

## Analysis Factors Affecting Investment Decisions of Freshwater Lobster Commodity Products (LAT) in Indonesia

Siti Muhimatul Khoiroh \*, Siti Mundari \*\*

\*(Department of Industrial Engineering, University of 17 Agustus 1945 Surabaya, Indonesia

\*\* (Department of Industrial Engineering, University of 17 Agustus 1945 Surabaya, Indonesia

### ABSTRACT

The business opportunity of the Freshwater Lobster cultivation (LAT) in Indonesia plays an important role in the development of business in the field of fisheries. One type of freshwater lobster that is widely cultivated in Indonesia is red claw (*Cherax quadricarinatus*). The high demand that is not matched by the availability of supply of freshwater red claw lobster which is known to be easy and fast, causes the slow development of lobster activists compared to the large market share both at home and abroad. Therefore we need a strategy, steps, and analysis related to what factors make community interest in making investment decisions in the field of LAT cultivation. Factor analysis modeling involves the factors of digital marketing, financial literacy, income, and profitability, and investment decisions along with variable indicators in an SEM analysis model using CFA (Confirmatory Factor Analysis). The results showed that the profitability factor or the level of profit to be obtained with a loading factor of 0.74 with the main indicator that is the ratio of return on capital (P1) of 1.00.

**Keywords** - LAT (Lobster Ail Tawar); Investation decision; digital marketing; profitability, financial literacy, personal income

Date of Submission: 29-04-2020

Date of Acceptance: 13-05-2020

### I. INTRODUCTION

Freshwater Lobster Cultivation (LAT) as a form of new investment opportunities in Indonesia is a new thing that is increasingly in demand by Lobster commodity business activists both for decoration and consumptive activities since the issuance of the Minister of Maritime Affairs and Fisheries No.56 / Permen-KP / 2016 which prohibits activities catching or removing lobsters, crabs, and crabs from Indonesia.

However, several types of lobster are permitted to be cultivated and developed in business activities in Indonesia, one of which is a lobster type *Cherax Quadricarinatus* (Red Claw) which can not only be consumed but can also be an alternative ornamental aquarium.

Opportunities for investment in lobster farming in Indonesia, when viewed from the graph of growth according to the Central Statistics Agency during the first quarter of 2019, were an increase of 0.69% compared to 2018, which means that Indonesia's lobster export needs experienced growth of 13.03% per year.

With the increasing demand and expanding markets, growing investment decision trends in the field of fisheries and Lobster culture. Investment decisions related to the number of funds spent to

obtain long-term profits that can increase company wealth (Brealey, Myers, 2009).



**Figure 1.** Indonesian Lobster Export Growth in 2014-2019 (Statistics Indonesia 2019, Processed (Suhana, 2019))

The development of investment for the cultivation of LAT type Redclaw in Indonesia has a great opportunity to become a mainstay commodity (Kurniasih, 2008). To increase these potentials and opportunities towards the economic independence of the Indonesian people as a maritime country supported by vast territorial islands, climate, and high public demand, both domestically and from abroad such as Taiwan, China, Hong Kong,

Singapore, Australia, Japan, Malaysia, Korea, and United States, the interest of investing in the community as individual capital owners and corporate organizations needs to be a particular concern for LAT cultivation business activists.

Trends in the pattern of protein consumption in Indonesian society that has shifted from red meal to white meal must be analyzed from financial and non-financial aspects. From the financial aspect can be identified through the Net Present Value (NPV), Benefit-Cost Ratio (BCR), Internal Rate of Return (IRR). While the non-financial analysis can be done through analysis of the market, technical, management, legal, economic, and environmental aspects (Afni, 2008).

Investment decision making by someone tends to be done after research related to several matters relating to the company, including in terms of financial information (Christanti, Natalia., Mahastanti, 2011). The higher the ratio of return on capital / profits obtained will provide greater investment opportunities (Ratnasari, 2017). Financial information and the amount of profit generated in each period become a measure of the profitability of a company (Christanti, Natalia., Mahastanti, 2011; Endiana, 2017; Ratnasari, 2017).

Also, financial literacy is related to financial behavior (Herawati, 2015). Financial literacy capabilities require a good level of knowledge, the ability to understand numbers or nominal, and the ability to obtain financial information (Lopus, Amidjono, & Grimes, 2019; Septyanto, Dihin., Adhikara, 2013; Skagerlund, Lind, Strömbäck, Tinghög, & Västfjäll, 2018).

Ease of access to information also depends on the extent of information that can be accessed and obtained easily by potential investors in digging profiles and all information related to the company quickly, precisely, and updated, interacting with companies in business activities both face to face (offline marketing) or through e-commerce or digital marketing (Azmi, 2016).

Also, investment decision making by potential investors will consider the amount of capital that must be spent or invested to obtain high returns that depend on personal or household economic conditions (income level) (Malik, 2017). One of the LAT cultivation that is growing rapidly in the East Java region is PT. Tri Karya Makmur Jaya, with the distribution of investors, spread in various regions and provinces in Indonesia.

## II. METHODOLOGY

This study aims to develop an investment decision-making model framework for potential lobster culture investors that refers to the various results of investment decision research in various

fields. The stages in this research are the determination of variable criteria and determinants of community investment decisions in Indonesia, making models and hypotheses, preparing questionnaires, determining the number of samples, collecting data, and processing data with the application of SEM (Structural Equation Modeling) with CFA (Confirmatory Factor Analysis).

This study involved respondents who are investors who are investment actors in the cultivation of freshwater lobster that has been running by taking a number of samples based on the formula Taro Yamane or Slovin (Rochmah, 2016):

$$n = N / ((N.e^2) + 1)$$

$$n = 217 / [((217 * (0,05^2))+1)]$$

$$n = 140,680$$

Description :

n : number of samples

N: total population

e :margin of error (set at 5% with 95% confidence level)

So, the total respondents in this study were set to be 150 people.

### 2.1 Definition of Variable Operations

#### 1. Digital Marketing

Online marketing through the use of e-commerce to accelerate the delivery of relevant information and interesting steps and convincing potential investors.

#### 2. Profitability

The level of profit/ease in obtaining profit offered to the business.

#### 3. Financial Literacy

Information and access to transparency in operational, management and financial activities of the company to potential investors.

#### 4. Income (personal income)

Is the level of income owned by personal or units to be divested as venture capital.

**Table 1.** Variables and Indicators

Variable	Code	Indicator
<i>Digital Marketing</i> (X1)	DM1	Easy access to LAT cultivation information
	DM4	Services and facilities offered
	DM5	The availability of websites, social media, and search engine regarding LAT cultivation
<i>Personal Income</i> (X2)	I1	Revenue > expenses
	I2	Capital utilization preferences
Profitability	P1	Return on investment

(X3)	P2	High profits due to minimal competitors
Financial Literacy (X4)	L2	The ability to understand numbers and nominal
	L3	Transparency of business activities
	L4	Understanding the benefits of financial literacy
Investation decision (Y)	KP1	Investment for profit
	KP2	Selection of investment with a low level of risk
	KI3	Selection of investment with low competitiveness
	KI6	Investment for long-term savings

(Source: Data Processed, 2019)

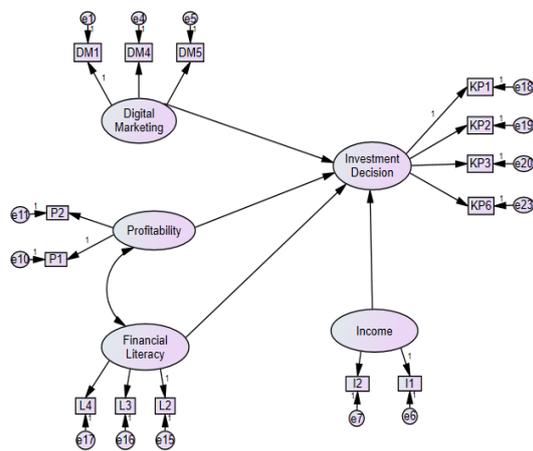


Figure 1. Research Model

Research Hypothesis:

- H1 : Digital marketing influences investment decisions
- H2 : Income / personal income influences investment decisions
- H3 : Profitability influences investment decisions
- H4 : Financial literacy influences profitability
- H5 : Financial literacy influences investment decisions.

## 2.2 Confirmatory Factor Analysis

The Confirmatory Factor Analysis (CFA) technique is intended to estimate the measurement model, test the unidimensionality of exogenous and endogenous constructs. CFA Steps (Juniawan, Jefri Eko; Kusuma, 2017):(Source: Data Processed, 2019).

1. KMO (Kaiser Meyer Olkin) shows the construct validity of factor analysis. Minimum KMO of 0.5

and  $<0.5$  indicates that factor analysis cannot be used.

2. Measures of Sampling Adequacy (MSA), showing the feasibility of a factor test model for each variable seen from MSA. MSA value of each  $> 0.5$ , means that the model is feasible to be used in factor analysis.
3. Value of PCA (Comunalities), at this stage the number of variants given each item with other items considered. If the communality coefficient is quite effective if it is worth 50%. If there is a commonality of less than 50%, the factor load must be considered.
4. The total variance explained explains the ability of each factor to explain the variation. If each variable  $> 60\%$  has the meaning that the factors of each variable have the feasibility to explain the factor variables.
5. Loading factor, at this stage the loading factor is the coefficient that explains the level of the relationship of the indicator with latent variables.

## III.RESULT

From 150 research samples distributed by the questionnaire, obtained information related to investor profiles in LAT cultivation in Indonesia, namely:

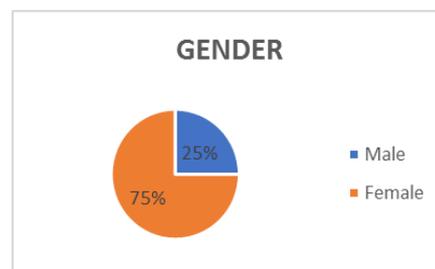


Figure 2. Lobster Gender Investor Investor

Interest in freshwater lobster investment in Indonesia is still dominated by men when compared to women as in Figure 2.

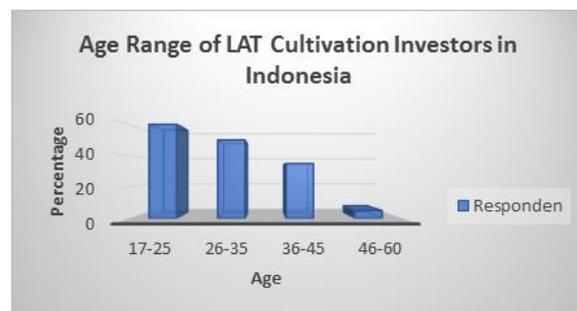


Figure 3. Age Distribution of LAT Cultivation Investors

To capture investment interest, age plays an important role for decision making as in investment decisions in the LAT sector which are dominated by investors with a range of productive ages in the range of 26 to 35 years as in Figure 3.

While the level of public awareness of this freshwater lobster business opportunity can be seen from the distribution of investors from various regions in a number of provinces in Indonesia. This number will continue to increase along with the increasingly widespread needs and market trends in the lobster business both as raw material for processed foods and as ornamental fish which are increasingly in demand by people in various parts of the world.

In Figure 4 below, it can be seen that the results of the study show that the distribution of investors in the interest of the highest lobster farming business opportunities originates from the Provinces of East Java, Central Java, and Jakarta and several other regions in northern and southern Indonesia.

While the level of public awareness of this freshwater lobster business opportunity can be seen from the distribution of investors from various regions in a number of provinces in Indonesia. This number will continue to increase along with the increasingly widespread needs and market trends in the lobster business both as raw material for processed foods and as ornamental fish which are increasingly in demand by people in various parts of the world.

In Figure 4 below, it can be seen that the results of the study show that the distribution of investors in the interest of the highest lobster farming business opportunities originates from the Provinces of East Java, Central Java, and Jakarta and several other regions in northern and southern Indonesia.

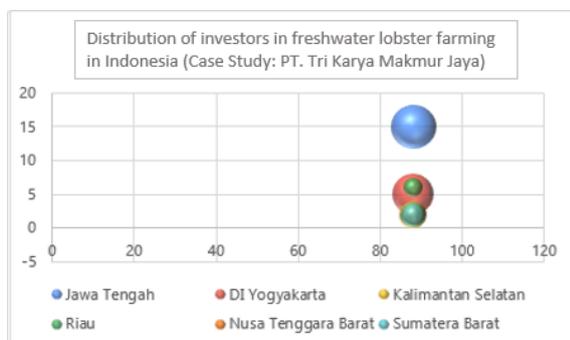


Figure 4. Distribution of LAT Investment Players in Indonesia

Based on the results of data processing using the AMOS model with the CFA (Confirmatory Factor Analysis) approach the results are:

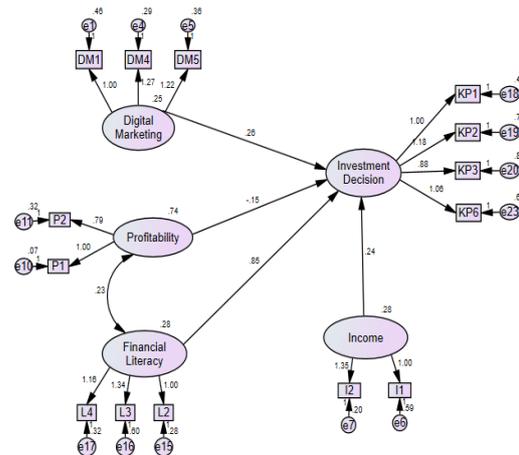


Figure 5. Model Fit CFA

Based on the Confirmatory Analysis of the factors examined in this study, a fit model was obtained with a p value > 0.05.

Table 2. CFA Test Results

Goodness of Fit Index	Expected value	Test results
X <sup>2</sup> -Chi Square	Expected to be small	86.277
P-value	≥ 0,05	0.067
RMSEA	≤ 0.08	0.042
GFI	≥ 0,9	0.927
TLI	≥ 0,9	0.965
CFI	≥ 0,9	0.974

Table 2 shows the value of Chi-Square 86 277 with a p-value of 0.067, which means that the model fit. Likewise with the criteria of GFI, CFI, TLI values > 0.9 and RMSEA 0.042 < 0.08, it can be said that the data is valid and reliable.

Table 3. Assessment of normality

Var.	min	max	skew	c.r.	curtosis	c.r.
KP6	2	5	-1.088	-4.907	0.196	0.442
KP3	2	5	-0.566	-2.553	-1.037	-2.338
KP2	2	5	-0.758	-3.417	-0.68	-1.532
KP1	2	5	-1.063	-4.795	0.008	0.019
L4	2	5	-0.351	-1.585	-0.848	-1.912
L3	2	5	-0.334	-1.507	-0.726	-1.636
L2	2	5	-0.071	-0.321	-0.542	-1.222
P2	2	5	-0.765	-3.449	-0.149	-0.337
P1	2	5	-0.77	-3.471	-0.533	-1.201
I2	2	5	-0.549	-2.474	-0.569	-1.283
I1	2	5	0.029	0.13	-1.174	-2.648
DM5	2	5	-0.689	-3.107	-0.19	-0.428
DM4	2	5	-0.588	-2.652	-0.244	-0.549
DM1	2	5	-0.198	-0.892	-0.629	-1.419
Multivariate					12.105	2.421

The multivariate normality test gives a critical ratio value of the news value 2,421 <2.58 in Table 3 which means that the multivariate data is normally distributed and there are no outliers in the data.

**Table 4. Loading Factors of Indicators**

	Relation	Estimation	P-value	Keterangan
DM5	<-- Digital_Marketing	1,215	***	Significant
I2	<-- Income	1,353	0,031	Not Significant
P2	<-- Profitability	0,787	***	Significant
L3	<-- Financial_Literacy	1,343	***	Significant
L4	<-- Financial_Literacy	1,157	***	Significant
KP2	<-- Investmen_Decision	1,178	***	Significant
KP3	<-- Investmen_Decision	0,877	***	Significant
KP6	<-- Investmen_Decision	1,064	***	Significant
DM4	<-- Digital_Marketing	1,268	***	Significant

Table 4 shows that there is one insignificant indicator, I2, because the indicator has a p-value > 0.1. while the significant indicators are DM5, P2, L3, L4, KP2, KP3, KP6, and DM4, because each indicator has a p-value <0.1 of the significant level.

**Table 5. Hypothesis Test Results**

	Relation	Estimate	S.E.	C.R.	P
Investmen_Decision	<-- Digital_Marketing	0,859	0,096	2,711	***
Investmen_Decision	<-- Profitability	-0,148	0,064	-2,298	0,022
Investmen_Decision	<-- Financial_Literacy	0,847	0,158	5,355	***
Investmen_Decision	<-- Income	0,843	0,093	2,622	***
Profitability	<-- Financial_Literacy	0,23	0,052	4,404	***

Hypothesis testing produces conclusions as in Table 5, namely:

- H1 :Digital marketing has a significant effect on investment decisions.
- H2 :Profitability does not significantly influence investment decisions.
- H3 :Financial literacy has a significant effect on investment decisions.
- H4 :Income (income) has a significant effect on investment decisions.
- H5 :Financial literacy has a significant effect on profitability.

#### IV. CONCLUSION

Investment decisions for freshwater crayfish in Indonesia based on the results of factor analysis using the CFA (Confirmatory Factor Analysis) approach shows that there are indicators that have loading factor values that represent each factor in shaping investment decisions. The first factor of digital marketing with a loading factor value of 0.25 with the highest representing indicator is DM4 (loading factor 1.27). The profitability factor with a factor loading value is 0.74 and the indicator that represents the highest is P1 (loading factor

1.00). Financial Literacy Factor with a loading factor value of 0.28 and the indicator that represents the highest is L3 (loading factor 1.34). Income factor with a loading factor value of 0.28 and the indicator that represents the highest is I2 (loading factor 1.35). The investment decision factor with a loading factor value of 0.24 and the indicator that represents the highest is KP2 (loading factor 0.87). From the results of this analysis, it can be seen that the highest loading factor value on investment decisions of freshwater lobster culture in Indonesia is the profitability factor.

Although the investment business is faced with the risk of uncertainty, and many are influenced by other factors, the results of this study can be used as consideration in decision making.

#### REFERENCES

- [1]. Afni, K. Feasibility Analysis of Exploitation of Lobster Ait Tawar (Case of K'BLAST'S Farm, Gunung Guruh District, Sukabumi Regency, West Java), 2008, 1–104
- [2]. Azmi, M. U. Effect of Communication Programs on Digital Marketing and Sales Promotion Against Impulse Buying on Consumers Lazada.co.id Site (Survey on Kaskus Forum), 2016.
- [3]. Brealey, Myers, M. Fundamentals of Financial Management (5th ed.). Erlangga, 2009.
- [4]. Christanti, Natalia., Mahastanti, L. A.. Factors that Investors Consider in Investing. Journal of Management Theory and Depth, 4 (3), 2011, 37–51.
- [5]. Endiana, I. D. M. Analysis of Factors That Influence Investment Decisions with Groth Opportunity as a Moderating Variable. Scientific and Accounting Journal of Business, 2, 2017.
- [6]. Herawati, N. T. The contribution of learning in higher education and financial literacy to student financial behavior. Journal of Education and Teaching, 48 (1–3), 2015, 60–70.
- [7]. Juniawan, Jefri Eko; Kusuma, A. A. G. A. E. Factors Affecting Customer Switching from Conventional Taxis to Online Taxis. Eud Management E-Journal, 6 (10), 2017, 5460-5488.
- [8]. Kurniasih, T. Freshwater Lobster (Parastacidae: Cherax), Aaspek Biology, Habitat, Distribution, and Potential for Development. Aquaculture Media, 3 (1), 2008, 31–35.
- [9]. Lopus, J. S., Amidjono, D. S., & Grimes, P. W. Improving Financial Literacy of the Poor and Vulnerable in Indonesia: An Empirical

- Analysis. Biochemical Pharmacology, 100168. 2019, <https://doi.org/10.1016/j.iree.2019.10016>
- [10]. Malik, A. D. Analysis of Factors Affecting Community Interest in Investing in the Islamic Capital Market through the UII Investment Gallery Exchange. *Journal of Islamic Economics and Business*, 3 (1), 2017, 61–84.
- [11]. Ratnasari, J. T. *Journal of Analysis of Factors Affecting Investment Decisions in Manufacturing Companies in the Industrial Sector of Goods Listed on the IDX*. 2017.
- [12]. Rochmah, N. The Influence of Soft Skill of Library Staff on Excellent Services in the Library of the Faculty of Social and Political Sciences, Gadjah Mada University, Yogyakarta. *Periodical Library and Information Science*, XII (2), 2016,144–149.
- [13]. Septyanto, Dihin., Adhikara, M. F. A. The behavior of Individual Investors in Making Securities Investment Decisions on the Indonesia Stock Exchange (IDX), 2013.
- [14]. Skagerlund, K., Lind, T., Strömbäck, C., Tinghög, G., & Västfjäll, D. Financial literacy and the role of numeracy - How individuals' attitudes and affinity with numbers in financial literacy. *Journal of Behavioral and Experimental Economics*, 74 (August 2017), 2018, 18-25. <https://doi.org/10.1016/j.socec.2018.03.004>
- [15]. Suhana. Lobsternomics (2): Quarter 1 Lobster Export Performance 2019. Retrieved from <https://suhana.web.id/2019/05/07/lobsternomics-2-kinerja-ekspor-lobster-triwulan-1-2019/>

Siti Muhimatul Khoiroh, et. al. “Analysis Factors Affecting Investment Decisions of Freshwater Lobster Commodity Products (LAT) in Indonesia.” *International Journal of Engineering Research and Applications (IJERA)*, vol.10 (05), 2020, pp 01-06.