

Analysis of the Influence of Behavioral Bias on Investment Decisions of Young Investors in Surabaya

Herman Saputro¹, Ira Wikartika^{2*}

Universitas Pembangunan Nasional "Veteran" Jawa Timur

Corresponding Author: Ira Wikartika irawikartika@yahoo.com

ARTICLE INFO

Keywords: Illusion of Control, Financial Literacy, Herding Bias, Investment Decision

Received : 14, August

Revised : 19, September

Accepted: 21, October

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ABSTRACT

The purpose of this study was to determine the effect of the illusion of control, financial literacy and herding bias on the investment decision making of young investors in Surabaya. The population in this study are capital market investors who are domiciled in Surabaya. The sampling technique used in this study was a purposive sampling technique with the results of sample calculations obtained by a total of 95 respondents. This study used quantitative method with data collection techniques using questionnaires which were distributed to respondents in the city of Surabaya which were then analyzed using SmartPLS 4. The results of this study indicate that there is a positive effect on financial literacy on investment decisions for young investors in Surabaya, while the illusion of control and herding bias variables have no effect on investment decisions on young investors in Surabaya.

INTRODUCTION

In today's modern era, investment is no longer a new thing for some people. Investment has turned into a necessity and even for some people, investment-related activities have become a job or main source of income. The main purpose of someone investing is to make a profit. Every investor will have different goals in making investment decisions, but in general, they have the same goal, namely getting the profit that the investor expects (Nadhifah & Anwar, 2021). Investment is an activity that has risks, meaning that investment activities do not always generate profits but can cause losses for investors (Anwar et al., 2023). Someone who invests certainly hopes that the capital that has been invested can provide income (return) and increase assets that can be enjoyed in the future.

The number of capital market investors in Indonesia has continued to increase in recent years. The increase in the number of SID (Single Investor Identification) in Indonesia means that currently more and more people in Indonesia are aware of the importance of investment and have begun to register themselves as new investors. At the end of the 2022 period, the total number of SIDs in Indonesia was 10,311,152, indicating an increase of 37.68% from the previous year. In addition, the SID for stock and securities investors also showed that there was an increase of 28.64% from the previous year, and at the end of the 2022 period the number was 4,439,933.

According to data from KSEI, it is known that at the end of the 2022 period more than half of the number of investors in Indonesia came from Java, which accounted for 69.05%, followed by other islands. Meanwhile, East Java Province is one of the major contributors to this number. Quoting from the East Java Office of Communication and Information, it is stated that, in the 2022 period, the number of capital market SIDs was recorded at 1,360,011 or grew 36.47% compared to the previous year. The number of SIDs is spread across a number of cities and regencies in East Java. One of the cities with the largest number of investors is Surabaya City. Surabaya City contributed 23.41% of the total number of SID shares in East Java province. Surabaya city experienced an increase of 40% from the previous year, and until the end of the 2022 period the number of SID shares in Surabaya city was 137,660. According to data quoted from the ksei.co.id page shows that, at the end of the 2022 period, more than half of the total number of investors are young investors who are less than or equal to 30 years of age, which accounts for 58.71% of the total number of investors. According to the Law of the Republic of Indonesia Number 40 of 2009 concerning Youth, Youth is an Indonesian citizen who enters an important period of growth and development aged 16 (sixteen) to 30 (thirty) years. From the data above, it can be said that the current capital market investors are dominated by the younger generation consisting of Generation Y (millennials) and Generation Z.

Many investors think that investing in the capital market will get big profits without thinking about the losses. This generally happens to novice investors such as young people or students who invest without thinking about the losses received in the future, they are more focused on how to get a large and fast return (Puspawati & Yohanda, 2022). Young investors also tend to be more

aggressive and also often make mistakes in making investment decisions. Biased behavior is found in many young investors because of their relatively young age, so they tend to have a high and uncontrolled level of emotion which can cause them to make investment decisions incorrectly. Making an investment decision is a difficult thing to do and a challenge for most investors. Investment decisions are a series of investor processes, both companies and individuals, taking or producing an investment decision based on resources (including capital) and information owned (Addinpujoartanto & Darmawan, 2020). Every investor makes investment decisions rationally when investing, but in practical scenarios when they make investment decisions it has been observed that they do not always make rational decisions, but rather psychological bias factors affect their decision choices (Yasmin & Ferdaous, 2023). In making investment decisions, irrational actions can occur due to the influence of the psychology that exists within a person. Actions taken by young investors are often not in line with financial theory, errors in making these decisions are largely influenced by internal investor factors, commonly known as behavioral bias (Wikartika et al., 2023).

Illusion of control is a behavioral bias where a person believes that he (as if) can control the surrounding environment even though in reality he cannot. People who have a high illusion of control bias will be bolder in making decisions and believe they will benefit. In making investment decisions, a person's level of understanding of how to manage finances can also affect the actions that will be taken. Financial literacy is the ability and knowledge of how to manage finances and how to apply them appropriately to help make the right decisions. Someone who has good financial literacy will be more confident in making decisions. Investment decision making is also influenced by other psychological conditions or factors, one of which is herding bias where a person tends to follow or imitate the actions of other investors. Herding bias refers to a situation where rational people begin to behave irrationally by imitating the judgment of others when making decisions (Pranyoto et al., 2020). An investor with herding bias behavior tends to imitate the actions taken by others rather than following his beliefs or the information he has.

Many young investors have lost money investing in the capital market. Young investors also tend to be more aggressive so that they often make quick decisions without more careful consideration. Failure in making investments is mostly influenced by internal investor factors better known as biased behavior. Biased behavior is mostly found in young investors because they tend to have a high and uncontrolled level of emotion which can result in them making inappropriate investment decisions. Based on the description above, this study aims to provide an overview of the influence of the Illusion of control, Financial literacy, and Herding bias variables on Investment Decisions that occur in young investors in the capital market who live in Surabaya City.

THEORETICAL REVIEW

Behavioral Finance Theory

Behavior finance is said to be financial science by including psychology and sociology in a fundamental science (Yuniningsih, 2020). Behavior finance is a science that combines economic theory with psychological and sociological theories in finance that are used in making a decision. Behavioral finance theory is a theory that explains the psychological influence on a person's decision to manage their assets. The theory explains that in determining a decision, a person will be influenced by psychological conditions or commonly referred to as behavioral bias. Investors base their choices in the stock market on their expertise and experience (Weixiang et al., 2022). Behavioral finance studies the actual behavior of humans and how they process financial information to make judgments based on that information, because of its great impact on their decisions, investors are starting to adjust behavioral finance to become more important. Behavioral finance can improve investment decisions and can reduce the frequency of adverse decision-making errors when applied to investments.

Behavioral Finance is a combination of behavioral and cognitive psychological theories with conventional economics and finance (Sharma, 2019). It is a subfield of behavioral economics, which proposes psychology-based theories to explain stock market anomalies, such as rising or falling stock prices. The theory focuses on how investors interpret and act on information to make informed investment decisions. It also finds that the market is not as efficient as thought or its assets as long as the model is inadequate. Behavioral finance theory explains that investors are not always rational in making a decision, or in other words, investors can also be irrational. Behavioral finance theory focuses on explaining the cause-and-effect relationship between decisions made by a person and their psychological condition. So every investment decision made by a person is the result of his thinking and also the influence of his psychological condition that makes him take the action or decision.

Investment Decision

Investment is an activity of placing a number of funds in one or more assets within a certain period of time in the hope of earning income or increasing the value of the investment in the next period of time (Hani et al., 2020). Investment decision is a policy of choosing one of the best alternatives from several existing alternatives in terms of investing in one or more assets in the hope of getting future profits (Harischandra et al., 2020). Investment decisions are a series of investor processes, both companies and individuals taking or producing an investment decision based on resources (including capital) and information owned (Addinpujoartanto & Darmawan, 2020). Investment decision is the activity of placing capital into a certain business that has the aim of obtaining additional income or profit (Vicky, 2021).

In behavioral finance theory explains that in making an investment decision a person does not fully act rationally, in other words investors can also act irrationally. Irrational attitudes can be interpreted as attitudes that are not based on logical thinking and are not in accordance with human reasoning. The

theory explains that the main factor that causes an investor to behave or act irrationally occurs due to the influence of his psychological condition. The psychological condition of an investor will affect the irrational attitudes and actions taken by an investor and manifest in behavioral bias. Behavioral bias is the tendency of investors to take a deviant attitude or action in the decision-making process.

Illusion of Control

Illusion of control is a psychological factor that makes someone believe they can influence an outcome when they clearly cannot (Karima & Sari, 2022). Illusion of control is a bias that makes a person seem to be able to control what they decide, but in reality they are not (Harischandra et al., 2020). Someone who has an illusion of control will assume everything can be done well by reducing or even eliminating the possibility of risks arising from what they do. Illusion of control is the tendency of people to believe that results can be controlled and influenced by them, but in reality this is not the case (Riaz & Iqbal, 2015). A person with a high level of illusion of control will be more confident in making and taking an action in investing (Zakaria & Megawati, 2022). A person with illusion of control has confidence that the investment made will get results or provide benefits as expected. This supports research conducted by (Harischandra et al., 2020) and (Cecilia & Ruslim, 2022) which shows the results that the illusion of control variable has a positive and significant effect on investment decisions. However, other studies conducted by (Karima & Sari, 2022) and (Vicky, 2021) state that illusion of control has no effect on investment decisions. Based on the description above, the following hypothesis is formulated:

H1: Illusion of control has a significant effect on Investment Decisions

Financial literacy

Financial is money or the knowledge of how to manage finances. Meanwhile, literacy is defined as the ability to read, write, understand and then follow up on problem information (Yuniningsih, 2020). So financial literacy can be interpreted as the ability to read, write and understand the science of financial management. Due to the increasing complexity of financial markets and the large number of financial products and services available to investors, financial literacy has become very important in making investment decisions (Mahmood et al., 2020). Financial literacy not only contributes to investment decision making but also helps control behavioral biases. Financial literacy is related to individual welfare in anticipating financial problems (Yundari & Artati, 2021). With a good level of financial knowledge and understanding, it can help in making the right decisions in financial management. So that the higher the financial literacy possessed by someone will have an impact on the more mature investment decisions taken. Knowledge and understanding of the financial basis owned by an investor makes investors feel confident in the investment plans they make in the future. This supports research conducted by (Ferennita et al., 2022) and (Putrie & Usman, 2022) which shows the results of financial literacy variables have a significant effect on investment decisions. However, research conducted

by (Wardani & Lutfi, 2017) and (Yundari & Artati, 2021) shows that financial literacy variables do not have a significant effect on investment decision making. Based on the description above, the following hypothesis is formulated:

H2: Financial literacy has a significant effect on Investment Decisions

Herding Bias

Herding is a behavior that tends to imitate the actions of others, which can make their decisions change at any time because they are influenced by other investors (Putri & Mulyani, 2022). Herding is defined as the tendency of investor activities to follow the actions of others, in terms of investment, herding behavior can be interpreted as how the opinions of certain investors about investment will become the basis for investors with each other (Evbayiro-Osagie & Chijuka, 2021). Herding behavior tends to increase during periods of uncertainty and high market volatility (Almansour et al., 2023). This increase in herding behavior increases the potential risks associated with investment, as investors are more likely to make decisions based on market sentiment rather than objective risk assessment. Herding behavior occurs because investors do not obtain information or the unavailability of accurate and clear information (Rona & Sinarwati, 2021). This causes investors to act following the behavior of other investors or some pre-formed consensus. Someone with high herding bias behavior will make someone not confident, feel hesitant or nervous about the decisions made. This supports the research conducted by (Putri & Mulyani, 2022) and (Rona & Sinarwati, 2021) showing the results of herding bias variables have a significant effect on investment decisions. However, research conducted by (Ayudiasuti, 2021) and (Vitmiasih et al., 2021) shows that the herding bias variable has no significant effect on investment decision making. Based on the description above, the following hypothesis is formulated:

H3: Herding bias has a significant effect on Investment Decisions

From the above explanation, the basic theoretical model can be arranged as follows:

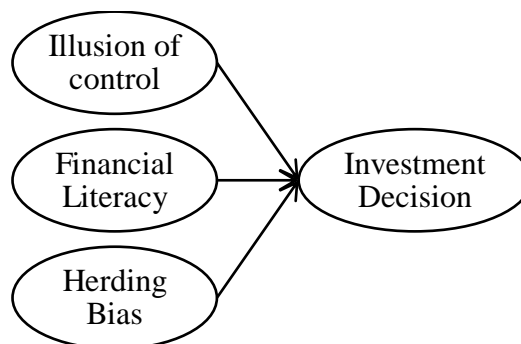


Figure 1. Conceptual Framework

METHODOLOGY

This study uses a quantitative method which is then processed by the PLS (Partial Least Square) method using the help of the SmartPLS 4 program. The questionnaire used uses the Likert scale method as a source of data acquisition in this study. The population in this study were stock investors who live in

Surabaya. The sampling technique used is purposive sampling technique with several predetermined criteria. The sample size was taken using the method from (Hair et al., 2014). The Hair formula is used because the population size is not certain and suggests that the sample size is 5-10 times the indicator variable. So that the number of indicators is 19 times 5 ($19 \times 5 = 95$). So through calculations based on this formula, the sample size of this study was 95 respondents. The type of data in this study uses two types of data, namely primary data and secondary data. Data collection in this study was carried out using library studies and also through questionnaires. The questionnaire was distributed in the form of a google form link to respondents which was done online. The questionnaire was then distributed through various social media such as WhatsApp, Instagram and Telegram through personal chat and investor groups or communities.

RESULTS

Demographic Description of Respondents

The data in this study were collected from various background characteristics of respondents who were then categorized according to gender, age, education level, occupation, monthly income, and investment experience. Based on each of these background characteristics, it was found that this study was dominated by men (52 people or 54.74%), came from the 21- 25 age group (81 people or 85.26%), had an undergraduate education level (61 people or 64.21%), came from the student group (72 people or 75.79%), earned between Rp.1,000,000 - Rp.3,000,000 per month (44 people or 46.32%), and had investment experience <1 year (59 people or 62.11%).

Outer Model Test

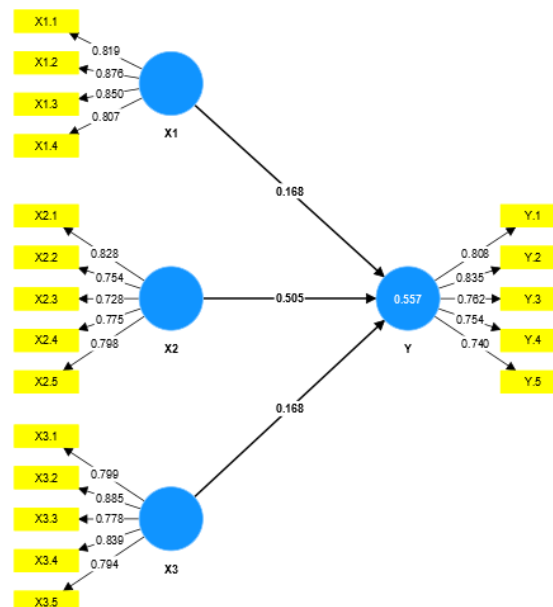


Figure 2. PLS Outer Model with Factor Loading, Path Coefficients and R-Square

Figure 2 above explains the magnitude of the factor loading value of each indicator. Through this figure, it can be seen that all indicators in this study

obtained a loading factor value above 0.5, which means that all indicators have good validity and are able to represent the measurement of each variable.

Table 1. Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Illusion of Control (X1)	0.703
<i>Financial literacy</i> (X2)	0.604
<i>Herding bias</i> (X3)	0.596
Investment Decision (Y)	0.610

Based on the table 1 above, it is known that the AVE test output for the Illusion of Control variable (X1) obtained a value of 0.703, the Financial literacy variable (X2) obtained a value of 0.604, the Herding bias variable (X3) obtained a value of 0.596, and the Investment Decision variable (Y) obtained a value of 0.610. These results indicate that all variables in the study have a score of more than 0.5, which means that all variables in this study have good validity.

Table 2. Composite Reliability

	Composite Reliability (rho_c)
Illusion of Control (X1)	0.904
<i>Financial literacy</i> (X2)	0.884
<i>Herding bias</i> (X3)	0.879
Investment Decision (Y)	0.886

Based on the table 2 above, it is known that the Construct Reliability (rho_c) test output for the Illusion of Control (X1) variable obtained a value of 0.904, the Financial literacy variable (X2) obtained a value of 0.884, the Herding bias variable (X3) obtained a value of 0.879, and the Investment Decision variable (Y) obtained a value of 0.810. These results indicate that all variables in the study have a score of more than 0.7 which means that all variables in this study have been considered reliable.

Inner Model Test

Table 3. R-Square

	R-Square	R-Square Adjusted
Illusion of Control (X1)		
<i>Financial literacy</i> (X2)		
<i>Herding bias</i> (X3)		
Keputusan Investasi (Y)	0.543	0.528

Based on the test results, it is known that the value of the R-Square (R²) of the Investment Decision variable is 0.543. This can mean that the model is able to explain the phenomenon/problem of Investment Decision by 54.30%. While the

rest (45.70%) is explained by other variables (other than illusion of control, financial literacy, herding bias) that have not entered the model and errors. This means that the Investment Decision is influenced by the illusion of control (X1), financial literacy (X2), herding bias (X3) variables by 54.30% while 45.70% is influenced by variables other than illusion of control (X1), financial literacy (X2), herding bias (X3).

Hypotesis Testing

Table 4. Path Coefficients (Mean, STDEV, T-Values, P- Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P- Values
Illusion of Control (X1) -> Investment Decision (Y)	0.194	0.197	0.128	1.516	0.129
<i>Financial literacy</i> (X2)-> Investment Decision (Y)	0.522	0.516	0.130	4.004	0.000
<i>Herding bias</i> (X3)-> Investment Decision (Y)	0.089	0.100	0.091	0.972	0.331

From the table above, it can be concluded that the hypothesis states:

1. Illusion of control (X1) has a positive effect on Investment Decisions is rejected, with a P-Value of 0.155 greater than the Z value $\alpha = 0.05$ (5%) and a T-statistic value of 1.424 smaller than 1.96, so it can be said that Illusion of control (X1) has no effect on Investment Decisions.
2. Financial literacy (X2) has a positive effect on Investment Decisions is accepted, the Original Sample value shows a positive number of 0.505 with a P-Value of 0.000 smaller than the Z value $\alpha = 0.05$ (5%) and a T-statistic value of 3.919 greater than 1.96, it can be said that Financial literacy (X2) has a Positive Effect on Investment Decisions.
3. Herding bias (X3) has a positive effect on investment decisions is rejected, with a P-Value of 0.086 greater than the Z value $\alpha = 0.05$ (5%) and a T-statistic value of 1.718 smaller than 1.96, it can be said that Herding bias (X3) has no effect on investment decisions.

DISCUSSION

The Effect of Illusion of Control on Investment Decisions

Based on the results of the research that has been conducted, the results show that illusion of control has no effect or is insignificant on investment decisions for young investors in Surabaya. An insignificant effect means that the illusion of control variable does not have a big impact on investment decisions made by respondents, and depends on the preferences of each investor.

The results of this study are not in line with behavioral finance theory which explains that in determining a decision a person will be influenced by psychological conditions or behavioral biases. This study shows that the illusion of control variable with the lowest percentage is the fourth indicator, controlling or influencing future results. This shows that respondents do not overestimate their abilities so that even though they have an illusion of control behavioral bias, they are still careful in making decisions. This supports research conducted by (Karima & Sari, 2022) which states that even though respondents have an illusion of control behavioral bias, respondents are more careful in choosing high-risk investments. According to (Vicky, 2021), there is no influence on the illusion of control variable on investment decisions, someone who has a high level of illusion of control does not necessarily have the results in accordance with what they imagine, this makes respondents remain careful in every decision to invest. Therefore, it can be concluded that illusion of control has no effect on the investment decisions of young investors in Surabaya.

The Effect of Financial Literacy on Investment Decisions

Based on the results of the research that has been conducted, the results show that financial literacy has a positive effect on investment decisions for young investors in Surabaya. This result shows that there is a positive direction of relationship, this means that the higher a person's level of financial literacy, the better and more investment decisions are made. Vice versa, the lower a person's level of financial literacy, the lower their investment decisions.

The results of this study are in line with behavioral finance theory which explains that investment decisions made by a person are the result of their thinking and also the influence of their psychological conditions. This study shows that the financial literacy variable with the highest percentage is the first indicator, basic financial knowledge. This shows that many of the respondents already have a basic understanding and knowledge of finance, basic knowledge of finance itself is the main thing that is important to be prepared or owned by every investor, good knowledge and understanding of finance will greatly assist an investor in making better decisions in his financial management. This is in line with research conducted by (Ferennita et al., 2022) which explains that in making investment decisions the level of knowledge of financial literacy is needed so that having financial knowledge will have a positive impact on investment decisions to be taken. The results of this study also show that the financial literacy variable with the lowest percentage is the fourth indicator, savings and investment. This shows that respondents do not always save their funds into savings or investments, this is because most of the respondents in this study are students where they do not have their own income, so of course it is more difficult for them to set aside the excess pocket money they have. It can be concluded that financial literacy affects the investment decisions of young investors in Surabaya. This is supported by research conducted by (Gunawan & Wiyanto, 2022) which states that financial literacy has a positive and significant effect on investment decision making. According to research conducted by (Putrie & Usman, 2022) which shows the results of financial literacy variables have a positive and significant effect on investment decisions.

The Effect of Herding Bias on Investment Decisions

Based on the results of the research that has been conducted, the results show that illusion of control has no effect or is insignificant on investment decisions in young investors in Surabaya. The insignificant effect means that the herding bias variable does not have a big impact on investment decisions made by respondents, and it depends on the preferences of each investor.

The results of this study are not in line with behavioral finance theory which explains that in determining a decision a person will be influenced by psychological conditions or behavioral biases. This study shows that the herding bias variable with the lowest percentage is the third indicator, advice from others. This shows that respondents have high self-confidence in the decisions they make, respondents also do not depend on the opinions or advice of others in determining a decision. This supports research conducted by (Vitmiasih et al., 2021) which states that the absence of influence in the study indicates that investors are more confident in the results of their own analysis rather than following decisions made by other investors. This is also in line with the research of (Pranyoto et al., 2020) which states that investors tend to receive information and analyze well to choose stocks. Investors tend to act rationally because they are not influenced by other investors and do not follow changes in the market. Therefore, it can be concluded that herding bias has no effect on the investment decisions of young investors in Surabaya.

CONCLUSIONS AND RECOMMENDATIONS

Based on the test results using the SEM PLS analysis tool to test the influence of several variables on investment decisions, the following conclusions can be made:

1. The results showed that illusion of control does not contribute to investment decisions in young investors in Surabaya. This means that respondents do not overestimate their abilities and remain cautious in making decisions.
2. The results showed that financial literacy contributes to investment decisions in young investors in Surabaya. This means that the higher a person's level of financial literacy, the better/good investment decisions are made and vice versa.
3. The results showed that herding bias does not contribute to investment decisions in young investors in Surabaya. This means that respondents do not depend on the opinions or advice of others and are also more confident in the investment decisions they make.

FURTHER STUDY

1. In this study, the number of samples used was not too large, so it is hoped that future researchers will be able to add the number of samples to the research conducted so that the results obtained are more accurate.
2. In this study there are also limitations on the number of dependent variables, so it is hoped that future researchers will be able to add or use different types of behavioral biases.

ACKNOWLEDGMENT

The author realizes that the preparation of this research can be completed thanks to the help, encouragement, guidance and prayer support of various people. therefore, the author expresses many thanks to all parties involved, especially to God, my parents, supervisors and friends.

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