that gives

importance to values that are not harmful to the environment, is now generally used by companies to draw in consumers who think being environmentally conscious is important.

Starbucks, recognized globally as a leading coffeehouse, has exhibited its dedication to ecological preservation through a range of endeavors, including the adoption of environmentally sound straws, the curtailment of disposable plastics, and the implementation of recycling schemes. These initiatives are also designed to encourage consumer participation, thereby assisting the corporation in its environmental preservation efforts. Businesses capable of cultivating robust customer allegiance are poised for expansion and better equipped to withstand competitive pressures (Rezeki et al., 2021).

Digital payment systems, encompassing digital wallets, QRIS payments, and a spectrum of payment applications, presents functional alternatives that foster both effectiveness and expediency in the payment process. According to Narastri (2020), financial technology can be characterized as innovative technological progress within financial exchange amenities. Its pervasiveness is notable in the food and beverage sector, including its adoption by international firms such as Starbucks. Nevertheless, the current implementations of financial technology primarily offer transactional ease, whereas competing brands frequently provide promotional incentives; Starbucks has yet to engage in financial technology partnerships that extend enhanced benefits to its clientele. Financial technology in this study refers to the use of digital payment systems and mobile apps that simplify the transaction process and enhance customer experience at Starbucks. Its importance lies in how convenience and efficiency in payments contribute to customer satisfaction and brand loyalty. However, issues such as system errors, low awareness of app benefits, and limited promos may hinder the full positive impact of fintech on customer loyalty.

Consequently, businesses must adapt dynamically to shifting consumer patterns and refine their marketing methodologies accordingly (Siatama et al., 2023). Green marketing entails an eco-supportive marketing framework predicated on satisfying consumer anticipations through the delivery of ecological merits (Salam & Sukiman, 2021). Green marketing transcends mere product promotion; it embodies a corporation's environmental accountability. Consequently, a multitude of food and beverage establishments proffer alternatives like paper cups, paper straws, and reusable tumblers. Starbucks, for example, has transitioned from plastic to paper straws and provides price reductions to patrons who utilize their own tumblers. However, despite these discounts, the high cost of Starbucks tumblers often discourages customers from buying them. In this study, Starbucks' green marketing refers to the company's use of environmentally friendly packaging, waste reduction programs, and sustainable sourcing campaigns to build a green brand image.

In light of the aforementioned context and issues, the researcher was prompted to undertake a study entitled "**Analysis of Financial Technology and Green Marketing on Brand Loyalty (Study Case on Starbucks Multatuli Medan Branch).**"

## LITERATURE REVIEW

### Brand Loyalty

According to Situmorang & Pane (2024), loyalty from a customer is observed when they consistently buy products, or when they make a minimum of two transactions within a specified timeframe. Agnesia et al. (2022) stated that loyalty towards a brand encompasses a customer's actions and feelings about that brand over the course of time. Ang & Keni (2021) research suggests that loyalty to a brand is seen when a customer is dedicated to consistently purchasing a specific brand's products or services well into the

future. Therefore, based on these expert opinions, brand loyalty can be summarized as a customer's dedication to making regular and repeated purchases over an extended duration. Situmorang & Pane (2024) identify the measures of loyalty to a brand as how often someone buys, what feedback they provide, how often they suggest the brand to others, and the rate at which customers stay with the brand.

### Financial Technology

The current digital age has changed consumer spending habits, influenced by advances in global technology, such as the increasing use of digital payment methods (Alfando et al., 2023). Rahardjo (2021) stated that financial technology, or fintech, merges traditional financial systems with technological advances, leading to simpler and more innovative financial processes. In addition, Wibowo (2024) stated in 2024 that fintech is a vibrant field where financial services and technology come together, allowing new companies and tech startups to introduce creative products and services that compete with established financial institutions. Further, according to Wardhana et al. (2023), fintech involves using digital technologies in the financial industry, which changes the way financial services are delivered. According to the expert opinions presented above, fintech can be defined as the use of technology combined with traditional financial systems to change how financial services are provided, mostly by technology-oriented businesses. According to Wardhana et al. (2023), factors that indicate the use of financial technology include its advantages, ease of use, security features, level of trust, costs, potential for growth, level of compatibility, and practical applications. The usefulness of a fintech system indicates how easy it is for users to navigate and how effectively it aids them in achieving their intended results.

### Green Marketing

Green marketing emerged as a response to increasing public awareness and concern for environmental issues. Thoibah et al. (2022) describe green marketing as integrating a wide range of activities, such as changing products, refining manufacturing methods, updating packaging options, and adjusting advertising strategies. Hamid et al. (2023) stated in 2023 that green marketing represents a business's deliberate efforts to improve the overall well-being of people by prioritizing environmental concerns on a global scale. Additionally, Rosyada & Dwijayanti (2023) describe green marketing as a company's commitment to developing and marketing products or services that are environmentally responsible. In summary, the expert definitions above highlight that green marketing involves a company's efforts to comprehensively incorporate activities focused on enhancing human welfare through environmental consideration worldwide. According to Thoibah et al. (2022), the indicators of green marketing include a company's commitment to social responsibility, response to government regulations, handling of cost and profit matters, and ability to manage competition.

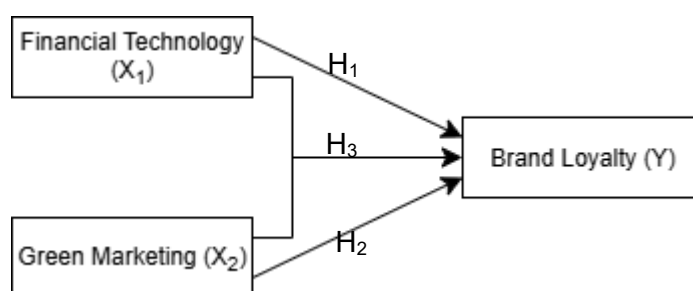


Figure 1. Framework

Building upon the theoretical structure outlined earlier, the succeeding research assumptions are posited:

- H<sub>1</sub>: Brand loyalty to Starbucks is affected by financial technology.  
 H<sub>2</sub>: Brand loyalty to Starbucks is affected by ecological marketing strategies.  
 H<sub>3</sub>: Brand loyalty to Starbucks is affected by both financial technology and ecological marketing strategies.

## RESEARCH METHOD

The study took place at the Starbucks situated on Jalan Samanhudi, JAT-1, Medan Maimun District, Medan City, North Sumatra 20212. The data collection timeline spanned from June 2025 to August 2025.

This study employed numerical data. Quantitative research, as defined by Syamsuddin et al. (2023), involves an unbiased research methodology that incorporates gathering and assessing numerical data through statistical tests. The collective group involves every aspect within the investigation, including both items and individuals possessing distinct traits. The entire group represents the complete collection or total sum of investigative subjects, which may encompass individuals, objects, or any entity obtainable and/or capable of yielding investigative data (Sugiyono, 2022). The sample was selected using purposive sampling or a sample selection process according to the researcher's objectives (Amruddin et al., 2022). The target group utilized for this study consists of all Starbucks patrons during 2025.

A sample, as defined by Sugiyono (2022), comprises a selection of traits inherent to the demographic employed for scrutiny. Given that the target group size remains unspecified, Hair et al. (2017) propose a minimum sample size of 5 times and a maximum of 10 times the count of markers. This investigation incorporates 16 markers, resulting in the determination of the implemented sample size: Minimum sample = number of indicators x 5 = 16 x 5 = 80 participants. Maximum sample = number of indicators x 10 = 16 x 10 = 160 participants. In this study, the researcher decided to use a sample size of 160 respondents from Starbucks customers, using the accidental sampling method, where customers who are first encountered are used as samples.

## RESULTS

### Validity test

Ghozali (2021) stated that questionnaire validity is assessed through validity testing procedures.

**Table 1.** Validity test

No	Variable	r <sub>count</sub>
1	Financial technology (X <sub>1</sub> )	0.723
		0.661
		0.599
		0.527
		0.638
		0.696
		0.445
		0.571
		0.696
		0.577
		0.867
		0.557
		0.504

No	Variable	r <sub>count</sub>
		0.593
		0.557
		0.680
2	Green marketing (X <sub>2</sub> )	0.690
		0.838
		0.740
		0.685
		0.645
		0.718
		0.697
		0.690
		0.895
3	Brand loyalty (Y)	0.473
		0.518
		0.895
		0.797
		0.895
		0.453
		0.895

Source: study results, 2025

In the current research, various assessments were performed to determine the quality of the survey tool. The validity assessment checked if the questionnaire was valid, whereas the reliability assessment checked if its factors were consistent.

### Reliability test

Ghozali (2021) stated that reliability serves as a means to assess a questionnaire functioning as a pointer for a specific variable or construct.

**Table 2.** Reliability Test

No	Variable	Cronbach's Alpha	Hasil
1	Financial technology (X <sub>1</sub> )	0.887	Reliable
2	Green marketing (X <sub>2</sub> )	0.859	Reliable
3	Brand loyalty (Y)	0.863	Reliable

Source: study results, 2025

The examined information indicated that the validity test resulted in a value range (0.708-0.821), which was higher than the required threshold of 0.361, thus demonstrating validity at a significance level of 5%. The reliability test displayed a Cronbach's Alpha value range (0.879-0.961) based on a sample size of 30 participants. These findings satisfied the reliability requirements, as the obtained value was greater than 0.60.

### Normality test

According to Ghozali (2021) the purpose of the normality test is to ascertain whether the confounding factors or residuals in a regression model follow a normal distribution pattern.

**Table 3.** One Sample Kolmogorov – Smirnov Test Results

Unstandardized Residual	
N	160
Asymp Sig (2-tailed)	0.200

Source: study results, 2025

Referring to the data presented in Table 3, the significance level of 0.200 is higher than the threshold of 0.05 (Sig F > 5%), leading to the conclusion that the data under examination are normally distributed.

### Multicollinearity test

Ghozali (2021) stated that the purpose of the multicollinearity test is to ascertain if the regression model identifies any interrelationships among the independent variables.

**Table 4.** Multicollinearity test results

Coefficients <sup>a</sup>			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Financial technology (X <sub>1</sub> )	0.954	1.048
	Green marketing (X <sub>2</sub> )	0.954	1.048

a. Dependent Variable: Brand loyalty (Y)

Source: study results, 2025

Referring to the data presented in Table 4, it is evident that the correlation values for the financial technology (X<sub>1</sub>) and green marketing (X<sub>2</sub>) factors possess a tolerance value (0.954) that is greater than 0.1, along with a VIF value (1.048) that is less than 10. Therefore, it can be inferred that the financial technology (X<sub>1</sub>) and green marketing (X<sub>2</sub>) factors do not exhibit multicollinearity issues.

### Heteroscedasticity test

Ghozali (2021) stated that the purpose of the heteroscedasticity examination is to find out if the regression model has a consistent variance across all observations.



**Figure 2.** Scatterplot

Source: study results, 2025

Based on the visual representation in Figure 2, the data points in the scatterplot are distributed randomly above and below the 0 mark on the Y-axis, without forming any identifiable pattern. This observation implies that there is no presence of heteroscedasticity in the data.

### Multiple Regression Analysis

Sahir (2022) stated that multiple regression is an analytical technique that uses more than two variables, with at least two independent variables and one dependent variable. The multiple regression equation can be expressed in the following manner:

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_nX_n$$

**Table 5.** Multiple Regression Analysis Test

Coefficients <sup>a</sup>			
Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	5.257	2.190
	Financial technology (X <sub>1</sub> )	0.082	0.027
	Green marketing (X <sub>2</sub> )	0.669	0.050



a. Dependent Variable: Brand loyalty (Y)

Source: study results, 2025

**Brand Loyalty = 5.257 + 0.082 Financial Technology + 0.669 Green Marketing + e**

Based on the aforementioned equation, the following conclusions can be drawn:

The constant value that was obtained is 5.257. This signifies that even if the financial technology ( $X_1$ ) and green marketing ( $X_2$ ) factors are assigned a value of 0, the brand loyalty (Y) will still hold a value of 5.257. The regression coefficient associated with the financial technology factor ( $X_1$ ) is positive (+), with a value of 0.082, which suggests that for each unit increase in the financial technology factor ( $X_1$ ), the brand loyalty (Y) will experience an increase of 0.082. The regression coefficient associated with the green marketing factor ( $X_2$ ) is positive (+), with a value of 0.669, which indicates that for each unit increase in the green marketing factor ( $X_2$ ), the brand loyalty (Y) will experience an increase of 0.669.

### Partial Significance Test (t test)

Ghozali (2021) suggests that the t-statistic test essentially illustrates the extent to which an individual explanatory or independent variable elucidates changes in the dependent variable.

**Table 6. t test results**

Coefficients <sup>a</sup>			
Model		t	Sig
1	(Constant)	3.062	0.003
	Financial technology ( $X_1$ )	13.323	0.000
	Green marketing ( $X_2$ )		

a. Dependent Variable: brand loyalty (Y)

Source: study results, 2025

In the context of the financial technology variable ( $X_1$ ), the derived t value (3.062) exceeds the table t value (1.975). Furthermore, the variable's significance level is 0.010, which is less than 0.05. This implies that the financial technology variable ( $X_1$ ) holds significance. Consequently, based on the test findings, it can be inferred that financial technology ( $X_1$ ) exerts a considerable impact on Starbucks brand loyalty (Y).

Regarding the green marketing variable ( $X_2$ ), the computed t value (13.323) surpasses the table t value (1.975). Likewise, the variable's significance level is 0.000, which is less than 0.05. This suggests the significance of the green marketing variable ( $X_2$ ). Therefore, drawing from the test outcomes, it is reasonable to conclude that service quality ( $X_2$ ) significantly influences Starbucks brand loyalty (Y).

### Simultaneous Significance Test (F test)

According to Ghozali (2021), this specific type of hypothesis testing is referred to as the ANOVA significance test, which assesses whether Y exhibits a linear correlation with  $X_1$ ,  $X_2$ , and  $X_3$ .

**Table 7. F test results**

ANOVA <sup>a</sup>			
Model		F	Sig
1	Regression	107.023	0.000

a. Dependent Variable : brand loyalty (Y)

b. Predictors: (Constant), financial technology ( $X_1$ ), green marketing ( $X_2$ )

Source: study results, 2025

As shown in Table 8, the calculated F-value stands at 107.023, accompanied by a 95% confidence level and an F-value of 3.05. Given that the calculated F-value exceeds the table F-value,  $H_0$  is rejected, and  $H_a$  is accepted. The significance level is 0.000, which

is less than 0.05. Based on the test results, it can be inferred that financial technology ( $X_1$ ) and green marketing ( $X_2$ ) concurrently exert a positive and substantial influence on Starbucks brand loyalty ( $Y$ ).

#### Determination coefficient test ( $R^2$ )

Ghozali (2021) stated that the coefficient of determination ( $R^2$ ) primarily assesses the model's capability to account for variance within the dependent variable.

**Table 8.** Determination coefficient test results

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.760	0.577	0.571	2.633
a. Predictors: (Constant), financial technology ( $X_1$ ), green marketing ( $X_2$ )				
b. Dependent Variable : brand loyalty ( $Y$ )				

Source: study results, 2025

The analytical results reveal that the coefficient of determination R square, employed to evaluate the model's capacity to elucidate variations in the dependent variable, amounts to 0.577. This suggests that 57.7% of Starbucks brand loyalty ( $Y$ ) is shaped by financial technology ( $X_1$ ) and green marketing ( $X_2$ ), while the remaining 43.3% is impacted by other variables that were not scrutinized in this particular study.

## DISCUSSION

#### Brand loyalty to Starbucks is affected by financial technology.

The study's findings led to the acceptance of  $H_1$ , demonstrating that the financial technology variable has a regression coefficient of 0.082. With a  $t_{\text{count}}$  of 3.062, which is greater than the  $t_{\text{table}}$  of 1.975, and a significance value of 0.003, which is less than 0.05, the partial hypothesis test (t-test) produced a positive trend. This shows that the financial technology variable has a partial, direct impact on boosting brand loyalty at Starbucks. This finding lines up with the results of studies by Iqbal et al. (2021) and Kini et al. (2024), which stated that developments in financial technology enhance customer brand loyalty.

#### Brand loyalty to Starbucks is affected by ecological marketing strategies.

According to the study's findings,  $H_2$  was accepted, showing that the green marketing variable has a regression coefficient of 0.669. The partial hypothesis test (t-test) yielded a  $t_{\text{count}}$  value of 13.323, which is higher than the  $t_{\text{table}}$  of 1.975, and a significance value of 0.000, which is less than 0.05, indicating a positive trend. This indicates that the green marketing variable has a partial, direct effect on strengthening brand loyalty at Starbucks. This lines up with the findings of studies by Kewakuma et al. (2021), Grover & Arora (2023), Krishnan et al. (2024) and Genoveva & Samukti (2020) which all came to the conclusion that environmentally friendly marketing impacts brand loyalty.

#### Brand loyalty to Starbucks is affected by both financial technology and ecological marketing strategies.

The research findings indicate that  $H_3$  is accepted, with an  $F_{\text{count}}$  value of 107.023, which exceeds the  $F_{\text{table}}$  value of 3.05, and a significance value of 0.000, which is less than 0.05. This shows a considerable link between using more financial technology and green marketing tactics as simultaneous tools for transactions and marketing and building brand loyalty at Starbucks, which can also raise sales and foot traffic. This is in line with the results of studies by Iqbal et al. (2021), Kini et al. (2024), Kewakuma et al. (2021), Grover & Arora (2023), Krishnan et al. (2024) and Genoveva & Samukti (2020), which stated that financial technology and green marketing impact brand loyalty.



The coefficient of determination ( $R^2$ ) test yielded a value of 0.577, indicating that financial technology and green marketing can account for 57.7% of the variation in brand loyalty, while the remaining 43.3% is attributable to other variables not taken into account in this research model.

### CONCLUSION

The research suggests that improving financial technology benefits, such as deals and discounts, by working with financial technology platforms that customers use frequently may significantly increase Starbucks brand loyalty. Because many individuals are now willing to utilize various financial technologies to receive discounts, Starbucks brand loyalty will rise when financial technology that regularly provides benefits for customers is utilized. Furthermore, providing less expensive packaging replacements to encourage customers to buy the tumblers that are sold can significantly affect Starbucks brand loyalty. As a result, Starbucks sales and brand loyalty will rise as financial technology and green marketing are improved.

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