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# THE INFLUENCE OF FINANCIAL LITERACY AND RISK PERCEPTION ON INVESTMENT DECISION IN INDONESIA: HOW OVERCONFIDENCE BIAS MAY MEDIATE THE RELATIONSHIPS?

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## Abstract

This study aims to explore the effect of financial literacy and risk perception on investment decision-making when overconfidence bias is present. To test the hypothesis, this study employs path analysis to determine the direct and indirect effect between the variables with data collected from Indonesian stock investors in Greater Jakarta Area. The result indicates that financial literacy has a significant effect on overconfidence bias and investment decisions. On the other hand, risk perception doesn't have a significant direct effect but has a significant indirect effect on investment decisions. In this study, overconfidence bias mediates the relationship between financial literacy and risk perception. The findings from this research can be used by the investment industry analyst as based on advising investors where most investors in Indonesia stock exchange are risk neutral as long given enough return especially young investors that only have been in the market less than 2 years. This research also contributes to academic literature related to behavioral finance.

**Keywords:** Indonesian Stock Exchange, Financial Behavior, Risk Perception, Overconfidence, Investment Decision

## Introduction

The stock market is one of the financial mechanisms that makes a major contribution to the expansion of the country's economy. On the capital market, a wide variety of financial products, such as stocks, bonds, warrants, rights, and mutual funds, can all be bought, sold, and otherwise transacted(Singh, 2012). Investing in stocks comes with a high level of risk but also a great potential return(Harris, 2020). This high level of risk is often attributable to the fact that the value of the stock can increase or decrease at any time, or that the value of the stock frequently varies (Pramiartini & Sedana, 2021). There were 6,431,444 investors in the Indonesian capital market in September 2021, even though the Covid-19 pandemic was going on at the time

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(3Q2021). This figure stood at 2,484,354 prior to the 2019 Covid-19 pandemic (Kustodian Sentral Efek Indonesia, 2022). The interest of investors drives up the volume of transactions and capitalization on the Indonesian capital market. Why, given that the majority of them are persons who, due to their age and educational background, are cash-strapped, is it that the majority of them are investing in the capital market, which is uncommon given that market data reveals that the majority of investors are uneducated. The majority of people in Indonesia gain their financial knowledge either later in life or via experience (Kustodian Sentral Efek Indonesia, 2022). People who have little to no money and no prior market experience are investing in high-risk instruments and assets, which goes against the current market oddity in which people with little to no money and no prior market experience are doing so. Lack of financial literacy should raise the entry barrier for retail investors. One of the rational reasons is that during this epidemic, there are numerous applications and brokers that are offering their services at a small cost, which makes it easier for customers to invest by decreasing the entry barrier (Noviyanti, 2021).

During the Covid-19 pandemic, many new investors lacked financial literacy, risk management, and money management (Susanti & Pratama, 2022). One piece of evidence is that they did not pick financially stable and fundamentally sound businesses(Nocera, 2013). Having a solid understanding of one's finances is essential to achieving either the financial success or the freedom from one's finances that so many people strive for. To get a better understanding of its effects, additional research is required(Lachowycz & Jones, 2013). The majority of retail investors overestimated their profits from the stock market, which led to significant losses for them. On the Indonesian stock market, well-known personalities (like musicians and public figures, for example) are endorsing stocks to the general public, which is a risky practice (Hema, 2021). Because of this, since 2020 Indonesian stock prices have moved quite more volatile than the previous year(Asnawi, Salim, & Malik, 2020). With the increase in investor number, the stock exchange has been flooded by low-educated investors causing changes in the stock market as a whole as some influential figures use their standing and influence to influence the stock market prices. This increases uncontrolled risk in the stock market and overconfidence among investors which can cause investing mistakes. This is why financial literacy can help with investing decisions and the government has tried to control this risk by closing broker names and having broker summary to be given by the end of the day, not during trading time.

With the increased interest in investment, the question of whether or not to invest has been unanswered for a long time. As a result, there is a demand for research that can describe factors that affect investment decisions. Previously, researchers looked at the relationship between social-demographic factors (Bhavani & Dutta, 2017; Danila et al., 2019; Saxena & Sheikh, 2019), financial literacy (Clark et al., 2017; Hamza & Arif, 2019), behavioral investors (Ahmad & Shah, 2020; Mittal, 2019; Raut, 2020), dan risk (Ademola et al., 2019; L. Nguyen et al., 2019; T. M. L. Nguyen, 2015) individually. This study examines the effects of financial literacy, risk profile, and overconfidence bias on investment decisions. This study modifies previous research on Indonesian investment decisions by examining overconfidence bias. The previous model didn't include overconfidence as a mediating variable. Overconfidence biases influence investment decisions, according to recent research. So, the authors of this working paper want to contribute to the model by creating a new model where overconfidence biases mediate the effect of financial literacy and risk perception on investor investment decision-making.

**Research Method**

In this study, we will investigate how a person's level of financial literacy, their perception of risk, and their level of overconfidence influence their investing decisions(Ahmad & Shah, 2020). The data collection instrument was a research questionnaire, and the respondents were chosen through convenience sampling procedures to offer information about the factors that influenced their decision to purchase equities on the Indonesian Stock Exchange (IDX). This research was conducted using a quantitative research approach, and the information was analyzed using statistical analysis software. The questionnaire was broken up into two parts: the first part focused on the demographic information of the respondents, while the second part focused on the factors that were being investigated. The subjects of this study were individual investors who are active participants in the stock market and reside in Jakarta or the greater Jakarta area. These investors participated in the stock market(Shatkin, 2022).

The process of picking an alternative investment instrument through the establishment of goals, the locating of information regarding various alternative investment vehicles, and the doing of analysis on that information is referred to as investment decision-making(Pompian, 2012). The frequency with which investors participate in activities related to investments can be used as a metric for analyzing investment choice characteristics. The degree of investment decision-making was measured with the use of five items on a Likert scale, where a score of one (Strongly Disagree) indicates a low level of investment decision-making and a score of five (Strongly Agree) shows a high level of investment decision-making as adopted from Hamza & Arif, (2019) and Raut, (2020). In order to evaluate a person's level of financial literacy, a battery of questions designed to test advanced financial knowledge is administered. These questions cover a wide range of financial topics, including the distinction between stocks and bonds, the function of the stock market, risk diversification strategies, and the relationship between bond prices and interest rates. The level of financial literacy was evaluated based on responses to five questions on a five-point Likert scale, with one point representing a low level of financial literacy and five points representing a high level of financial literacy derived from Raut, (2020) and van Rooij et al., (2011).

An individual's attitudes or thoughts about danger, even when the risk is unknown and may be in conflict with reality, are referred to as risk perception. This is a term that was coined by psychologists. The indicator that is used to analyze the variables that are associated with risk perception is whether or not the investment is appropriate and will perform well, whether or not subsequent investments are beneficial, and whether or not the investment creates outstanding benefits. The level of risk perception was evaluated using five different measures, with one (Strongly Disagree) representing a low level of danger and five (Strongly Agree) representing a high level of risk. Derived from Nur Aini & Lutfi, (2019). A person is said to have overconfidence if they have an excessive amount of confidence, are overly optimistic, and are certain of anything. An elevated sense of self-esteem reflects the realization that one's knowledge and capabilities are superior to those of other people. A more possessed attitude, competence in managing investment returns, and confidence in previous successes are the indicators that are used to define overconfidence. The level of overconfidence was measured with seven statements based on a Likert scale that ranged from one (Strongly Disagree) to five (Strongly Agree) (Strongly Agree), derived from Combrink & Lew, (2020) and Nur Aini & Lutfi, (2019). Here all the construct of variable given below.

## Result and Discussion

### Respondent Profile

Referring to Tabel 1, the demographic profile of respondents, gender was dominated by males (56.6%), age was dominated by between 20-29 years old (46.8%), marital status was dominated by married (55.3%), and education was dominated by bachelor’s degree (59.2%) with major of education in finance (48.9%). The occupation was dominated by full-time employer (52.8%) with the field of work in non-finance (50.6%) and income was dominated by between IDR 5 million to 9.99 million (31.5%) with allocation for investment between IDR 2 million to 3.99 million (26.8%).

**Table 1**
**Demographic Characteristics of Respondents Characteristic**

| Characteristic | Items | Number | Percentage |
|---|---|---|---|
| Gender | Male | 133 | 56.6% |
| | Female | 102 | 43.4% |
| Age | Below 20 | 26 | 11.1% |
| | 20-29 | 110 | 46.8% |
| | 30-39 | 79 | 33.6% |
| | 40-49 | 20 | 8.5% |
| Marital Status | Single | 105 | 44.7% |
| | Married | 130 | 55.3% |
| Education | High School Graduate | 56 | 23.8% |
| | Diploma | 12 | 5.1% |
| | Bachelor Degree | 139 | 59.2% |

| Characteristic | Items | Number | Percentage |
|---|---|---|---|
| | Master Degree | 28 | 11.9% |
| Education Major | Finance | 115 | 48.9% |
| | Non-Finance | 101 | 43% |
| | Other | 19 | 8.1% |
| Occupation | Student | 59 | 25.1% |
| | Part-Time | 11 | 4.7% |
| | Fulltime | 124 | 52.8% |
| | Entrepreneur | 36 | 15.3% |
| | Unemployed | 5 | 2.1% |
| Field of Work | Finance | 116 | 49.4% |
| | Non-Finance | 119 | 50.6% |
| Income | Less than IDR 5 million | 67 | 28.5% |
| | IDR 5 million - 9.99 millions | 74 | 31.5% |
| | IDR 10 million - 19.99 millions | 53 | 22.5% |
| | IDR 20 million - 29.99 millions | 18 | 7.7% |
| | More than or equal to IDR 30 million | 23 | 9.8% |
| Average allocation for investment | Less than IDR 1 million | 62 | 26.4% |
| | IDR 1 million - 1.99 millions | 33 | 14% |
| | IDR 2 million - 3.99 millions | 63 | 26.8% |
| | IDR 4 million - 5.99 millions | 43 | 18.3% |
| | IDR 6 million - 7.99 millions | 12 | 5.1% |
| | More than or equal to IDR 8millions | 22 | 9.4% |

**Multicollinearity between constructs (VIF)**

Multicollinearity test is used to test whether in the regression model there is a high or perfect correlation between independent variables. As mentioned in Table 4, there wasn't multicollinearity issue in this study because VIF values ranging from 1.179 to 1.615 lower than 5.0. According to Sarstedt et al., (2017), there was no multicollinearity when the VIF Values is below 5.0. Its indicates that there was low correlation between independent variables.

**The coefficient of determination (R-Square)**

In this study, the R-Square value from the SMART PLS output is 0.381, indicating that 38.1 percent of financial literacy and risk perception can explain changes in overconfidence bias, while the remaining 61,9 percent is explained by other variables The output also showing The R-Square value is 0.407, indicating that 40.7 percent of financial literacy, risk perception, and overconfidence bias can account for changes in investment decision factors, while the remaining 40.7 percent is accounted for by other variables. According to the R-Square values, the coefficient of determination in this investigation was moderate.

## Conclusion

This study found that overconfidence bias can be influenced directly based on financial literacy and risk perception. An investment decision can be influenced directly based on financial literacy risk perception, and overconfidence biases even though risk perception has no significant effect. As a mediating variable, overconfidence bias can mediate both financial literacy and risk perception. Especially the relationship between risk perception and investment decisions could be significant after passing overconfidence bias as the person who does the decision is risk neutral as in the research specifically on stock investment decisions. This result confirms researcher hypothesis that Indonesian investor are overconfidence on their financial knowledge and have high perception on risk making them less risk averse and mostly risk taker. Not only risk taker but most of them are risk neutral that as long there are return to be make, they will seek return. Where rational investor will seek return based on risk where is stated by Markowitz using the mean-variance model and Sharpe based on Capital Asset Pricing Model (CAPM) and Sharpe Ratio constituting the Modern Portfolio Theory (MPT).

Indonesian retail Investor doesn't behave by rational mean based on the theory(Sari, Kusnanto, & Aswindo, 2022). This breaks many underlying assumptions of the modern portfolio theory. But it is in line with the assumption of behavioral finance where investor is usually aren't rational where they are affected by the feeling and biases that they have(Sari et al., 2022). Overconfidence is one of many biases that investor have. There is link between high financial literacy boosting the individual investor overconfidence bias therefore boosting the stock market participation of the individual. As the individual that are going into the stock market are highly financial literate creating a cycle of highly overconfidence investor in the market(Weixiang, Qamruzzaman, Rui, & Kler, 2022). This finding was in line with the anomaly phenomena that happens in the Indonesian stock market as the pandemic happen. That the younger generation that needs money tends to use the stock market the same as a casino. That they feel overconfident in their ability to choose a stock that outperforms(Areiqat, Abu-Rumman, Al-Alani, & Alhorani, 2019). This indicates that this research proves that this activity is not sustainable in the long term. This show that there is a need for education on financial literacy so there is higher participation in the market but controlled by a better understanding of the risk perceived by the masses.

This phenomenon of overconfidence because of knowledge of financial literacy among young investors and new investors can be explained by using the Dunning-Kruger effect, which states that a person with low ability, capability, expertise, or experience concerning a particular kind of task or field of knowledge has a tendency to exaggerate their capabilities or level of expertise in that area. Young investors and new investors are more likely to be affected by this phenomenon. Some researchers include in their definition of the phenomenon the opposite effect, which occurs in high performers and is a tendency to underestimate their own skills. This tendency is to underestimate their own abilities. So, there are better investment decisions done by the public mass for their good. This can be done by applying financial education early on the education curriculum by the ministry of education in the early stage of education. Not only having education on financial literacy but the understanding of biases that can affect investment decision(Adil, Singh, & Ansari, 2022). So, by having financial literacy early in educational stages help to boost stock market participation and boost the economy. This is in-line with the government goals to increase stock market participation of the masses so they can help to boost the economy and also help the individual reach their financial goals. But the bias of investor hinders this where it is known by previous research that biases effect investment performance negatively. So it is better that financial literacy education is teach along biases in investment so to get rid the investment biases. This study has several limitations. First, the setting of this study was only in Greater Jakarta, so the respondent outside Greater Jakarta was not included in this study(Rosha, Suryaputri, Irawan, Arfines, & Triwinarto, 2021). Further research may consider increasing the scope in other provinces in Indonesia. Second, the mediating variable is only overconfidence bias while there were some behavioral biases such as anchoring, herding, and others. Further research may consider other behavioral biases as the mediating or mediating variable and expand the research setting into government bonds, mutual funds, deposits, and other investment instruments.

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