

THE EFFECT OF FINANCIAL LITERACY AND RISK ATTITUDE ON INVESTOR BEHAVIOR

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ABSTRACT

This research aims to examine the related effects of financial literacy and risk attitudes towards investor behavior in the Indonesian capital market with the motive of saving as a mediating variable. This study uses a quantitative approach and partial least squares- structural equation modelling (PLS-SEM) to test hypotheses. The research data was obtained from 110 questionnaires distributed to capital market investors in Indonesia using the purposive sampling method. The results of this study indicate that financial literacy, risk attitude and saving motives have positive and significant effects on investor behavior in the Indonesian capital market. The influence of financial literacy and risk attitude also has a positive and significant effect on saving motives. However, the motive for saving money cannot mediate the effect of financial literacy and risk attitude on investor behavior. Theoretically, the implications of the results of this study are the level of financial literacy, risk attitude, and saving motives can directly influence investor behavior. The higher the financial literacy, the better the attitude in facing investment risk and the greater the motive for saving, the better the investor's behavior in making investment decisions. Whereas in practical terms, this implication is used as input for investors to further increase financial literacy, pay attention to the level of risk of selected investments, and enlarge the motives for saving so that the purpose of investing can be achieved well.

Keyword: Financial literacy, investor behavior, risk

ABSTRAK

Penelitian ini bertujuan untuk menguji pengaruh literasi keuangan dan sikap risiko terhadap perilaku investor di pasar modal Indonesia dengan motif menabung sebagai variabel mediasi. Penelitian ini menggunakan pendekatan kuantitatif dan *partial least square* (PLS-SEM) untuk menguji hipotesis. Data penelitian ini diperoleh dari 110 kuesioner yang didistribusikan kepada investor pasar modal di Indonesia menggunakan metode *purposive sampling*. Hasil penelitian ini menunjukkan bahwa literasi keuangan, sikap risiko, dan motif menabung berpengaruh positif dan signifikan terhadap perilaku investor di pasar modal Indonesia. Pengaruh literasi keuangan dan sikap risiko juga berpengaruh positif dan signifikan terhadap motif menabung. Namun, motif menabung tidak dapat memediasi pengaruh literasi keuangan dan sikap risiko terhadap perilaku investor. Secara teoritis, implikasi dari hasil penelitian ini adalah tingkat literasi keuangan, sikap risiko, dan motif menabung dapat mempengaruhi secara langsung perilaku investor. Maka, semakin tinggi literasi keuangan, semakin baik sikap dalam menghadapi risiko investasi, serta semakin besar motif menabung yang dimiliki, maka semakin baik pula perilaku investor dalam mengambil keputusan berinvestasi. Sedangkan secara praktis, implikasi ini digunakan sebagai masukan bagi para investor untuk lebih memperbanyak literasi keuangan, memperhatikan tingkat risiko dari investasi yang dipilih, serta memperbesar motif menabung agar tujuan melakukan investasi dapat tercapai dengan baik.

Kata Kunci: Literasi keuangan, perilaku investor, risiko

Introduction

The capital market is one of the wheels of the economy in a country. Investment in the capital market becomes an alternative investment for the community. However, to make a profitable investment without underestimating

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the risk aspect, an in-depth understanding of fund management is required (Sina, 2016). Based on the results of research conducted by the OJK regarding the National Financial Literacy and Inclusion in 2016, the level of public understanding (*literacy*) of the capital market was 4.40%.

The investment decision-making process is influenced by fundamental analysis, technical analysis, and investor psychology. Investors' psychological factors are related to financial behavior to understand investor behavior in the investment decision making process (Al Ibrahim, 2018). Investor behavior is an action taken by investors to buy, hold, and sell shares at certain times (Azis *et al.*, 2015). In this study, the theory of planned behavior (TPB) is used as the grand theory. Based on TPB, behavior itself is an action that can be observed to describe how the individual acts under certain conditions (Schmeiser and Seligman, 2013). The concept of financial literacy according to The Organization for Economic Cooperation and Development is a complex phenomenon consisting of a combination of awareness, knowledge, abilities, attitudes, and behaviors needed to make financial decisions (Governors, 2012). Therefore, financial literacy involves the knowledge, behavior, and financial attitudes of individuals (Potrich *et al.*, 2016).

Investment and saving are interrelated concepts. Saving is an early stage in the investment process, where a person saves their funds with the aim of getting benefits in the future, then they can convert it into a type of investment (Widayat, 2010). The motives individuals hold money are the motive for the transaction, the precautionary motive, and the speculation motive (Beckhart and Keynes, 1936). Investors who invest in the capital market have confidence that the funds invested will generate a higher rate of return to meet the goals of stability and security. Aprillianto *et al.*, (2014) also stated that the objective of investors investing in shares is to gain opportunities to obtain capital gains. These investors do not spend all their money on daily needs, but instead have savings for the future through investment activities, which are expected to increase their wealth in the future.

TPB also explains that people's action is influenced by intention and ease. Intention is influenced by attitudes, subjective norms, and ease of behavior (Riadini and Bari, 2018). Humans consider all information and impact of their actions. From this theory, it showed that individual attitudes influence behavior through a process of careful and reasoned decision making (Fishbein and Ajzen, 2011). Every individual has a different way of making decisions that involve risks and uncertain conditions known as differences in risk attitudes (Jonsson *et al.*, 2017). The risk attitude is considered a function of the task, the decision framework for each individual, as well as a strategy for processing information (Weber and Milliman, 1997). Each type of risk attitudes will shape different investor behavior under any circumstances.

Based on the above explanation, this study tries to investigate the factors that influence investor behaviour. Unlike the previous studies that mostly discussed about it separately, this study tries to combine the factors from internal (*financial literacy*) and external (*risk attitude*) individuals. This study will analyse the factors that influence investor behavior by using financial literacy and

individual traits such as risk attitudes and motives for saving to explain heterogeneity in investor behavior. This research is expected to help contribute to a better understanding of the factors influencing investor behavior. It is expected that this research can also contribute to increasing the number of investors in Indonesia, as an input for the Indonesian government to improve education for the public before starting investing, as well as input for potential investors to make investment decisions based on their financial capacity and level of experience, and not depend on sentiment.

Literatur Review

Theory of Planned Behavior

Theory of Planned Behavior (Ajzen, 1985) is aimed at predicting specific individual behavior. The main factor in the theory of planned behavior (TPB) comes from the individual's intention to perform certain behaviors. This theory states that attitudes toward behavior, subjective norms, and perceptions of behavioral control together form individual behavioral intentions (Manuntung, 2018). Attitude towards behavior which refers to the extent to which the individual has a good judgment or vice versa based on the behavior concerned. Subjective norms refer to the existence of social pressure obtained by the individual so that it becomes a determinant for doing or not doing behavior. Meanwhile, the perception of control refers to the perceived ease and difficulty in performing behavior. In this study, the components possessed in the TPB (attitude, subjective norm, and perceived behavioural control) have influences on behavioral intentions, in which it then affects actual behaviour of individuals. Financial literacy can be described as an individual's concept of controlling the financial aspect, it affects the individual's intentions. Risk attitudes can be described by attitudes towards behavior related to a good assessment. While the saving motive can be described as an intention or intention to behave because the saving motive is the same as the intention which means the desire to perform certain behaviour which is investing the money.

Financial Literacy

Financial literacy is the ability and knowledge of finances possessed by individuals to be able to manage financial problems to improve their standard of living and achieve prosperity. Thus, financial literacy includes the knowledge and skills possessed by individuals to use their income wisely, whether for expenses, savings, or investment (Yukaristia, 2019). In line with the theory of planned behavior, financial literacy is a form of individual control concept related to financial aspects. The better the concept of individual control, the better the individual behaves.

Risk Attitude

Attitude is an individual's readiness to respond something that is positive or negative towards an object or situation consistently (Partini, 1984). Risk is an uncertain condition related to the results that will be obtained in the future (Clearly and Malleret, 2008). So, in line with the theory of planned behavior, the risk attitude is a form of the concept of attitude towards behavior that will influence the intention to further form appropriate behavior.

Saving Motive

Motives include the drive, ambition, stimulation, reason, and impulse in humans that produce behavior. Saving is an activity to set aside a portion of income to be invested (Mahadana, 2012). Individuals save part of their income to meet their needs when they are no longer earning (Modigliani and Brumberg, 1954). So, the main motivation that encourages individuals to save is the desire to collect money that is used when they retire (Modigliani, 1986). So, in line with the concept of the theory of planned behavior, the motive for saving is a form of the concept of intention to save in making investments which in turn affects the behavior of investors in making investment decisions. Because the stronger the intention, the greater the resulting performance.

Investor Behavior

Behavior is an individual's psychological reaction to their environment. Investor behavior is influenced by four psychological variables, namely perception, attitude, intention, and learning. These four variables influence investor behavior in making investment decisions to buy or sell shares in an integrated manner. Investors behave in accordance with the perceptions and attitudes they believe to further shape their respective motives and identities (Ady, 2015). So, based on the theory of planned behavior, investor behavior is a form rather than the concept of behavior regarding investor activity in the capital market.

Hypothesis Development

The Effects of Financial Literacy and Risk Attitude on Investor Behavior

The Theory of Planned Behavior (TPB) is a theory that explains the behavior of individuals who are influenced by the concept of control that is owned by the individual (Ajzen, 1991). The better the concept of individual control that is owned, the better the individual behaves. Financial literacy is a form of individual control concept of financial aspects. The existence of good control related to financial literacy owned by individuals will result in good judgment in deciding all financial decisions. These considerations will direct each individual to behave selectively in managing their finances.

The behavior of investors to invest in the capital market can arise from the amount of financial literacy they have. Because the level of financial literacy possessed can help investors to overcome bias behavior (Jonsson et al., 2017). Therefore, financial literacy is the main source of information used by investors as a consideration for making rational financial decisions. Based on previous research, investors with a high level of financial literacy tend to be smarter in investing. They tend to trade more and are less susceptible to disposition effect behavior (Bellofatto et al., 2018). Based on this description, the hypothesis of the relationship between financial literacy and investor behavior to invest in the capital market is:

H1: Financial literacy affects the behavior of investors to invest in the capital market.

Likewise with risk attitude which is the concept of attitude towards behavior in the theory of planned behavior. Risk attitude refers to the extent to which the individual has a good judgment or vice versa based on the behavior in question. Therefore, a good attitude affects behavior in making good decisions as well. Individuals who have a high level of financial literacy tend to have a bold attitude in facing risks because these individuals feel confident in their abilities.

Thus, there is research which states that a lack of understanding related to economic and financial issues is a significant barrier to share ownership and a lack of literacy makes households not participate in the stock market (Mouna and Anis, 2017). Therefore, the hypothesis of the relationship between risk attitudes and behavior of investors to invest in the capital market is:

H2 : The attitude of risk affects the behavior of investors to invest in the capital market.

The Effect of Saving Motives on Investor Behavior

Motives include drivers, desires, stimuli, power, and reasons in humans that produce behavior (Sunaryo, 2004). Saving is the initial stage in the investment process with the aim of getting benefits in the future (Widayat, 2010). The motive for saving in the theory of money demand owned by individuals has been categorized into a hierarchy that moves from the lowest to the highest level. These categories include transactional, precautionary, and speculative motives (Beckhart and Keynes, 1936).

In the theory of planned behavior (TPB), individual behavior is influenced by intentions, which intentions are influenced by three factors, namely attitudes towards behavior, subjective norms, and behavioral control. The greater the intention, the greater the likelihood that the individual will behave. The motive for saving is a concept of intentions related to desires and drives that produce saving behavior in each individual.

Based on previous research, there are fifteen goals that function hierarchically to motivate individuals in making decisions to save. The hierarchical structure obtained shows that at a higher level it is found that the goal is more psychological in nature, namely fulfil self-satisfaction and self-esteem (Canova et al., 2005). Based in the existing description, the hypothesis built in this study are:

H3 : The saving motive affects the behavior of investors in investing in the capital market.

The Effects of Financial Literacy and Risk Attitude on Saving Motives

Investor behavior is shaped by behavioral beliefs and control beliefs in which financial literacy is a concept of control beliefs. Control beliefs are related to the ability to direct individuals to make good judgments in taking an action or behavior. In combination with the theory of planned behavior (TPB), attitudes toward behavior, subjective norms, and perceived behavioral control leads to the formation of behavioral intentions. The motive for saving is a concept of intentions related to the desire and drive that results in the saving behavior of each individual which is formed by various aspects, one of which is financial literacy. The greater

the financial literacy possessed by an individual, the greater the motive for saving that individual has with the aim of investing. Statistically, the level of financial literacy has a positive influence on the number of users of financial services (financial inclusion) and savings (Morgan and Long, 2020). Based on the existing description, the hypothesis built in this study are:

H4 : Financial literacy affects the saving motives owned by investors in the capital market.

In line with the description above, the theory of planned behavior specifically links beliefs with attitudes. Therefore, risk attitude is an evaluation carried out in forming an appropriate attitude when taking an action related to the level of risk borne. The better the attitude towards behavior and subjective norms, and the greater the perceived behavioral control, the stronger the individual's intention to perform the behavior. Therefore, the better the risk attitude possessed by the individual, the stronger the saving motive possessed by the individual to make a saving decision as an early stage in investing.

Based on previous research, financial literacy plays an active role in helping households to make better consumption decisions. Therefore, individual characteristics, namely risk attitudes and financial literacy, affect the the number of losses incurred and future decisions (Zhang et al., 2020). Based on the existing description, the hypothesis built in this study is:

H5 : A attitude of risk affects the saving motive of investors in the capital market.

The Effects of Financial Literacy and Risk Attitude on Investor Behavior with Saving Motives as a Mediation Variable

The theory of planned behavior is a theory used to predict individual behavior. Individual behavior is influenced by the intentions of the individual. Individuals have an intention to perform certain behaviors if they meet several conditions such as the presence of thoughts if the references they have are in accordance with the behavior, there is a positive personal assessment of the behavior they are doing, and if they perceive that the necessary resources and opportunities are available (Ajzen, 1991). However, investor behavior is not only influenced by the intention, but there are determinant factors such as attitudes towards behavior, subjective norms, and behavioral controls that shape intentions.

In accordance with the concept of the theory of planned behavior, the motive for saving is in accordance with the concept of intention which is the desire and urge to produce saving behavior in each individual. Intentions are formed by three aspects, one of which is financial literacy. Financial literacy is a concept of individual control about financial aspects. The better the concept of individual control that is owned, the better the individual behaves, especially in terms of investing. Thus, previous research stated that investors with a high level of financial literacy tend to be smarter in investing. They tend to trade more and have attitudes that are less susceptible to disposition effects (Bellofatto et al., 2018). Based in the existing description, the hypothesis built in this study is:

H6 : The saving motive can mediate the effect of financial literacy on investor behavior

In line with the description above, saving motives are also formed by risk attitudes, which risk attitudes are the concept of attitude towards behavior in the theory of planned behavior which is a form of a positive or negative evaluation of behavior that is formed from beliefs related to the results that will received from the behavior (Ajzen, 1991). Risk attitude is a form of evaluation in forming an appropriate attitude when taking an action related to the level of risk borne. The better the attitude possessed by the individual in making decisions based on the level of risk affects the amount of the individual's saving motive, which in turn affects the individual's behavior to make saving decisions as an early stage in investing.

Based on previous research, the main source of information also moderates the relationship between five personality traits and stock trading behavior (Tauni et al., 2017). Hypothesis built in this study is:

H7 : The saving motive can mediate the effect of risk attitude on investor behavior.

Materials and Methods

The research approach used in this study is quantitative with descriptive method. The quantitative approach is used because in this study the data were analyzed statistically to determine the effect of the independent variables, namely financial literacy and risk attitudes on the dependent variable of investor behavior with saving motive as a mediating variable. Based on this, the conceptual framework in this study is presented in Figure 1.

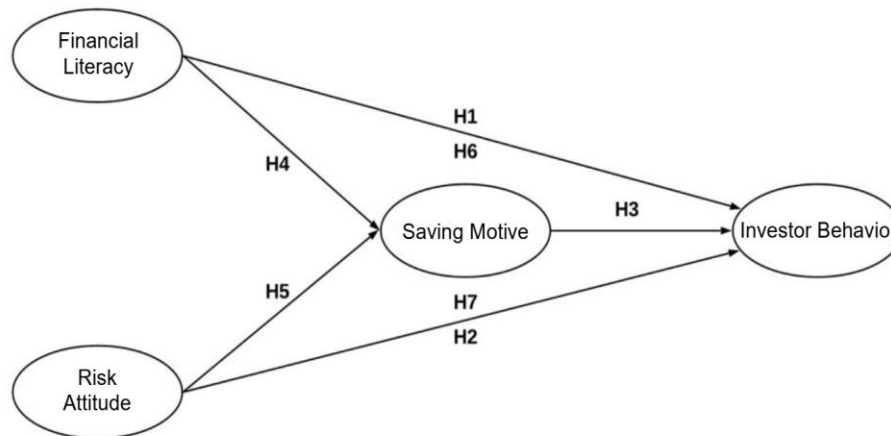


Figure 1. Conceptual framework

Variable Identification

This research consists of several variables, including:

1. The independent variables are financial literacy and risk attitude,
2. The dependent variable is the behavior of investors in making investment decisions,
3. The mediating variable is the saving motive owned by each investor.

Variable Measurement and Questionnaire Design

This study uses primary data which were obtained from questionnaires distributed by reasearchers to investors who have experience investing in the capital market. The questionnaires containing questions related to financial literacy, risk attitudes, saving motives, and investor behavior.

Financial Literacy

Financial literacy is defined as the ability to make financial decisions based on sufficient information regarding financial concepts and instruments (Agarwal *et al.*, 2011). Inadequate financial literacy can cause financial decision making in the household to be less effective (Jonsson *et al.*, 2017).

Measurement of financial literacy variables comes from Jonsson *et al.*, (2017) which consist of three parts. The first part is related to technical financial knowledge which consists of eigh questions measured using a Likert scale measurement, while the next six questions are multiple choice questions. The second part is related to mutual fund knowledge which consists of six questions which are measured using a Likert scale measurement. Then in the third part related to market knowledge which consists of to questions, namely, a multiple choice question, then another question using a Likert scale measurement. The Likert scale measurement in this study consisted of seven level indicators ranging from “strongly disagree” to “strongly agree”.

Risk Attitude

Attitude is an individual’s tendency to take action or behave (Mulyatiningsih, 2004). Risk is associated with uncertain conditions and is related to the results that will be obtained in the future (Clearly and Malleret, 2008). Thus, risk attitude is an individual’s tendency to take action in conditions that are uncertain about the results obtained in the future.

Measurement of the risk attitude variable based on Jonsson *et al.*, (2017) consists of five questions. In this section there is one question that uses a Likert scale measurement with seven indicators ranging from “strongly disagree” to “strongly agree”. The second question has two answer choices, namely yes or no. And the last three questions are the percentage of investment ownership.

Savings Motives

Saving is an activity to set aside some income to be invested (Mahadana, 2012). Individuals save a part of their income to meet their needs when they are no longer earn an income (Modigliani and Brumberg, 1954). John Maynard Keynes in Theory liquidity Preference states that the reason individuals hold money is because there are three motives behind the demand for money, namely, transaction motives, precautionary motives, and speculative motives (Beckhart and Keynes, 1936).

The measurement of the saving motive variable comes from Jonsson *et al.*, (2017) which consists of three questions. Each question in this section uses a Likert scale measurement scale with seven indicators ranging from “strongly disagree” to “strongly agree”.

Investor Behavior

Behavior is an individual action and reaction to the environment (Manuntung, 2018). Investor behavior in making investment decisions is influenced by four psychological variables, namely perception, attitude, intention, and learning. These four variables affect the behavior of investors in making investment decisions to buy or sell their shares in an integrated manner. Investors behave in accordance with the perceptions and attitudes that are believed to subsequently form their respective motives and identities (Ady, 2015).

The measurement of the investor behavior variable consists of seven questions (Al-Hilu *et al.*, 2017). Each question in this section uses a Likert scale measurement scale with seven indicators that have gradations (levels) from “strongly disagree” to “strongly agree”.

Population and Sample

The population in this study are investors who have experience investing in the Indonesian capital market who are members of investor forums on social media such as Instagram, Twitter, and Telegram. With the experience, it is expected can provide a valid answer. In addition, investors tend to have different behavior according to the current situation. In determining the sample, this study uses a purposive sampling technique which sets certain criteria to obtain a representative sample and in accordance with the criteria set by the researchers. The sample in this study is Indonesian citizens who are at least 17 years old and currently doing investment activities in the capital market. Researchers used the following formula to determine the number of samples:

$$q = 1 - p$$

$$n = \frac{z_{\frac{\alpha}{2}} \cdot p \cdot q}{d^2}$$

n : sample size

p : proportion of investors in the population, if not known then the value is 0.5

q : proportion of non-investors

$\frac{z_{\frac{\alpha}{2}}}{2}$: price on the normal curve

α : limit error or absolute precision

$$n = \frac{(1,96)^2 \cdot 0,5 \cdot 0,5}{(0,1)^2} = 96$$

Based on the formula, the minimum sample size is 96 respondents.

Data Analysis Techniques

Descriptive Statistics of Respondents

Personal characteristics of respondents in the questionnaire are gender, age, and profession.

Partial Least Square

This study uses a model of causality or the relation of influence between research variables. This study uses data analysis methods using WarpPLS version 6.0 software. PLS (Partial Least Square) is a variant-based structural equation analysis or Structural Equation Model (SEM) that can simultaneously test the measurement model as well as the structural model.

We use the PLS Model with the consideration that the model used is a causal relation between the independent and dependent variables when one of the variables or both of them have one or more indicators and actually measure non-indicator variables, and there is a tired causality relation in the model which is characterized by the presence of the intervening variable (mediation) which is the connecting variable between the independent variable and the dependent variable. In addition, SEM-PLS was chosen because it does not require using large data, does not require using normality assumptions, allows to test very complex research models with many latent variables and indicators, predication-oriented analysis, and is able to analyze multicollinearity problems (Gefen *et al.*, 2011; Kock, 2015; Rigdon, 2012).

Measurements of Outer Model

The outer model test is used to measure reflective and formative indicators. This study only uses reflective indicators. Reflective indicators are based on factor loading. A loading factor > 0.70 is highly recommended, however an outer loading factor value > 0.50 is considered sufficient (Solimun *et al.*, 2017).

The purpose of the validity test is to determine the ability of the research instrument to measure what it should measure (Cooper and Schindler, 2006). The validity of the variables was tested with the Average Variance Extracted (AVE) value. If the AVE value is > 0.5 , the variables in the study are declared valid.

While the reliability test aims to measure the consistenct of the measuring instrument in measuring the consistency of respondents in answering each statement item in the questionnaire or research instrument. Variable reliability is measured by using the value of composite reliability coefficients. If the value of composite reliability coefficients > 0.7 , the variables are declared reliable.

Measurements of Inner Model

After the measurement of the outer model is completed, the measurement of the inner model is carried out. The purpose of measuring the inner model is to determine the relation between variables, as well as the level of influence of the overall relation of variables in the system being built. This study used the adjusted R^2 value to measure the inner model. Based on adjusted R^2 , a model can be classified into strong (≤ 0.70), medium (≤ 0.45), and weak (≤ 0.25). Meanwhile, the relation between variables in the system built in the study is calculated using the value of predictive relevance (Q^2) which aims to assess the predictive validity of the independent variables. The predictive validity of an independent variable is said to be good if it has (Q^2) > 0 .

Hypothesis Testing

To test the hypothesis in this study, it was carried out in two stages. The first testing stage is to test the direct effect between variables. If the correlation between the two variables is proven to be significant, then the second stage of testing can be carried out, namely, to test the indirect effect between variables by including a mediating variable.

To test the indirect effect through the mediating variable, it is done by estimating the indirect effect simultaneously with the triangle PLS SEM Model by calculating the Variance Accounted For (VAF) with the following formula:

$$\text{Variance Accounted For} = \frac{\text{indirect effect}}{\text{total effect}} \quad (1)$$

The conclusion about mediation is that if the VAF value is > 80%, it shows the mediating variable as full mediation. If the VAF is between 20%-80%, it can be categorized as partial mediation. But if VAF < 20%, it can be concluded that there is no mediating effect (Hair *et al.*, 2010).

Result and Discussion

Based on the results of the study, there were 110 respondents who met the criteria for the study sample with the respondents shown in table 1.

Table 1. Classification of respondents

Data Classification	Frequency	
	Absolute	Percentage
Gender	Male	76 69.1%
	Female	34 30.9%
Age	17-21 years old	8 7.3%
	22-26 years old	45 40.9%
	27-31 years old	22 20%
	32-36 years old	20 18.2%
	More than 37 years old	15 13.6%
Profession	Student	10 9.1%
	Student and Work	14 12.7%
	Government employees	13 11.8%
	Private employees	46 41.8%
	Entrepreneur	18 16.4%
	Others	9 8.2%

Source: Processed data (2020)

Table 1 shows that capital market investors in Indonesia are still dominated by men with a total of 76 respondents or 69.1% of the total respondents. In terms of age, the largest proportion is shown at the age of 22 – 26 years. It indicates that the respondents are from the productive ages range who are expected to be able in managing their financial things. Meanwhile, in terms of type of work, capital market investors in Indonesia are dominated by employee (46 respondents or 41.8% of the total respondents). It suggests that most of the employees in private sectors do investment which is expected to bring them benefits in the future.

Test Validity and Reability

Analysis of The Measurement Model

Validity and reliability testing is carried out on measurement instruments using the outer model by analyzing the results of convergent validity and composite reliability. The measurement item must have a loading factor value and composite reliability greater than or equal to 0.7. Table 2 shows the estimation results of loading factor from the second iteration after eliminating some invalid items in the first literation

Table 1. Estimation Results Outer loading factor of the last iteration

Variable	Indicator	Outer Loading Value	Conclusion
Financial Literacy	LK1	0.761	Significant
	LK3	0.745	Significant
Risk Attitude	SR1	0.678	Considered
	SR3	0.741	Significant
Saving Motive	MM1	0.774	Significant
	MM2	0.876	Significant
Investor Behavior	PI1	0.732	Significant
	PI2	0.677	Considered
	PI5	0.704	Significant
	PI6	0.794	Significant

Source: Processed data (2020)

Then to test the convergent validity, it is done using the average variance extracted (AVE) which is shown in Table 3. The AVE value should be greater than 0.5 in order to ensure that measurement error does not dominate the variance captured by the construct (Fornell and Larcker, 1981; Raines-Eudy, 2000).

Table 2. Last measurement results of Average Variance Extracted

Variable	Average Variance Extracted
Financial Literacy	0.619
Risk Attitude	0.572
Saving Motive	0.768
Investor Behavior	0.556

Source: Processed data (2020)

This study also produces a composite reliability value that exceeds the acceptable level, namely 0.7 for the construct of financial literacy, risk attitudes, saving motives, and investor behavior as shown in Table 4. This shows that the construct is declared reliable (Hair Jr *et al.*, 2016).

Table 3. Final measurement results of Composite Reliability

Variable	Average Variance Extracted
Financial Literacy	0.765
Risk Attitude	0.728
Saving Motive	0.869
Investor Behavior	0.832

Source: Processed data (2020)

Structural model analysis

This study tested the inner model shown in Table 5 to measure the relationship between all variables using the adjusted value (R²) and the influence of the relationship between all variables in the system built using the predictive

relevance (Q2) value. The purpose of measuring based on Q2 is to measure how well the observation value generated by the model and its parameter estimates (Ghozali and Latan, 2015). The value of predictive validity can be said to be good if the value is more than zero.

Table 4. Last iteration of Adjusted R-square Value and Q-square Value

Endogenous Variable	R-square Value	Q-square Value
LK, SR and MM → Investor Behavior	0.194	0.253
LK and SR → Saving Motive	0.074	0.095

Source: Processed data (2020)

Based on the results of the inner model test shown in Table 5, the R-square value of investor behavior shows that the variables of financial literacy, risk attitude, and saving motive can explain investor behavior by 19%, while the remaining 81% indicates that investor behavior can be explained by other variables. The R-square value for the saving motive variable shows that the saving motive variable can be explained by the financial literacy variable and the risk attitude variable by 7.4%, the remaining 92.6% indicates that the saving motive can be explained by other variables. Meanwhile, the predictive value (Q2) for investor behavior was 25.3% and the motive for saving was 9.5%. The Q2 value in this study is stated to have met the criteria for good predictive validity because the value exceeds zero. So, it can be concluded that the two variables have met the criteria for good predictive validity to assess the relationship of all variables in the system being built. The results of the structural model testing are shown in Figure 2 below.

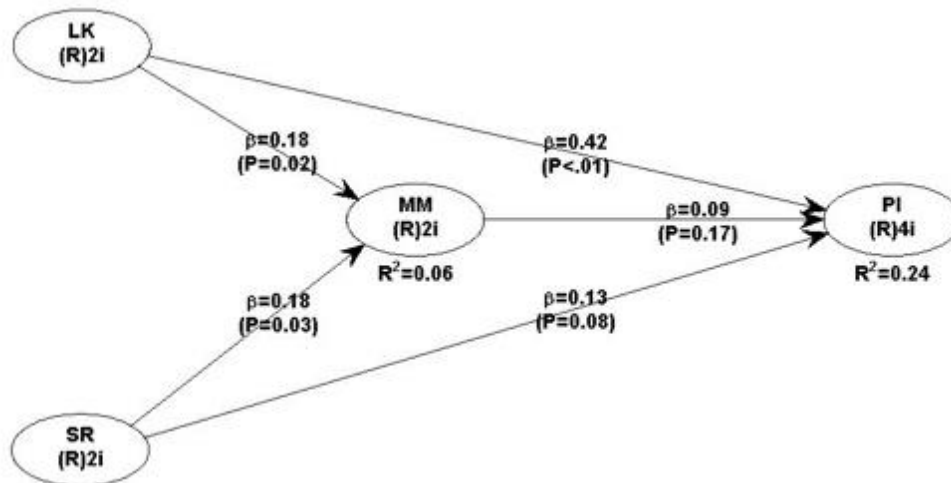


Figure 2. Indirect Effect Test Results

Hypothesis testing

In this study, hypothesis testing was carried out in two stages, namely testing the hypothesis of direct and indirect effects. The results of testing the hypothesis from this study are shown in table 6.

Table 5. Structural model analysis

Hypothesis Test Results Direct Effect				
Hypothesis	Relationship Between Variables	β	P-value	Description
Hypothesis 1	LK → PI	0.41	0.01	Significant, support H1
Hypothesis 2	SR → PI	0.15	0.05	Significant, support H2
Hypothesis 3	MM → PI	0.14	0.07	Significant, support H3
Hypothesis 4	LK → MM	0.18	0.02	Significant, support H4
Hypothesis 5	SR → MM	0.18	0.03	Significant, support H5
Mediation Hypothesis Test Results for Saving Motive				
Hypothesis 6	LK → MM	0.18	0.02	Not significant, not support H6
	MM → PI	0.09	0.17	
Hypothesis 7	SR → MM	0.18	0.03	Not significant, not support H7
	MM → PI	0.09	0.17	

Source: Processed data (2020)

The mediation level strength of the saving motive under indirect effect is determined by calculating the Variance Accounted For (VAF).

$$\text{Variance Accounted For} = \frac{0.18 \times 0.09}{(0.18 \times 0.09) + 0.18}$$

$$\text{Variance Accounted For} = \frac{0.0162}{0.1962} = 0.083$$

The result of VAF calculation for hypothesis six and seven is 8.3%. The VAF result of less than 20% indicates that the motive for saving does not mediate the effect of financial literacy on investor behavior. Therefore, the sixth hypothesis cannot be supported.

Discussion

The Effect of Financial Literacy on Investor Behavior

The direct test results indicate that there is a significant and positive influence of financial literacy on investor behavior in the Indonesian capital market. This research is in line with the TPB theory which states that the concept of individual control related to financial aspects, namely financial literacy, can influence investor behavior. With good individual control, it will produce good judgement in making decisions because financial literacy is the main source of information used by investors to make rational financial decisions.

Previous research conducted by Bellofator et al., (2018) related to the relationship between financial literacy and retail investor behavior by using information about stock trading activities shows that investors who have a high level of financial literacy will be smarter in making investment decisions. Besides that, financial literacy can also help investors not to be easily biased towards disposition effects. Mouna and Anis (2017) also stated that the lack of understanding related to financial and economic problems owned by investors will hinder their activities in conducting stock trading activities. Household that lacks financial literacy are also less likely to participate in the stock market. Those findings indicate that individuals who have better knowledge about finance will tend to invest their money to stock market or such because they know the benefits

of it. By having financial literacy, individuals also can avoid to waste every penny they may spend for something that is useless. Thus, their behaviour in financial things will be better.

Furthermore, the results of the National Financial Literacy Survey conducted by the Otoritas Jasa Keuangan (OJK) in 2019 showed that the financial literacy index in Indonesia reached 38.03% with a financial inclusion index of 76.19%, it increased compared to the result of the OJK survey in 2016. Although the level of financial literacy of Indonesian people has increased, there are other studies which state that the younger generation of Indonesia currently tends to allocate their funds only for life style needs, not for future savings. This should be a consideration for the government to continue provide good education because the well-literate young generation will have big influence in creating a stable country's economy. Individuals who are well-literate will do better work planning and tend to be more prepared to face retirement. If the retirement period has been well planned, then the decision to start investing will be even better. Lusardi and Mitchell (2014) state that the millennial generation is a generation that has a small chance of falling into debt problems and ha a great opportunity to save for the future.

The Effect of Risk Attitude on Investor Behavior

The result of the second hypothesis testing shows that there is a significant and positive effect of risk attitudes on the behavior of capital market investors in Indonesia. This is in line with TPB theory which states that the concept of attitude towards behavior, namely risk attitude, can influence investor behavior. Investors who have a high level of financial literacy tend to have a risk-taking attitude because these investors feel confident in their abilities and aim to get high returns to meet their needs.

Related research states that the lack of understanding related to economic and financial issues makes the household sector reluctant to participate in the stock market (Mouna and Anis, 2017). Every investor has a different level of tolerance. Therefore, the choice of the type of investment and the amount of funds invested are influenced by the investor's tolerance for risk, namely the attitude towards the risks faced such risk seeker, risk indifference, or even risk averter (Wulandari and Iramani, 2014). However, the attitude of investors who tend to avoid risk is not a weakness for investors. Investors who have a risk averse attitude tend to have good judgement and use certain strategies to reduced perceived risk (Ghozalie and Anastasia, 2015). Basically, rational investors are investors who expect a certain return with a smaller level of risk. The perception of risk also plays an important role in the decision-making process in uncertain conditions such as investing because risk perception is a person's assessment of the risk he will get when making investment decisions. Investment has a lot of risks such as interest rate risk, market risk, inflation risk, and so on. Individuals or investors need to consider those various risks before they decide to invest or spend their money. It is important to avoid the future loses. Therefore, investors must think carefully about the attitude that will be taken to deal with investment risks.

The Effect of Saving Motives on Investor Behavior

The results of the third hypothesis testing show that the saving motive has a significant and positive influence on investor behavior. This is in line with the concept of TPB theory, where intentions can influence behavior. In this study, the motive for saving is a concept of intention related to the desire and drive that results in saving behavior in each individual. Rowley et al (2012) stated that individuals who have high motivation will carry out activities in earnest, on the contrary individuals who have low motivation will not have the drive towards a positive direction in managing finances.

Widayat (2010) states that basically saving and investing are two interrelated things because saving is the first step in the investment process. Each individual can start to save their funds, then if the funds have been collected, it can be used to invest. Mahadana (2012) also stated a similar opinion that saving is an activity to set aside a portion of income to be invested. The amount of saving motive owned by investors will affect the behavior they will do in making investment decisions. The greater the motive for saving, the better the behavior that will be generated. Individuals who have intention to save their money, will later influence their behaviour that saving is necessary for future benefits. The behaviour that they actually do could be investment in various things or just save their money without spending it carelessly. The large saving motive makes investors more careful in making decisions in order to get the expected profit.

The Effect of Financial Literacy on Saving Motives

The fourth hypothesis testing result indicate that there is a significant and positive effect of financial literacy on saving motives. This is in line with the combination of the TPB theory which states that attitudes towards behavior, subjective norms, and behavioral control can form behavioral intentions. In this case, the saving motive is a concept of behavioral intention related to the desires and impulses that produce saving behavior. The concept of behavioral intention is formed by various aspects, one of which is financial literacy.

Related research states that education about financial issues can help the household sector to understand risk tolerance and its effect on their saving behavior in order to set appropriate goals to meet goals (Atkinson *et al.*, 2007). A similar study conducted by Zhang *et al.*, (2020) also stated that financial literacy plays an active role in helping households to make better consumption decisions. Individual intelligence in managing finances helps someone to achieve an established financial condition in the future. Therefore, statistically the level of financial literacy has a positive influence on the number of users of financial services and saving (Morgan and Long, 2020). Similar to the previous explanation, individuals who have a good financial literacy will be able to influence their intention to save their money because they know the costs and benefits of saving or spending their money due to the knowledge they have. Thus, financial literacy influence individuals' intention to save their money.

The Effect of Risk Attitude on Saving Motives

The results of testing the fifth hypothesis indicate that there is a significant and positive effect of risk attitude on saving motives. This is in line with the TPB theory which specifically links beliefs with attitudes where risk attitude is a form of evaluation carried out in forming an appropriate attitude when taking an action related to the level of risk that must be borne. Therefore, the better the risk attitude possessed by the individual, the stronger the individual's motive for making a saving decision as an early stage to start investing. Individuals who learn about the risk that they may get with their money will consider various possibilities before they spend their money. Thus, saving the money may become the best way to mitigate the risk. Wong et al., (2018) states that the factor that influences an individual's decision to make retirement saving is the individual's risk preference. The reason is because every individual always thinks about taking risky actions or not in allocating their funds.

The Mediation Effect of Saving Motives in the Effect of Financial Literacy on investor Behavior

The results of testing the sixth hypothesis indicate that the variable of saving motives does not significantly mediate between financial literacy and investor behavior. These results are not in line with the TPB theory where intentions can mediate individual control with behavior. In this study, financial literacy is a form of individual control concept of financial aspects that can shape the motive for saving as a concept of intention to then influence individual behavior in investing. Financial literacy plays an important role in the process of making financial decisions. Therefore, the household sector that lacks financial knowledge tends not to plan savings for retirement (Lusardi and Mitchell, 2007). It shows that low literacy will affect individual intention to save which is a specific goal that must be achieved by individuals for future provisions, an investor must behave disciplined in making financial decisions (Chakraborty and Digal, 2012).

Thus, the results of this study indicate that the purpose of investors investing is to earn profits or just to follow trends, not for the purpose of saving. This is reinforced by the results of research by Chakraborty and Digal (2012) which states that young investors tend not to be interested in saving for life in retirement. Jonsson *et al.*, (2017) also states that the purpose of the saving motive for investors tends to be long-term goals that are not affected by short-term market movements. This is because the individual's motivation to save is more short-term oriented such as for savings purposes or preparing for unexpected needs. Meanwhile, investing has a long-term orientation, because profits can only be realized after investing for three to five years. In addition, the invested funds do not necessarily increase in value. For example, in investing in stocks, the funds invested are very likely to experience large losses if investors are not right in making decisions. So, without a saving motive in investors, investors can behave well to make investment decisions based on their financial literacy.

The Mediation Effect of Saving Motive in the Effect of Risk Attitudes on Investor Behavior

The results of testing the seventh hypothesis indicate that the saving motive variable does not significantly mediate the relation between risk attitudes and investor behavior. The results of this study are not in line with TPB theory which states that intentions can influence individual behavior in making decisions. In this study the motive for saving is in accordance with the concept of intention in the TPB theory because the motive is the desire, drive, and basic energy in individuals to determine behavior (Sunaryo, 2004). If individuals have high motivation, they will carry out activities in earnest, while individuals who have low motivation will not have the drive towards a positive direction in managing finances (Rowley *et al.*, 2012). Investors who have a high level of risk tolerance prefer to invest their funds in high-risk assets in the capital market, while investors who have a low level of risk tolerance prefer to invest their funds in bank accounts (Wardani and Lutfi, 2019).

This shows that financial behavior that is said to be positive is not always related to placing more funds in assets that have high risk and high returns but can be interpreted as behavior in terms of better financial management to choose the type of investment that is in accordance with risk tolerance and profit expected from the investment. So, to achieve the expected goals, investors can have the view that placing funds in a bank account is the right choice to accumulate wealth in the future. Therefore, it can be said that the purpose of investors investing in the capital market is to earn profits, not for the purpose of saving. Because basically, investing in the capital market is a type of investment that has a high risk, which allows the funds invested to run out at any time if they are not able to make good financial decisions. A good investor is an investor who always considers risk in every investment decision because investment does not only provide benefits but there are risks that always follow the investment. In addition, without the investor's saving motive, investors can still make good decisions in considering the risks of each investment they choose. Rahadjeng (2013) states that females investors tend to make more accurate decisions compared to male investors. It shows another evidence that female investors are ore optimal in utilizing the available information and are more careful in considering the risks of the investments to be chosen.

Conclusions

This study aims to obtain evidence on the effect of financial literacy and risk attitudes on investor behavior through saving motives for investors in the Indonesian capital market. The independent variables in this study are financial literacy and risk attitude with the mediating variable, namely saving motives, and the dependent variable in this study is investor behavior.

Based on the analysis that has been done, it can be concluded that financial literacy and risk attitudes can influence investor behavior. It can also affect the

motive for saving. This shows that the presence of financial literacy and a preference for attitudes in facing risk will help investors to have better future goals by saving and being able to make more effective investment decisions. However, the motive for saving cannot mediate the relationship between financial literacy and risk attitudes and investor behavior. This shows that without any intention, investors can also behave well in investing by using their financial literacy and risk preferences.

Limitations

Although there are several contributions that can be learnt from the findings of this study, there is still limitation that should be addressed by future research. There were some respondents who did not understand about the questions in the questionnaires. It caused them did not answer some questions which then these data were excluded by this study for further analysis.

Suggestions

Future research may choose more simple wordings for the questionnaires so that it can be understood easily by the respondents. Future researcher may also accompany respondents when they fill the questionnaires in case there are some questions that they do not understand.

Implications

The implication of this study is to give better understanding for the investors that they need financial literacy and concern about the risk in managing their finance. It means that before using their money, investor should consider various factors or risks that may occur when they use it carelessly. Therefore, saving their money to invest it can be the safest way to manage their finance.

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