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THE INFLUENCE OF PERSONALITY TRAITS TO INVESTOR OVERCONFIDENCE BIAS

Florencia Irena[1], Agus Zainul Arifin[2*]

[1] Master of Management Study Program, Universitas Tarumanagara, Jakarta, Indonesia
Email: floirena21@gmail.com
[2] Master of Management Study Program, Universitas Tarumanagara, Jakarta, Indonesia*
Email: aguszarifin@gmail.com

*Corresponding Author

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ABSTRACT

A stock investor tends to be a risk taker because stock investment has quite high risks with the possibility of producing high returns as well. Investors who are risk takers have quite high overconfidence behavior. They tend to be overconfident when predicting investment results. Factors that have an important role in investor overconfidence bias are personality traits. This research aims to verify the influence of personality traits on investor overconfidence bias. The personality traits in this research consist of neuroticism, extraversion, openness, and conscientiousness. This research is based on the Bounded Rationality Theory. The sample used was 497 data. Data is distributed using an online questionnaire. The analysis was tested with Partial Least Squares - Structural Equation Modeling (PLS-SEM). The research results show that neuroticism and conscientiousness have a positive effect on investor overconfidence bias, extraversion has no effect on investor overconfidence bias, and openness has a negative effect on investor overconfidence bias.

Keywords: *Neuroticism, Extraversion, Openness, Conscientiousness, Investor Overconfidence Bias*

1. INTRODUCTION

The growth of the capital market in Indonesia over the past few years has been very rapid. Based on Indonesian capital market statistics as of August 2023 sourced from the website www.ksei.com, it can be seen that there was an increase in the number of capital market investors by 12.32% (YTD) compared to 2022. The increase in the number of capital market investors experienced a significant increase in 2021, namely 92.99% when compared to 2020. This increase in the number of stock market investors is one of the phenomena arising from the Covid 19 pandemic. During the Covid 19 pandemic, the government implemented a large-scale social restriction policy so that people have more free time that they can use to monitor stock price movements and have more budget allocations for investment. The Covid 19 pandemic has also increased public awareness to invest as early as possible to become a reserve fund for unexpected expenses. Even in 2022, the number of investors often increased by 37.68% when compared to 2021.

Along with the increasing number of investors in Indonesia, it is necessary to conduct research in terms of the behavior of an investor in making an investment decision. Rationality theory states that humans are rational when determining investment decisions. The rational thinking of an investor is a process of identifying needs or wants, searching for related information, analyzing and studying alternative solutions, then making decisions (Kumar & Goyal, 2016). However, there are other theorists (Kahneman & Tversky, 1979) who oppose the theory of rationality by stating that sometimes investors behave irrationally when making investment decisions. An example is when an investor buys a stock without thinking about the fundamental price of the stock, buys a stock bought by his friend, sells a stock for a quick profit, holds the stock longer

(Shah, Ahmad, & Mahmood, 2017). Sarwar & Afaf (2016) conducted research on the relationship between psychological and economic factors on investment decisions where the results of their research were that psychological factors had a more significant impact than economic factors.

According to Kahneman and Tversky (1979), a stock investor tends to be a risk taker because stock investment has a fairly high risk with the possibility of generating high returns as well. A risk taker generally has a fairly high overconfidence behavior, because they tend to be overconfident in their ability to predict investment returns or forecast market movements. They may want high returns and feel confident that they can beat the market or manage their portfolio better than most investors. This can be consistent with the concept of bounded rationality, which refers to the limitations of human rationality in decision-making.

According to Prosad et al (2015), bounded rationality is a theory developed by Herbert A. Simon, which recognizes that humans have limitations in information processing, time constraints, and limited mental capacity. In an investment context, this means that even though a person may have sufficient knowledge and information, they may still make irrational decisions due to overconfidence or lack of awareness of the actual risks.

When someone is overconfident in investing with the expectation of high returns, they may overlook the actual risks associated with stock investments. This is an example of how human behavior, which is not always rational, can affect investment decisions. As a result, despite their desire for high returns, their stock portfolio may have significant downside potential, and their returns could be lower than investment alternatives such as bonds, deposits, or mutual funds that have lower levels of risk.

According to Schaefer et al (2004), personality has a significant influence on investor overconfidence bias. Personality is at the core of making an investment decision and understanding how the nature of an investor can relate to investment decision making and the results of their investment (Fung & Durand, 2014). As based on The Big Five Personality, a person's personality consists of Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness (McAdams, 1992; McCrae & Costa, 2004). At present, research on the relationship between personality traits and investor financial behavior is more focused on research abroad. This also makes the author interested in further research on the influence of personality traits on the financial behavior of investors in Indonesia. According to research by Schaefer et al. (2004), extraversion, agreeableness, and conscientiousness have a significant influence on investor overconfidence bias (overconfidence) while openness does not have a significant influence on investor overconfidence bias (overconfidence). Jency's research (2017) concluded that extraversion, openness, agreeableness, and conscientiousness have a significant effect on investor overconfidence bias (overconfidence) while neuroticism has no significant effect on investor overconfidence bias (overconfidence). According to Yadav et al (2021), neuroticism, openness, agreeableness, and conscientiousness have a significant influence on investor overconfidence bias (overconfidence). Meanwhile, according to Baker et al (2021), agreeableness has a negative influence on investor overconfidence bias. Due to the differences in the results of previous studies, this is also what is of course interesting for the author to research further.

Through this research aims to verify the relationship between independent variables, namely neuroticism, extraversion, openness and conscientiousness, on the dependent variable, namely

investor overconfidence bias. Problem solving uses two theoretical approaches, namely, Behavioral Finance theory and Bounded Rationality theory. The subjects of this research are all stock investors in Indonesia who have SID (Single Investor Identification). The reason for choosing all stock investors in Indonesia is because previous studies have never been conducted on stock investors in Indonesia.

2. RESEARCH METHOD

The population used in this study are all stock investors in Indonesia who have SID (Single Investor Identification). The sample used in this study was 497 respondents. The method used in this sampling is non probability sampling, where this method does not provide equal opportunities or opportunities for each member of the population to be selected as a sample. The sampling technique used in this study is convenience sampling technique, where the researcher has determined the criteria of the most suitable population members to be used as research data.

The data used in this study is a questionnaire made in google docs software. This questionnaire was distributed through social media, namely Whatsapp, Instagram, Facebook, and Line. The questionnaire data collected online is documented directly on google drive in the form of excel software.

The dependent variable used in the study is Investor Overconfidence Bias. While the independent variables used in this study consist of neuroticism, extraversion, openness, and conscientiousness. Variable measurement uses a Likert scale where respondents are asked to provide opinions for each statement ranging from strongly disagree to strongly agree, with a score of 1 (strongly disagree) - 10 (strongly agree).

The validity test of the research instrument uses the PLS Algorithm tool in the SmartPLS software. The validity test in this study is convergent validity which consists of the Average Variance Extracted (AVE) test, the Loading Factors test, and the discriminant validity test which consists of the Fornell-Larcker Criterion test and the Cross Loadings test. Reliability testing in this study is in the form of Cronbach's Alpha and Composite Reliability. In this study, inner model analysis was also carried out, namely the Coefficient of Determination, Predictive Relevance or Cross-Validated Redundancy (Q^2), Path Coefficient, Goodness of Fit Index (GoF), and Effect Size (f^2). As for hypothesis testing using the T test.

3. RESULTS AND DISCUSSIONS

Table 1 shows that the AVE test results on all variables are more than 0.5, so the indicators used to measure these variables are valid (Hair et al., 2017).

Table 1. AVE Test Results

Variabel	*Average Variance Extracted* (AVE)
Conscientiousness	0.675
Extraversion	0.576
Investor Overconfidence Bias	0.840
Neuroticism	0.702
Openness	0.767

Then, Figure 1 shows that the loading factors test results for each indicator are more than 0.5, so that all indicators used can be said to be valid.

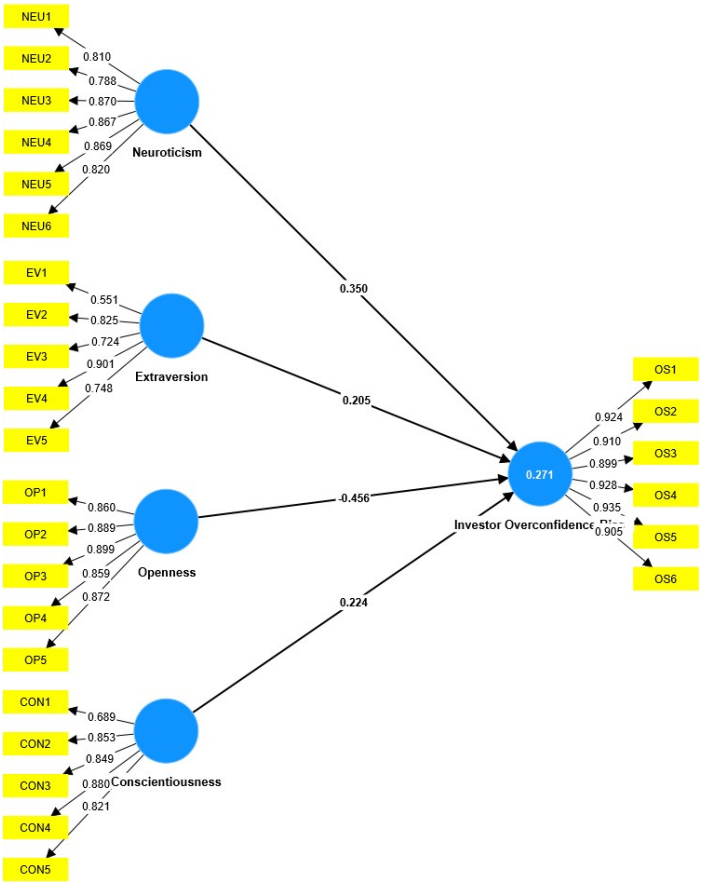

Figure 1. Loading Factors Test Results

Based on Table 2, the results of testing the Fornell-Larcker criteria show that the value of each construct is higher than the correlation value between constructs, so it can be stated that all indicators used in this study are valid (Hair et al. 2014). Based on Table 3, the results of the Cross Loadings test show that the loading value of each latent variable is more than the value of other latent variables, so it can be stated that all indicators used in this study are valid (Hair et al. 2014). The validity test value with HTMT is declared valid if it is less than equal to 0.9. Based on Table 4, the HTMT value of all relationships between the largest variables is 0.663 (the relationship between Extraversion <-> Conscientiousness). Thus, it can be concluded that all relationships between variables with validity tests with HTMT are valid.

Table 2. Fornell Larcker Test Results

	Conscientiousness	***Extraversion***	***Investor Overconfidence Bias***	***Neuroticism***	***Openness***
Conscientiousness	0.821				
Extraversion	0.585	0.759			
Investor Overconfidence Bias	0.118	0.067	0.917		
Neuroticism	-0.367	-0.401	0.195	0.838	
Openness	0.214	0.282	-0.357	-0.021	0.876

Table 3. Cross Loadings Test Results

	Conscientiousness	***Extraversion***	***Investor Overconfidence Bias***	***Neuroticism***	***Openness***
CON1	0.689	0.349	0.045	-0.241	0.082
CON2	0.853	0.441	0.123	-0.230	0.150
CON3	0.849	0.494	0.078	-0.288	0.207
CON4	0.880	0.597	0.100	-0.374	0.238
CON5	0.821	0.496	0.106	-0.373	0.178
EV1	0.353	0.551	0.011	-0.159	0.137
EV2	0.379	0.825	0.062	-0.270	0.190
EV3	0.464	0.724	0.011	-0.325	0.223
EV4	0.595	0.901	0.073	-0.400	0.280
EV5	0.472	0.748	0.018	-0.371	0.251
NEU1	-0.350	-0.350	0.135	0.810	-0.024
NEU2	-0.337	-0.402	0.146	0.788	-0.105
NEU3	-0.272	-0.269	0.207	0.870	0.038
NEU4	-0.307	-0.330	0.160	0.867	-0.003
NEU5	-0.325	-0.343	0.170	0.869	0.002
NEU6	-0.278	-0.360	0.144	0.820	-0.043
OP1	0.132	0.193	-0.297	0.042	0.860
OP2	0.202	0.295	-0.313	-0.027	0.889
OP3	0.223	0.275	-0.324	-0.038	0.899
OP4	0.147	0.186	-0.325	-0.018	0.859
OP5	0.233	0.285	-0.304	-0.048	0.872
OS1	0.171	0.142	0.924	0.115	-0.314
OS2	0.154	0.083	0.910	0.119	-0.349
OS3	0.031	-0.014	0.899	0.239	-0.372
OS4	0.144	0.115	0.928	0.170	-0.297
OS5	0.099	0.057	0.935	0.212	-0.316
OS6	0.046	-0.019	0.905	0.219	-0.316

Table 4. HTMT Test Results

	Conscientiousness	***Extraversion***	***Investor Overconfidence Bias***	***Neuroticism***
Conscientiousness				
Extraversion	0.663			
Investor Overconfidence Bias	0.124	0.109		
Neuroticism	0.413	0.451	0.204	
Openness	0.230	0.312	0.378	0.064

Research variables meet the reliability requirements if the Cronbach's Alpha and Composite Reliability values are more than 0.7. Based on Table 5, the lowest Cronbach's Alpha value is 0.844 (> 0.7). For the Composite Reliability test value with the lowest rho_a and rho_c is 0.869 (> 0.7). Thus, based on the reliability test results, all indicators are declared reliable.

Table 5. Cronbach's Alpha and Composite Reliability Test Results

	Cronbach's alpha	***Composite reliability (rho_a)***	***Composite reliability (rho_c)***
Conscientiousness	0.880	0.918	0.911
Extraversion	0.844	0.979	0.869
Investor Overconfidence Bias	0.962	0.963	0.969
Neuroticism	0.915	0.929	0.934

The R^2 value of the investor overconfidence bias variable is 0.271 or 27.1%, so 27.1% of the variable can be explained by the variables of neuroticism, extraversion, openness, and conscientiousness. The remaining 72.9% is explained by other variables not examined.

Based on Table 6, the GoF test result in this study is 0.2, which is included in the small category because it is between 0 and 0.25.

Table 6. Goodness of Fit Index (GoF) Test Results

	***Average Variance Extracted* (AVE)**	***R-Square***	**(AVE X R-Square)^.5**
Conscientiousness	0,675	0	0,20
Extraversion	0,576	0	
Investor Overconfidence Bias	0,84	0,271	
Neuroticism	0,702	0	
Openness	0,767	0	
Rata-Rata	0,712	0,054	

The criteria used to test the hypothesis are t-statistics and p-values, where the supported hypothesis is the hypothesis that has a t-statistics value of more than 1.96 (Murniati, 2013) and p-values lower than 0.05 (Garson, 2016). The results of testing the hypothesis of this study can be seen in Table 7.

Table 7. Hypothesis Testing Results

Hipotesis	***Variabel***	***Original sample (O)***	***T statistics (|O/STDEV|)***	***P values***	**Keterangan**
H1	***Neuroticism -> Investor Overconfidence Bias***	0.350	7.469	0.000	Positive
H2	***Extraversion -> Investor Overconfidence Bias***	0.205	1.876	0.061	Negative
H3	***Openness -> Investor Overconfidence Bias***	-0.456	10.019	0.000	Positive
H4	***Conscientiousness -> Investor Overconfidence Bias***	0.224	3.702	0.000	Positive

The formulation of the research hypothesis H1 is that there is a significant effect of neuroticism on investor overconfidence bias. Based on Table 7, the neuroticism variable has a positive influence on investor overconfidence bias because it has a path coefficient value of 0.350. Then, based on Table 7, the neuroticism variable on investor overconfidence bias has t-statistics of 7.469 which meets the minimum requirement of > 1.96, or p-values of 0.000 which meets the requirement of < 0.05, so H1 is supported. Thus, it can be concluded that there is a significant positive effect of neuroticism on investor overconfidence bias.

The formulation of research hypothesis H2 is that there is a significant effect of extraversion on investor overconfidence bias. Based on Table 7, the extraversion variable has a positive influence on investor overconfidence bias because it has a path coefficient value of 0.205. Then, based on Table 7, the extraversion variable on investor overconfidence bias has t-statistics of 1.876 which does not meet the minimum requirement of >1.96, or p-values of 0.061 which does not meet the requirement of <0.05, so H2 is not supported. Thus, it can be concluded that there is no effect of extraversion on investor overconfidence bias.

The formulation of research hypothesis H3 is that there is a significant effect of openness on investor overconfidence bias. Based on Table 7, the openness variable has a negative effect on

investor overconfidence bias because it has a path coefficient value of -0.456. Then, based on Table 7, the openness variable on investor overconfidence bias has t-statistics of 10.019 which meets the minimum requirement of >1.96, or p-values of 0.000 which meets the requirement of <0.05, so H3 is supported. Thus, it can be concluded that there is a significant negative effect of openness on investor overconfidence bias.

The formulation of the research hypothesis H4 is that there is a significant effect of conscientiousness on investor overconfidence bias. Based on Table 7, the conscientiousness variable has a positive influence on investor overconfidence bias because it has a path coefficient value of 0.224. Then, based on Table 7, the conscientiousness variable on investor overconfidence bias has t-statistics of 3.702 which meets the minimum requirement of> 1.96, or p-values of 0.000 which meets the requirement of <0.05, so H4 is supported. Thus, it can be concluded that there is a significant positive effect of conscientiousness on investor overconfidence bias.

The results showed that there is a positive influence between neuroticism on investor overconfidence bias. This means that the higher a person's anxiety, anxiety, and fear in investing, the more his overconfident behavior will increase. When an investor experiences a loss in investing, anxiety, anxiety and fear will increase. This encourages investors to act irrationally so that they become overconfident in investing. This neuroticism personality is dominated by the NEU5 indicator, where investors feel insecure when making investment decisions. The results of this study are not supported by any previous research.

The results showed that there is no influence between extraversion on investor overconfidence bias. This means that the higher or lower the optimistic, active and passionate attitude of investors in investing will not affect overconfident behavior. This extraversion personality is dominated by the EV1 indicator, where investors enjoy working with many people. The results of this study are not supported by any previous research.

The results showed that there is a negative influence between openness on investor overconfidence bias. This means that the higher the openness, curiosity, and love for new challenges of an investor in investing, the more his overconfident behavior will decrease. Individuals who have a high level of openness tend to have a higher sense of investment risk tolerance, so they can be more prudent in responding to stock market fluctuations. They become more understanding that they should stay away from overconfidence behavior in investing. This openness personality is dominated by the OP4 indicator, where investors have a scientific curiosity about how to invest. The results of this study are not supported by any previous research.

The results showed that there is a positive influence between conscientiousness on investor overconfidence bias. This means that the higher the level of awareness or confidence of an investor in conducting investment analysis, the higher the overconfident behavior he has. Individuals with a high level of conscientiousness tend to be thorough, careful and organized in investing. If they are accompanied by good investment analysis skills, then they can optimize the benefits obtained from investing. However, they tend to see themselves as better than other investors in analyzing investments, so they may act irrationally and become overconfident. This conscientiousness personality is dominated by the CON2 indicator, where investors are able to make stock investment decisions independently. The results of this study are supported by

research by Schaefer et al (2004), Jency (2017), Ahmad (2020), Yadav et al (2021), and Baker et al (2021).

4. CONCLUSIONS AND SUGGESTIONS

Based on the results of data analysis and discussion in the previous section, it can be concluded that:

1. There is a positive influence between neuroticism on investor overconfidence bias in stock investors in Indonesia.
2. There is no influence between extraversion on investor overconfidence bias in stock investors in Indonesia.
3. There is a negative influence between openness on investor overconfidence bias in stock investors in Indonesia.
4. There is a positive influence between conscientiousness on investor overconfidence bias in stock investors in Indonesia.

Based on the results of the research that has been conducted, the authors realize that there are still many limitations and errors in this study. However, this research is expected to make a useful contribution to individual investors and investment managers. Through this research, they come to know that there is an influence of personality traits (neuroticism, extraversion, openness and conscientiousness) on investor overconfidence bias. Thus, in making investment decisions, an investor needs to know his personality tendencies so that he can be wiser in investing and get the maximum profit from his investment returns. As for an investment manager, this research is useful for determining the right style of education and investment advice to its customers (investors). For academics and readers of this research, it is recommended to expand the research by considering other independent variables or mediating or moderating variables that affect investor overconfidence bias. This research is also expected to be one of the data sources and references for future researchers, where further research can be carried out using broader and more complete information.

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