



Online Reviews and Ratings Shape Purchasing Decisions in Indonesian E-Commerce

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Abstract. This study aims to investigate the effect of risk perception, online customer reviews, and ratings on consumer purchasing decisions in Sidoarjo, Indonesia, using the Tokopedia application. The study employs an associative quantitative approach, and data is collected from 96 purposively sampled respondents through questionnaires. The results show that risk perception, online customer reviews, and ratings have a significant influence on consumer purchasing decisions through the Tokopedia marketplace. The findings suggest the importance of online customer reviews and ratings in shaping consumer perceptions of purchase risk and influencing their purchasing decisions. The study has implications for e-commerce platforms and fintech companies to focus on improving the quality of customer reviews and ratings to increase consumer trust and confidence in making online purchases.

Keywords: customer review · customer rating · Buying decision

1 Introduction

These technological developments have made changes in consumer behavior from previously shopping offline to shopping online or through e-commerce. This form of business transaction with electronic commerce allows trade to occur using information, and communication technology [1]. The trend of using e-commerce has grown quite rapidly in recent years, including in Indonesia. In Indonesia, the growth of e-commerce users has increased significantly from year to year [2]. Data from the Central Bureau of Statistics shows that 71.23 percent of e-commerce businesses sell to the final beneficiaries of purchasing products, and do not re-trading (end consumers), while 27.15 percent are sold to final consumers in the form of agents. [3].

In shopping online, usually before purchasing a product, consumers often have various forms of risk perception that will arise when they buy products online (Amanah et al., 2020). The perception of risk arises in the minds of consumers because the products offered cannot be made directly [4, 5], so consumers feel worried about experiencing fraud, the goods ordered do not arrive, the fear that the security deposit items that have been sent do not return if the ordered goods do not arrive [4, 6]. To minimize this fear,

consumers will make several considerations before making a buying decision online, for example, considerations relating to product reviews, convenience, trust, and prices provided. [4].

According to Arbaini et al., (2020) consumers will seek information about products before purchasing using online customer reviews (viewing reviews), and online customer ratings (viewing ratings). Through online customer reviews, consumers can read reviews about a product from other consumers who have used this product [7, 8]. In the marketplace application, there is a star rating that expresses the opinions of buyers or customers about the product, so consumers will see online customer ratings as a source of information in making buying decisions [9–11]. Several researchers have researched the relationship between perceived risk, online customer reviews, and online customer ratings on purchasing decisions. The following researchers found that perceived risk has a positive, and significant effect on purchasing decisions [12].

1.1 Perception of Risk

Risk in general will always follow every decision making, including purchasing decisions. In online shopping, consumers generally have a higher risk perception compared to making purchases directly at the store. For this reason, the perception of risk is important for consumers to understand when making purchases online [13]. Perceived risk is an uncertainty that consumers will face when they cannot see the consequences of a purchase decision [14]. Perceived risk is a consumer's assessment of products that considers the impact of the risks they receive, and can cause concern [12]). Perceived risk is a consumer's perception or view of uncertainty, and unwanted consequences of using a product or service (Amanah et al., 2020; Brahmanta & Wardhani, 2021). Baharuddin et al., (2022) mention six dimensions for measuring perceived risk, among others:

1. Financial risk. Financial (material) risks experienced by consumers due to business transactions
2. Product risk. The risk of products purchased online is higher than offline. Product risk is related to the low quality of the product purchased.
3. Time risk. Risks involve time, convenience, or effort, which would be wasted if the product purchased had to be replaced or repaired.
4. Risk of delivery. Risks related to product safety sent to the consumer's address
5. Social risk. Risks related to other people's low acceptance (rejection) of the product or the method used by someone to buy a product.
6. Security risk is the risk of misuse of the consumer's identity (address, cellphone number, credit or debit card account number) by marketers (online business).

1.2 Online Customer Review

Online customer reviews are part of electronic word of mouth (eWOM), which is a direct opinion from someone and that opinion is purely the will of the reviewers (the person doing the review) and is not part of an advertisement. Online customer reviews are one of several factors that can determine a person's purchasing decision [16]. In online shopping, the number of people's reviews of a product can be used or used as an

indicator of product popularity or the value of a product, which will affect someone's willingness to buy a product. Online customer review is a facility that can be an efficient promotional tool for marketing communications. Marketers and vendors have used this facility because it provides an effective, and efficient channel to reach their customers. Consumers related to product evaluation from various aspects, with this information consumers, can obtain additional information about the quality of products sold based on reviews or experiences written by other consumers who have purchased products at online stores [17].

Online customer review is a feature that was created to make it easier for consumers or potential customers to be able to make purchasing decisions for a product. Information obtained from online customer reviews can be used to identify and evaluate a product that consumers need. According to Sari, (2019) online customer reviews are reviews that are user-generated content or information made by someone and can be used as a means for consumers to find and obtain information about a product which will later influence purchasing decisions. Online customer review measurements are based on research by Anugrah, I.B., et al. (2021) uses indicators:

1. Perceived usefulness
2. Source Credibility
3. Argument quality
4. Valance (valance)
5. Volume of reviews (number of reviews)

1.3 Online Customer Rating

According to Julianti & Aini, (2019) online customer ratings are opinions from consumers that are conveyed using a certain scale. Usually, the scale used to express this opinion is symbolized in the form of a star. The more consumers give stars, it shows that the quality of the product is good. Conversely, if the number of stars given by consumers to a product is small, this can indicate that the product is of poor quality. The large number of stars earned or earned by a product can be associated with the quality of the product in question [9, 10].

That way potential customers who will make purchases can easily evaluate a product because the number of stars in the online customer rating is considered capable of being a benchmark for the quality of products sold online. It can be concluded that online customer rating is a consumer opinion expressed in the form of a star symbol as a form of consumer expression regarding the experience or benefits they feel from purchasing a product. Sari (2021) mentions 3 indicators that influence online customer ratings, namely:

1. Information quality, which relates to the amount, accuracy, and form of information about a product offered by online marketers.
2. Trust. Consumers trust the ability of online sellers to guarantee their security when transacting online.
3. Customer satisfaction is the overall attitude displayed by consumers when obtaining services or products that meet expectations.

1.4 Buying Decision

The buying decision is a process where consumers recognize the problem, seek information about a particular product or brand, and evaluate how well each of these alternatives can solve the problem which then leads to a buying decision. According Ilmiyah & Krishnawan, (2020) buying decision is choosing two or more alternative buying decision options. In other words, in making a decision, one must determine one alternative from the existing alternatives. The buying decision is a process when consumers choose, and buy a product based on what they like by considering, and evaluating several alternatives [12]. Four indicators are used to measure purchasing decisions [19], including:

1. As needed. Consumers make purchases because the products offered are what is needed, and it is easy to find the product they need.
2. Has benefits. Products purchased by consumers are very meaningful, and also useful for them.
3. Accuracy in buying products. The price of the product is on the quality of the product, and also on the wishes of consumers.
4. Repeat purchases, which are situations where consumers are satisfied with previous transactions so they intend to make transactions in the future

2 Conceptual Framework

The conceptual framework built in this study is related to theoretical studies, and previous research that identified the research hypothesis. The conceptual framework in this study is described as follows in Fig. 1.

The hypothesis is the answer to the formulation of the research problem which consists of: Hypothesis 1: Perceived Risk Affects Buying Decisions in the Marketplace.

Hypothesis 2: *Online Customer Review* affects Buying decision in Marketplace

Hypothesis 3: *Online Customer Rating* affects Buying decision in Marketplace.

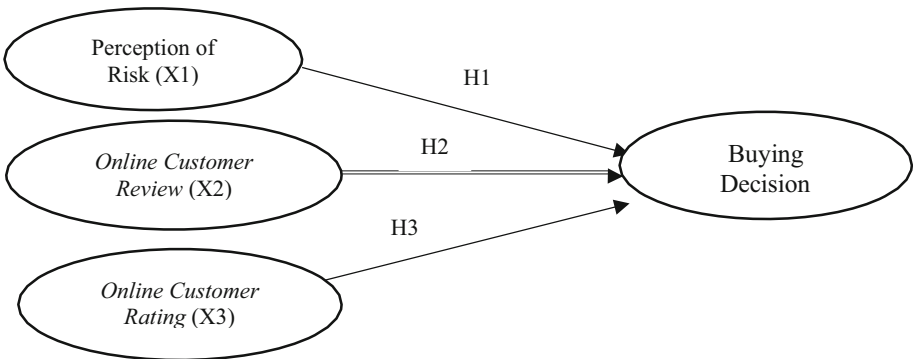


Fig. 1. The Conceptual Framework

3 Methodology

3.1 Method, Population, and Sample

This type of research is associative research, to determine the relationship between the independent variables of risk perception (X1), online customer review (X2), and online customer rating (X3) to the dependent variable, namely purchasing decisions. The approach used is quantitative, with a questionnaire as the primary data. Data analysis using Multiple Linear Regression Analysis, and classical assumption test using application software program (SPSS) version 22. The location in this study is Sidoarjo Regency. The research population is people in Sidoarjo who have made purchases on the Tokopedia marketplace, the time of research starts in February-October 2022. The sampling technique uses purposive sampling, with criteria: respondents live in Sidoarjo, use smartphones, and have made purchases at Tokopedia at least twice.

3.2 Research Instrument Test

In this study, the characteristics of the respondents were explained by the identity of the respondents which included name, gender, age, type of work, purchase intensity and product category purchased. The general description of the respondent's description shows that there are 63 female respondents (64.6%); the majority of respondents aged 18 to 24 years amounted to 57 people (59.4%); most of the respondents were students or students, namely 47 people (49%); The highest intensity of purchases by respondents through the Tokopedia marketplace was 4 to 6 purchases.

Before data analysis, validity, and reliability tests were first performed. The questionnaire consists of the variable Perceived Risk (6 statement items); Online Customer Review (5 statement items); Online Customer Rating (3 statement items), and Purchase Decision (4 statement items). From the results of the validity test, it was found that all statement items, namely a total of 18 statements, all declared valid with an r count above 0.7. The reliability test is used to measure the stability or consistency of data at different times. A questionnaire can be said to be reliable or reliable if the Cronbach's Alpha value is greater than 0.6. The results of the Reliability Test of this study show that all variables have a Cronbach's Alpha value > 0.6 so it can be concluded that all variables in this study are reliable.

3.3 Classic Assumption Test

Before testing the hypothesis, the classical assumption test was carried out. The normality test uses the Kolmogorov-Smirnov test. From the results of the normality test, a significance value of $0.200 > 0.05$ was obtained, so it can be concluded that in this study the data were normally distributed. From the results of the Linearity Test it is known that all independent variables have a significance value greater than 0.05, so it can be concluded that the relationship between variables is said to be linear. Multicollinearity results show that the variables Risk Perception (X1), Online Customer Review (X2), Online Customer Rating (X3) and Purchase Decision (Y) have a Tolerance value greater

Table 1. T-Test Results (Partial)

Coefficients					
Model	Nonstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	0.578	1.095		0.528	0.599
Preception of Risk	0.110	0.045	0.18	2.414	0.018
Online Customer Review	0.232	0.080	0.26	2.901	0.005
Online Customer Rating	0.662	0.119	0.49	5.566	0.000

than 0.1 and a VIF value smaller than 10 so that it can be concluded that the regression model does not show symptoms of multicollinearity. To determine whether there is heteroscedasticity in a regression model, the test used in this study is the Glesjer test. The Glesjer test results show that the significance value is greater than 0.05 so it can be concluded that there is no heteroscedasticity problem. In this study, the autocorrelation test used the Durbin-Watson test method or the DW test. The Durbin-Watson value in this study was 1.868, so it can be concluded that there is no autocorrelation problem. Because, by the basis for autocorrelation test decision making, that is, if $du < dw < 4-du = 1.732 < 1.868 < 2.268$.

4 Results and Discussion

4.1 Results

Multiple linear regression analysis is used to know whether there is an influence of the independent variables, namely Perceived Risk (X1), Online Customer Reviews (X2), and Online Customer Rating (X3) on the dependent variable, namely Purchase Decision (Y). Table 1 are the results of data processing with the help of SPSS software version 22.

Based on the t-test table it is known that:

1. The calculated t value is 2.414 which is greater than the t table value of 1.986, and a significance value of $0.018 < 0.05$ thus H_0 is rejected, and H_1 is accepted so it can be concluded that the Variable Perception of Risk has a significant effect on purchasing decisions.
2. The calculated t value is 2.901 which is greater than the t table value of 1.986, and a significance value of $0.005 < 0.05$ thus H_0 is rejected, and H_2 is accepted so it can be concluded that the online customer review variable has a significant effect on purchasing decisions.
3. The calculated t value is 5.566 which is greater than the t table value of 1.986, and a significance value of $0.000 < 0.05$ thus H_0 is rejected, and H_3 is accepted so it can be concluded that the online customer rating variable has a significant effect on purchasing decisions.

Table 2. Result Test F ((Simultaneous))

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	350.242	3	116.747	73.484	.000 ^b
Residual	146.164	92	1.589		
Total	496.406	95			

Source: SPSS Data (2022).

Based on Table 2, it can be seen that the calculated F value obtained is 73.484, where the calculated F value is greater than F Table, namely $73.484 > 2.70$ or $0.000 < 0.05$ so it can be concluded that the Variable Perception of Risk (X1), online customer review (X2), and online customer rating (X3) together or simultaneously have a significant effect on purchasing decisions (Y).

4.2 Discussion

- a. Based on the results of research on risk perception, researchers found that most consumers using the Tokopedia application agreed that the risk perception variable on purchasing decisions through the Tokopedia marketplace was good. This can be seen from the respondents' answers to the six statements representing the risk perception variable which describes the good or bad perception of risk in the Tokopedia marketplace. The results of this study are also in line with previous research conducted by [12]. The risk perception variable plays a role in influencing consumer purchasing decisions. In shopping online as long as consumers never accept risks, and losses, it will not reduce their interest in buying products online.
- b. Online customer reviews have an impact on subsequent online purchases, where prospective buyers obtain information or suggestions about the product to be purchased from other consumers who have made purchases, and experienced the benefits of these products. So that consumers can study or read reviews that have been given by other consumers as a basis for consideration before making sure to buy a product. Reviews given by consumers are related to product evaluations from various aspects, with this information consumers can obtain additional information about the quality of products sold based on reviews written by other consumers who have purchased products at online stores [17]. Consumers using the Tokopedia application agree that online customer review variables affect purchasing decisions through the Tokopedia marketplace. The five indicators are perceived usefulness, source credibility, argument quality, valence, and volume of reviews influencing purchasing decisions. The results of this study are also in line with previous research conducted by Sugiarti and Iskandar.
- c. The rating feature on application product pages or online shopping sites is one way for consumers to provide an assessment of the quality of a product, thereby influencing consumers' purchasing decisions. Online customer ratings built by indicators of information quality, trust, and customer satisfaction are proven to influence consumer

purchasing decisions. Because this rating feature provides benefits for consumers to assess store, and product performance. In addition, this rating feature can also be used to measure the level of customer satisfaction. The higher the rating given, the more satisfied consumers will be. The results of this study are also in line with previous research conducted by Priangga and Munawar.

- d. In making a decision, one must determine one alternative from the existing alternatives. Because there are many choices available, consumers are required to choose the product or service according to what they want. Observant consumers tend to choose products according to what they need. In this study, all of these statements were the result of the description of the four indicators raised by the researcher. The four indicators are according to needs, benefits, accuracy in buying products, and repeat purchases. The results of this study are also in line with previous research conducted by [12].

5 Conclusion

Perceived risk, online customer reviews, and online customer ratings on consumer purchasing decisions in Sidoarjo on the Tokopedia marketplace which means that the three independent variables are one of the important factors that can influence consumers to make purchasing decisions where in making online purchases consumers will not hesitate if their perceptions the risk perceived by consumers is low, the more positive reviews, and the higher the rating of the store, and the products sold.

Based on the results of this study, it is suggested that product sellers in the marketplace display the results of customer ratings and customer reviews which not only make it easier for buyers to make purchasing decisions, but are also able to build consumer confidence in the marketplace, so that customer ratings and customer reviews can have implications for increasing purchases in the marketplace.

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