
The Effect of Financial Literacy, Experienced Regret and Risk Tolerance Investment Decision



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ABSTRACT

The research aims to determine the effect of financial literacy level, experienced regret and risk tolerance on investment decision making. The research employed primary data in the form of a questionnaire and distributed to several regions in the Special Region of Yogyakarta Province. The sample was taken by purposive sampling technique with criteria for people who have or are currently investing in real assets or financial assets with 187 respondents as respondents. The data was analyzed using multiple linear analysis. The results show that the financial literacy and risk tolerance have an effect on investment decision making, meanwhile the experienced regret has no effect on investment decision making

1. INTRODUCTION

The growth of information technology makes various sectors easier, one of which is investment. Investing means that people invest a number of funds with the hope of getting benefits in the future (Darmawan et al., 2019) . The ease of market access with only a gadget makes people start to get to know and try to invest (Lee & Shin, 2018) . However, there are still many people who do it without any knowledge of what investment is and the market in general. Based on statistical data, the number of Single Investor Identification (SID) in 2021 gained the number of 3,451,513 with the distribution of investors concentrated on the island of Java, which is 69.59% of the distribution of investors throughout Indonesia (ksei.co.id). In DIY, the number of investors per 2021 reached

96,692. It proves that the Special Region of Yogyakarta contributes a fairly high number of investors in the Java Island region.

The impact is that with a low level of financial literacy, the chances of being deceived by the public will increase (Chu et al., 2017) . Investment fraud still occurs every year, for example in the past year Financial Services Authority (FSA) has suspended the operating licenses of 49 entities and 123 illegal P2P businesses that opened investment services (Financial Services Authority, 2020) . According to Bareksa, which is one of the financial marketplaces in Indonesia that has received a license from the FSA and a distribution partner for Government Securities trusted by the Ministry of Finance, explained that over the past three years there have been at least 632 illegal investment entities that have been terminated. In the last ten years, the total loss to the public affected by investment fraud has been around IDR 88.8 trillion. It indicates that there is a high chance of being deceived by people who will make investments.

The public being deceived by investment fraud is not far from their knowledge of financial literacy and a lack of understanding of what investment instruments they choose (Chariri et al., 2018). A good investor definitely reviews every decision before investing , because in terms of investing it is not only about getting returns, but thinking about the risks behind these returns (Reddy & Mahapatra, 2017) .

The level of risk that should be tolerated by an investor certainly affects the decision of how much funds to invest and what type of investment the investor will take (Putra et al., 2016). Risk tolerance is a response to an attitude of investors towards a risk, where investors are fond of risk (risk seeker), reject risk (risk averse) , or are investors who are risk neutral (Hvide & Panos, 2014). It can be said that risk tolerance is one of the strongest predictors in making investment decisions (Wardani & Lutfi, 2019) .

Apart from that, there are other factors that influence an investment decision making, namely the experience of the investor. The experience referred to here is a bad experience that makes an investor regret having chosen the investment or is called the experince regret investor. Therefore, when an investor makes a decision on what type of investment they might choose, investors would rethink before making that decision considering the bad experience, or in other words, past regrets help an investor in making future decisions (Putra et al., 2016) . Based on the aforementioned issue, financial literacy and risk tolerance are very important in influencing investment decision making. The higher the financial

literacy, the more investors understand the risks they face, thus are more careful in making decisions (Lusardi, et al., 2010). The higher the experienced regret, the more careful investors are in making decisions (Irjayanti, 2017). The higher the risk tolerance, the more careful investors are in making decisions (Wardani & Lutfi, 2019).

There are several studies related to this research, including (Putra et al., 2016) which shows the variable experienced regret has an effect on investment decisions, as well as for financial literacy and risk tolerance variables have no significant effect on investment decisions. Research from (Ayu Wulandari & Iramani, 2014) shows that experienced regret and overconfidence variables have no significant effect on investment decisions, risk tolerance and risk perception variables have a significant effect on investment decisions.

The research by (Wardani & Lutfi, 2019) shows that the variables of financial literacy, experienced regret, motivation have no significant effect on investment decisions, and the risk tolerance variable has a significant effect in a positive direction on investment decisions. Research (Hikmah et al., 2020) shows that the variables of financial literacy, experienced regret and risk tolerance have an effect on investment decisions.

The gap between the results of previous research motivate us to design this research. The research problems are proposed as follows, (1) Does the understanding of investors' financial literacy affect investment decision making?; (2) Does investors' experienced regret affect investment decision making?; and (3) Does investors' risk tolerance affect investment decision making?.

2. LITERATURE REVIEW AND HYPOTHESIS

Financial Behavior Theory

Shefrin (2000) states that behavioral financial theory is a study that studies how far psychological factors of a person influence his financial behavior. Nofsinger (2001) defines behavioral finance as a theory that studies how humans actually behave in making financial decisions, companies and financial markets. Dew and Xiao in Herdjiono and Damanik (2016) state that the application of financial behavior is divided into:

1. Savings

Is the part of income that is not used for consumption. Or is the difference between income minus public consumption.

2. Consumption

Represents expenses for various needs of goods and services

3. Cash flow

It is an indicator of financial health. It can be seen from an ability of a person to pay all the costs he bears. One must be able to balance between income and expenses.

4. Debt management

Is an ability to take advantage of debt so as not to make a loss or bankruptcy, or how someone uses money to improve their welfare.

Prospect Theory

The theory introduced by Tversky and Kahneman (1979) explains the occurrence of cognitive biases that affect decision making under conditions of uncertainty and risk. Someone might avoid risk or like risk depending on the problem at hand. Someone might give more weight to a certain outcome than an uncertain one. The tendency gives rise to risk-averse behavior in positive framing which causes a person to be more careful in making decisions. Conversely, someone prefers risk under conditions of loss (negative framing).

Heuristic Theory

Heuristics are used by someone who is facing an uncertain or unpredictable event. Heuristics are used in making a decision by looking at the occurrence of repeated events where the possibility of the decision-making process has been taken into account (Daniel & Amos, 1972). In making decisions, a person will be faced with situations that refer to bias or success.

Investation Decision

Investment decisions are something attitude of the final functioning investor when investors invest their funds to potential assets and intended to obtain a commensurate return in the future (Putra et al., 2016). In making investment decisions, investors can usually be divided into two types, namely rational attitudes and irrational attitudes investors. A rational attitude is interpreted as an investor's thinking that is based on common sense and can be proven by numbers and data or based on financial literacy, while an irrational attitude is the attitude of someone who thinks not based on logic or only based on predictions (Irfayanti, 2017).

Apart from differences in investors in terms of nature when making investment decisions, there are three things that underlie investors to withdraw investment decisions (Tandelilin, 2010). Firstly, returns which is basically the main reason someone invests. Secondly, risks, it is in line with the rate of return on investment, where the high return to be obtained is accompanied by high risk as well. Lastly is the relationship between returns and risk, which has a linear or unidirectional relationship.

Financial Literacy and Investment Decision Making

Financial literacy is an ability and skill in finance which includes an understanding of financial products and concepts as well as the ability to understand financial risks to make investment decisions (Nicolini & Nicolini, 2019). Financial literacy is an important thing that is useful for preventing someone from falling into investment fraud (Andreou & Philip, 2018). A low level of understanding of financial literacy and a high level of confidence in financial understanding of a person might make him trap to fraud (Gamble et al., 2013) . When investing, investors who lack a sense of professionalism in making investment decisions and ignore the fact that it is important to understand financial literacy knowledge tend to be more vulnerable to investment fraud than investors who have a high level of understanding of financial literacy (Chariri et al., 2018). The higher the financial literacy, the more investors understand the risks that will be faced so that the level of caution is high in making decisions (Lusardi, et al., 2010).

Based on the description above, the first hypothesis is:

H1: Financial literacy has a positive effect on investment decision making.

Experienced Regret and Investment Decision Making

Experienced regret is a bad experience that makes a person feel disappointed with the investment decision he or she takes or even takes the risk of making a mistake in making a previous investment decision that makes investors receive a bitter experience (Ayu Wulandari & Iramani, 2014). By gaining this experience, a person might feel benefited and be brave in taking this type of investment which has a high risk because of course it is accompanied by an in-depth calculation of these risks. Investors in short who experienced regret High investors prefer high-risk investment types than investors with experienced low regret (Putra et al., 2016). The higher the experienced regret, the more careful investors are in making decisions (Iriyanti, 2017).

Based on the description above, the second hypothesis is:

H2: Experienced regret has a positive effect on investment decision making.

Risk Tolerance and Investment Decision Making

Risk tolerance is an attitude of someone who dares to take a number of negative impacts or risks just for the sake of a predetermined goal, or in this case investment (Koller, 2011) . In the world of investment there are several things or types of investors themselves (Hvide & Panos, 2014) , the first is investors who prefer risk (risk seeker), which means that this type of investor is more courageous in taking risks to get high returns. The first type tends to have a more aggressive and predictive attitude because they believe that the relationship between risk and return is linear.

The second type is a risk neutral investor, this type of investor is apathetic towards risk, when making investment decisions this type of investor places more emphasis on emotional mindset rather than calculation or rationality. They will focus more on types of investments with potential returns regardless of the risks. The third is an investor who tends to avoid risk (risk averter), this type tends to prefer to take the type of investment that has a lower risk.

The different conditions of the risk tolerance of each investor will vary depending on the psychological condition and demographics of the investor in terms of making a decision on what type of investment to take. The higher the risk tolerance, the more careful investors are in making decisions (Wardani & Lutfi, 2019). Based on the description above, the third hypothesis is developed as:

H3: Risk tolerance has a positive effect on investment decision making.

Theoretical Framework

Investment decision making is influenced by several factors. In this study, factors that are considered influential include financial literacy, experienced regret and risk tolerance. The higher a level of financial literacy of a person, the more likely they are to understand and know the risks and be able to minimize the risks that will occur (Lusardi et al, 2010). The level of financial literacy is also able to influence the way a person manages finances, invests, borrows and saves better (Wardani & Lutfi, 2019). Investment decision making is influenced by experienced regret because regrets that have arisen in the past due to the failure of investment decision. Thus, it uses as a learning material so that they might

not take the wrong decision in the future and become more careful (Irjayanti, 2017). In addition, the level of risk tolerance influences the investment decision-making process. Making investment decisions for someone with a low risk tolerance certainly different from making investment decisions with moderate and high-risk tolerance (Wardani & Lutfi, 2019). Thus, the theoretical framework of this research is described using the research model as shown in Figure 1.

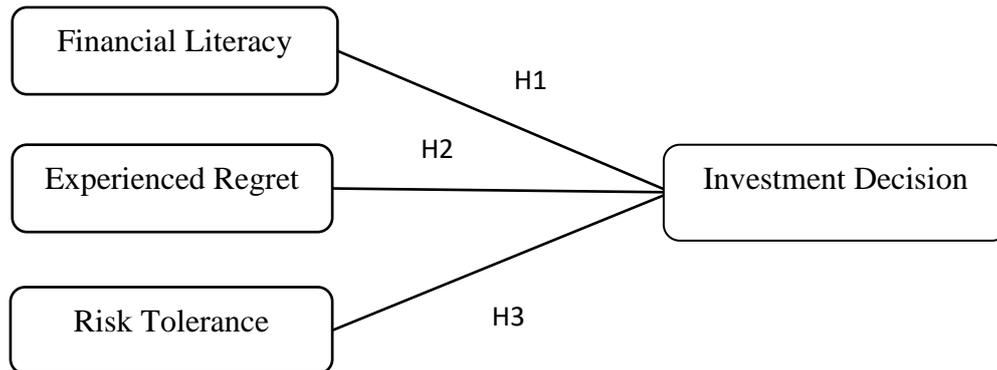


Figure 1. Theoretical Framework

3. RESEARCH METHOD

This research employs quantitative method, the type of data uses primary data and is obtained by distributing questionnaires. Questionnaire distribution was carried out both offline and online. The people of Yogyakarta who have or are currently investing are the population in this study. While the sample was taken using two combination techniques. The first one is purposive sampling with certain criteria, namely people who are investing in financial assets (money market and capital market) or tangible assets, at least 17 years old, active as members of a securities company (Wardani & Lutfi, 2019). Secondly is convenience sampling, namely by selecting samples based on the above criteria that are easily accessible and easy to obtain.

Variable Measurement

Financial Literacy

The financial literacy variable is measured using statements based on the four areas of financial literacy from (Putra et al., 2016). The number of statements on the financial literacy variable is 12 statements. Obtained correspondent answers subsequently changed be a ratio scale using the following formula:

$$\text{Financial literacy} = \frac{\text{Correct answer}}{\text{Total question}} \times 100$$

Furthermore, the correspondence was categorized into 5 categories of financial literacy as shown in table 2.

Table 2. Categories of Financial Literacy

Mark	Category
0% - 20%	Very low financial literacy
21% - 40%	Low financial literacy
41% - 60%	Moderate financial literacy
61% - 80%	High financial literacy
81% -100%	Very high financial literacy

Experienced Regret

The measurement of this variable uses a Likert scale with a score of 1 to 5, and the instruments are taken from (Putra et al., 2016). The number of statements on this variable is 4 statements. Moreover, the sum of correspondent answers was carried out and categorization was carried out as presented in table 3.

Table 3. Experienced Regret Category

Mark	Category
1 - 5	Experienced low regret
6 - 10	Experienced moderate regret
11-15	Experienced high regret
16 - 20	Experienced very high regret

Risk Tolerance

Variable measurement uses a Likert scale with a score of 1 to 5. The measurement uses three statement indicators from (Wardani & Lutfi, 2019). Further, the sum of correspondent answers was carried out and categorization was carried out as presented in table 4.

Table 4. Risk Tolerance Categories

Mark	Category
1 - 5	Risk averter
6 - 10	Risk neutral
11 - 15	risk seekers

Data Analysis Technique

Data analysis techniques in this research employed descriptive statistical tests, validity tests, reliability tests, and multiple linear regression analysis which performed using IBM SPSS 25.

4. RESULTS AND DISCUSSIONS

Descriptive Statistics

The primary data obtained were collected through questionnaires obtained by purposive and convenience sampling methods. The total number of questionnaires distributed was 230 questionnaires with a return rate of 88% (202 questionnaires). From this data, only 81.3% could be processed (187 questionnaires). The characteristics of the respondents are shown in table 5.

Table 5. Characteristics of Respondents

Gender	Man	70	37.43%
	Woman	117	62.57%
	Total	187	100%
Age	<25 years	119	63.64%
	26-30 years	58	31.02%
	>30 years	10	5.34%
	Total	187	100%
Education	Senior High School	42	22.46%
	Diploma degree	34	18.18%
	Undergraduate degree	111	59.36%
	Master degree	0	0%
	Total	187	100%
Investment experience	< 6 months	76	40.64%
	6-12 months	59	31.55%
	13 years old	33	17.65%
	35 years old	13	6.95%
	>5 years	6	3.21%
	Total	187	100%

Source: Data processed, 2021

Based on table 5, it can be seen that the majority of respondents are women, aged less than 25 years, with an undergraduate degree educational background and less than 6 months of investment experience. From the existing data, descriptive statistics are made which presented in table 6.

Table 6 . Descriptive Statistics

Variable	N	minimum	maximum	Mean	Std. Deviation
Investment Decision (Y)	187	1	5	3.53	1,349
Financial Literacy (X1)	187	1	5	4.35	0.980
Experienced Regret (X2)	187	1	4	2.34	0.640
Risk Tolerance (X3)	187	1	3	2.30	0.514

Source: Processed Data with SPSS, 2021

Table 6 shows the descriptive statistics of all the variables used, namely investment decisions as the Y variable, financial literacy as the X1 variable, experienced regret as the X2 variable and risk tolerance as the X3 variable. The total data used is 187. On variable Y, the maximum answer is 5, the minimum answer is 1, the mean is 3.53 and the standard deviation is 1.349 indicating that most of the investors who are respondents place their funds in financial assets. In variable X1 the maximum respondent's answer is at a value of 5, then the minimum answer is 1, the average respondent's answer is at 4.35 and the standard deviation is at a value of 0.980. It implies that the level of understanding of financial literacy of investors who are respondents in this study is very high. In the variable X2 shows that the value obtained by respondents at the maximum level is 4, the minimum value is 1, with an average of 2.34 and a standard deviation of 0.640. It shows that respondents or investors have experienced regrets that are neither low nor high. In the last variable, namely variable X3, respondents have a maximum value of 3, a minimum value of 1, with an average value of 2.30 and a standard deviation of 0.514 which shows that the average investor in this study has a more courageous nature to take high risk for high return.

Hypothesis Testing and Discussion

The hypothesis in this study was analyzed using multiple linear regression with previously preceded by validity and reliability tests. Both of these tests were carried out because the data used were primary data obtained directly from respondents.

Validity Test

All statement items used obtained a significance value of Pearson Correlation < 0.05. The results of the validity test are shown in table 7.

Table 7. Validity Test

Variable	Indicator	Pearson correlation	Sig.	Information
Investment decision (Y)	Y. 1	0.824	0.000	Valid
	Y.2	0.892	0.000	Valid
Financial literacy (X1)	X1.1	0.622	0.000	Valid
	X1.2	0.605	0.000	Valid
	X1.3	0.747	0.000	Valid
	X1.4	0.667	0.000	Valid
	X1.5	0.617	0.000	Valid
	X1.6	0.689	0.000	Valid
	X1.7	0.728	0.000	Valid
	X1.8	0.604	0.000	Valid
	X1.9	0.646	0.000	Valid
	X1.10	0.732	0.000	Valid
	X1.11	0.712	0.000	Valid
X1.12	0.740	0.000	Valid	
Experienced regrets (X2)	X2.1	0.912	0.000	Valid
	X2.2	0.908	0.000	Valid
	X2.3	0.874	0.000	Valid
	X2.4	0.903	0.000	Valid
Risk tolerance (X3)	X3.1	0.870	0.000	Valid
	X3.2	0.847	0.000	Valid
	X3.3	0.893	0.000	Valid

Source: Data processed, 2021

Based on the table 7, all question items used in each variable both variables X1, X2, X3 and Y have a significance value of 0.000 so that they are declared valid.

Reliability Test

Cronbach Alpha value used are when the value is > 0.9 perfect reliability, the value is $0.70 - 0.90$ high reliability, the value is $0.50 - 0.70$ moderate reliability, and if the value is < 0.5 low reliability (Sepang et al. al., 2015) . The Cronbach Alpha value in this research can be seen in table 8 below:

Table 8. Reliability Test

Variable	Cronbach alpha	Information
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Investment decision (Y)	0.637	Reliable
Financial literacy (X1)	0.858	Reliable
Experience regrets (X2)	0.916	Reliable
Risk tolerance (X3)	0.836	Reliable

Source: Data Processed, 2021

Based on table 8 above, all the variables used have a satisfactory Cronbach alpha value, which is above 0.6, thus it implies that all variables are reliable.

Multiple Linear Regression Test

Table 9 . Multiple Linear Regression Results

Variable	B	Q	Sig.	Information
Financial Literacy	0.795	9,854	0.000	H1: supported
Experienced Regress	-0.108	-0.867	0.387	H2: not supported
Risk Tolerance	0.500	3,236	0.001	H3: supported
Constant		-0.821		
Adjusted R ²		0.373		
F		36,348		

Source: Primary data processed with SPSS, 2021

Based on table 9 , the multiple linear regression analysis equation can be arranged as follows $Y = -0.821 + 0.795 X_1 - 0.108 X_2 + 0.500 X_3 + e$

Goodness of fit test (Test F)

Table 9 above shows the F value is at 36.348 and the significance value is at 0.000. It means that the research model is feasible to use and the independent variables simultaneously influence the dependent variable.

Determination Coefficient Test (R²)

The value of Adjusted R² is 0.373, meaning that the Y variable can be explained by the three X variables of 37.3%. The remaining 62.7% is explained by other variables outside of this research . To determine the magnitude of each influence of each variable, the zero order coefficient is used. The results of this analysis are the effect of financial literacy on investment decision making of 0.268; experienced regret on making investment decisions of 0.002; and risk tolerance for investment decision making of 0.103. Financial literacy variable gives the highest contribution in making investment decisions.

Individual Parameter Significance Test (t test)

The Effect of Financial Literacy on Investment Decision Making

Based on table 9, it can be seen that the first hypothesis supported, meaning that the financial literacy variable partially has a positive and significant effect on investment decision making. This conclusion is obtained by looking at the results of the t test where the significance value is less than the standard significance value ($0.000 < 0.05$) and the zero order coefficient where financial literacy influences investment decision making by 26.8%.

The higher the understanding of financial literacy, the more careful investors will be in making investment decisions. Investors who gain an understanding of investment methods and strategies will be more confident in making investment decisions than investors who have no investment knowledge at all. The result supports previous research by (Khairiyati & Krisnawati, 2019) and (Upadana & Herawati, 2020) which stated that financial literacy has a positive and significant effect on investment decision making. Besides that, the research findings are also strengthened by research from (Endarto & Tirtana, 2020) which also states that financial literacy has a positive effect on investment decisions.

The Effect of Experienced Regret on Investment Decision Making.

Based on table 9, it can be seen that the second hypothesis unsupported, meaning that experienced investor regret has no effect on investment decision making. It can be obtained by looking at the results of the t test where the significance value is greater than the predetermined significance value ($0.387 > 0.05$). The contribution of experience regret to investment decision making is only 0.2%.

In this research, when viewed from the perspective of how long the respondents have been investing, it is more dominated by new investors or respondents who are just starting to invest, which means that the experience received by investors is still minimal. When viewed from the point of view of the respondents' answers, the majority of respondents did not regret the bad experience they had, but this experience was more likely to be used as a valuable lesson for investors when faced with a situation when making future investment decisions. Good or bad experience in the past does not discourage someone from continuing to make investment decisions. Achievement is supported by

previous research by (Ayu Wulandari & Iramani, 2014) and (Wardani & Lutfi, 2019) Where experienced regret has no significant effect on investment decision making.

The Effect of Risk Tolerance on Investment Decision Making

Based on table 9, it can be seen that the third hypothesis is supported , meaning that risk tolerance has a positive effect on investment decisions. These results are obtained from the results of the t-test that has been carried out, where the significance results are less than the established significance value ($0.001 < 0.05$). The contribution of risk tolerance to investment decision making is only 10.3%.

Investors with high risk tolerance tend to invest their funds in the capital market because the level of profit will be higher or in proportion to the risk received. Conversely, investors with low risk tolerance tend to place their funds in bank accounts or real assets because they prefer to secure funds by avoiding risk and with small profits. These results support previous research on (Dewi & Krisnawati, 2020) and (Hikmah et al., 2020) where risk tolerance has a positive effect on investment decisions. Other research conducted by (Wardani & Lutfi, 2019) also proves that risk tolerance has a positive effect on investment decisions.

5. CONCLUSIONS AND SUGGESTIONS

The conclusion of this research is that financial literacy has a positive and significant effect on investment decision making, risk tolerance has a positive effect on investment decision making, meanwhile experienced regret has no effect on investment decision making.

Based on the results, the researchers provide several recommendations or policy implications, namely for investors who have a high level of tolerance to pay more attention and be careful when investing at high risk, so as not to be tempted by profits that actually lead to losses. Then for investors who are relatively new, an increased understanding of financial literacy is urgently needed, logical thinking in making investment decisions when an understanding of high financial literacy will reduce the risk of exposure to investment fraud.

The limitation of this research is that it is difficult for respondents who fit the criteria to be collected in large quantities due to time constraints and limited access to mobility by the government. The selection and elaboration of the types of investments used were not optimal, and there was no risk classification between real assets and financial assets so that

without assistance from researchers, there are still respondents who are confused about what type of investment they are investing in.

Some suggestions for future research are expected to increase the number of research variables other than the variables in this study. Like the risk perception variable that may have an influence on investment decisions (Ayu Wulandari & Iramani, 2014). Future research may simplify the words on the questionnaire so that respondents who receive the questionnaire, especially respondents who have non-economic backgrounds, can understand the statements well and can provide answers as much as possible (Putra et al., 2016). Further research are also expected to conduct research in several sample areas so that respondents who have various characteristics can be obtained and are expected to be able to perfectly obtain respondents who match the research criterion (Wardani & Lutfi, 2019) .

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