Aptisi Transactions on Technopreneurship (ATT)
Vol. 4 No. 3 November 2022

P-ISSN: 2655-8807
E-ISSN: 2656-8888

Analysis of Optimum Marketing Strategy with Game Theory (Case Study: Marketplace Indonesian

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Nabila Sari, A., & Aryanny, E. (2022). Analysis of Optimum Marketing Strategy with Game Theory (Case Study: Marketplace Indonesian. Aptisi Transactions on Technopreneurship (ATT), 4(3), 226–256.

DOI: https://doi.org/10.34306/att.v4i3.267

Author Notification
09 September 2022
Final Revised
25 September 2022
Published
02 October 2022

Abstract

The increasing number of pandemic cases in early 2021, has made online trading (marketplace) more widespread, making competition for marketplace companies getting tighter. Marketing strategy competition can be tested with a game theory approach. This study aims to determine the optimum marketing strategy in the marketplace so as to increase market share. From the data processing on the payoff matrix, there is no saddle point where the maximum value is not the same as the minimum value so that the pure strategy is not the optimum strategy. Furthermore, the data is processed using the POM-QM program to determine the value of the most optimum marketing strategy for each marketplace. Get games between marketplaces using a mixed strategy. In the Shopee and Tokopedia games, the optimal game value is 9%. In the second game, Shopee and Lazada, the optimal game value is 10%. In Shopee and Bukalapak games, the optimal game value is 8%. In the Shopee and Blibli games, the optimal game value is 16%. In the Tokopedia and Lazada games, the optimal game value is 10%. In the Tokopedia and Bukalapak games, the optimal game value is 9%. In the Tokopedia and Blibli games, the optimal game value is 9%. In the Lazada and Bukalapak games, the optimal game value is 11%. In the Lazada and Blibli games, the optimal game value is 13%. In the last game, Bukalapak and Blibli, the optimal game value was 14%.

Keywords: *Game Theory, Marketing Strategy, Marketplace.*

1. Introduction

The increasing number of pandemic cases in early 2021 has made *online* (marketplace) more widespread [1]. The results of a survey conducted by We Are Social in April 2021 revealed that Indonesia is the first country with the highest percentage of *e-commerce* in the world, followed by England, Italy, and then other countries. As many as 88.1% of internet users in Indonesia have used *e-commerce* to buy certain products in the last few months. This percentage is the highest in the world, where the average *e-commerce* is 78.6% [2].

The high number of *E-commerce* or *marketplace* in 2021 will make *marketplace* compete to attract *marketplace* by creating more varied features [3] [4]. Based on data in the *Top Brand Index* Phase 2 2021, it shows that the strength of the brand in the online buying and selling site category was won by Shopee with a percentage of 41.8%. Then followed by Tokopedia at 16.7%, Lazada 15.2%, Bukalapak 9.5% and BliBli 8.1% in order to compete competitively and increase users, an optimal marketing strategy is

needed [5]. The optimal marketing strategy is a weapon used by the company to win the competition in the market. One way that can be used to analyze the right marketing strategy is to apply game theory.

The application of game theory based on the marketing mix, namely *product, price, promotion, distribution, people, process,* and *physical evidence,* is one way that can facilitate in-depth analysis of market [6] conditions in the hope of increasing sales by further increasing the superior variables between products, price, promotion, distribution, seller, process and physical form in the marketplace [7] [8].

Based on the fairly tight competition for the marketplace, the right strategy is needed using the game theory method. This method compares each *marketplace* so that it can find out the advantages and disadvantages of each *marketplace*. By using this method, it is expected to determine the optimal marketing strategy in the *marketplace in order* to compete in the market [9] [10]. The purpose of this research is to determine the optimum marketing strategy in the *marketplace* so as to increase market share.

Literature review that has been done author used in the chapter "Introduction" to explain the difference of the manuscript with other papers, that it is innovative, it is used in the chapter "Research Method" to describe the step of research and used in the chapter "Findings" to support the analysis of the results [11] [12]. If the manuscript was written really have high originality, which proposed a new method or algorithm, it can be added on the "Research Method" to explain briefly the proposed method or algorithm [13].

2. Research Method

To solve the problem in this study, the researcher used the Game Theory method. There are stages to overcome the problems in this research, namely:

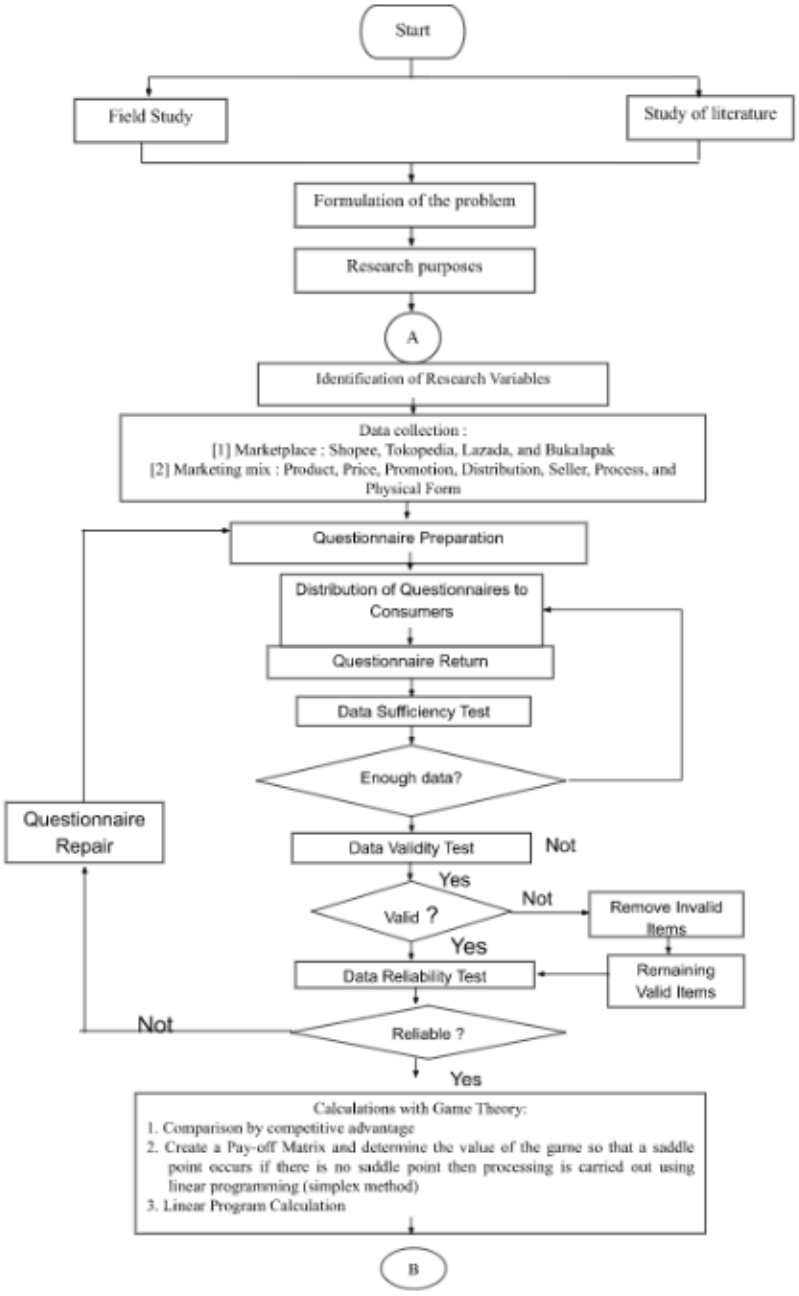

Figure 1. Problem Solving Steps

The description related to problem solving is that field studies and literature studies are precursors to obtaining problem formulation and research objectives. Then the researcher identified the research variables [14]. Collecting data using a questionnaire that begins with making a questionnaire, then distributing the questionnaire and then collecting it to see the results. After the questionnaires are collected, the data will first be tested for adequacy, validity and reliability of the data. If all the test data are met,

then the calculation is continued with Game Theory which begins with a comparison based on competitive advantage, then makes a *pay off* to determine the value of the game so that *saddle* points occur, *saddle* points then processing is carried out with mixed methods assisted by *software* POM-QM [15] [16]. Then the optimal marketing strategy is generated for each *marketplace*. Then a discussion of the results that have been obtained is carried out so that conclusions and suggestions can be drawn.

2.1 Results and discussion

2.1 Questionnaire Dissemination Questionnaires

Were distributed *online* with the help of google forms. Questionnaires were distributed through *social media* with the criteria that the respondents had known the five *marketplaces* that were used as research objects [17]. The return of the questionnaire that has been filled out by the respondent can be accessed through *Microsoft Excel* contained in the *google form.* In this study, 135 questionnaires have been filled out by respondents. A total of 125 questionnaires were declared appropriate, and as many as 10 questionnaires were not appropriate so they could not be continued, because the respondents answered that they had never used the five *marketplaces* which were the objects of this study. So that the data to be processed are 125 questionnaires.

2.2 Data Sufficiency Test

From the results of the questionnaires filled out by 135 respondents, 125 questionnaires were filled out correctly. The researcher uses Bernoulli in the following equation:

$$N \frac{(1.96)^2.\left(\frac{125}{135}\right).\left(\frac{10}{135}\right)}{(0.05)^2} = 105.39\ 105$$

From the above calculation, it can be seen that the minimum sample is 105 respondents, meaning that the sample is said to be sufficient if there are 105 respondents or more.

2.3 Validity and Reliability Test

From the data as many as 125 pieces of questionnaires, it is obtained df = 125-2 = 123. From the error rate of 0.05%, it is obtained from a table of 0.1757. It can be seen in the following table:

Table 1. Test Results Of The Marketplace Shopee

No	Attribute Strategy	r count	r table	Description
1	Completeness	0.621	0.1757	Valid
2	Brand Image	0.643	0.1757	Valid
3	Affordability	0.701	0.1757	Valid
4	Discount	0.591	0, 1757	Valid
5	Media	0.706	0.1757	Valid

6	*Event*	0.611	0.1757	Valid
7	Expedition	0.608	0.1757	Valid
8	Convenience	0.597	0.1757	Valid
9	Features	0.714	0.1757	Valid
10	Payment	0.1757	0.576	Valid
11	Authenticity	0.644	0.1757	Valid

From the eleven strategy attributes that have been tested, it can be seen that all the strategy attributes in the *marketplace* are declared valid. Reliability testing was carried out using *software* SPSS 20.0test results *marketplace* are as follows:

Table 2. *Marketplace* Shopee

r alpa	r table	Description
0.854	0.1757	Reliable

In table II the value of *r alpha*> 0.1757 i.e. 0.854 > 0.1757, so the results of the questionnaire are declared reliable.

Table 3. Validity Test Results Of Tokopedia Marketplace

No	Attribute Strategy	r count	r table	Description
1	Completeness	0.600	0.1757	Valid
2	Brand Image	0.1757	0.680	Valid
3	Affordability	0.747	0.1757	Valid
4	Discount	0.1757	0.739	Valid
5	Media	0.770	0 ,1757	Valid
6	*Event*	0.663	0.1757	Valid
7	Expedition	0.703	0.1757	Valid
8	Convenience	0.646	0.1757	Valid
9	Features	0.721	0.1757	Valid

10	Payment	Valid	0.680 0.1757	11
Authe nticity	0.672	0.1757	Valid	Of

The eleven strategic attributes has been tested, it can be seen that all the strategy attributes on the *marketplace* Tokopedia Reliability testing was carried out using *software* SPSS 20.0test *marketplace* Tokopedia.

Table 4. Reliability Test Results Marketplace Tokopedia

r alpa	r table	Description
0.897	0.1757	Reliable

In table IV the r alpha> 0.1757 i.e. 0.897 > 0.1757, so the results of the questionnaire are declared reliable.

Table 5. Validity Test Results Of Lazada Marketplace

No	**Attribute Strategy**	**r count**	**r table**	**Description**
1	Completeness	Valid	0.593 0.1757	2
Brand	Image	0.617	0.1757	Valid
3	Affordability	Valid	0.543 0.1757	4
Discount	0.720	0.1757	Valid	5
Media	0.626	0	, 1757	Valid
6	Event	Valid	0.548 0.1757	7
Expedition	0.644	0.1757	Valid	8
Convenienc e	0.575	Valid	0.1757	9
Features	0.609	0.1757	Valid	10
Payment	0.573	0.1757	Valid	11
Authenticity	0.566	0.1757	Valid	Of

The eleven strategy attributes that have been tested, it can be seen that all the strategy attributes on the *marketplace* are declared valid.

Table 6. Marketplace Lazada

r alpa	r table	Information
0.829	0.1757	Reliable

In table VI the value of *r alpha*> 0.1757 i.e. 0.829 > 0.1757, so the results of the questionnaire

Results Reliable

Declared	**Strategy**	**r count**	**r table**	**Description**
1	Completeness	0.633	0.1757	Valid
2	Brand Image	0.1757	0.665	Valid
3	Affordability	0.1757	0.750	Valid
4	Discount	0.736	0.1757	Valid
5	Media	0.618	0.1757	Valid
6	*Event*	0.565	0.1757	Valid
7	Expedition	0.686	0.1757	Valid
8	Convenience	0.625	0.1757	Valid
9	Features	0.607	0.1757	Valid
10	Payment	0.534	0.1757	Valid
11	Authenticity	0.497	0.1757	Valid

From the eleven strategy attributes that have been tested, it can be seen that all the strategy attributes in the *marketplace* Bukalapak are declared valid.

Table 7. Results Of *Marketplace* Bukalapak

r alpa	r table	Description
0.852	0.1757	Reliable

In table VIII the value of *r alpha*> 0.1757 i.e. 0.852 > 0.1757, so the results of the questionnaire.

Test

Declared	Reliable	r count	r table	Description
1	Completenes s	Valid	0.576 0.1757	2
Brand	Image	0.1757	0.684	Valid
3	Affordability	0.693	0.1757	Valid
4	Discount	0.745	0.1757	Valid
5	Media	0.669	0.1757	Valid
6	*Event*	0.607	0.1757	Valid
7	Expedition	0.746	0.1757	Valid
8	Convenience	0.594	0.1757	Valid
9	Features	0.637	0.1757	Valid
10	Payment	Valid	0.520 0.1757	11
Authenticity	0.484	Valid	0.1757	From

Of the eleven strategy attributes that have been tested, it can be seen that all the strategy attributes in the *marketplace* Bliblideclared valid.

Table 8. Results Of *Marketplace* Blibli

r alpa	r table	Description
0.850	0.1757	Reliable

In table X the value of *r alpha*> 0.1757 i.e. 0.850> 0.1757, so the results of the questionnaire are declared reliable

2.4 Game Theory Calculations

Data in this study were obtained from the questionnaire results which contains the comparison of each attribute that exists between *marketplaces* being played. Data processing is *Game theory* presented in the following table based on the *output of* POM-QM *for windows.* In the game between the *marketplaces* Shopee, Tokopedia, Lazada, Bukalapak and Blibli, there were 10 strategy games, namely Shopee against

Tokopedia, Shopee against Lazada, Shopee against Bukalapak, Shopee against Blibli, Tokopedia against Lazada, Tokopedia against Bukalapak, Tokopedia against Blibli, Lazada against Bukalapak, Lazada against Blibli, and Bukalapak against Blibli, with the following results:

1. Shopee game against Tokopedia

Table 9. Shopee and Tokopedia

	Y1	Y2	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X1	0.13	0.13	0.13	0.12	0.14	0.01	0.08	0.04	0.12	0.01	0.01
X2	0.09	0.36	0.03	0.08	0.33	0.14	0.24	0.07	0.33	0.07	min(
TOKOPEDIA	.	0.008	MATRIX	ACCOUNTING	VALUE	0.12	0.02	0.11	0.03	0.02	0.02
X4	0.01	0.03	0.04	0.04	0.05	0.04	0.06	0.12	0.09	0.12	0.01
X5	0.08	0.0	0.01	0.04	0.12	0.13	0.39	0.09	0.16	0.12	0.00
X6	0.12	0.04	0.14	0.01	0.26	0.08	0.01	0.04	0.07	0.12	0.13
0.39	0.09	0.16	0.12	0.04	0.01	0.14	0.10.	0.50	0.04	0.16	0.01
X8	0.04	0.17	0.08	0.12	0.01	0.12	0.10	0.01	0.04	0.02	0.01
X10	0.02	0.01	0.12	0.03	0.04	0.09	0.07	0.15	0.08	0.08	0.01
X11	0.08	0.12	0.06	0.09	0.02	0.11	0.13	0.15	0.21	0.19	–
0.21	0.13	0.36	0.15	0.21	0.13	0.14	0.21	0.13	0.13	0.19	
				(minimax)							

Source: primary data processed, 2022

From table XII it can be seen that the maximum value of 0.03 is not the same as the minimum value of 0.12, meaning that the game cannot be solved using pure strategy. The next step is to finish by using a mixed strategy.

Table 10. Game Results For Mixed Strategy

	Y1	Y2	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Row Mix*
X1	0.13	0.13	0.13	0.12	0.14	0.01	0.08	0.04	0.12	0.01	0.23
X2	0.09	0.36	0.03	0.07	0.33	0.14	0.24	0.07	0.36	0.14	0.03
0.07	0.01	0.08	0.08	0.08	0.15	0.12	0.02	0.11	0.03	0.02	0
X4	0.01	0.03	0.04	0.04	0.05	0.04	0.06	0.12	0.09	0.12	0
X5	0.08	0	0.01	0.04	0.12	0.13	0.39	0.09	0.16	0.12	0
X6	0.12	0.04	0.14	0.01	0.26	0.08	0.19	0.08	–	–	–
–	–	0.16	–	–	–	–	–	0.5	0.04	0.16	0.05
X8	0.04	0.17	0.08	0.12	0.01	0.12	0.1	0.01	0.04	0.02	0.19
X10	0.02	0.01	0.12	0.03	0.04	0.09	0.07	0.15	0.08	0.08	0
X11	0.08	0.12	0.06	0.09	0.02	0.11	0.13	0.15	0.21	0.15	0.11
0.13	0.09	0	0.02	0.08	0	X11	0.15	0.02	0	0.01	
Value of game (to row)	0.09										

Source: primary data processed, 2022

P-ISSN: 2655-8807
E-ISSN: 2656-8888

From the results of the mixed strategy, the game value is 0.09. Shopee needs to implement a marketing strategy of X1 of 0.23 or 23%, X2 of 0.2 or 20%, X6 of 0.13 or 13%, X7 of 0.05 or 5%, X8 of 0.19 or 19%, and X10 of 0.2 or 20% in order to have a maximum profit value of 0.09 or 9% While the *marketplace* (Y) needs to implement a marketing strategy of Y1 of 0.24 or 24%, Y3 with a profit of 0.22 or 22%, Y5 of 0.21 or 21%, Y6 of 3%, Y8 of 2% and Y10 of 0.1 or 1% in order to generate a minimum loss of 0.09 or 9%.

2. Shopee game against Lazada

Table 11. Shopee And Lazada Account Value Matrix

	Y1	Y2	Y3	Y4	Y5	Y6	Y8	Y9	Y10	Y11	Min
X1	0.32	0.06	0.14	0.15	0.09	0.10	0.04	0.04	0.09	0.09	0.04
X2	0.09	0.12	0.40	0.08	0.04	0.08	0.12	0.08	0.12	0.04	0.04
0.09	0.05	0.08	0.04	0.08	0.09	0.12	0.09	0.04	0.04	0.07	0.04
X4	0.12	0.13	0.31	0.14	0.11	0.01	0.12	0.13	0.08	0.08	0.01 (minimax)
X5	0.15	0.05	0.11	0.06	0.17	0.12	0.04	0.08	0.06	0.10	0.04
X6	0.02	0.13	0.09	0.12	0.07	0.10	0.07	0.04	0.08	0.06	0
0.13	0.04	0.12	0.09	0.02	0.09	0.04	0.10	0.08	0.07	0.05	0.04
X8	0.05	0.07	0.10	0.06	0.24	0.15	0.07	0.16	0.13	0.12	0.05
X9	0.07	0.08	0.18	0.02	0.12	0.14	0.14	0.08	0.08	0.08	0.02
X11	0.04	0.15	0.32	0.11	0.20	0.06	0.16	0.08	0.08	0.10	0.04
0.15	0.32	0.08	0.11	0.16	0.08	0.16	0.16	0.16	0.13	0.12 (maximum)	

From table XIV it can be seen that the maximum value of 0.01 is not the same as the minimum value of 0.12, meaning that the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM

Table 12. Results

	Y1	Y2	Y3	Y4	Y5	Y6	Y8	Y9	Y10	Y11	*Mix*
X1	0.32	0.06	0.14	0.15	0.09	0.1	0.04	0.04	0.09	0.09	0.21
X2	0.09	0.12	0.4	0.08	0.04	0.08	0.12	0.08	0.12	0.04	X
Row	MIXED	STRATEGY	VALUE	FOR	GAME	0.16	0.13	0.08	0.04	0.07	0
X4	0.12	0.13	0.31	0.14	0.11	0.01	0.12	0.13	0.08	0.08	0.01
X5	0.15	0.05	0.11	0.06	0.17	0.12	0.04	0.08	0.06	0.1	0
X6	0.02	0.13	0.09	0.12	0.07	0.1	0.07	0.04	0.08	0.08	–
X7	0.12	–	–	–	–	.	0.0	0.08	0.07	0.05	0.01
X8	0.05	0.07	0.1	0.06	0.24	0.15	0.07	0.16	0.13	0.12	0.35
X9	0.07	0.08	0.18	0.02	0.12	0.14	0.14	0.08	0.08	0.08	0
X11	0.04	0.15	0.32	0.11	0.2	0.06	0.16	0.08	0.08	0.1	0.39
Column	0	0.05	–	–	0.1	0.39	mix	0.0	0.32	0	
Value of game (to row)	0.1										

Source: primary data processed, 2022

P-ISSN: 2655-8807
E-ISSN: 2656-8888

From the results of the mixed strategy, the game value is 0.1. Shopee needs to implement a marketing strategy of X1 of 0.21 or 21%, X2 of 0.03 or 3%, X4 of 0.01 or 1%, X7 of 0.01 or 1%, X8 of 0.35 or 35%, and X11 of 0.39 or 39% in order to have a maximum profit value of 0.1 or 10% While the *marketplace* (Y) needs to implement a marketing strategy of Y2 with a profit of 0.15 or 15%, Y4 with a profit of 0.31 or 31% , Y6 of 0.13 or 13%, Y8 of 0.05 or 5%, Y9 of 0.04 or 4% and Y10 of 0.32 or 32% in order to generate a minimum loss of 0.1 or 10%.

3. Shopee game against Bukalapak

Table 13. Bukalapak

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y9	Y10	Y11	Min
X1	0.26	0.07	0.09	0.44	0.06	0.18	0.01	0.05	0.03	0.43	0.01
X2	0.06	0.09	0.15	0.46	0.08	0.02	0.03	0.02	0.03	0.10	_
0.42	_	0.10	SHOPEE	.	EARNING	MATRIX	VALUE	AND	0.04	0.02	0.02
X4	0.00	0.05	0.05	0.28	0.13	0.07	0.03	0.22	0.03	0.09	0.00
X5	0.06	0.06	0.22	0.11	0.05	0.03	0.02	0.01	0.03	0.02	0.01
X6	0.08	0.07	0.06	0.03	0.20	0.04	0.02	0.27	0.02	0.20	0.02
0.03	0.02	0.01	0.02	0.12	0.05	0.12	0.10	0.02	0.06	0.02	0.02
X8	0.00	0.03	0.03	0.04	0.02	0.09	0.03	0.09	0.02	0.34	0.00
X9	0.02	0.07	0.15	0.46	0.20	0.11	0.03	0.03	0.20	0.04	0.02
X11	0.03	0.03	0.02	0.19	0.28	0.12	0.16	0.06	0.03	0.03	0.02 0.07mini
0.146	0.02	0.19	0.28	0.12	.	0.03	0.16	0.20	0.06	0.43	

	(maximum)

From table XVI it can be seen that the maximum value of 0.02 is not the same as the minimum value of 0.16 meaning the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM

Table 14. Results Of Game Value For Mixed Strategy

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y9	Y10	Y11	*Row Mix*
X1	0.26	0.07	0.09	0.44	0.06	0.18	0.01	0.05	0.03	0.43	0
X2	0.06	0.09	0.15	0.46	0.08	0.02	0.03	0.02	0.07	0.1	0
0.03	0.43	0.01	0.05	0.06	0.09	0.12	0.11	0.07	0.04	0.02	0.1
X4	0	0.05	0.05	0.28	0.13	0.07	0.03	0.22	0.03	0.09	0
X5	0.06	0.06	0.22	0.11	0.05	0.03	0.02	0.01	0.03	0.02	0.17
X6	0.08	0.07	0.06	0.03	0.2	0.04	–	–	–	–	–
–	–	–	–	–	–	–	.	0.11	0.19	0.02	0.1
X8	0	0.03	0.03	0.04	0.02	0.09	0.03	0.09	0.02	0.34	0
X9	0.02	0.07	0.15	0.46	0.2	0.11	0.03	0.03	0.2	0.04	0.15
X11	0.03	0.03	0.02	0.19	0.28	0.12	0.16	0.06	0.07	0.2	0.33
Column	0	0.32	0.32	0	0	0.08	0.33	0.2	0.05	0	
Value of game (to row)	0.08										

P-ISSN: 2655-8807
E-ISSN: 2656-8888

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.08. Shopee needs to implement a marketing strategy of X3 of 0.1 or 10%, X5 of 0.17 or 17%, X6 of 0.15 or 15%, X7 of 0.1 or 10%, X9 of 0.15 or 15%, and X10 of 0.33 or 33% in order to have a maximum profit value of 0.08 or 8% While *marketplace* Bukalapak (Y) needs to implement a marketing strategy of Y2 with a profit of 0.02 or 2%, Y3 with a profit of 0.32 or 32% , Y6 of 0.08 or 8%, Y7 of 0.33 or 33%, Y8 of 0.2 or 20% and Y9 of 0.05 or 5% in order to generate a minimum loss of 0.08 or 8%.

4. Shopee game against Blibli

Table 15, Blibli

	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X1	0.05	0.26	0.06	0.30	0.23	0.04	0.10	0.29	0.22	0.31	0.04
X2	0.06	0.05	0.08	0.11	0.18	0.30	0.14	0.20	0.20	0.19	0.20
0.0508	0.19	0.0508	SHOPEE	0.22	MATRIX	ACCOUNT	VALUE	AND	0.10	0.04	0.02
X4	0.09	0.07	0.12	0.23	0.28	0.12	0.02	0.32	0.11	0.12	0.02
X5	0.10	0.20	0.30	0.31	0.07	0.17	0.19	0.28	0.28	0.10	0.07 minimax
X6	0.57	0.14	0.07	0.25	0.07	0.18	0.26	0.03	0.26	0.33	0.04
_	_	_	_	0	.	(	)	0.07	0.30	0.18	0.01
X8	0.06	0.11	0.30	0.15	0.05	0.02	0.01	0.32	0.34	0.19	0.01
X9	0.57	0.17	0.15	0.21	0.03	0.26	0.16	0.12	0.09	0.28	0.03
X10	0.31	0.06	0.02	0.13	0.20	0.25	0.25	0.31	0.23	0.26	0.02
0.29	0.57	0.26	0.30	0.31	0.26	0.30	0.29	_	0.29	0.33	

P-ISSN: 2655-8807
E-ISSN: 2656-8888

	(maximum)

Source: primary data processed, 2022

From table XVI it can be seen that the maximum value of 0.07 is not the same as the minimum value of 0.26 meaning the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM.

Table 16. Game Results For Mixed Strategy

	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Row Mix*
X1	0.05	0.26	0.06	0.3	0.23	0.04	0.1	0.29	0.22	0.31	0.18
X2	0.06	0.05	0.08	0.11	0.18	0.3	0.14	0.2	0.2	0.19	0
X3	0.17	0.05	0	0.13	0.05	0.28	0.26	0.15	0.1	0.04	0
X4	0.09	0.07	0.12	0.23	0.28	0.12	0.02	0.32	0.11	0.12	0.16
X5	0.1	0.2	0.3	0.31	0.07	0.17	0.19	0.28	0.28	0.1	0.39
X6	0.57	0.14	0.07	0.25	0.07	0.18	0.26	0.03	0.26	0.33	0.01
X7	0.14	0.29	0.24	0.01	0.24	0.01	0.059	0.07	0.3	0.18	0
X8	0.06	0.11	0.3	0.15	0.05	0.02	0.01	0.32	0.34	0.19	0
X9	0.57	0.17	0.15	0.21	0.03	0.26	0.16	0.12	0.09	0.28	0.04
X10	0.31	0.06	0.02	0.13	0.2	0.25	0.25	0.31	0.23	0.26	0.21
Column mix	0.11	0.16	0.21	0	0.38	0.16	0.21	0	0	0	

Value of game (to row)	0.16

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.16. Shopee needs to implement a marketing strategy of X1 of 0.18 or 18%, X4 of 0.16 or 16%, X5 of 0.39 or 39%, X6 of 0.01 or 1%, X9 of 0.04 or 4%, and X10 of 0.21 or 21% in order to have a maximum profit value of 0.08 or 8% While the *marketplace* (Y) needs to implement a Y2 marketing strategy with a profit of 0.11 or 11%, Y3 with a profit of 0.16 or 16% , Y4 of 0.21 or 21%, Y6 of 0.38 or 38%, Y7 of 0.05 or 5% and Y8 of 0.1 or 10% in order to generate a minimum loss of 0.08 or 8%.

5. game against Lazada

	Lazada										
	Y1	Y2	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X1	0.34	0.06	0.13	0.06	0.04	0.35	0.05	0.05	0.12	0.02	0.02
X2	0.13	0.28	0.08	0.11	0.052	0.06	0	.	EARNING	TOKOPEDIA	TABLE
MATRIX	Tokopedia	XXII	0.05	0.16	0.07	0.35	0.28	0.27	0.06	0.06	0.04
X5	0.15	0.08	0.06	0.11	0.07	0.10	0.11	0.22	0.25	0.28	0.06 (
X6	0.07	0.32	0.12	0.04	0.10	0.04	0.09	0.12	0.00	0.27	0.00
X706.07	0.05	0.0.05	0.20	_	_	_	_	_	0.0.05	0.082	Minimax
X	)	0.11	0.01	0.15	0.04	0.08	0.10	0.13	0.01	0.20	0.01
X9	0.04	0.15	0.07	0.06	0.12	0.04	0.18	0.16	0.04	0.09	0.04
X10	0.05	0.11	0.08	0.09	0.08	0.06	0.04	0.14	0.08	0.15	0.04

X11	0.04	0.20	0.04	0.14	0.23	0.20	0.32	_	0.03	0.04	0.01
_	0.3	_	_	0.24	0.32	0.35	0.40	0.27	0.25	0.28	
		(Maximum)									

Source: primary data processed, 2022

From table XXII it can be seen that the maximum value of 0.06 is not the same as the minimum value of 0.13 meaning the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM

Table 17. Game

	Y1	Y2	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Mix*
X1	0.34	0.06	0.13	0.06	0.04	0.35	0.05	0.05	0.12	0.02	0.36
X2	0.13	0.28	0.08	0.11	0.32	0.16	0.054	0.06	0.06	0.11	0.04
0.052	Row	MIXED	STRATEGY	FOR	RESULTS	0.35	0.28	0.27	0.06	0.06	0
X5	0.15	0.08	0.06	0.11	0.07	0.1	0.11	0.22	0.25	0.28	0.01
X6	0.07	0.32	0.12	0.04	0.1	0.04	0.09	0.12	0	0.27	0.28
X7	0.07	0.05	0.05	0.2	0.07	0.06	0.08	0.08	0.06	0.24	0
_	–	–	–	–	–	–	–	0.13	0.01	0.2	0
X9	0.04	0.15	0.07	0.06	0.12	0.04	0.18	0.16	0.04	0.09	0
X10	0.05	0.11	0.08	0.09	0.08	0.06	0.04	0.14	0.08	0.15	0
X11	0.08	0.04	0.04	0.24	0.08	0.05	0.32	0.18	0.21	0.2	–

0.29	0	–	–	–	–	–	–	–	0.05	0	
Value of game (to row)	0.1										

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.1. Tokopedia needs to implement a marketing strategy of X1 of 0.36 or 36%, X2 of 0.12 or 12%, X5 of 0.01 or 1%, X6 of 0.28 or 28%, and X11 of 0.22 or 22% . in order to have a maximum profit value of 0.1 or 10%. Meanwhile *marketplace* (Y) needs to implement a marketing strategy of Y3 with a profit of 0.58 or 58%, Y4 with a profit of 0.14 or 14%, Y5 of 0.09 or 9% , Y9 of 14%, and Y10 of 0.05 or 5% in order to generate a minimum loss of 0.1 or 10%.

6. Tokopedia game against Bukalapak

Table 18. Tokopedia And Bukalapak Earning Value Matrix

	Y1	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X1	0.26	0.08	0.38	0.12	0.18	0.03	0.08	0.07	0.06	0.35	0.03
X2	0.07	0.23	0.06	0.08	0.10	0.12	0.23	0.18	.	0.08	0.03
X2	0.07	0.06	0.04	0.19	0.03	0.03	0.11	0.25	0.23	0.06	0.03
X5	0.13	0.06	0.18	0.10	0.04	0.06	0.02	0.32	0.31	0.21	0.02
X6	0.23	0.06	0.16	0.21	0.06	0.07	0.03	0.30	0.27	0.21	0.03
X7	0.18	0.22	0.28	0.04	0.06	0.04	0.07	0.25	0.21	0.06	0.03
0.18	0.18	0.03	0.07	0.12.	0.06	0.02	0.10	0.30	0.26	0.11	0.02
X9	0.13	0.07	0.02	0.17	0.07	0.06	0.09	0.34	0.26	0.06	0.02
X10	0.04	0.18	0.07	0.09	0.02	0.12	0.03	0.29	0.29	0.27	0.02

X11	0.18	0.06	0.05	0.05	0.15	0.05	0.15	0.28	0.14	0.16	0.05 0.28
Max	0.29	0.14	0.28	0.21	0.18 (Maximum)	0.12	0.32	0.34	0.31	0.35	

Source: primary data processed, 2022

From table XIV it can be seen that the maximum value of 0.05 is not the same as the minimum value of 0.18 meaning the game cannot be solved using pure strategy . The next step is to finish using a mixed strategy assisted by *software* POM-QM.

Table 19. Game Result

	Y1	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Mix*
X1	0.26	0.1	0.38	0.12	0.18	0.03	0.08	0.1	0.1	0.35	0.04
X2	0.07	0.2	0.06	0.03	0.1	0.05	0.32	0.2	0.19	0.10	0.21
X4	0	.	Row	MIXED	STRATEGY	0.03	0.11	0.3	0.2	0.06	0
X5	0.13	0.1	0.18	0.1	0.04	0.06	0.02	0.3	0.3	0.21	0
X6	0.23	0.1	0.16	0.21	0.06	0.07	0.03	0.3	0.3	0.21	0.12
X7	0.18	0.2	0.28	0.04	0.17	0.02	0.04	0.3	0.2	0.06	0
X8	0.18	0.1	0.06	0.11	0.06	0.02	0.11	0.3	0.3	0.11	0
X9	0.13	0.1	0.02	0.17	0.07	0.06	0.09	0.3	0.3	0.06	0
X10	0.04	0.2	0.07	0.09	0.02	0.12	0.03	0.3	0.3	0.27	0.38
X11	0.18	0.1	0.05	0.05	0.15	0.07	0.09	0.3	0.1	0.16	0.35

Column mix	0	0	0.02	0.14	0.2	0.53	0.1	0	0	0
Value of game (to row)	0.09									

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.09. Tokopedia needs to implement a marketing strategy of X1 of 0.04 or 4%, X2 of 0.11 or 11%, X6 of 0.12 or 12%, X10 of 0.38 or 38%, and X11 of 0.35 or 35% in order to have a maximum profit value of 0.09 or 9% While the *marketplace* (Y) needs to implement a marketing strategy of Y2 with a profit of 0.02 or 2%, Y5 with a profit of 0.14 or 14%, Y6 with a profit of 0.2 or 20% ,Y7 of 0.53 or 53%, and Y8 of 0.1 or 10% in order to generate a minimum loss of 0.09 or 9%.

1. Tokopedia Game against Blibli

Table 20. Tokopedia And Blibli's Earning Value Matrix

	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X2	0.10	0.07	0.06	0.10	0.18	0.07	0.14	0.02	0.04	0.10	0.02
X3	0.17	0.04	0.18	0.092	0.07	0.06	0.12	0.07	0.14	0.02	0
0.18	0.17	0.02	0.01	0.02	0.14	0.04	0.13	0.09	0.26	0.03	0.01
X5	0.08	0.15	0.10	0.02	0.03	0.09	0.10	0.15	0.01	0.27	0.01
X6	0.04	0.08	0.20	0.09	0.05	0.05	0.14	0.05	0.18	0.22	0.04
X7	0.06	0.02	0.07	0.17	0.04	0.17	0.12	0.07	0.04	0.04	0.02
0.14	0.01	0.07	0.04	0.04	0.20	0.22	0.02	0.22	0.03	0.13	0.02
X9	0.02	0.10	0.10	0.04	0.10	0.09	0.20	0.10	0.09	0.10	0.02
X10	0.10	0.18	0.12	0.06	0.05	0.04	0.09	0.05	0.35	0.10	0.04

X11	0.12	0.06	0.06	0.06	0.05	0.12	0.08	0.17	_	0.13	0.20 (
Max	_	_	0.38	0.17	0.20	0.22	0.21	0.22	0.35	0.27	
	(maximum)										

Source: primary data processed, 2022

From table XVI it can be seen that the maximum value of 0.05 is not the same as the minimum value of 0.17 meaning the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM

Table 21. Results Of Game Value For Mixed Strategy

	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Row Mix*
X2	0.1	0.07	0.06	0.1	0.18	0.07	0.14	0.02	0.04	0.1	0.14
X3	0.17	0.04	0.18	0.02	0.01	0.09	0.04	0.04	0.2	0.02	0.1
0.40	0.02	0.02	0.2	0.24	0.24	0.04	0.13	0.09	0.26	0.03	0
X5	0.08	0.15	0.1	0.02	0.03	0.09	0.1	0.15	0.01	0.27	0
X6	0.04	0.08	0.2	0.09	0.05	0.05	0.14	0.05	0.18	0.22	0.04
X7	0.06	0.02	0.07	0.17	0.03	0.17	0.21	0.07	0.05	0.07	0.29
0.22	0.04	0.14	0.05	0.19	0.03	0.22	0.04	0.22	0.03	0.13	0.21
X9	0.02	0.1	0.1	0.04	0.1	0.09	0.2	0.1	0.09	0.1	0
X10	0.1	0.18	0.12	0.06	0.05	0.04	0.09	0.05	0.35	0.1	0.21
X11	0.12	0.06	0.06	0.06	0.05	0.12	0.08	0.18	0.32	0.13	0
Column mix	0.24	0.1	0.09	0.32	0.09	0	0	0.07	0	0	

Value of game (to row)	0.09

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.09. Tokopedia needs to implement a marketing strategy of X2 of 0.14 or 14%, X3 of 0.1 or 10%, X6 of 0.04 or 4%, X7 of 0.29 or 29%, X8 of 0.21 or 21% and X10 of 0.21 or 21% in order to have a maximum profit value of 0.09 or 9% While the *marketplace* (Y) needs to implement a Y2 marketing strategy with a profit of 0.24 or 24%, Y3 with a profit of 0.1 or 10%, Y4 is 0.18 or 18%, Y5 is 0.32 or 32%, Y6 is 0.09 or 9% and Y9 is 0.07 or 7% in order to generate a minimum loss of 0.09 or 9%.

2. Lazada vs Bukalapak Game

Table 22. Bukalapak Accounting

	Y1	Y2	Y3	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X1	0.07	0.19	0.08	0.02	0.06	0.05	0.05	0.02	0.03	0.10	0.02
X2	0.10	0.06	0.05	0.06	0.064	0.10	0.107	0.064	.	VALUE	LAZADA
X	MATRIX	XXVIII	0.11	0.02	0.05	0.07	0.04	0.12	0.06	0.08	0.02
X4	0.02	0.10	0.14	0.14	0.16	0.02	0.07	0.03	0.02	0.16	0.02
X5	0.06	0.18	0.18	0.22	0.48	0.10	0.10	0.19	0.02	0.06	0.02
X6	0.02	0.01	0.14	0.07	_	_	_	_	_	_	_
_	_	_	_	_	.	0.07	0.02	0.07	0.04	0.06	0.16	0.02
X8	0.02	0.02	0.10	0.06	0.02	0.06	0.15	0.10	0.04	0.08	0.02
X9	0.11	0.25	0.10	0.02	0.05	0.06	0.13	0.09	0.08	0.06	0.02

X11	0.24	0.14	0.06	0.22	0.05	0.29	0.08	0.34	0.25	0.05	0.29 0.06
Max	0.24	0.06	0.13	0.22	0.48	0.28	0.15 (Maximum)	0.34	0.25	0.16	

Source: primary data processed, 2022

From table XXVIII it can be seen that the maximum value of 0.05 is not the same as the minimum value of 0.15, meaning that the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM

Table 23. Game Results For Mixed Strategy

	Y1	Y2	Y3	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Row Mix*
X1	0.07	0.19	0.08	0.02	0.06	0.05	0.05	0.02	0.03	0.1	0
X2	0.1	0.06	0.05	0.06	0.07	0.06	0.14	0.06	0.03	0.1	0
0.06	0.05	0.04	0.11	0.02	0.06	0.07	0.04	0.12	0.06	0.08	0
X4	0.02	0.1	0.14	0.14	0.16	0.02	0.07	0.03	0.02	0.16	0.13
X5	0.06	0.18	0.18	0.22	0.48	0.1	0.1	0.19	0.02	0.06	0.21
X6	0.02	0.01	0.14	0.06	0.02	0.05	0.09	0.09	0.18	0.07	.
0.18	0.08	0.12	0.07	0.02	0.07 0.08	.	0.07	0.04	0.06	0.16	0
X8	0.02	0.02	0.1	0.06	0.02	0.06	0.15	0.1	0.04	0.08	0.3
X9	0.11	0.25	0.1	0.02	0.05	0.06	0.13	0.09	0.08	0.06	0
X11	0.24	0.14	0.06	0.22	0.05	0.28	0.09	0.34	0.25	0.14	0.36

0.0341	0.06	0.0341	_	0	0	0	_	mix	0	0.27
Value of game (to row)	0.11									

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.11. Lazada needs to implement a marketing strategy of X4 of 0.13 or 13%, X5 of 0.21 or 21%, X8 of 0.3 or 30%, and X11 of 0.36 or 36% in order to have a maximum profit value of 0.11 or 11 % Meanwhile *marketplace* (Y) needs to implement a marketing strategy of Y1 with a profit of 0.06 or 6%, Y2 with a profit of 0.03 or 3%, Y3 of 0.22 or 22%, Y8 of 0.41 or 41% , and Y11 of 0.27 or 27% in order to generate a minimum loss of 0.11 or 11%.

3. Game Lazada vs Blibli

Table 24. Lazada And Blibli Earning Value Matrix

	Y1	Y2	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X1	0.08	0.17	0.09	0.10	0.05	0.12	0.09	0.17	0.15	0.07	0.05
X2	0.20	0.10	0.04	0.09	0.14	0.09	0.24	0.24	0.04	0.23	0.09
X	0.21	0.21	0.07	0.10	0.05	0.13	0.15	0.12	0.19	0.10	0.05
X4	0.12	0.07	0.21	0.07	0.07	0.11	0.16	0.20	0.06	0.16	0.06
X5	0.10	0.13	0.20	0.26	0.13	0.40	0.13	0.12	0.09	0.16	0.09
X6	0.05	0.06	0.10	0.06	0.05	0.17	0.06	0.09	0.09	0.08	0.10
0.12	0.16	_	_	_	0.15	0.07	0.16	0.06	0.17	0.17	0.06
X8	0.09	0.12	0.06	0.06	0.07	0.14	0.18	0.06	0.17	0.09	0.06
X9	0.22	0.23	0.14	0.09	0.04	0.15	0.15	0.17	0.26	0.08	0.04 Minimax)

P-ISSN: 2655-8807
E-ISSN: 2656-8888

X11	0.26	0.16	0.21	0.20	0.10	0.09	0.17	0.26	0.10	0.09	0.20
0.20	0.2	0.20	(	0.26 (Maximum)	0.15	0.40	0.39	0.42	0.26	0.17	0.15

Source: primary data processed, 2022

From table XXX it can be seen that the maximum value of 0.04 is not the same as the minimum value of 0.15, meaning that the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM

Table 25. Results Of Game Value For Mixed Strategy

	Y1	Y2	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Row Mix*
X1	0.08	0.17	0.09	0.1	0.05	0.12	0.09	0.17	0.15	0.07	0
X2	0.2	0.1	0.04	0.09	0.14	0.13	0.09 0.05	0.15	0.2	0.08	0.12
0.21	0.17	0.14	0.07	0.1	0.04	0.13	0.15	0.12	0.19	0.1	0
X4	0.12	0.07	0.21	0.07	0.07	0.11	0.16	0.2	0.06	0.16	0
X5	0.1	0.13	0.2	0.26	0.13	0.4	0.13	0.12	0.09	0.16	0.45
X6	0.05	0.06	0.1	0.06	0.05	0.17	0.06	0.24	0.24	0.08	0
X7	0.08	0.18	0.08	0.08	0.15	0.15	0.16	0.06	0.17	0.17	0.25
X8	0.09	0.12	0.06	0.06	0.07	0.14	0.18	0.06	0.17	0.09	0
X9	0.22	0.23	0.14	0.09	0.04	0.15	0.15	0.17	0.26	0.08	0
X11	0.26	0.16	0.21	0.2	0.1	0.09	0.39	0.42	0.1	0.1	0.08

Column mix	0.175	0	0.12	0	0.175	0	0	0.01	0	0
Value of game (to row)	0.13									

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.13. Lazada needs to implement a marketing strategy of X3 of 0.23 or 23%, X5 of 0.45 or 45%, X7 of 0.25 or 25%, and X11 of 0.08 or 8% in order to have a maximum profit value of 0.13 or 13 % While *marketplace* (Y) needs to implement a marketing strategy of Y1 with a profit of 0.11 or 11%, Y3 with a profit of 0.12 or 12%, Y5 of 0.75 or 75%, and Y9 of 0.01 in order to resulting in a minimum loss of 0.13 or 13%.

4. Bukalapak Game against Blibli

Table 27. Blibli

	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Min
X1	0.38	0.39	0.36	0.13	0.16	0.23	0.26	0.28	0.35	0.17	0.13
X2	0.01	0.02	0.02	0.16	0.09	0.07	0.10	0	BUKALAPAK	.	XXXII
EARNING	MATRIX	VALUE	0.18	0.08	0.08	0.01	0.06	0.06	0.08	0.07	0.01
X4	0.01	0.05	0.05	0.08	0.03	0.14	0.07	0.10	0.04	0.12	0.01
X5	0.14	0.02	0.03	0.01	0.09	0.03	0.06	0.06	0.12	0.02	0.01
X6	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	.	0.06	0.03	0.12	0.05	0.10	0.06	0.03
X8	0.09	0.02	0.04	0.14	0.11	0.03	0.03	0.01	0.07	0.07	0.01 (
X9	0.03	0.06	0.07	0.15	0.10	0.02	0.05	0.06	0.08	0.06	0.02

X0.04	0.12	0.	0.06	0.12	0.06	0.	0.09	0.09	0.12	0.3	–
–	–	Minimax	)	0.16 (Maximum)	0.16	0.23	0.26	0.28	0.35	0.17	

Source: processed primary data, 2022

From table XXXII it can be seen that the maximum value of 0.01 is not the same as the minimum value of 0.16 meaning the game cannot be solved using pure strategy. The next step is to finish using a mixed strategy assisted by *software* POM-QM

Table 28. Game

	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	*Mix*
X1	0.38	0.39	0.36	0.13	0.16	0.23	0.26	0.28	0.35	0.17	0.76
X2	0.01	0.02	0.02	0.16	0.06	0.07	0.09	0.10	0.08	0.01	X.0.1
0.20	Row	MIXED	STRATEGY	FOR	RESULTS	0.01	0.06	0.06	0.08	0.07	0.00
X4	0.01	0.05	0.05	0.08	0.03	0.14	0.07	0.10	0.04	0.12	0.00
X5	0.14	0.02	0.03	0.01	0.09	0.03	0.06	0.06	0.12	0.02	0.00
X6	0.04	0.02	0.03	0.01	0.07	0.12	0.02	0.002	0.02	0.01	0.00
X6	0.04	0.09	0.03	0.01	0.06	0.1	.	0.05	0.10	0.06	0.00
X8	0.09	0.02	0.04	0.14	0.11	0.03	0.03	0.01	0.07	0.07	0.00

X9	0.03	0.06	0.07	0.15	0.10	0.02	0.05	0.06	0.08	0.06	0.03
X10	0.12	0.03	0.04	0.12	0.05	0.020.00	0.06	0.09	0.1	0.10	0.00
Column	0.00	0.00	–	–	0.09	–	–	0.06	0.00	0.06	
Value of game (to row)	0.14										

Source: primary data processed, 2022

From the results of the mixed strategy, the game value is 0.14. Bukalapak needs to implement a marketing strategy of X1 of 0.76 or 76%, X2 of 0.21 or 21%, and X9 of 0.03 or 3% in order to have a maximum profit value of 0.14 or 14% While the *marketplace* (Y) needs to implement Y5 marketing strategy with a profit of 0.79 or 79%, Y6 of 0.15 or 15%, and Y11 of 0.06 or 6% in order to generate a minimum loss of 0.14 or 14%.

4. Conclusion

From the analysis and discussion that has been described, it can be concluded that the game between marketplaces uses a mixed strategy. In the Shopee and Tokopedia games, the optimal game value is 9%. We recommend that the Shopee company need to implement a strategy of 23% product completeness, 20% Brand Image, 13% Event, 5% Expedition, 19% Convenience and 20% Authenticity. Meanwhile, Tokopedia applies a strategy of 24% product completeness, 22% discount, 21% media, 30% expedition, 3% features and 1% authenticity. In the second game, Shopee and Lazada, the optimal game value is 10%. We recommend that Shopee companies need to implement a strategy of 21% product completeness, 3% brand image, 1% discount, 1% expedition, 35% convenience, and 39% authenticity. Meanwhile, Lazada applies a 15% brand image strategy, 31% discount, event , 5% convenience, 4% features, 32% payment. In Shopee and Bukalapak games, the optimal game value is 8%. We recommend that Shopee companies need to implement a 10% Affordability strategy, 17% Media, Events , 10% Expeditions. Features 15%, and Authenticity 33%. Meanwhile, Bukalapak needs to implement a strategy of 2% Brand Image, 32% Affordability, Events , 33% Expeditions, 20% Features, and 5% Payments. In the Shopee and Blibli games, the optimal game value is 16%. We recommend that Shopee companies need to implement a strategy of 18% product completeness, 16% discount, 39% media, events, 4% features and 4% payments. Meanwhile, Blibli needs to implement a strategy of 11% Brand Image, 16% Affordability, 21% Discount, 38% Event, 5% Expedition, and 10% Convenience.

In the Tokopedia and Lazada games, the optimal game value is 10%. It is recommended that Tokopedia companies need to implement a strategy of 36% product completeness, 12% brand image, 1% media, event , and 22% authenticity. Meanwhile, Lazada needs to

implement a 58% discount strategy, 14% media, events, 14% features, and 5% payments. In the Tokopedia and Bukalapak games, the optimal game value is 9%. It is recommended that the Tokopedia company implement a strategy of 4% product completeness, 11% brand image, event , 38% payment, and 35% authenticity. Meanwhile, Bukalapak applies a 2% discount strategy, 14% media, 20% events, 53% expeditions, and 10% convenience. In the Tokopedia and Blibli games, the optimal game value is 9%. It is recommended that the Tokopedia company implement a strategy of Completeness 14%, Brand Image 10%, Events 4%, Expeditions 29%, Convenience 21%, and Payments 21%. Meanwhile, Blibli applies a strategy of 24% Brand Image, 10% Affordability, 18% Discount, 32% Media, Events , and Features. 7%. In the Lazada and Bukalapak games, the optimal game value is 11%. We recommend that Lazada implement a marketing strategy of 13% Discount, 21% Media, 30% Convenience, and 36% Authenticity. Meanwhile, Bukalapak applies a strategy of 6% Product Completeness, 3% Brand Image, 22% Affordability, 41% Convenience, and 27% Authenticity. In the Lazada and Blibli games, the optimal game value is 13%. We recommend that Lazada apply the 23% Affordability, 45% Media, 25% Expedition, and 8% Convenience strategies. Meanwhile, Blibli applies a strategy of 11% product completeness, 12% discount, event , and 1% features. In the last game, Bukalapak and Blibli, the optimal game value was 14%. It is recommended that Bukalapak implement a 76% product completeness strategy, 21% brand image, and 3% features. Meanwhile, Blibli applies 79% Media, Event , and 6% Authenticity strategies.

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