
MODERATING EFFECTS OF INTERNET TECHNOLOGY ON HOW POP-UP ADS AND BRAND IMAGE AFFECT E-COMMERCE COMPETITIVENESS.

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ABSTRACT

KEYWORDS

Pop-up advertisement, Brand Image, Competitiveness, Internet technology.

One important factor that makes a company or business successful in the market is its ability to create competitiveness against its competitors using internet technology. This study aims to explore the moderating role of internet technology on the influence of pop-up advertisements and brand image on a company's competitiveness. The primary data collection method used in this study is a survey, which involves 100 respondents who have a permanent job, are e-commerce users, and reside in DKI Jakarta. The collected data was obtained through a validated and reliable questionnaire. The results of this study indicate that pop-up ads and brand image have a significant and positive impact on e-commerce competitiveness. Additionally, internet technology also has a significant and positive impact on competitiveness. Furthermore, the moderation effect of internet technology is positively associated with the influence of pop-up advertisements on competitiveness and also positively moderates the impact of brand image on competitiveness.

INTRODUCTION

One important factor that makes a company or business successful in the market is its ability to create competitiveness against its competitors. Competitiveness is the ability to produce goods and services that meet international standards, while also maintaining high and sustainable levels of revenue (Simamora, 2022). Businesses must be able to guarantee that competitors are tough to imitate their competitiveness to establish a lasting competitive edge (Porter, 1985). Tokopedia is one of the largest e-commerce in Indonesia Indonesia to compete with other e-commerce such as Shopee, Jd.Id, Zalora, Lazada, and others. According to (Databoks, 2022) Tokopedia has 158.3 million visitors, the highest number among other e-commerce in Indonesia, followed by Shopee with 131.3 million visitors.

Various strategies can be used to increase the competitiveness of e-commerce against its competitors. One of them is to use pop-up advertising. The research results of Ammarie & Nurfebriaraning (2019) explain that pop-up advertising on youtube is proven to influence audience attitudes toward accessing the youtube site. According to research (Chatterjee, 2008) user attitudes toward pop-up advadvertisingve a positive effect on the effectiveness of pop-up advertising and shape consumer perceptions when choosing a product or brand Daugherty et

al., (2015). Brand image is another element that may strengthen a company's competitiveness, according to a study by (Rawi et al., 2020; Wijaya & Oktavianti, 2019). In light of its role in enhancing e-commerce competitiveness, brand image is a company's most important asset (Panda et al., 2019; Scorrano et al., 2019). To support e-commerce to operate efficiently, internet technology and its utilization have become crucial factor. The result of research by (Rudy et al., 2008) explained that the use of Internet technology has proven to have a significant effect on increasing e-commerce sales turnover and the number of customers. By using Internet media, business units can expand their market share which has the potential to increase company sales (Setiawati, 2017).

The purpose of this study is to examine the effect of pop-up ads and brand image on Tokopedia's competitiveness. Unlike prior research, this study attempts to clarify the role of pop-up advertising and brand image on competitiveness, as well as the implications of internet technology in moderating the influence of pop-up advertising and brand image on Tokopedia's competitiveness.

The results of this study are important as digital business is growing significantly. The benefit of this research is helping scholars to understand digital businesses to increase their competitiveness by using pop-up ads, brand faith, and internet technology to increase competitiveness in e-commerce

METHOD RESEARCH

This study has an explanatory design and uses a quantitative method to explain the influence of pop-up advertising and brand image on e-commerce competitiveness as moderated by internet technology. This study's population consists of all residents of DKI Jakarta, millennials aged 23–38 who have a job and are actively using the internet, the number of whom is unknown. The sampling method used is purposive sampling, in which specific criteria are determined to generate a representative sample (Sugiyono, 2018). A questionnaire was issued to 100 respondents to obtain primary data. The number of samples is determined using the Lemeshow formula since the entire population is unknown (Sugiyono, 2018). The Likert scale, which evaluates the subject's response on a five-point scale, is used to examine respondents' opinions

RESULT AND DISCUSSION

There are 100 millennials aged between 24-38 years who have participated in this study with the following profiles:

Table 1
Respondents Profile

Variable	Total	Percent(%)
Gender		
- Female	56	44
- Male	44	56
Age		
- < 21 years	4	4
- 21 – 26 years	19	19

- 27 – 32 years	39	39
- > 33 years	38	38
Income (IDR)		
- 2.000.000 – 4.000.00	7	7
- >2.000.000 – 4.000.000	24	24
- >4.000.000 – 6.000.000	48	48
- > 6.000.000 – 4.000.000	21	21
Professions		
- Students	78	78
- Government Official	54	54
- Entrepreneurs	30	30
- Private Employee	39	39
- Others	9	9
User Frequency of Tokopedia		
- < 1 years	6	6
- 1 – 2 years	42	42
- > 3 years	52	52

Sources: Processed questionnaire data, 2022

Table 1 explains that the majority of respondents are female (56%) aged 27-32 years (39%) with an average income of IDR 4,000,000 – 6,000,000 (48%) They are professionals who work as government officials (54%) and have > 3 years using Tokopedia.

The Outer Model Assessment

The assessment of the outer model focuses on establishing the degree to which the indicators may represent the variables. In this study, Pop-up Ads (X1) are assessed by four indicators, Brand Image (X2) by six indicators, Internet Technology (Z) by seven indicators, and Competitiveness by three indicators. Because all indicators are reflected, this study uses Composite Reliability and Cronbach's Alpha to examine the reliability, while Convergent Validity and Discriminant Validity are employed to test validity.

Validity Test

Loading Factors As shown in Table 2, the PLS model has generated all loading factors with values greater than 0.70. As each indicator has a loading factor value greater than 0.70, the convergent validity is considered to be satisfied, indicating that all requirements for the validity test have been fulfilled (Ghozali, 2021).

Table 2
Outer Loadings

Variable/Indicator	Outer Loadings	Results
1. Pop-ups Ads (X1)		
- Good source of information (X1.P1)	0,59 0.859	Valid
- Relevance information (X1.P2)	0.806	
- Up to date information(X1.P3)	0.876	
- Virtual Ads (X1.P4)		

2. Brand Image (X2)		
– Consumer perception of product features (X2.P1)	0.764	Valid
– Consumer perception of the product	0.826	Valid
– Design (X2.P2)	0.894	Valid
– Consumer perception of price(X2.P3)	0.867	Valid
– Consumer perception of quality (X2.P4)	0.843	Valid
– Consumer perception of a variety of products (X2.P5)	0.866	Valid
– Consumer perception of service (X2.P6)		
3. Internet Technology		
– Experience using internet technology (Z1.P1)	0.793	Valid
– Complexity in using internet technology (Z1.P2)	0.770	Valid
– Willingness to explore the use of Internet technology (Z1.P3)	0.774	Valid
– Ease of using internet technology (Z1.P4)	0.767	Valid
– User perception of the benefits of Internet technology (Z1.P5)	0.743	Valid
– Attitudes in using internet5technology (Z1.P6)	0.804	Valid
– Dependency on the use of Internet technology (Z1.P7)	0.814	Valid
4. Competitiveness		
– Cost (Y1.P1)	0.701	Valid
– Quality Y2.P2	0.812	Valid
– Delivery Y3.P2	0.881	Valid

Source: Processed data (2022)

Furthermore, according to Table 3., all the values of Average Variance Extracted (AVE) are higher than 0.5 meaning that the requirement for the validity test has been satisfied. According to (Ghozali, 2021), to full fill the requirement of discriminant validity, the value of AVE should be higher than 0.5.

Table 3
EVA

Variable	Average Variance Extracted
Moderating Effect 1	1.000
Moderating Effect 2	1.000
Pop-up Ads (X1)	0.723
Brand Image (x2)	0.730
Competitiveness Y	0.678
Internet Technology Z	0.604

Source: Processed data (2022)

Reliability Test

The measurement model was evaluated further to assess the instrument's dependability using Conbrach's alpha and composite reliability. According to (Ghozali, 2021), the minimum value of Conbrach's Alpha and Composite Reliability to pass the reliability test criteria is 0.70. Because all of the Cronbach's Alpha and Composite Reliability values are more than 0.70 (see Table 4), the reliability test has been met.

Table 4
Cronbach's Alpha and Composite Reliability

Variable/Indicator	Cronbach's Alpha	Composite Reliability	Results
1. Pop-ups Ads (X1)	0.873	0.913	Reliable
– Good source of information (X1.P1)			
– Relevance information (X1.P2)			
– Up to date information(X1.P3)			
– Virtual Ads (X1.P4)			
2. Brand Image (X2)	0.926	0.730	Reliable
– Consumer perception of product features (X2.P1)			
– Consumer perception of the product			
– Design (X2.P2)			
– Consumer perception of price(X2.P3)			
– Consumer perception of quality (X2.P4)			
– Consumer perception of a variety of products (X2.P5)			

– Consumer perception of service (X2.P6)			
3. Internet Technology	0.891	0.914	Reliable
– Experience using internet technology (Z1.P1)			
– Complexity in using internet technology (Z1.P2)			
– Willingness to explore the use of Internet technology (Z1.P3)			
– Ease of using internet technology (Z1.P4)			
– User perception of the benefits of Internet technology (Z1.P5)			
– Attitudes in using internet5technology (Z1.P6)			
– Dependency on the use of Internet technology (Z1.P7)			
4. Competitiveness	0.838	0.678	Reliable
– Cost (Y1.P1)			
– Quality Y2.P2			
– Delivery Y3.P2			

Source: Processed data (2022)

Inner Model Assessment

The inner model is a structural model that predicts causal links among variables or factors that cannot be explicitly assessed. The link between latent constructs was investigated using structural model assessments. Using the Smart PLS 3.0, this research results are presented as follows :

Table 5
Original Sample (O), T Statistic

Variable	Original Sample (O)	T Statistic	P-Value
Moderating Effect 1 -> Competitiveness Y	0.352	3.271	0.001
Moderating Effect 2 -> Competitiveness Y	0.239	2.627	0.009
Pop-up Ads X1 -> Competitiveness Y	0.243	2.577	0.010
Brand Image X2 -> Competitiveness Y	0.382	3.313	0.001
Internet Technology Z -> Competitiveness Y	0.266	2.883	0.004

Source: Processed data (2022)

The inner model is a structural model that predicts causal relationships between variables or factors that cannot be measured directly. Structural model evaluations were performed to examine the relationship between latent constructs. The parameters used to evaluate the structural models are R² and the path coefficient. Based on the results, the R² found in this study are as follows:

Table 6
R- Square

Variable	R- Square	Adjusted R-Square
Competitiveness (Y)	0.688	0.671

Source: Processed data (2022)

R² represents the coefficient of determination for the endogenous construct. Based on the strength of the relationship, R² may vary from 0.67 (very strong) to 0.33 (moderate) to 0.19 (weak), as stated by Chin (2010). According to this research, the R² value of pop-up ads, the brand image on competitiveness moderated by internet technology is 0,688 higher than 0,600 suggesting that the proportion of changes in competitiveness caused by pop-up ads, brand image, and technology internet.

Hypothesis testing

The Effect of Pop-up Ads on Competitiveness

The results of the hypothesis testing of H1 have proven that there is a positive and significant effect between pop-up advertising and competitiveness with a statistical t value of 2.577 > t-table value of 1.96 and a p-value <0.05 meaning the hypothesis (H1) is accepted. The results of this study are in line with the results of previous research conducted (Natsir & Ernawati, 2020) that there is an effect of pop-up ads on competitiveness which is indicated by increased consumer buying interest. The research results are also in line with the results of (Anitawati & Apriliano, 2020), which explain that there is an effect of pop-up ads on product competitiveness. However, the results of this study are not in line with the results of previous studies conducted by (Edwards et al., 2002; Le et al., 2022) and (Mbugua & Ndavi, 2021).

The Effect of Brand Image on Competitiveness

The results of the hypothesis testing of H2 examined the positive effect of brand image on competitiveness which is shown by a statistical value of 3.313 > t table value of 1.96 and a p-value <0.05 means that the hypothesis is accepted. The results of this study support the results of previous research conducted (Wijaya & Oktavianti, 2019) which explained that there is a positive and significant influence on the brand image on e-commerce competitiveness. The results of this study are also in line with the results of research conducted by (Cham et al., 2020) which showed that there is an effect of brand image on hospital competitiveness. Finally, the results of this study are also in line with the results of research conducted by (Panda et al., 2019) which explains that there is an influence of brand image on a university's competitiveness.

The Effect of Internet Technology on Competitiveness

The results of hypothesis testing (H3) explain that there is a positive influence of internet technology on competitiveness with a statistical t value of 2.883 or > t table 1.96 and a p-value <0.05 meaning the hypothesis is accepted. The results of this study are consistent with many previous studies such as the research of (Buhalis & Zoge, 2007; Huo et al., 2016;

G. Li et al., 2009; Simamora et al., 2020).

Also, the results of this study are in line with the opinions of (Chong & Micco, 2001) which state that internet technology has an important role in business activities. The results of this study are also in line with the opinions of (Huo et al., 2016; G. Li et al., 2009) which state that the use of information technology in business activities can strengthen the company's competitive strategy and company competitiveness.

The Effect of Pop-up Ads on Competitiveness Moderated by Internet Technology

The results of hypothesis testing (H4) show that there is a positive and significant influence of internet technology as a moderating variable on the effect of pop-up ads on competitiveness with a t statistic value of $3.271 > t$ table 1.96 and p-value < 0.05 meaning the hypothesis is accepted. The results of this study support the statements of (Chong & Micco, 2001; Huo et al., 2016; G. Li et al., 2009) regarding the important role of internet technology in the digital marketing era. The results of this study are also consistent with the research (Buhalis & Zoge, 2007) which states that information technology is a source of competitive advantage. Furthermore, in (Simamora et al., 2020), the use of information technology provides opportunities for companies to promote products using digital marketing.

The Effect of Brand Image on Competitiveness Moderated by Internet Technology

The results of hypothesis testing prove that there is an influence of internet technology as a moderating variable on the influence of brand image on competitiveness with a statistical t value of $2.627 > t$ table 1.96 and a p-value < 0.05 meaning that the hypothesis is accepted. The results of this study are in line with the results of research (Wijaya & Oktavianti, 2019) which shows that there is a positive and significant influence of brand image on Tokopedia's competitiveness. Also, the results of this study are in line with the study conducted by (Cham et al., 2020). With the support of internet technology, the brand image of e-commerce will get better and have an impact on increasing the competitiveness of e-commerce.

The results of this study explain that there is an effect of pop-up ads on competitiveness moderated by internet technology. The results of this study are in line with previous research conducted by (Natsir & Ernawati, 2020) and (Anitawati & Apriliano, 2020). However, e-commerce needs to properly design the use of pop-up ads so that pop-up ads don't hurt the company. In several previous studies, pop-up ads proved not to have a positive effect on competitiveness (Saraswati, 2014). In the research (Mbugua & Ndavi, 2021), pop-up ads have been associated with negative perceptions of annoyance, irritation, and intrusiveness, meaning that there are pop-up ads. In fact, in the research of (Edwards et al., 2002), pop-up ads upset consumers and caused them to shut down online advertising entirely. This is consistent with the character of pop-up ads which always appear suddenly on the computer screen when a website is accessed (Moriarty & Mitchell, 2008) as an advertisement that appears suddenly on the computer screen when a website is accessed.

Likewise, the results of this study explain that there is an influence of brand image on competitiveness moderated by internet technology. According to the results of this study, with the support of internet technology, the brand image of e-commerce will get better and have an impact on increasing the competitiveness of e-commerce. To improve its brand image, Tokopedia can take advantage of digital marketing by utilizing various available applications.

CONCLUSION

From the results of this study, it can be concluded that pop-up advertisements have a positive influence on competitiveness. The results of this study indicate that brand image has a positive effect on competitiveness. Furthermore, this study revealed that internet technology has a positive impact on competitiveness. As a moderator variable, internet technology has been shown to strengthen the effect of pop-up advertisements on competitiveness as well as the impact of brand image on competitiveness. According to this research, internet technology has an important role in increasing competitiveness. Therefore, building internet technology capabilities is a strategic step to increase competitiveness, particularly as more firms are turning to digital marketing.

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