

# Investing at the Crossroads: Understanding Prospect Theory and Risk in MSMEs

## ABSTRACT

**Aims:** to examine the effect of financial literacy, demographic factors, and risk tolerance on investment decision-making. This research is based on prospect theory, prospect theory has specifications, namely behavior-based economics which states that economic actors are not always rational.

**Study design:** The research I use is quantitative, which is a systematic study of parts and phenomena and the causality of their relationships.

**Place and Duration of Study:** This study used a sample of 111 MSME players in the Banyumas and surrounding areas, with the duration of the study starting from March 2024 to August 2024.

**Methodology:** This research is a quantitative study using a sampling technique, namely non-probability sampling (Accidental Sampling). Data analysis using Structural Equation Model-PLS with Smart-PLS 3.0 software.

**Results:** prove that financial literacy and risk tolerance variables have a positive and significant effect on investment decisions. If previously demographic variables were the main variables, then in this study demographics became control variables. The demographic variables are the length of business, income, education level, and age of the business owner. The results of the analysis show that the two variables of length of business and income hurt investment decisions and the variables of education level and age of business owners have a positive effect.

**Conclusion:** This shows that MSME players in the Banyumas area already have a fairly high level of financial insight so that they can make good financial (investment) decisions.

*Keywords: investment decision, prospect theory, financial literacy, risk tolerance, MSMEs*

## 1. INTRODUCTION

Financial literacy is a series of processes or activities to increase the knowledge, confidence, and skills of consumers and the wider community so that they can manage finances properly. [1] So in short, financial literacy can also be interpreted as knowledge or ability to manage finances.

A survey conducted by OJK regarding the level of financial literacy of the Indonesian people has 4 (four) parts, namely:

1. Well literate (21.84%), i.e. having knowledge and confidence about financial services institutions and financial services products, including features, benefits and risks, rights and obligations related to financial products and services, and having skills in using financial products and services.
2. Sufficient literate (75.69 %), having knowledge and confidence about financial service institutions and financial products and services, including features, benefits and risks, rights and obligations related to financial products and services.
3. Less literate (2.06 %), only know financial service institutions, financial products, and services.
4. Not literate (0.41%), do not have knowledge and confidence in financial services institutions and financial products and services and do not have the skills to use financial products and services.

Financial literacy not only has many benefits for individuals but is also beneficial for business actors, in this case, MSMEs (Micro, Small, and Medium Enterprises), during the pandemic the financial sector in Indonesia was shaken hard enough that many business actors went out of business because they were no longer able to continue their business. This has a huge impact on all entrepreneurs, especially for MSME players in the regions. A very significant impact is the reduction in income and the difficulty of finding funding (capital), which in the end is to find a way out by applying for credit to the bank.

But the problem here is that not all MSME players understand the financial services products of these banks so the potential is trapped in online loans or loans with very high interest (loan sharks). From this phenomenon, the importance of financial literacy for MSME actors in running their businesses is so that they can understand financial products, can manage and plan finances properly so that they can avoid fraud or unhealthy loans.

The rise of the situation and conditions after the pandemic a few years ago is a hope for all business actors so that the business will recover as usual that this will have an impact on the welfare of life. There are many ways that a person can get a better life by meeting the needs of life, one example of meeting the needs of life is by working (opening a business field) because by working a person gets income or profit which from this income can be used to meet his needs. But nowadays, with the development of knowledge and technology, it can encourage a person to be more productive besides doing activities by working. One example that can be done is by investing. [2]. Investment is a commitment to several funds or other resources made at this time to obtain a profit in the future. [3].

There are several reasons that an individual considers in deciding to invest. One main factor is financial literacy and other reasons are demographic factors and risk tolerance [4]. Opinions from [5] reveal that investor behavior, which can change at any time, can be influenced by psychological factors. When investors make decisions to invest, elements of subjectivity and psychological factors can likely be more dominant in influencing investor decisions. Psychologically, what can influence investment decision-making consists of overconfidence and risk tolerance. But what will be discussed in this study is risk tolerance.

The first factor that influences investment decision-making is financial literacy. Financial literacy is closely related to daily life in society, it's just that not everyone realizes that it is financial literacy. For example, when deciding to save or buy assets (land or house), it is already an involvement of the role of financial literacy in everyday life. The definition of financial literacy according to [6] is an important factor affecting a person's ability to manage their finances, including investing. [7] state the influence of financial literacy and financial experiences on one's investment decisions. These results follow the statements of (Allgood Dan Walstad, 2016), [9], [10], [11], [12], [13], which state that financial literacy affects investment decisions. The statement is different from [14], [15], and [16] where his research shows financial literacy does not affect investment decisions.

The second factor that influences decision-making is risk tolerance, this is considered capable of influencing a person's investment decision where the more courageous a person takes risks, the more courageous he is in making investments. Risk tolerance is the maximum amount a person can accept risk or uncertainty when making an investment decision [17]. The choice of investment type and amount of funds is also strongly influenced by the investor's tolerance for the risks that will be faced (risk tolerance). There are 3 types of investor tolerance for risk or uncertainty, namely, whether the investor likes risk (risk seeker), avoids risk (risk averter), or ignores risk (risk indifference). Risk tolerance itself is one of the most powerful factors in investment decision-making [18]. [19] stated that the risk tolerance variable is an important component that affects a person's investment level. This opinion is different from [20], and [21] who state that risk tolerance cannot influence a person's investment decision.

The third factor that influences decision-making is demographic factors, the demographic factors used in supporting this include age, gender, income, length of business, etc. According to research conducted by [9], gender demographic factors have a significant impact on investment behavior while income has no significant effect on investment decision behavior. A significant finding from research conducted by [4] is that gender is a demographic variable that has an impact on investment patterns, while occupation and age have no impact on investment patterns, which means that age and occupation have no significant effect on investment decision-making. [22], [14], [11], in their research say that demographic factors can increase a person's investment. However, this is different from [9] who state that demographic factors have a negative influence on a person's investment level.

From the background above, several studies prove inconsistent results. So it needs to be explored more deeply in this study, namely, there is an emphasis on psychological factors based on Prospect Theory as a reinforcement in explaining the character and preferences of investors in making investment decisions.

## **2. MATERIAL AND METHODS**

### **2.1 LITERATURE REVIEW**

#### **2.1.1 Prospect Theory**

Prospect theory is a theory in psychology and behavioral economics developed by Daniel Kahneman and Amos Tversky in the late 1970s. It explains how people make decisions under conditions of risk uncertainty, especially in the context of gains and losses. Prospect theory has key components that distinguish it from traditional decision theory, namely:

##### **2.1.1.1 Value Function**

This value function describes how a person assesses gains and losses. There are two meanings in the value function, namely (a) losses outweigh gains: indicating that losses have a greater psychological impact than equivalent gains. (b) Diminishing sensitivity: sensitivity to changes in value decreases as the value increases or decreases.

##### **2.1.1.2 Probability weighting.**

Probability weighting means that individuals tend to assess probabilities not in a linear fashion. Two types of probability weighting are (a) overweighting of low probabilities: where people often give greater weight to events that are very

unlikely to occur. (b) underweighting of high probability: in contrast, people tend to give less weight to events that are very likely to occur.

### **2.1.1.3 Framing effect**

Framing effects are decisions that can be influenced by the way information is presented or "framed".

Prospect theory has significant implications in the field of behavioral finance, which studies how psychological factors influence investment decisions and financial markets, including market anomalies (loss aversion is that investors tend to fear losses rather than profits and the Disposition Effect is that people tend to sell assets that have gained profits and hold on to assets that have suffered losses, Although rationally selling assets that have suffered losses will be more profitable), Overreaction and Underreaction, Mental Accounting, Endowment Effect is that people tend to give a high value to assets that are currently owned compared to those they do not have, this can cause difficulty in selling assets that are already owned even though the market is unfavorable. Prospect Theory is one of the main pillars of behavioral finance, which helps explain how psychological and cognitive factors influence individual financial decisions and market behavior. By understanding concepts such as loss aversion, probability weighting, and framing effects, investors and market participants can make better decisions and avoid common biases.

### **2.1.2 The effect of financial literacy on investment decision making**

Understanding financial management is very important for every individual to be able to have because the impact is not only that someone can be wise in managing personal finances but also can contribute to the economy of a country and even the world for the better. According to most studies, it has been found that a person with low income and education level usually has low financial literacy. This financial literacy needs to be given so that a person can manage their finances properly, namely by the emergence of appropriate financial behavior. This behavior can take the form of paying bills on time, making monthly financial reports, and the availability of reserve funds for sudden or urgent needs.

This financial understanding can be created from a person's possession of wealth and experience in managing it. [23] the results of their research also stated that financial literacy has a very large effect on one's investment decision-making. Based on this description, the first hypothesis in this study is:

**H1: financial literacy has a positive and significant effect on investment decision-making in MSME players.**

### **2.1.2 The effect of risk tolerance on investment decision-making.**

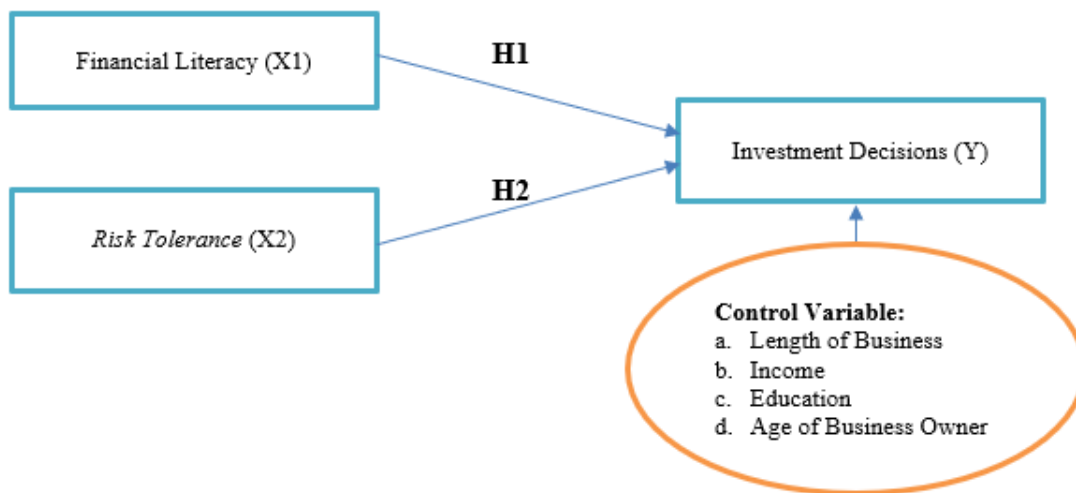
The level of risk tolerance of each investor varies due to differences in age, work profession, socio-economic cultural environment, income level, and the number of assets and wealth owned. [18] state that this risk tolerance is the main determinant of a person in making his investment choices. In line with this opinion, [20] also stated that a higher risk tolerance will increase a person's investment decision, namely in real assets. Conversely, if a person has a low-risk tolerance, he will usually choose to invest in lower-risk asset options such as savings deposits in banks. The level of risk tolerance of each person is different. This can be due to differences in the level of social status and the type of work a person has. Based on this description, the third hypothesis in this study is:

**H2: risk tolerance has a positive and significant effect on investment decision-making in MSME players.**

### **2.1.3 The influence of demographic factors on investment decision-making.**

Demographics can be interpreted as a person's profile display consisting of age, income, gender, marital status, profession, education level, and position held. Another opinion about demographic factors is from [24] which states that demographic factors can be seen from education history, salary received, and. The results of research by [22], [14], found that demographic factors have a positive effect on a person's investment decisions. Based on this description, the demographic factors that will be used in this study include the length of business, level of income (turnover), level of education, and age of the business owner which will be the control variable.

## **Fig 1. Research Framework**



## 2.2 METHODOLOGY

### 2.2.1 Type of research.

The type of research used is quantitative research, which is research that reveals the size or size of an influence or relationship between variables expressed in numbers, by collecting data which is a supporting factor for the influence between the variables concerned and then trying to be analyzed using analytical tools following the variables in the study [25].

### 2.2.2 Population and Sample

Population is a generalization area consisting of objects/subjects that have certain quantities and characteristics set by researchers to study and then draw conclusions. So the population is not only people, but also objects / those studied, but includes all the characteristics/properties possessed by the subject or object [25]. This study used a sample of MSME actors in the Banyumas Regency.

The sample is part of the population to be studied [26]. The sampling technique used non-probability sampling with accidental sampling technique, which is a sampling technique based on chance, namely anyone who happens to meet the researcher can be used as a sample if it is deemed that the person who happened to be met is suitable as a data source, [25]. In determining the sample size, the researcher used the Slovin formula. Slovin's formula for determining sample size is as follows:

$$n = \frac{N}{1 + Nd^2}$$

Description:

n = Minimum sample size (sample)

N = Population size

d = limit of accuracy

### 2.2.3 Types, Data Sources, and Data Collection Techniques

The type of data used in this study is to use primary data. Primary data is data that is taken actually in the field through distributing questionnaires to each sample [26]. Primary data sources are obtained from MSME actors in the Barlingmascakeb region, while the data collection technique will be carried out by distributing questionnaires. Using a Likert scale, the scale is to classify the variables to be studied. On this scale using a 5 scale, namely: Strongly Disagree (STS) score 1; Disagree (TS) score 2; Neutral (N) score 3; Agree (S) score 4; Strongly Agree (SS) score 5.

### 2.2.4 Research Variables

In this study independent variables and dependent variables, namely: Independent variables are variables that affect or cause the size of other variable values [26]. The independent variables in this study are financial literacy (X1), and risk tolerance (X2). The dependent variable is the variable whose value is influenced by variations in the independent variable [26]. The dependent variable in this study is Investment decision-making (Y). investment decision is an individual decision and depends entirely on a free person [14]. Another opinion states that individual investment decisions can be seen from two sides, namely 1). the extent to which these decisions can maximize wealth (economics) and 2). Investment decisions based on aspects of investor psychology). [27]. Control variables are variables that are controlled or made constant so that the effect of the independent variable on the dependent variable is not influenced by external factors that are not

studied [25]. Control variables have a function to prevent biased calculation results. Control variables also play an important role in ensuring the accuracy and validity of the research results, which are the control variables in this study including length of business, income, education level, and age of business owners.

## **2.2.5 Operational Definition of Variables**

### **2.2.5.1 Investment Decisions**

Investment decisions are decisions to allocate company funding. The question indicators use indicators from [23] which include six questions, namely being able to calculate security and risk, being able to predict the components of risk factors, being able to predict the level of return on investment asset types, being able to understand investment growth, being able to analyze the level of liquidity.

### **2.2.5.2 Financial Literacy**

Financial literacy is the ability to manage finances to live more prosperously in the future [28]. In addition, the definition of financial literacy is also defined as the ability to understand financial conditions and financial concepts and to convert that knowledge appropriately into behavior. Financial literacy also makes individuals feel more capable of making investment decisions and taking controlled spending behavior. There are five indicator items used to measure financial literacy including Basic Financial Understanding (basic personal finance), Understanding financial management (Money Management), Understanding financing (loans), (credit and debt management), Knowledge of savings and investment (saving and investment), Knowledge of Risk Management (risk financial management). [12], [23], [29]

### **2.2.5.3 Risk Tolerance**

Risk tolerance is the level of risk that an entity is willing to bear to achieve its goals. Risk tolerance includes the following indicators, Providing unsecured loans, unclear Investments and trial and error, Investing without doing calculations, and Choosing investments only at high levels of return and risk.[19], [20]

### **2.2.5.4 Demographics**

Demography is the study of population, including the number, distribution, and composition of the population in a region. Another term for demography is population science, which is the study of human population dynamics. This demographic variable is a control variable in this study by including four measurement components, namely length of business, income, education level, and age of the company owner [23].

The research items used all use a Likert scale with a score of 1 (one) to 5 (five). This study uses the data analysis method that the author will use in his research is variant-based SEM (structural equation modeling), namely PLS (partial least square). The book [30] entitled "Concepts & Applications of PLS (Partial Least Square) for Empirical Research", states that SEM is a statistical technique that aims to test and estimate causal relationships by integrating factor analysis and path analysis. Validity and reliability tests use the outer model, while hypothesis testing uses the inner model, the hypothesis is accepted if the regression coefficient shows the direction following the hypothesis and has a significance level of less than 0.05.

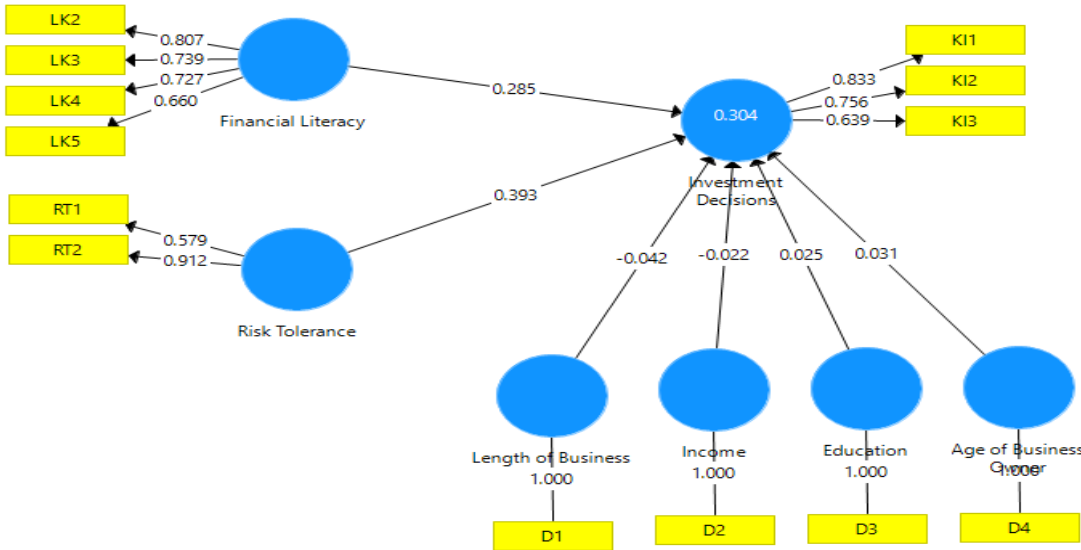
## **3. RESULTS AND DISCUSSION**

### **3.1 RESULT**

This research was conducted on MSME owners in the Banyumas area, the research sample amounted to 100 respondents. The average education level of business owners is 30 to 40 years old, with a high school / vocational high school education level, while the length of business is around 5 years.

This study aims to examine the effect of financial literacy and risk tolerance on investment decisions with demographic factors as control variables. There are 5 statement items for the financial literacy variable, 4 statement items for the risk tolerance variable, and 5 statements for the investment decision variable, while the control variable, namely demographics, consists of 4 components, namely length of business, income, education level and age of the business owner. In the first test, several statement items had an outer loading of less than 0.5, but after being removed from the research model, all outer loading values were more than 0.5, as shown in the figure below:

**Fig. 2. Research Model**



The test results show that all question items have outer loading at a value of 0.6 for all statement items, so the results of this test have met the requirements needed.

**Table 1. Outer Model Test Result**

	Age of Business Owner	Education	FL	Income	ID	Length of Business	RT
D1						1.000	
D2				1.000			
D3		1.000					
D4	1.000						
KI1					0.832		
KI2					0.756		
KI3					0.639		
LK2			0.807				
LK3			0.739				
LK4			0.727				
LK5			0.660				
RT1							0.579
RT2							0.912

Source: Data Obtained, 2024

**Table 2. Composite reliability and Average Variance Extract (AVE)**

Variables	Composite Reliability	AVE	Criteria
<b>Independent Variable (X)</b>			
Financial Literacy (FL)	0.824	0.540	Reliable
Risk Tolerance (RT)	0.727	0.583	Reliable
<b>Dependent variable (Y)</b>			
Investment Decisions (ID)	0.789	0.558	Reliable

Source: Data Obtained, 2024

Table 2 above shows the results of testing convergent validity and discriminant validity. The convergent validity test is indicated by an AVE value of more than 0.5. The Results show the AVE value for all variables has a value greater than 0.5. The discriminant validity test uses two measures, namely Fornell-Lacker's and Cross-Loading. The Fornell-Lacker's test is calculated by comparing the square root value of the AVE with the latent variable correlation. Table 3 below shows the results of the best below:

**Table 3. Discriminant Validity- Fornell-Lacker's**

Variables	Investment Decisions (ID)	Financial Literacy (FL)	Risk Tolerance (RT)
Investment Decisions (ID)	0.747		
Financial Literacy (FL)	0.420	0.734	
Risk Tolerance (RT)	0.482	0.366	0.763

Source: Data Obtained, 2024

Table 3 above shows that the square root of the AVE is greater than the correlation of the latent variables. Therefore, discriminant validity is acceptable. This study has 2 hypotheses, namely H1 and H2, which are the direct effect of financial literacy and risk tolerance variables on investment decisions, and four control variables, namely length of business, income, education level, and age of business owners on investment decisions. The results of hypothesis testing are presented in the table below:

**Table 4. Path Coefficient Test Result**

Relationship	Original Sample	T-Statistic	P-Value	Conclusion
Financial Literacy → Investment Decisions	0.284	3.002	0.002	Supported
Risk Tolerance → Investment Decisions	0.393	3.605	0.0003	Supported
Length of Business → Investment Decisions	-0.042	0.346	0.729	Not Supported
Income → Investment Decisions	-0.022	0.205	0.837	Not Supported
Education → Investment Decisions	0.025	0.231	0.817	Not Supported
Age of Business Owner → Investment Decisions	0.031	0.248	0.804	Not Supported

Source: Data Obtained, 2024

**Table 5. R-Square Test Result**

	R Square	R Square Adjusted
Investment Decisions	0.304	0.259

Source: Data Obtained, 2024

Table 4 above shows that the results of testing hypothesis 1 show that the P-value is  $.002 < .05$ , when viewed from the t-statistic value of  $3.002 > 1.96$ , so based on this, it states that hypothesis 1 (H1) is accepted, which means that there is a significant influence between financial literacy on investment decisions. With a coefficient value of 0.284, this shows that increasing financial literacy contributes positively to investment decisions. The higher a person's financial literacy, the better their investment decisions.

The results of hypothesis 2 (H2) testing show that the P-value is  $.0003 < .05$  and the t-statistic value is  $3.605 > 1.96$ , this states that hypothesis 2 is accepted, which means that risk tolerance has a significant effect on investment decisions. The coefficient value of 0.393 indicates that the higher a person's risk tolerance, the greater the tendency to make bolder and possibly more profitable investment decisions.

For testing all control variables, namely length of business, income, education, and age of business owners, do not have a significant influence on investment decisions in this study. However, the coefficient value for the variable length of business and income is negative while the variable education and age of the company owner is positive.

### **3.2 DISCUSSION**

The test results show that financial literacy has a positive effect on investment decisions (H1 is supported). The effect of financial literacy is directly proportional to investment decisions, meaning that the higher the financial literacy of an individual, the better the investment decision behavior of that individual. This supports the results of research from [23] which states that a person's high level of financial literacy will show a good direction in making investment decisions. In addition, the results of research from [10]–[12] state that financial literacy variables influence investment decisions. It can be concluded that MSME entrepreneurs in the Banyumas and surrounding areas have good financial knowledge and understanding (high financial literacy levels) so they have better investment decisions compared to MSME entrepreneurs with low financial knowledge.

Following the concept of prospect theory that the value function is steeper on the loss side than on the gain side, financial literacy will increase the ability of individuals to understand how they objectively assess gains and losses, so that in this case MSME actors in the Banyumas area and its surroundings can manage their perceptions of losses so that they do not prevent them from taking profitable investment opportunities.

Risk tolerance as the second variable has test results with a positive influence on financial decisions. The results of this study follow the results of research from [19] which states that the risk tolerance variable is an important component that influences one's investment decisions, in contrast to the results of research from [11] which shows a negative effect on investment decisions. This shows that MSME actors in Banyumas are more willing to take risks (risk takers) when deciding to invest, the support for this second hypothesis is strongly correlated with the acceptance of H1 where the level of financial literacy of MSME actors is quite good so that if an individual is well educated about financial knowledge, actions related to financial decisions will be more careful and of course able to consider the level of risk taken with the level of profit that will be received later.

The results of this study are in line with the concept of prospect theory, where the way information or situations are framed can influence decisions. MSMEs with high-risk tolerance may be more likely to choose investments that have the potential for large profits even with higher risks because they set different reference points compared to individuals who have a low-risk tolerance.

Demographic factors as control variables in this study are the length of business, income, education level, and age of the business owner. From the results of the analysis, it was found that the variables of the length of business and income had a negative effect, while the variable of education level with the age of the business owner had a positive effect, but all of them were not significant so that this is following the results of research from [23] which stated that demographic factors have a negative effect, as well as research from [31] which stated that income does not affect investment decisions. The results of the study by [32] stated in their research results that demographic factors in the form of the age of the business owner do not affect investment decisions.

MSME entrepreneurs in the Banyumas area showed that in making investment decisions, the main factors that are very influential are financial literacy and risk tolerance, while demographic variables have no influence, meaning that business actors do not sufficiently involve demographic factors when making financial decisions (investments), the old or new factor of the business being run does not guarantee that the entrepreneur is unable to make investment decisions, while for income factors, both those with high and low turnover levels each month do not affect good investment decision making. The education factor in this case has a positive influence, meaning that the higher the level of education, the more literate they will be in financial insight, so that it will affect good considerations in making investment decisions. Regarding the age factor of business owners in the results of this study, it has a positive influence so that the higher a person's age, the more mature they will be in making financial decisions (investments).

### **4. CONCLUSION**

The results of this study show positive results for both hypothesis 1 and hypothesis 2. H1 positive and significant influence on financial literacy and investment decisions and H2 positive and significant influence on risk tolerance in investment decision-making, while demographic variables as control variables do not influence investment decision-making. This study has practical and theoretical implications. Theoretical implications are mainly to provide deeper insight and development of theory and behavioral financial science, especially in financial decision-making (investment). Practical implications, for MSME business actors, need to consider other factors besides financial insight and risk-taking, such as high and low sales turnover, etc., as considerations in making investment decisions.

In addition, with increasing financial literacy, MSME actors can understand and manage risks and potential profits better so that in making investment decisions they become more rational and based on in-depth analysis, not just based on intuition or cognitive bias. High-risk tolerance allows MSME actors to take investment opportunities that might be ignored by individuals with a low-risk tolerance, this follows the concept of Prospect theory which shows that individuals with

different risk preferences will choose different investment options. MSMEs who have high financial literacy and risk tolerance tend to better understand the importance of diversification in investment, which is an important strategy for managing risk and maximizing returns following the principles of prospect theory.

This study provides an empirical contribution to the understanding of investment behavior of MSMEs, but strengthens the validity of prospect theory in the context of financial behavior, especially in the MSME environment in the Banyumas area and its surroundings. The limitations of this study are that the sample is only in the Banyumas area, for further research the sample is expanded again, for example for the Barlingmascakeb area, or the Central Java area or it could be nationally so that the results are more robust. Additional variables other than those that have been studied can increase the level of spirituality, locus of control, and others.

## REFERENCES

[1] "ojk.go.id."

[2] D. P. Ningsih, "The Influence of Demographic Factors, Risk Tolerance and Overconfidence on Investment Decisions in Lamongan," *J. Ekon.*, vol. 4, no. 2, pp. 1–17, 2016.

[3] Eduardus tandelilin, *Portfolio and Investment Theory and Application*, First. KANISIUS. Yogyakarta, 2010.

[4] K. Chavali and M. P. Mohanraj, "Impact of demographic variables and risk tolerance on investment decisions: An empirical analysis," *International Journal of Economics and Financial Issues*, vol. 6, no. 1. pp. 169–175, 2016.

[5] D. Kahneman and M. Riepe, "Portfolio-Construction-Forum\_Kahneman\_Aspects-of-investor-psychology," *Journal of Portfolio Management*. pp. 52–65, 1998.

[6] Anggraeni, "Jurnal Vokasi Indonesia," *Jvi.Ui.Ac.Id*, vol. 3, no. 1, pp. 22–30, 2015, doi: 10.7454/jvi.v3i1.1066.

[7] N. Yulianti and M. Silvy, "Financial Management Attitudes and Family Investment Planning Behavior in Surabaya," *J. Bus. Bank.*, vol. 3, no. 1, pp. 57–68, 2013.

[8] "Algood and Walstad-The effects of perceived and actual financial literacy on financial behaviors.pdf." .

[9] N. M. D. R. Putri and B. U. Udayana, "The Influence of Financial Literacy Level and Sociodemographic Factors on Individual Investment Decision Behavior," *E-Journal of Econ. and Business*, Udayana University, vol. 9, pp. 3407–3434, 2017.

[10] A. Grohmann, T. Klühs, and L. Menkhoff, "Does financial literacy improve financial inclusion? Cross country evidence," *World Dev.*, vol. 111, pp. 84–96, 2018, doi: 10.1016/j.worlddev.2018.06.020.

[11] F. Faidah, "The Influence of Financial Literacy and Demographic Factors on Students' Investment Interest," *JABE (Journal of Applied Business and Economic)*, vol. 5, no. 3. p. 251, 2019, doi: 10.30998/jabe.v5i3.3484.

[12] M. van Rooij, A. Lusardi, and R. Alessie, "Financial Literacy and Stock Market," *J. financ. econ.*, vol. 101, no. 2, pp. 449–472, 2011.

[13] Musdalifa, "The Influence of Locus Of Control, Financial Knowledge and Income on Investment Decisions of Makassar City Community," *Jurnal Ilmu Manajemen Mulawarman*, vol. 5. p. 3, 2016.

[14] B. F. Arianti, "the Influence of Financial Literacy, Financial Behavior and Income on Investment Decision," *EAJ (Economic Account. Journal)*, vol. 1, no. 1, pp. 1–10, 2018, doi: 10.32493/eaj.v1i1.y2018.p1-10.

[15] I. Herdjiono and L. A. Damanik, "The Influence of Financial Attitude, Financial Knowledge, Parental Income on Financial Management Behavior," *Journal of Theory and Applied Management*, vol. 9, no. 3. 2016, doi: 10.20473/jmtt.v9i3.3077.

[16] L. Susdiani, "The Influence of Financial Literacy and Financial Experience on Civil Servant Investment Planning Behavior in Padang City," *Journal of Nagari Development*, vol. 2, no. 1. pp. 61–74, 2017. [17] Jhon Grable, "Financial Risk

Tolerance and Additional Factors That Affect Risk Taking In Everyday Money Matters," *J. Bus. Psychol.*, vol. 14, no. 4, pp. 625–630, 2000. [18] J. J. Bailey and C. Kinerson, "Regret avoidance and risk tolerance," *J. Financ. Couns. Plan.*, vol. 16, no. 1, pp. 23–28, 2005. [19] D. Ayu Wulandari and R. Iramani, "Study of Experienced Regret, Risk Tolerance, Overconfidence and Risk Perception in Investment Decision Making," *J. Bus. Bank.*, vol. 4, no. 1, p. 55, 2014, doi: 10.14414/jbb.v4i1.293.

[20] I. P. S. Putra, H. Ananngtiyas, D. R. Sari, A. S. Dewi, and M. Silvy, "The effect of financial literacy level, experienced regret, and risk tolerance on investment type selection," *Journal of Business & Banking*, vol. 5, no. 2. p. 271, 2016, doi: 10.14414/jbb.v5i2.707.

[21] L. Susilawaty, E. Purwanto, and S. Febrina, "Factors Influencing Investment Decision Making in the Indonesian Capital Market," *National Conference of Creative Industry*. 2018, doi: 10.30813/ncci.v0i0.1272.

[22] S. Allgood and W. William, "The Effects of Perceived and Actual Financial Knowledge on Credit Card Behavior," *SSRN Electron. J.*, 2016.

[23] N. M. D. Rasuma Putri and H. Rahyuda, "The Effect of Financial Literacy Level and Sociodemographic Factors on Individual Investment Decision Behavior," *E-Journal of Econ. and Business*, Udayana University, vol. 9, p. 3407, 2017, doi: 10.24843/eeb.2017.v06.i09.p09.

[24] A. Ma'ruf-Tasya and D. L. K. Pelaku, "Financial Literacy of People's Economic Actors," ..... *Bul. Econ.*, vol. 13, no. 2, pp. 139–270, 2015.

[25] Sugiyono, *Quantitative, Qualitative, and R&D Research Methods*. Bandung: CV. Alfabeta, 2017.

[26] Suliyanto, *Business Research Methods for Undergraduate Thesis, Dissertations, and Theses*. Yogyakarta; Andi Offset, 2018.

[27] L. A. Mahastanti, "Factors Considered by Investors in Making Investments," *J. Manaj. Theor. and Ter. J. Theory Appl. Manag.*, vol. 4, no. 3, pp. 37–51, 2011, doi: 10.20473/jmtt.v4i3.2424.

[28] H. Chen and R. P. Volpe, "An Analysis of Personal Financial Literacy Among College Students," *Financ. Serv. Rev.*, vol. 7, no. 2, pp. 107–128, 1998. [29] M. a. Hilgert, J. M. Hogarth, and S. G. Beverly, "Household Financial Management: The Connection between Knowledge and Behavior," *Fed. Reserve. Bull.*, vol. 106, no. November 1991, pp. 309–322, 2003.

[30] J. Abdillah, W., & Hartono, *Partial Least Square (PLS) Alternative Structural Equation Modeling (SEM) in Business Research*. Andi Offset, 2016.

[31] and R. Purwidiyanti, Wida and Mudjiyanti, "ANALYSIS OF THE EFFECT OF FINANCIAL EXPERIENCE AND INCOME LEVEL ON FAMILY FINANCIAL BEHAVIOR IN EAST PURWOKERTO DISTRICT," *Benefit, J. Manaj. And Business*, vol. 1, no. 2, pp. 141–148, 2016, [Online]. Available: <https://journals.ums.ac.id/index.php/benefit/article/view/3257>.

[32] M. S. Finke, J. S. Howe, and S. J. Huston, "Old age and the decline in financial literacy," *Manage. Sci.*, vol. 63, no. 1, pp. 213–230, 2017, doi: 10.1287/mnsc.2015.2293.