THE RELATIONSHIP OF BIG 5 PERSONALITY TRAITS ON INVESTMENT DECISION

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Abstract

The Big Five personality traits, comprising openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism, represent a widely acknowledged framework in the realm of psychological research. These characteristics have shown to be especially important in studies on financial decision-making, especially when it comes to individual investing behavior. Within the framework of this research, which utilizes data from the Indonesian Family Life Survey (IFLS 5), a thorough examination is carried out to reveal the intricate influence of the Big Five personality traits on the investment behavior of households. This study uses probit regression techniques with STATA. The results of the probit regression show that openness to experience has a positive and significant effect while neuroticism has a negative and significant effect on household investment decisions.

Keywords: Investment Decision, Behavioral Finance, Big 5 Personality

Introduction

The history of investment behavior is closely linked to the complex and ever-changing process of making financial decisions. People's decisions are impacted by a multitude of elements when they navigate the complex world of investing, from sociodemographic traits and personal traits to market dynamics and economic conditions. Understanding why people decide to deploy their financial resources in particular ways by looking at the underlying psychological, social, and economic factors that influence these choices is the goal of the study of investment behavior. The goal of investors is usually to maximize returns, but this is not without risk and uncertainty, which is why studying investing behavior is an essential part of financial research.
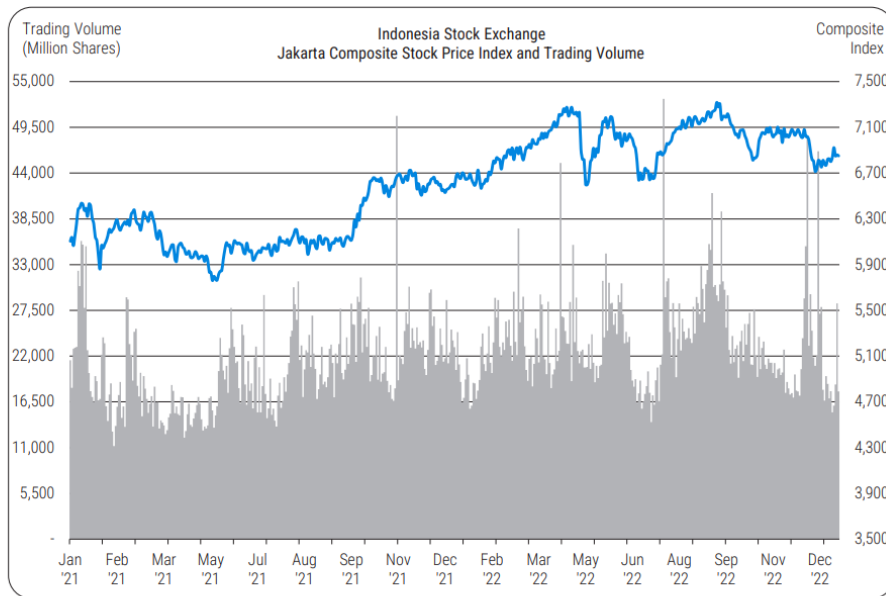
Figure 1. IHSG Movement 2021 - 2022
Source: Indonesia Stock Exchange

In 2022, Indonesia's capital market experienced substantial expansion, witnessing a 33.5% surge in the number of investors compared to the prior year. This notable growth is ascribed to the increased influx of foreign direct investment (FDI) into the market. On December 28, 2022, the IHSG level soared to 6,850.52, marking a significant increase from the previous year when it reached 7,318.016 on September 13, 2022. Various factors, including information, political events, news, rumors, and individual personalities, are identified as contributors to this upward trend. The decision-making process for investors involves considerations influenced by behavioral finance theory.

Behavioral Finance Theory is a branch of financial research that studies how psychological factors and human behavior affect financial decision-making. The theory assumes that people do not always act rationally in economic situations, but are influenced by prejudices, emotions, and social factors. Behavioral finance explains that there is a combination of affective and cognitive dimensions in human decision-making (Olsen & Cox, 2001).

Empirical studies have shown that factors such as personality, emotional, and social traits are more significant than stock prices and economic conditions (Shiller, 2002). In determining individual investment behavior and investment decision risk, psychographics play a significant role. It is important to understand that risk depends on several variables, most commonly an individual's personality. Each individual has a different personality and traits from each other and thus they have different financial goals. Investor's personality and rationality affect the way investors decide their financial goals so it is very important for financial planners to understand the characteristics of these investors (DeBondt et al., 2010).

Psychological conditions play a crucial role in understanding individual investment behavior and decision-making risk. Individual traits, such as personality traits

like Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, influence how investors allocate their resources. The Big Five Personality Traits, also known as OCEAN, is a theoretical framework used in psychology to understand human personality dimensions. This model has been used in various fields, including psychology, sociology, and organization, to comprehensively understand human personality traits.

According to research (Rajasekar et al., 2023) shows that personality traits (extraversion, emotional stability, conscientiousness, agreeableness, and openness to experience) are positively related to investment attitudes and investment strategies. The results of research by (Sarwar et al., 2020) also prove that openness to experience, extraversion, consciousness, agreeableness, and risk have a significant and positive effect on investors' goals for investing. Meanwhile, neuroticism hurts investors' investment goals.

Sociodemographic factors, among which education stands out prominently, play a pivotal role in shaping an individual's investment behavior. When it comes to investing, education has a crucial role in determining an individual's cognitive processes and ability to make decisions. Higher education levels are frequently associated with greater financial literacy, endowing people with a more profound comprehension of investment tools, risk mitigation techniques, and market dynamics.

A higher level of education not only improves one's understanding of financial topics but also gives one more self-assurance and expertise when negotiating the intricacies of the investing world. More educated people might be better at carrying out in-depth research, assessing investment options critically, and making decisions that are in line with their financial objectives. This is consistent with the study (Wibisono Lubis et al., 2022) which states that there is a positive relationship between education and borrowing behavior.

When making investment decisions, investors must address a variety of considerations, each of which plays an important role in shaping the outcome of their financial decisions. Among these considerations, individual personality and various sociodemographic factors stand out as important determinants. The focus of this research project is on understanding the complex interactions between these factors and investment behavior. The overall goal of this research is to uncover and analyze the myriad of factors that can influence an individual's investment behavior and decision-making process.

To achieve this goal, this study relies on secondary data utilizing the results of the Indonesian Family Life Survey (IFLS). By examining the rich information provided by this dataset, this study uncovers patterns, correlations, and nuanced insights that reveal the complex relationships between individual characteristics, sociodemographic factors, and investment decisions. Through this research, we aim to provide valuable insights into a broader understanding of the factors that influence investment decisions, with potential implications for both individual investors and the financial landscape as a whole.

From this theory, it can be hypothesized that:

H1: Openness to Experience has a positive and significant effect on Investment Decision
Individuals with high levels of openness to experience are more likely to engage with new ideas and information that can have a significant impact on their investment decisions. Individuals with openness to experience tend to conduct thorough research and analysis before making investment decisions. Whereas individuals with low openness to experience tend to be conservative and narrow-minded. An openness to experience score may indicate a greater willingness to experiment and try new things, which may encourage individuals to take risks (Pinjisakikool, 2018).

H2: Conscientiousness has a negative and significant effect on Investment Decisions.
Individuals who have high levels of conscientiousness tend to be more conservative investors. They tend to prefer to invest in stable and safe financial instruments such as bonds or low-risk mutual funds. This is reinforced by research (Brown & Taylor, 2014) which explains that Conscientiousness has a negative and significant effect on the probability of borrowing debt including Investment Decisions.

H3: Extraversion has a positive and significant effect on Investment Decision
Individuals who have a high level of extraversion tend to have high confidence in taking risks and facing challenges. They may be more likely to make bold investment decisions and are willing to take greater risks in search of higher returns. (Oehler et al., 2018) explains that individuals who have high extraversion can influence the tendency to buy or sell stocks compared to introverted individuals.

H4: Agreeableness has a positive and significant effect on Investment Decision
Individuals with high agreeableness prefer to invest in stable and safe instruments. They tend to be influenced by the opinions and advice of others. This may affect their investment behavior if they tend to follow instructions or recommendations from others without in-depth analysis or independent evaluation. According to (Goldfayn-Frank et al., 2022) low agreeableness has a significant influence on stock ownership.

H5: Neuroticism has a negative and significant effect on Investment Decision
People with high levels of neuroticism tend to be more insecure and prone to anxiety and worry. This may cause them to be risk-averse when investing. They may prefer to avoid investments that are considered risky in favor of safer investments. The relationship between neuroticism and investment decisions from some literature has different results. Neuroticism is associated with factors such as planning and self-control, which means that emotionally stable people are more likely to avoid impulsive and excessive purchases. (Cude et al., 2020) found a negative relationship between neuroticism and financial behavior.

Research Method

This study examines the influence of Big Five Personality based on (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) on Investment Decisions with Sociodemographic factors as control variables. This research model is formed with the modified results of previous studies that have related topics on the relationship between variables.
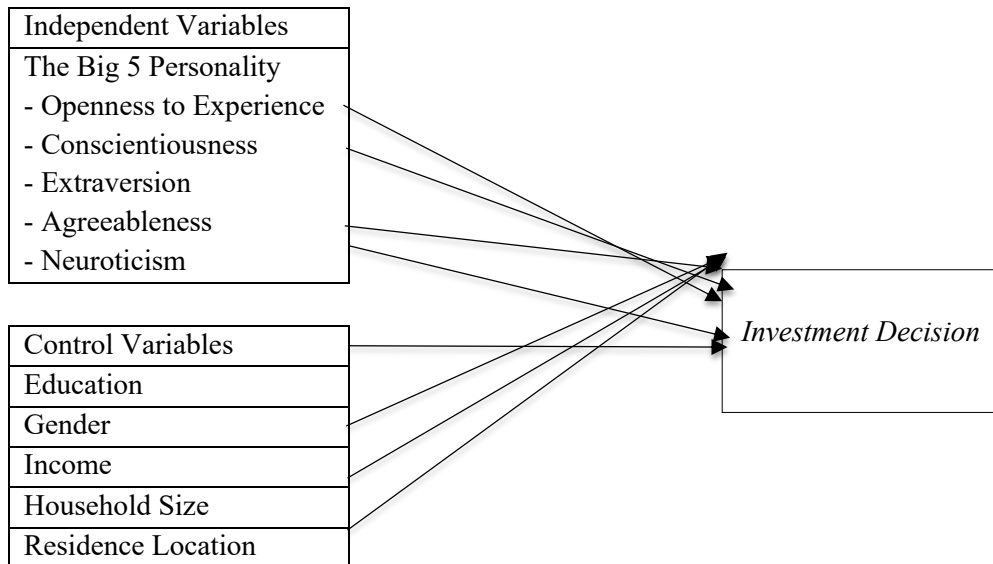

Figure 2. Research Framework
Source: The Author

The research employs the Household Investment Decision as the dependent variable, represented by a binary variable that signifies an individual's choice to either engage in investment or abstain from it. The independent variables encompass the Big 5 Personality traits, namely Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Additionally, sociodemographic factors like Education, Gender, Income, Household Size, and Residence Location are integrated as control variables in the study.

Table 1 Operational Variables

Variable	Explanation	Book & Variabel	Questionnaire
Investment Decision	Dummy Variable (=1 if choose to Invest)	HH, Book 2 (HR01G)	Do you or any other household member have stocks?
Openness to Experience,	1=Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree	HH, Book 3B, (Personality Section)	-I see myself as someone who appreciates the values of art and aesthetics. -I see myself as someone who can think independently without relying on old ideas.

Variable	Explanation	Book & Variabel	Questionnaire
Conscientiousness	1=Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree	HH, Book 3B, (Personality Section)	-I see myself as someone who has a dynamic imagination. -I see myself as someone who completes tasks thoroughly. -I see myself as someone who tends to be lazy. -I see myself as someone who does things efficiently.
Extraversion	1=Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree	HH, Book 3B, (Personality Section)	-I see myself as someone who talks a lot. -I see myself as someone quiet. -I see myself as someone friendly and sociable.
Agreeableness	1=Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree	HH, Book 3B, (Personality Section)	-I see myself as someone who is understanding and kind towards others. -I see myself as someone who is sometimes rude to others. -I see myself as someone forgiving.
Neuroticisms	1=Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree	HH, Book 3B, (Personality Section)	-I see myself as someone relaxed and able to handle stress well. -I see myself as someone who is easily nervous. -I see myself as someone who worries a lot.
Education	Years of Schooling	HH, Book 3A (DL06 & DL07)	What is the highest level of education that you have attended or are currently attending? & What is the highest level/class that you have completed at this school?
Gender	1: Male, 0: Female	HH Book 3A (COV 5)	What is your gender?
Income	1=lowest income group 2=middle-low income group 3=middle income group 4=middle-high income group 5=high income group	PCE	
Household Size	Total number of family members	HH Book K	

Variable	Explanation	Book & Variabel	Questionnaire
Residence Location	1: Live in Urban, 0: Live in Rural	HH Book K (SC05)	Region: (Urban/Rural)

Source: Author (2023)

The data used by researchers is secondary data. The secondary data for this study were obtained from the fifth wave of the Indonesia Family Life Survey. IFLS is a survey of household and community conditions in Indonesia that is multi-topic and large-scale. It is multi-topic because it covers a wide range of topics such as household expenditure, smoking habits, employment, and so on. The survey is large-scale as the sample represents 83% of the Indonesian population and was continued in 1997, 2000, 2007, 2014, and so on. This survey was conducted by the RAND Corporation with Survey Meter. The type of data for this research is cross-section data. Cross-sectional data according to (Sugiyono, 2018) is data collected from the same or different objects and instruments in unequal time intervals.

Probit Regression is utilized as the analytical method in this investigation. The application of the probit model is suitable when the dataset conforms to a normal distribution. As delineated by (Porter, 2018), the probit model is a qualitative econometric approach aligned with the cumulative distribution function (CDF), where the dependent variable assumes binary values of one and zero. Specifically, the model scrutinized in this study revolves around the probability associated with the decision to either invest or refrain from investing.

This study also shows The T-test, F-test, and R^2. The Wald test or z-stat, commonly called the t statistic in OLS regression, aims to determine the effect of the independent variable on the dependent variable and whether it has a significant effect or not. This test will show the influence of The Big 5 Personality variables (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) on Investment Decisions. The Likelihood Ratio (LR) test, commonly called the F test in OLS regression, is a test used to see the effect of the independent variable on the dependent variable simultaneously. The McFadden test or pseudo r-squared, also known as the coefficient of determination, can display the ability of variations in the independent variables to explain variations in the dependent variable.

Descriptive Analysis

Table 2 Descriptive Statistical Analysis Results

Variable	Observation	Mean	Stdev	Min	Max
Investment Behavior	12626	0,300	0,458	0	1
Openness to Experience	12626	0,021	1,504	-4,44	2,56
Conscientiousness	12626	0,008	1,460	-7,49	3,74
Extraversion	12626	-0,069	1,483	-7,44	2,87
Agreeableness	12626	-0,039	1,530	-8,76	4,09
Neuroticism	12626	-0,145	1,481	-6,09	3,85

Variable	Observation	Mean	Stdev	Min	Max
Education (Years of Schooling)	12626	9	5	0	16
Gender	12626	1,367	0,774	0	1
Income	12626	0,196	3,97	1	5
Household Size	12626	4	2	1	16
Residence Location	12626	0,594	0,491	0	1

Source: The Author

From the descriptive statistical analysis results above, the data to be observed are 12626 respondents. From the table it can be concluded that the average respondent is 43 years old, with an average education of 9 years, which means graduating from junior high school with an average number of family members in 1 household is 4 people.

Probit Regression Analysis

Table 3 Probit Regression Results

Variables	Investment Decision	Investment Decision (with control)
Openness to experience	0,047***	-0,0006
	(0,015)	(0,017)
Conscientiousness	0,020	0,005
	(0,017)	(0,018)
Extraversion	0,008	-0,004
	(0,017)	(0,186)
Agreeableness	0,010	-0,002
	(0,017)	(0,184)
Neuroticism	-0,040***	-0,011
	(0,015)	(0,017)
Education		0,061***
		(0,006)
Gender		-0,163**
		(0,087)
Income		0,102***
		(0,019)
Household Size		0,029**
		(0,016)
Residence Location		0,113***
		(0,051)

Source: The Author.

The probit regression results in the Table above reveal significant findings concerning the relationship between Big 5 Personality variables and investment decisions. Among the five personality traits examined, Openness to Experience and Neuroticism stand out as having noteworthy impacts. Specifically, the Openness to Experience variable demonstrates a positive and statistically significant relationship with investment decisions. This aligns with the study's hypothesis, which posited that Openness to Experience would exhibit a positive correlation with investment decisions.

This finding is consistent with research conducted by (Almås et al., 2020), emphasizing that individuals with high levels of Openness to Experience are inclined to engage in investment activities. Conversely, the Neuroticism variable exhibits a negative

and significant influence on investment decisions. This outcome supports the conclusions drawn by (Cude et al., 2020) who similarly identified a negative association between neuroticism and investment decisions. The negative relationship implies that individuals with higher levels of neuroticism tend to exhibit a more risk-averse approach or may experience heightened anxiety in financial decision-making, potentially impacting their investment choices.

The study reveals that various factors, including gender, education, income, land ownership, house ownership, household size, and residence location, significantly influence investment decisions. Gender male is negatively correlated with investment decisions, while education is positively correlated with investment decisions. Income is positively correlated with investment decisions, and assets like land and houses are positively correlated. Household size also increases investment probability, and urban areas are more likely to invest due to better education and access to qualified facilities. Overall, these factors play a crucial role in shaping investment decisions.

T Test, F Test, and R^2

The study found that Openness to Experience, Neuroticism, Education, Gender, Income, Household Size, and Residence Location have significant influences on investment decisions because the p-value of those variables is below 5%. These results reject the hypothesis that Openness to Experience, Neuroticism, Education, Gender, Income, Household Size, and Residence Location have a significant influence on investment decisions.

The result of p-value or prob> chi2 is 0.000 where the result is smaller than alpha (5%), so H0 is rejected. So the variables Openness to Experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism, Education, Gender, Income, Household Size, and Residence Location have a significant relationship simultaneously to Investment Decisions. The coefficient of determination reaches 0.0611 or 6.11%. So the variation of the variables Openness to Experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism, Education, Gender, Income, Household Size, and Residence Location can explain the variation of the investment decision variable by 6.11% and the rest is explained by other variables outside the model.

Conclusion

From The Big 5 Personality traits, Openness to Experience and Neuroticism affect investment decisions. Openness to experience has a positive relationship with investment decisions. This is by research from (Almås et al., 2020) which states that people with high Openness to experience tend to choose to invest. In addition, the Neuroticism variable has a negative and significant effect on investment decisions. This supports research by (Cude et al., 2020) which states that there is a negative relationship between neuroticism and investment decisions. Meanwhile, the variables Conscientiousness, Agreeableness, and Extraversion do not influence Investment Decisions.

Nevertheless, this study has several inherent limitations that can be addressed by further research. Although in this study it was concluded that the variables of Conscientiousness, Agreeableness, and Extraversion did not have a significant influence on investment decisions, further research can be done to understand the role and relationship of these three personality variables with investment decisions in more depth. There may be specific factors that can influence this result. In addition, some external factors, such as global economic conditions or geopolitical events, may have an influence on investment decisions but were not included in this study. Further studies could consider these external variables to get a more complete picture.

This study may have limitations in capturing changes in investment attitudes and behaviors over time. Longitudinal analysis or long-term research can provide better insight into how these factors evolve. Longitudinal studies would allow researchers to track the development of individuals or groups in their investment decisions over time. This will open up opportunities to identify trends, changes in attitudes, and responses to certain events that might influence investment choices. For example, how increased risk in global financial markets may modify investor behavior or how changes in domestic economic conditions may affect risk preferences and investment decisions.

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