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**The Effect of Financial Literacy on the Investment Decisions of Investment Applications Users**

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**Abstract**

This research was conducted with the aim of knowing the effect of financial behavior, financial attitude, and financial literacy on the decisions of investment application (with robo advisor technology) users. The total population in this study was 270.661 people, and a total of 471 respondents filled out the questionnaires online. The validity and reliability tests were also carried out to test whether a research instrument can be used as a variable measuring tool in the study. The results of this study indicate that financial behavior has a positive effect on the investment decisions of the investment application users. Financial attitudes have a significant positive effect, and financial literacy also have a significant effect on investment decision making. The findings show that long-term intentional efforts are essential for increasing financial literacy. Therefore, it is important to evaluate people's decision-making processes to enable them to investigate whether they display positive behavior and attitude financially, which can result in increased resilience in times of crisis, in encouraging greater financial well-being and bigger financial satisfaction.

**Keywords:** financial behavior, financial attitude, financial literacy, investment decision

**1. Introduction**

According to the We Are Social report (2022), there were 204.7 million internet users in Indonesia as of January 2022. Where there was an increase of 1.03% compared to 2021, which was 202.6 million. The trend of the number of internet users in Indonesia has continued to increase in the last five years. When compared to 2018, currently the number of national internet users has jumped by 54.25%.

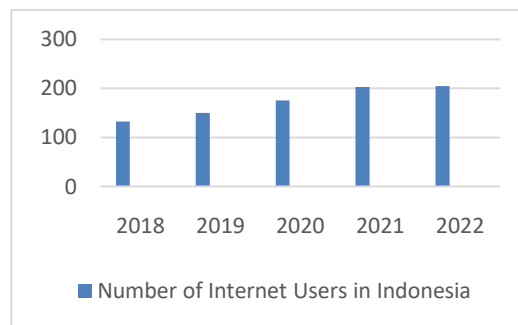


Figure 1. Trends in Internet Users in Indonesia

Technology and information are fields that experiencing very rapid development and it is certain that there will be better innovations that will make it easier for users of this technology in their daily lives, including in the fields of economics and financial services. This innovation is often also referred to as Fintech. Bettinger (1972) describes Fintech as an acronym that stands for financial technology, combining banking expertise with modern management science techniques and computers.

Artificial Intelligence (AI) is one of the technologies that is currently being developed. Various virtual advisors or also known as Robo Advisors are starting to appear on e-commerce sites and this phenomenon has formed an increasing trend of providing financial advice to consumers on various platforms (Cheng, 2020). The global robo-advisory market is expected to have strong growth over the forecast period due to increased market competition and evolving client needs.

In line with the findings of Fisch et al., (2019) and Lopez et al., (2015), users of robo advisors tend to be younger investors ('Millennial' generation) with lower overall portfolio values, who hold larger tier assets such as exchange traded funds. Brenner & Meyll later also found that those who are concerned about falling victim to investment scams are more likely to become users of robo advisors. In terms of financial literacy, it was also found that users of robo advisor services, as a new financial technology (fintech), show a lower level of financial literacy.

There are several wealth management platforms in Indonesia that have used Robo Advisors and have been registered with the Financial Services Authority (*Otoritas Jasa Keuangan/ OJK*): Bibit, Stockbit, Bareksa, Reliance, Halofina, and Bambu. According to a survey conducted by DSinnovative titled Fintech Report 2021 'The Convergence of (Digital) Financial Services at the end of Q2 2021, users have downloaded the Bibit application more than 5 million times with >2 million investors. Through e-KYC (Electronic Know Your Customer), their services have reached users in 500 cities (out of 514) in Indonesia. In the first six months of 2021 alone, around 2 million new investors have started investing in mutual funds, bringing the number of mutual fund investors to 5 million. This represents a significant increase from 3 million investors at the end of 2020.

With the increasing number of investment application users in Indonesia, individual's level of financial literacy, financial behavior and financial attitudes are becoming increasingly important for people of all ages and backgrounds because they can help individuals make informed decisions about their financial future. This investment decision can later affect financial well-being and also individual financial satisfaction. These three things can also help individuals avoid excessive debt, overspending, and poor investment choices (Falahati et al., 2012).

Therefore, this research was conducted with the aim of knowing the effect of financial literacy, financial attitudes, and financial behavior on the decisions of investment application (with robo advisor technology) users.

### 1.1 Literature Review and Hypothesis Development

#### **Financial Behavior**

Behavior is an observable action that represents how an individual acts under certain conditions. Therefore, in the study of financial literacy, it is important to evaluate people's decision-making processes to enable them to investigate whether they display positive behavior financially, which can result in increased resilience in times of crisis (OECD, 2016), in encouraging greater financial well-being and bigger financial satisfaction (Ramalho& Forte, 2019). According to Atkinson & Messy (2012), financial behavior is very important and is a fundamental component of financial literacy.

Financial behavior is developed by a variety of factors, including personal values, cultural norms, social influences, and economic circumstances. It can also be influenced by psychological factors such as risk tolerance, self-control and cognitive biases. Positive financial behavior usually involves making decisions about money matters, such as setting financial goals, creating a budget, saving regularly, and avoiding unnecessary debt. It also involves being proactive in managing one's finances, such as reviewing credit reports, monitoring investment portfolios, and seeking the advice of a financial professional when needed. On the other hand, negative financial behaviors usually involve overspending, taking on too much debt, failing to save for emergencies or retirement, and making impulsive investment decisions. This behavior can cause long-term financial stress, instability, and financial insecurity that will weaken financial well-being (Atkinson & Messy, 2012).

There is a strong correlation between financial education and financial behavior, where a high level of financial education will influence a person's financial behavior, especially in making decisions (Gray et al., 2021). Thus, improving financial behavior often requires a combination of education, self-awareness, and discipline. Efforts to improve financial behavior can be done by seeking sources of financial education, working with financial advisors, setting financial goals, and developing good financial habits over time. By improving financial behavior, individuals can better achieve their financial goals and build a more secure future. The study conducted by Tang, (2021) also supports that financial behavior is influenced by a person's cognitive abilities. The results of Tang's research suggest that individuals with higher cognitive scores are able to process information, analyze problems and achieve better financial results. Tang argues that the financial decision-making process involves information seeking, processing and integration, mathematical calculations, and analysis and problem solving, all of which are highly determined by cognitive abilities, so that financial education programs and professional consulting services are important to be provided for every individual, especially individuals with cognitive abilities. lower. The results of research conducted by Ramalho & Forte (2019) show that the greater knowledge and self-confidence people have, the better their financial behavior will be. Based on previous research conducted by Rahmah & Disman (2022), financial behavior has a significant positive influence on investment decision making. Thus, the following hypothesis can be formulated:

**H1a. Financial behavior has a positive effect on the investment decisions of investment application users.**

**Financial Attitude**

Attitudes towards money and finance will influence individual's behavior towards savings, loans and risk taking. Financial attitude is a relatively good predictor of financial behavior (Paluri & Mehra, 2016). Financial attitudes can be described as psychological predispositions, which manifest when individuals evaluate established financial management practices with varying degrees of acceptance or non-acceptance (Parrotta & Johnson, 1998). Bhushan and Medury (2014) conclude that in order to increase financial literacy across generations, the focus should be on developing favorable financial attitudes among people in the country. Ibrahim & Alqaydi, (2013) concluded that education can improve personal financial attitudes thereby reducing dependence on credit cards. Financial attitude is an expression of the basic financial knowledge of individuals and their ability to manage decisions related to financial transactions (Shim et al., 2009). Thus, insights related to financial attitudes can serve as a measure of individual financial knowledge, which can then be improved through education.

Financial attitudes along with financial behavior can also affect financial well-being. Park & Sela (2018) emphasizes the importance of psychological factors where the results of their research note that individuals tend to avoid financial-related decisions that are inconsistent with their affective decision-making style. A person's psychological characteristics (such as self-control and optimism) also have an influence on individual financial behavior (e.g. saving) and the resulting well-being (Strömbäck et al., 2017).

Previous studies have established that differences in individual financial attitudes, especially risk tolerance, affect their investment in the stock market. It is also true that investing in equities can generate much more attractive returns compared to other similar investments. Talwar et al., (2021) conducted research on the six dimensions of financial attitude and their influence on financial decisions. The results of this study indicate that the six dimensions of financial attitude have a significant positive effect. Financial attitude can also be interpreted as a personal tendency towards financial problems. This is the ability for long-term planning and maintenance of a savings account. Thus, the following hypothesis can be formulated:

**H1b. Financial attitude has a positive effect on investment decisions of investment application users;**

**Financial Literacy**

Financial literacy is defined as having the knowledge, skills and confidence to manage personal finances and company finances. Financial literacy is defined as a person's knowledge of financial concepts and the ability to make informed financial decisions. According to OECD INFE (2011), financial literacy means a combination of awareness, knowledge, skills, attitudes and behaviors needed to make good financial decisions and ultimately achieve individual financial well-being. There are two dimensions of financial literacy, namely (i) acquiring financial knowledge and skills, (ii) modifications in financial behavior. It is an ongoing process throughout one's lifetime. Being financially literate means being able to make decisions about financial matters, such as understanding the implications of different types of loans, credit cards, and investment opportunities. It also involves knowing how to read financial reports, balance sheets and other financial documents. Corsini & Giannelli (2021) conducted research on the effects of taking

basic economics classes (university level) on individual financial literacy. The results show that individual financial literacy increases after attending class, and this increase is mostly relevant (i) for individuals with lower educational backgrounds (financial literacy) and (ii) when the basic economics course is relevant to other subject topics being taught.

Financial literacy at the macro level ensures that citizens of a country are adequately prepared to deal with everyday financial situations. A low level of financial literacy can result in sub-optimal financial decision making, which as a whole can result in a low level of financial well-being by making it difficult for consumers to meet their important financial needs. Low financial literacy can be related to the tendency of consumers to disengage from processes that lead to optimal decision making (Sohn et al., 2012). Furthermore, measuring youth's financial literacy is very important when viewed from the perspective that financial knowledge and skills acquired early can create a foundation for their behavior and financial well-being in the future (Beverly & Burkhalter, 2005).

Gerrans (2021) conducting research related to the impact of providing financial education to university students. The results of research conducted by Gerrans indicate that there is a positive, sustainable effect on financial literacy three years after students complete a given finance class. There are three important determinants for assessing financial literacy, namely financial knowledge, financial behavior and financial attitude. Atkinson & Messy, (2012) recommends only three dimensions for assessing financial literacy as justified and widely used in the literature.

Based on the results of empirical analysis conducted by Chauhan & Dey, (2020) it was found that a high level of financial literacy can facilitate investors in better understanding the financial information obtained. Fong et al., (2021) suggested that individuals who are financially intelligent are more likely to make better financial decisions. Fong et al.'s research, (2021) is consistent with the literature on adults in Western countries which documents a positive relationship between financial literacy and investment skills. Thus, the following hypothesis can be formulated:

**H2. Financial literacy has a positive effect on investment decisions of investment application users.**

## **2. Method**

This research is a quantitative research using online survey method. The data source used in this study is primary data obtained from research respondents using online questionnaires as a data collection tool. The questionnaire used refers to the questionnaire developed by OECD INFE, (2011).

### **2.1 Population and Sample**

The population in this study are residents in the province of Jakarta, including those in the age range of 25-39 years (Millennial Generation) who use the internet in their daily lives. Based on data obtained from the Central Statistics Agency (*Badan Pusat Statistik/ BPS*), the total population of Jakarta which belongs to the Millennial generation is 2,616,157 people. Table 1 showed the percentage of the Millennial generation who use the internet in Jakarta is 10.46%. So that the total population in this study was 270,661 people.

Table 1. Percentage of Internet Users by Age and Gender in Jakarta, 2021

Age	Male	Female	Total
25-29	10.11%	10.83%	10.46%
30-34	9.84%	10.72%	10.27%
35-39	10.41%	10.20%	10.31%

Sampling of the research will be carried out using a purposive sampling method to obtain a sample that fits the established criteria. According to Sugiyono (2018), purposive sampling is a sampling technique using certain considerations according to the desired criteria to be able to determine the number of samples to be studied. The criteria that will be used in this research are that respondents are residents of the DKI Jakarta area, including those in the 25-39 year age range (Millennial generation) who use the internet in their daily lives and have used investment applications at least once.

Because the population size is too large, calculations will be carried out to determine the number of samples using the Slovin formula as follows:

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

Where:

n = Number of samples

N = Total Population

e = error tolerance limit; 0.05

Based on this formula, the number of samples used in this study were 400 respondents.

## 2.2 Operational Definitions of Variables

Table 2. Operational Definition of Research Variables

Variable	Description
Independent Variable Financial Behavior	<p>Financial Behavior is human behavior related to financial decision making and money management(Bhushan &amp; Medury, 2014; MBA, 2015).</p> <p>The Financial Behavior variable is measured using six questions with a Likert scale of 1 (strongly disagree) -5 (strongly agree).</p> <p>Related statements like:</p> <ul style="list-style-type: none"> <li>- X1.1: Before I buy something, I carefully consider whether I can afford it.</li> <li>- X1.2: I pay my bills on time.</li> <li>- X1.3: I keep a close watch on my financial affairs.</li> <li>- X1.4: I set long-term financial goals and work to achieve them.</li> <li>- X1.5: I always research my options thoroughly before making a decision about a financial product or service.</li> </ul>

- X1.6: I am prepared to risk some of my own money when saving or investing.

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Financial Attitudes	<p>Financial Attitudes is an individual's psychological tendency towards financial problems (Talwar et.al., 2021). The Financial Attitude variable was measured using three questions with a Likert scale of 1 (strongly disagree) - 5 (strongly agree). Related statements like:</p> <ul style="list-style-type: none"> <li>- X2.1: I feel more satisfied when I spend money rather than keeping it for the long term.</li> <li>- X2.2: I tend to live for today and let tomorrow take care of itself.</li> <li>- X2.3: Money is there to be spent.</li> </ul>
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Financial Literacy	<p>Financial Literacy is a combination of awareness, knowledge, skills, attitudes, and behaviors needed to make good financial decisions and ultimately achieve individual financial well-being (OECD INFE, 2011). The Financial Literacy variable is measured using five questions with a Likert scale of 1 (strongly disagree) - 5 (strongly agree). Related statements like:</p> <ul style="list-style-type: none"> <li>- X3.1: Financial knowledge is very important for one's welfare and success both now and in the future.</li> <li>- X3.2: Current assets minus current liabilities is called working capital.</li> <li>- X3.3: The benefits of financial budgeting are directed use of money and avoiding waste.</li> <li>- X3.4: Budi inherits Rp 100 million today, while Anto received an inheritance of Rp 100 million, 3 years from now. Within 3 years, Anto was richer.</li> <li>- X3.5: If I have Rp 1 million in a savings account that pays 2% interest per year. After 5 years from now, and I haven't taken a penny, my money has become more than Rp 1 million.</li> </ul>
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Variable dependent	Investment Application User Investment Decisions	<p>Investment decisions are individual investment decisions that are influenced by economics, behavioral factors and demographic factors (Aregbeyen &amp; Mbadiugha, 2011). Investment Decision Variables are measured using thirteen 1 statement items with a Likert scale of 1 (very unimportant) - 5 (very important). Regarding statements regarding the scale of investor interest regarding matters such as:</p>
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- Y1.1: Asset prices
  - Y1.2: Type of asset (asset risk level)
  - Y1.3: Expected return
  - Y1.4: Past experience
  - Y1.5: Media
  - Y1.6: Fear
  - Y1.7: Suggestions
  - Y1.8: Influenced by family and friends
  - Y1.9: Income
  - Y1.10: Age
  - Y1.11: State
  - Y1.12: Investment duration
  - Y1.13: Cost
- 

### 2.3 Validity and Reliability Test

Validity test and reliability test were carried out to find out whether a research instrument can be used as a variable measuring tool in the study. Validity tests the precision/accuracy of the research instrument against the actual situation, while reliability tests the degree of stability/consistency of the research instrument so that the research results can be said to be reliable/reveals reliable data. (Yusup, 2018).

The validity of the existing instruments in this study will be tested by correlating the scores obtained on each question item on the questionnaire with the individual's total score using the SPSS software. While the reliability of this research instrument will be analyzed using the Alpha Cronbach formula, also with the help of SPSS software (Mohamad et al., 2015; Sugiyono, 2017).

### 2.4 Hypothesis Test

The data analysis technique used in this study is descriptive analysis, then validity & reliability tests will also be carried out, model feasibility tests (F test), partial regression coefficient tests (T test). This test was carried out using the SPSS program version 23. According to Sugiyono (2013), descriptive statistics are statistics that are used to analyze data by describing or describing the collected data as it is without the intention of making general conclusions or generalizations. Therefore,  $Y^*$  is modeled as  $Y^* = X\beta + \varepsilon$ , where it is assumed to follow a normal distribution with a mean of zero.

In the hypothesis test, a coefficient of determination test is also carried out which measures how far the model's ability to explain the variation of the dependent variable with a value between zero to one ( $0 < R^2 < 1$ ). According to Ghozali (2018), the value of  $R^2$  which is close to zero means that the ability of the independent variables to explain the variation of the dependent variable is very limited. Conversely, an  $R^2$  value that is close to one indicates that the independent variables provide almost all the information needed to predict the variation of the dependent variable.

In addition to the coefficient of determination test, the F statistic test was also carried out which aims to see the accuracy of the sample regression function in estimating the actual value. If the significant value of  $F < 0.05$ , then the regression model can be used to predict the independent variable. If the significance value of  $F < 0.05$  means that the research model is feasible to use and if the significance value of  $F > 0.05$  means that the research model is not feasible to use.



If the results of the F test  $<0.05$  (feasible to use), then the t test is then carried out. The t test is used to show how far the influence of one independent variable individually explains the dependent variable. The criterion in this test is if the significance value is  $t < 0.05$ , then the hypothesis is accepted and if the significance value is  $t > 0.05$  then the hypothesis is rejected (Ghozali, 2018).

**3. Results**

**3.1 Descriptive Analysis**

In this research, the author distributed questionnaires online for two months to residents of DKI Jakarta, with a total of 471 respondents collected. After passing the purposive sampling stage, there were 400 respondents who met the research criteria:, namely: residents of the DKI Jakarta area aged 25-39 years (Millennial generation) who use the internet in their daily lives, and have used investment applications at least once. Then the researcher conducted a descriptive analysis for each question item representing the variables used, namely: the independent variable financial literacy, the independent variable financial behavior, the independent variable financial attitude, and the dependent variable investment decisions of investment application users. Descriptive analysis can be seen in Table 3.

Table 3. Descriptive Analysis of Research Variables

	N	Minimum	Maximu m	Mean	Std. Deviation
FINANCIAL BEHAVIOR	400	13	30	26.63	1.702
FINANCIAL ATTITUDE	400	5	15	12.71	1.535
FINANCIAL LITERACY	400	9	25	22.27	1.599
INVESTMENT DECISIONS	400	24	62	56.58	3.140
Valid N (listwise)	400				

**3.2 Validity and Reliability Test**

In this study, validity and reliability tests were also carried out to test whether a research instrument could be used as a measuring tool for the research variables. The validity test was carried out for each question item. The results are compared with r table  $df = nk$  with an error rate of 5%. If  $r_{count} > r_{table}$  then the question item is valid. for the number of samples  $N = 400$  with a significant level of 5%, then the r table is 0.098. The results of validation test for each variable can be seen from Table 7 to Table 10.

Table 7. Validity test of Financial Behavior Variables

	$r_{table}$	$r_{count}$	Information
X1.1	0.098	0811	Valid
X1.2	0.098	0.808	Valid
X1.3	0.098	0.808	Valid
X1.4	0.098	0.804	Valid

X1.5	0.098	0.805	Valid
X1.6	0.098	0.804	Valid

**Table 8. Validity test of Financial Attitude Variables**

	$r_{table}$	$r_{count}$	Information
X2.1	0.098	0.802	Valid
X2.2	0.098	0.798	Valid
X2.3	0.098	0.803	Valid

**Table 9. Validity test of Financial Literacy Variables**

	$r_{table}$	$r_{count}$	Information
X3.1	0.098	0.809	Valid
X3.2	0.098	0.803	Valid
X3.3	0.098	0.813	Valid
X3.4	0.098	0.799	Valid
X3.5	0.098	0.800	Valid

**Table 10. Validity test of Investment Decision Variables**

	$r_{table}$	$r_{count}$	Information
Y1.1	0.098	0.807	Valid
Y1.2	0.098	0.807	Valid
Y1.3	0.098	0.806	Valid
Y1.4	0.098	0.804	Valid
Y1.5	0.098	0.805	Valid
Y1.6	0.098	0.802	Valid
Y1.7	0.098	0.803	Valid
Y1.8	0.098	0.800	Valid
Y1.9	0.098	0.809	Valid
Y1.10	0.098	0.808	Valid
Y1.11	0.098	0.803	Valid
Y1.12	0.098	0.805	Valid
Y1.13	0.098	0.807	Valid

For the reliability test, if the Cronbach's Alpha results for each variable are greater than the required Cronbach's Alpha minimum standard (0.6), then the variable is said to be reliable and feasible to use in data collection.

**Table 11. Reliability Test of Research Variables**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.811	0.806	27

In table 11 it can be seen that the value of Cronbach's Alpha is  $0.811 > 0.6$ , so it can be concluded that the variables used in this study are feasible to use.

### 3.3 Hypothesis Test

In this study, the F test and t test were also carried out. The F test was conducted to see the accuracy of the sample regression function in estimating the actual value. If the significant value of  $F < 0.05$ , then the regression model can be used to predict the independent variable. If the significance value of  $F < 0.05$  means that the research model is feasible to use. The results of the hypothesis test show that the F value  $< 0.05$  so that it can be continued with the t test. The t test is used to see how far the influence of one independent variable individually explains the dependent variable. If the t test shows a value of  $t < 0.05$ , it means that the research hypothesis is accepted.

Table 12 shows the test results for hypotheses 1a, 1b, and hypothesis 2. Hypothesis 1a examines the relationship between the independent variable Financial Behavior and the dependent variable Investment Decision of Investment Application Users. The results of the F test show that the calculated F value is  $< 0.05$  so that the test can be continued with the t test. The results of the t test can be seen in table 13, where the value of  $t < 0.05$  (the hypothesis is accepted). That is, it is proven that financial behavior has a positive effect on the investment decisions of investment application users.

Hypothesis 1b examines the relationship between the independent variable Financial Attitude and the dependent variable Investment Application User Investment Decisions. The results of the F test show that the calculated F value is  $< 0.05$  so that the test can be continued with the t test. The results of the t test can be seen in table 13, where the value of  $t < 0.05$  (the hypothesis is accepted). That is, it is proven that financial behavior has a positive effect on the investment decisions of investment application users.

Hypothesis 2 examines the relationship between the independent variables Financial Literacy which includes Financial Behavior and Financial Attitudes with the dependent variable Investment Application User Investment Decisions. The results of the F test show that the calculated F value is  $< 0.05$  so that the test can be continued with the t test. The results of the t test can be seen in table 4.11, where the value of  $t < 0.05$  (the hypothesis is accepted). That is, it is proven that financial behavior has a positive effect on the investment decisions of investment application users.

Table 12. F test results of Hypothesis 1a, 1b, and Hypothesis 2

		Sum of Squares	df	Mean Square	F	Sig.
Hypothesis 1a	Regression	1092574	1	1092574	153,059	.000b
	residual	2841024	398	7.138		
	Total	3933598	399			
Hypothesis 1b	Regression	1048566	1	1048566	144,653	.000b

	residual	2885032	398	7,249		
	Total	3933598	399			
Hypothesis 2	Regression	1994.490	3	664,830	135,770	.000b
	residual	1939,108	396	4,897		
	Total	3933598	399			

Table 13. Results of the t test for Hypothesis 1a, 1b, and Hypothesis 2

		Standardized Coefficients	t	Sig.
	Betas			
Hypothesis 1a	(Constant)		14,626	.000
	FINANCIAL BEHAVIOR	.527	12,372	.000
Hypothesis 1b	(Constant)		38,395	.000
	FINANCIAL ATTITUDES	.516	12027	.000
Hypothesis 2	(Constant)		9,841	.000
	FINANCIAL LITERACY	.322	7,695	.000
	FINANCIAL BEHAVIOR	.315	8062	.000
	FINANCIAL ATTITUDES	.296	7,534	.000

The coefficient of determination test is also carried out which measures how far the model's ability to explain the variation in the dependent variable with a value between zero to one ( $0 < R^2 < 1$ ). Table 14 shows that the value of  $R^2$  in this study is 0.507, so it can be said that all independent/free variables simultaneously have an influence of 50.3% on the investment decision variable of investment application users (the dependent variable). Meanwhile, 49.7% of the investment decisions of investment application users are influenced by other variables besides the independent variables in this study. According to Chin W (1998), the  $R^2$  value is

categorized as strong if it is more than 0.67, moderate if it is more than 0.33 but lower than 0.67, and weak if it is more than 0.19 but lower than 0.33.

Table 14. Determination Coefficient Test

Model	R	R Square	Adjusted R Square	std. Error of the Estimate
1	.712a	.507	.503	2,213

#### 4. Discussion

##### 4.1 Effect of Financial Behavior on Investment Decisions

The results of the hypothesis test show that financial behavior influences the investment decisions of investment application users. That is, the more positive a person's financial behavior such as having proper planning for spending and maintaining financial stability will have an effect on making better investment decisions. Of the 5 questions in the questionnaire, questionnaire item X1.4: "setting long-term financial goals and trying to achieve them." has the highest mean value of 4.62, with the majority of respondents answering 5 (strongly agree). Long-term investment can support sustainable growth and financial stability. Given the balance sheet structure, long-term investors have the capacity to smoothen their resources in the medium and long term. Investors who set long-term financial goals become less susceptible to a herding mentality and are able to maintain assets in their portfolios in times of crisis (OECD, 2011). The results of this study are in line with research conducted by Gray et al. (2021) and Tang (2021) regarding the effect of financial behavior on investment decision making.

Rahman & Gan, (2020) conducted a study to investigate behavioral factors influencing individual investment decisions among Generation Y in Malaysia. There are five human behaviors such as anger, anxiety, overconfidence, herding and self-monitoring which are used as research indicators. The results of research by Rahman & Gan (2020) show that anxiety and overconfidence are negatively related to investment decisions, while self-monitoring is positively related. Anger and herding behavior have no significant effect on investment decisions.

##### 4.2 The Influence of Financial Attitudes on Investment Decisions

Financial attitude is also one of the factors that positively and significantly influences a person's investment decision-making process. Talwar (2021) conducted research on the six dimensions of financial attitude and their influence on financial decisions. The results of this study indicate that financial attitudes have a significant positive effect. The results of this study are also in line with research conducted by Arifin et al., (2019), where data analysis shows that the better a person's financial attitude, the better the financial plan prepared for the short term (consumption) and long term (investment).

However, the results of this study are contrary to research conducted by Kumar & Goyal (2015), where no significant relationship was found between financial attitude and one's financial decisions. Kumar argues that this is due to the profile of research respondents who are mostly composed of young individuals who have not yet developed different perceptions regarding retirement and long-term investment decisions.

Financial attitude is influential in determining a person's financial behavior. Financial attitude directs a person to manage various financial behaviors. Thus, someone who has a good financial attitude will make decisions related to better financial management as well (Hasanuh & Putra,

2020). In this study, questionnaire item X2.1: "feel more satisfied when spending money than saving it for the long term." has the highest mean value of 4.26, with the majority of respondents answering 4 (agree).

According to Carter (2014), the act of spending money is done with a purpose: it is intended to create a result. This particular choice is based on the belief that a purchase will yield greater hedonic benefits to oneself, or to others, than any other possible benefit over a given period of time. In addition to the expected hedonic gains, spending money also involves costs. While there are direct monetary costs, there are also opportunity costs, which are all the other ways a person could spend this money at that exact moment. Therefore, the psychological definition of the act of spending money is the simultaneous loss (money and opportunity) and gain (of some goods or services) for oneself and/or others one chooses to do based on some beliefs about hedonic states in the future.

#### 4.3 The Effect of Financial Literacy on Investment Decisions

Financial behavior and financial attitudes can affect financial well-being. Both are important parts of financial literacy. OECD INFE (2011) states, financial literacy means a combination of awareness, knowledge, skills, attitudes and behaviors needed to make good financial decisions and ultimately achieve individual financial well-being. The results of this study indicate that financial literacy also has a positive effect on individual investment decision making. In line with research conducted by Patil & Bagodi (2021) that individuals are informed decision makers and seek information about various information and supports in making investment decisions.

According to research conducted by Thomas & Subhashree (2020) carried out to, the level of financial literacy is influenced by financial knowledge, financial attitudes, family influence, and peer group pressure. The findings show that long-term intentional efforts are essential for increasing financial literacy.

Questionnaire item X3.1: "Financial knowledge is very important for one's well-being and success both now and in the future." has the highest mean value of 4.64, with the majority of respondents answering (strongly agree). Sanderson (2015) defines financial literacy as an individual's ability to use his knowledge and skills to make the right financial decisions for effective management of financial resources. To increase students' and youth's financial awareness and knowledge, financial education programs should be school-based. An increased level of financial knowledge can make a difference in the perception of risk for an investment path. Howlett et al. (2008) observed that individuals who have financial knowledge are more financially literate and able to handle money efficiently. Financial knowledge has a strong influence on financial attitudes and behavior whether it is objective or subjective. Financial knowledge is an important factor for determining financial literacy and financial decision-making skills of individuals.

#### 4.4 Conclusion

The purpose of this research is to determine the effect of financial literacy, financial behavior, and financial attitude on the decisions of investment application users in utilizing robo advisor technology. From a survey conducted on 400 respondents in the age range of 25-39 years (Millennial Generation), using the internet, and working in Jakarta, it was found that financial literacy, financial behavior, and financial attitude have a positive effect on the investment decisions of investment application users in utilizing robo advisor technology.

#### 4.5 Limitations and Scope of Future Study

This study has limitations in the independent variables, where there are still other independent variables that can be studied for their influence on investment decisions. This is shown in the coefficient of determination value for this research (Adjusted R square: 0.503). This means that there are 49.7% other factors besides the independent variables in this research that can influence the investment decisions of investment application users. These variables may limit researchers' ability to draw clear conclusions about the impact of financial literacy on investment decisions.

It is recommended for future researchers to use other more specific independent variables and still refer to theory and previous research. Future researchers can also use indicators such as specific gender, employment status, income allocation, and also aspects of financial behavior in more depth.

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