THE EFFECT OF FINANCIAL LITERACY ON COGNITIVE BIAS AND EMOTIONAL BIAS IN INDIVIDUAL INVESTORS

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ABSTRAK
Setiap individu akan bertindak wajar dalam membuat keputusan keuangan mereka. Namun, karakteristik psikologis setiap individu juga akan mempengaruhi dalam pengambilan keputusan. Seringkali individu mengalami fenomena di mana mereka rentan terhadap kesalahan atau bias dalam mempersepsikan informasi terkait investasi. Literasi keuangan, bias kognitif, dan bias emosi merupakan aspek yang berarti terhadap perilaku investor dan keputusan investasi pada investor individu. Tujuan penelitian ini adalah untuk mengetahui apakah literasi keuangan berdampak pada bias kognitif dan bias emosional terkait investasi. Dari kuesioner yang dibagikan kepada 100 investor di Kota Bandung dengan pengolahan data menggunakan SPSS Statistic 21, ditemukan hasil bahwa literasi keuangan berpengaruh positif signifikan terhadap bias kognitif serta literasi keuangan juga berpengaruh positif signifikan terhadap bias emosi. Hasil penelitian ini juga menyatakan bahwa investor yang memiliki literasi keuangan yang tinggi, maka perilaku bias kognitif dan bias emosi pada investor tersebut akan semakin berkurang.

Kata Kunci: Bias Kognitif, Bias Emosi, Investor Individu, Literasi Keuangan

ABSTRACT
Each individual will act fairly in making their financial decisions. However, the psychological characteristics of each individual will also influence decision making. Often individuals experience phenomena where they are prone to errors or bias in perceiving investment-related information. Financial literacy, cognitive bias, and emotional bias are significant aspects of investor behavior and investment decisions for individual investors. The purpose of this study was to determine whether financial literacy has an impact on cognitive biases and emotional biases related to investment. From a questionnaire distributed to 100 investors in the city of Bandung with data processing using SPSS Statistics 21, it was found that financial literacy has a significant positive effect on cognitive bias and financial literacy also has a significant positive effect on emotional bias. The results of this study also state that investors who have high financial literacy, the behavior of cognitive biases and emotional biases in these investors will decrease.

Keywords : Cognitive Bias; Emotional Bias; Financial Literacy; Individual Investor

INTRODUCTION

Personal financial management can be done through investment activities, which involve allocating funds with the aim of gaining future profits. When someone plans to make an investment, financial knowledge and skills (financial literacy) are very necessary so that making investment decisions has definite goals (Rasuma Putri & Rahyuda, 2017). This financial literacy includes understanding and knowledge of financial concepts and their risks, as well as the skills, motivation and confidence to apply them in making decisions in various financial situations, leading to increased financial well-being of individuals and society (OECD, 2011). In making financial decisions, everyone needs to have a good understanding to avoid mistakes in financial planning and resolve financial problems that may arise (Pritazahara & Sriwidodo, 2015).

Individual investors play an important role in financial markets. However, in making investment decisions, investors can be influenced by cognitive biases and emotional biases. Cognitive bias refers to the human tendency to make errors in information processing and objective judgment, while emotional bias includes emotional reactions that can influence decision making (Özen & Ersoy, 2019).

One factor that can influence the cognitive biases and emotional biases of individual investors is their level of financial literacy. Financial literacy is each person's ability to have an understanding and use financial knowledge in managing personal finances and making financial decisions. The higher the financial literacy, investors tend to have better knowledge about financial products, investment risks and diversification strategies. Investors are also more capable of analyzing accurate information and making more rational investment decisions (Manurung, 2012). On the other hand, investors with a low level of financial literacy are very vulnerable to cognitive biases and emotional biases which can lead to suboptimal decision making (Andriani, 2021).

It is therefore important to identify the relationship between financial literacy and the cognitive biases and emotional biases of individual investors, as this can have significant implications for individual financial well-being and the stability of financial markets as a whole. In addition, systematic and comprehensive research on this relationship is still limited.

Increasing individual financial literacy is expected to have a positive effect on the rational decisions taken. Additionally, individual wealth, employment level, earning capacity, and sociodemographic factors may influence

an individual's financial experience. Financial experience is seen as one of the most important sources of financial information and financial literacy (Capuano & Ramsay, 2011).

By understanding the relationship of financial literacy to the cognitive biases and emotional biases of individual investors, stakeholders, including governments, financial institutions, and financial education providers, can develop strategies and programs aimed at increasing financial literacy and reducing bias in investment decision making. This research can also provide individual investors with important insights into the importance of financial literacy in effectively planning and managing their investments.

In particular, research assessing the level of financial literacy and examining its relationship with cognitive biases and emotional biases is still scarce. Therefore, in-depth research on the influence of financial literacy on the cognitive biases and emotional biases of individual investors is needed to expand understanding of the irrational factors that influence individual investment decision making and to identify steps that can be taken to increase financial literacy and reduce bias in making decisions. financial decisions.

The formulation of the problem discussed is: What is the picture of financial literacy, cognitive bias and emotional bias among individual investors in the city of Bandung?; how does financial literacy influence cognitive bias?; how does financial literacy influence emotional bias?; and how does financial literacy influence cognitive bias and emotional bias?

The purpose of this research is to analyze the influence of financial literacy on cognitive bias and emotional bias in individual investors. Increase knowledge about financial literacy, cognitive bias, and emotional bias. Also in order to provide motivation to readers and further research to find out the theory and apply it in the real world. It is a learning material for researchers and readers about the importance of financial literacy in cognitive biases and emotional biases in individual investors.

METHOD

This research uses a quantitative approach, which is a type of research that discusses social phenomena in detail by collecting numerical or quantitative data. The data was then analyzed using certain statistical methods (Sugiyono, 2017b). This research is explanatory, with the aim of explaining cause-and-effect relationships and reasons through hypothesis testing, as well as providing an understanding of the relationships between variables. By using this approach, this research aims to answer questions about what, how, and why this phenomenon occurs.

Research design refers to the planning and arrangement of elements that will be observed by researchers to obtain answers to questions that have been previously asked regarding the research topic. This design provides a comprehensive overview that includes the research program, problem selection, theory development, as well as formulating and operationalizing hypotheses. Next, these hypotheses are analyzed using the data that has been collected. (Sugiyono, 2017a).

Data Type

This research uses quantitative data which collects information in the form of numbers. This information is obtained through filling out a questionnaire by respondents, which contains questions or statements related to financial literacy, cognitive biases and emotional biases experienced in the past or recently. This data has an objective nature, so each individual can provide a different interpretation of it.

Data Collection Technique

The method used in this research to collect data is a survey. The approach used in data collection refers to the method used to obtain information from empirical phenomena. In this research, quantitative data collection techniques were used by implementing a survey using a questionnaire.

Data Analysis Technique

After the necessary data has been collected, the next step is to carry out data analysis. In this research, quantitative analysis methods were used to analyze the data that had been collected. The data analysis technique applied in this research is through the use of statistics. To assist in the data analysis process, this research uses SPSS Statistics 21 software.

Variables And Variable Measurement

Variables refer to attributes, traits, or aspects of individuals that have certain variations determined by researchers to study and draw conclusions. In this research, there are three variables that will be the object of research, namely: independent variables (exogenous variables/predictor variables) and two dependent variables (endogenous variables).

Independent variables (exogenous variables/predictor variables) are variables used to explain or influence other variables in this research, namely financial literacy. Meanwhile, the dependent variable (endogenous variable) in this research consists of two variables, namely cognitive bias and emotional bias (Kesumawati, 2017).

1. Financial Literacy

Financial literacy in financial management is one of the economic behaviors that people consciously or unconsciously carry out throughout their lives, which is related to knowledge about finance and the ability to apply it.

Financial literacy will have an impact on a person's financial activities, how people save, borrow, invest and manage finances (Hailwood, 2007). Financial literacy is a basic need for every individual in managing finances, staying away from financial problems, and making investments with the aim of achieving prosperity (Lusardi & Mitchell, 2007).

If everyone has knowledge about financial literacy, there will be long-term benefits that will be obtained, namely increasing the use of financial services or products and increasing literacy from less literate people who will turn into well literate (Financial Services Authority, 2013). This will also make everyone better at managing finances and create a good opportunity to have a prosperous life (Fadilah, 2021).

Each person has the freedom to choose and make decisions in their life based on their own will and desires. According to Chen and Volpe, the dimensions of financial literacy include personal financial knowledge, savings, loans, insurance and investment (Hidayat, 2020) (Chen & Volpe, 1998).

2. Behavioral Biases

Behavioral finance identifies and conducts studies of several symptoms or incidents of human psychological factors found in financial markets and individual investors. Behavioral finance is divided into macro financial behavior and micro financial behavior, namely: explaining the impact of financial behavior on the market and the impact of financial behavior on the behavior of investors who act rationally or who experience cognitive and emotional deviations in making financial decisions. Biased behavior is divided into two parts, namely Cognitive Bias and Emotional Bias (Pompian, 2006).

a. Cognitive Bias

Conventional financial theory says that people will make decisions based on existing information which is then analyzed carefully and then the best alternative is taken from several options. There are several methods that can be used to analyze, for example technical analysis which can see stock movement patterns from period to period, fundamental analysis which will reveal financial reports and other things. In reality, people do not utilize information optimally or have very limited data and analysis to be able to make decisions quickly. The existence of this behavior among investors is a disruption to the basic assumptions of market efficiency (Andriani, 2021).

Cognitive bias is a distortion in the process of understanding, processing and making decisions about data or reality. This bias consists of 14 biases, namely Overconfidence Bias, Representativeness Bias, Anchoring & Adjustment Bias, Cognitive Dissonance Bias, Availability Bias, Self Attribution Bias, Ambiguity Aversion Bias, Illusion of Control Bias, Conservatism Bias, Mental Accounting Bias, Confirmation Bias, Bias Hindsight, Recency Bias, and Framing Bias (Andriani, 2021).

b. Emotional Bias

Emotional bias is a condition experienced by a person because in his actions his decisions prioritize his impulses. Emotional bias is also another psychological aspect that can influence an investment decision. Excessive worry can affect everyone's views when faced with a decision, resulting in an overreact (Andriani, 2021).

Emotional bias is a distortion that occurs because people use emotions more and do not think about facts. This bias consists of six biases, namely Endowment Bias, Self Control Bias, Optimism Bias, Loss Aversion Bias, Regret Aversion Bias, and Status Quo Bias (Andriani, 2021).

RESULTS AND DISCUSSION

From the questionnaire distributed by the researcher, 100 respondents met the requirements and could be used for further data analysis in this research. From the questionnaire, the following data composition was obtained:

The data collected shows that of the 100 respondents collected, there are respondents aged 19-25 who dominate, namely 60 respondents or 60%, and there are 40 respondents aged 26-40 years or 40%. As for the gender category, it can be seen that women dominate with 63 respondents and only 37 men.

Meanwhile, according to their latest education, respondents were dominated by Strata-1 graduates with 71 people or 71%. Respondents with SMA/SMK/equivalent graduates were 24 people or 24%. A total of 5 people or 5% of respondents had a Bachelor's Degree level of education. And there were no respondents who had completed elementary/equivalent education, junior high school/equivalent level, or Strata-3 level.

Furthermore, the characteristics of the respondent can be seen from the type of work and how much they earn. Of the 100 respondents, 25 people or 25% were students, 37 people or 37% were private employees, 6 people or 6% were entrepreneurs, 17 people or 17% were civil servants, 5 people or 5% were TNI/Polri, 8 people or 8% are housewives, and 2 people or 2% have other jobs (freelancers).

If we look at their monthly income and pocket money, most respondents have an income of IDR 5,000,000 to IDR 5,000,000. IDR 7,500,000,- as many as 37 people or 37%. The second largest are those with income <Rp. 5,000,000,- as many as 26 people or 26%. 24 people or 24% have an income of IDR 7,500,000 to IDR 7,500,000. Rp. 10,000,000,-. A total of people or 9% have an income of IDR 10,000,000 to IDR 10,000,000. Rp. 15,000,000,- . And another 4 people or 4% have an income of >Rp. 15,000,000.

Then, when looking at the investment experience of respondents, many of them chose mutual funds as an investment option, as many as 30 people or 30% of respondents. Furthermore, 28 people or 28% chose gold investment, 21 people or 21% chose stock investment. Respondents who chose the type of property investment and deposits were 8 people or 8% each. And 5 people or 5% chose securities investment.

It is known that investors with experience <6 months are 4 respondents or 4%, 6-<12 months are 28%, 1-3 years are 49%, 3-5 years are 10%, and investors with experience of more than 5 years are 9 respondents or 9%.

In choosing which investments to undertake, each respondent has their own source of investment funds. A total of 83 people or 83% used their own money, 1 person or 1% used a loan, and 16 people or 16% used both to carry out their investments. The investment objectives also vary, some have short-term goals of 5%, long-term goals of 56%, and both of them are 39%.

Table 1. Descriptive Statistics

No.	Variable	Min	Maks	Mean	Std. Dev.
1	X (Financial Literacy)	42	95	84.19	8.435
2	Y1 (Cognitive Bias)	17	42	38.68	5.427
3	Y2 (Emotional Bias	6	18	15.28	2.511

Source: Data processed in June 2023

Table 1 shows that the number of samples used in this research was 100 respondents. The independent variable, namely financial literacy, has a minimum value of 42 and a maximum value of 95, with an average value of 84.19. Meanwhile, the dependent variables, namely cognitive bias and emotional bias, have minimum values of 17 and 6 respectively, with maximum values of 42 and 18. The average value of the cognitive bias variable is 38.68, while the average value of the bias variable emotion is 15.28.

Validity Test

In this research, a validity test was used to evaluate the validity of the questionnaire that had been distributed to respondents. Researchers used the Bivariate Pearson (Pearson Product Moment) method to measure the validity of the data by connecting the correlation between the score of each question item and the overall total score. The validity of the test is considered fulfilled if the calculated r value is greater than the r table value, which indicates that the question is considered valid. The validity test was carried out in this research using SPSS Statistics 21 software.

Of the 19 statements submitted to respondents, information can be obtained regarding the correlation coefficient of the financial literacy variable (X), where all question items for this variable are proven to be valid and can be used in further research. The results of the correlation coefficient calculation show that all question items have a calculated r-value that is greater than the r-table. This analysis indicates that the financial literacy data collected in this research is valid and can be used in further analysis.

In variable Y with 60 statements submitted, it can be concluded regarding the correlation coefficient of the cognitive bias (Y1) and emotional bias (Y2) variables, where all question items for these variables are proven to be valid and can be used in further research. The results of the correlation coefficient calculation show that all question items have a calculated r-value that is greater than the r-table. This analysis confirms that the cognitive bias and emotional bias data collected in this study are valid and can be used in further analysis.

Reliability Test

Reliability testing is carried out with the aim of evaluating the extent to which the measurement tool is reliable. In this analysis, a reliability test is carried out to ensure that the set of questions given to respondents meets the reliability criteria, where the Cronbach alpha value must be greater than 0.6 or at least 60%. This reliability testing was carried out using SPSS Statistics 21 software. The conclusion obtained was that the three variables in this study were reliable because the Cronbach alpha coefficient was greater than 0.6 and could be used in research.

Verification Data Analysis

Normality Testing

This normality test uses the Kolmogorov-Smirnov test which shows that the significance value of the research data normality test is 0.200. This value is greater than 0.05 which is denoted as 0.200 > 0.05 so that the research variable data can be stated to have a normal distribution of data. As well as in the pp plots graph and histogram the normality test shows the spread of data around the diagonal line and in the diagonal direction and the histogram graph gives a pattern deviating to the right. So from the regression it can be concluded that the population meets the assumption of a normal distribution.

Linearity Testing

From the results of the Linearity Test, it can be seen that the value of the Deviation from Linearity Sig., is 0.082. This value states more than 0.05 which can be denoted as 0.082 > 0.05. Therefore, it can be concluded that between the two variables, namely financial literacy (X), cognitive bias (Y1), and emotional bias (Y2), there is a linear relationship between individual investors.

Multiple Linear Regression Hypothesis Testing

F test

The F test in this research shows that the F value is 286.633 and the significance value is 0.000. The Fcount value is greater than Ftable which has a value of 3.876 and the significance value is less than 0.05. So it can be denoted 286.633 > 3.876 and 0.000 < 0.05. It can be concluded that H0 is rejected and H_a is accepted, which means that there is a significant influence between financial literacy (X) on cognitive bias (Y1) in individual investors. And data can be obtained that the Fcount value is 253.132 and the significance value is 0.000. The Fcount value is greater than Ftable which has a value of 3.876 and the significance value is less than 0.05. So it can be denoted 286.633 > 3.876 and 0.000 < 0.05. It can be concluded that H0 is rejected and H_a is accepted, which means that there is a significant influence between financial literacy (X) on emotional bias (Y2) in individual investors.

t test

The t test is a testing method used to determine the significance of regression coefficients. The purpose of this test is to compare the tcount value with the ttable value at a confidence level or significance level of 5 percent (0.05) (Djalal, 2002). The tcount value is obtained through calculations using SPSS software, while the ttable value can be found in the t table. The following is the conclusion of the test results carried out:

1. If the sig value is <0.05, or tcount > ttable then there is an influence of variable X on Y.
2. If the sig value is >0.05, or tcount <ttable then there is no influence of variable X on Y.

It was found that the Sig value. for the influence of financial literacy on cognitive bias is 0.000 < 0.05 and the t value is 5.743 > t table is 1.98397. Therefore, it can be concluded that H1 is accepted, which shows that there is an influence between financial literacy and cognitive bias. The same thing happens to the Sig value. for the influence of financial literacy on emotional bias, which is also 0.000 < 0.05, and the t value is 4.126 > t table is 1.98397. Thus, it can be concluded that H2 is accepted, which shows that there is an influence between financial literacy and emotional bias.

Discussion

The Effect of Financial Literacy on Cognitive Bias in Individual Investors

The first hypothesis in this research is that financial literacy has an impact on cognitive biases in individual investors. Cognitive bias in the context of this research refers to the tendency of investors to maintain confidence in old information without taking new information into account when making investment decisions. Investors who are influenced by cognitive biases tend not to pay attention to new information and believe more in information that already exists, which is believed by investors. As a result, investment decisions taken are based on investors' considerations regarding the confidence of previously existing information. From a theoretical perspective, the stronger the influence of cognitive bias, the more likely investors are to consider investment options based on confidence in initial information without paying attention to new information.

From the analysis above, it can be concluded that there is a positive relationship between financial literacy and stock investment decisions. These results show that the higher a person's level of financial literacy, the more rational they are in making stock investment decisions. This finding is in line with previous research by Rasuma Putri & Rahyuda (2017), which also concluded that the higher a person's financial literacy, the better they are at making stock investment decisions.

The findings of this research are in line with the findings of Novianggie & Asandimitra (2019), which indicate that financial literacy allows investors to easily obtain the necessary information about the shares of companies they are interested in and gives them the ability to analyze and choose investments effectively. Therefore, investors with a high level of financial literacy tend to have greater self-confidence and achieve future profits. This research is different from research by Budiarto & Susanti (2017), Pradhana (2018), and Putri & Isbanah (2019), which did not find a relationship between financial literacy and cognitive bias in investors.

The Effect of Financial Literacy on Emotional Bias in Individual Investors

The second hypothesis in this research states that financial literacy influences emotional bias in individual investors. Based on the analysis of the results, it was found that financial literacy has a positive influence on behavioral bias. This means that the higher the level of financial literacy of an investor, the lower the level of emotional bias they experience.

This finding is consistent with research conducted by Coşkun et al., (2016), which states that financial literacy can help investors make better financial decisions, while behavioral biases tend to lead to irrational decisions. This finding also supports the findings of Carpena et al., (2015), who found that the higher the level of financial literacy of an investor, the lower the level of emotional bias they experience. A high level of financial literacy can prevent investors from making less disciplined investment decisions. Therefore, efforts to increase investors' financial literacy through improving the education system can provide benefits in guiding investors in making more disciplined investment decisions. This finding is different from Baker's (2019) research, which did not find a relationship between financial literacy and emotional bias.

CONCLUSION

Conclusion

This research aims to investigate the relationship between investors' financial literacy level and the level of cognitive bias and emotional bias that can influence irrational behavior in financial decision making. Based on the research results that have been described, it can be concluded that financial literacy has a positive influence on cognitive bias and financial literacy also has a positive influence on emotional bias in individual investors. Therefore, it is important for individual investors to have a high level of education and a good understanding of financial literacy to prevent the emergence of cognitive biases and emotional biases that can influence their financial decisions.

Suggestion

For future research, it is recommended to determine more specifically and reveal the reasons why cognitive and emotional biases occur, so that research can focus on the depth of analysis rather than too broad a scope. This is a weakness of this research. Then, it is recommended to distribute questionnaires simultaneously so that all respondents are in the same condition. Apart from that, increasing the number of research samples can also support the smooth implementation of research.

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