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Do Personality Traits And Gender of Investors Determine Their Risk Tolerance? A Study on Investors of Indonesian

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Abstract

Research aims: To examine the influence of personality traits consisting of openness to experience, conscientiousness, extraversion, greeableness, neuriticism on financial risk tolerance of investors in Indonesia. In addition, this study also aims to examine the influence of gender on financial risk tolerance.

Design/Methodology/Approach: The pre-tested questionnaire was used to collect information from 434 respondents. With risk tolerance as the dependent variable with two categories, namely low and high, and five personality traits as independent variables tested by regression. for testing gender on risk tolerance using probit logistic regression.

Research findings: The results of research obtained from 434 investors in Indonesia who filled out an online questionnaire, showed that the higher an investor's openness to experience personality, the higher the investor's opportunity to be tolerant of risk, and the higher an investor's neuriticism personality, the lower the investor's opportunity to be tolerant of risk. This research also found that men proved to be more tolerant of risk than women.

Theoretical Contribution/Originality: This study is evidence that investors are also human beings who cannot be completely rational and need to be approached behaviorally and psychologically to enrich the results of research and theory development in the field of finance. In addition, this study also provides evidence that the level of risk tolerance between men and women is also different.

Practical/Policy/Social Implications: The results of this study can help wealth managers in determining risk parameters to formulating investment recommendations that are appropriate and they like based on each person's personality traits, and can help the IDX, the Government, and other related parties to continue to improve educational programs for the Indonesian people, especially for women, so that it can reduce the level of fear of the community in investing in the capital market.

Research Limitations/Implications:
This study has several limitations, namely this study only tests the direct influence of personality traits and gender on risk tolerance. because the number of male and female respondents obtained is very different so that researchers only test the influence of gender between men and women on risk tolerance. It is hoped that further research can examine gender by conducting a split sample to see the difference in the influence of personality traits between men and women on risk tolerance.

Keywords: *Openess to experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism, Gender, and risk Tolerance*

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INTRODUCTION

The capital market is an investment vehicle that has an important role in a country's economy. After being active for 47 years, the Indonesian capital market has shown several positive achievements that have contributed to economic growth. Throughout this year, the average daily transaction value (RNTH) reached IDR. 11.8 trillion. This data is followed by daily transaction volume at Rp. 17.9 billion shares and daily transaction frequency reached 1.1 million transactions. Based on a press release from PT Kustodian Sentral Efek Indonesia, the number of individual investors or Single Investor Identification (SID) in 2024 has reached 6,001,573 with a growth of more than 744,000 new stock investors (KSEI, 2024).

Based on the PT Kustodian Sentral Efek Indonesia press release above, the number of local investors has experienced a significant increase, but this increase is still very small when compared to the total population of Indonesia which is more than two hundred million people, or in other words. This indicates that investing in the capital market is not yet an option for many people in Indonesia. A survey conducted by PT Manulife also shows that investors in Indonesia have a higher interest in deposit investments at 27%, while shares only account for 1% and fixed income at 2%. The low interest of Indonesian investors in investing in the capital market is due to a lack of knowledge about capital market investment and the level of risk that investors value as high, so they prefer to invest in deposits that have a certain rate of return with a low level of risk (Manulife Investor Sentiment Index , 2017).

According to Grable (2000) risk and rate of return are things that are taken into consideration when making investment decisions, because there is a linear relationship between risk and rate of return. The level of risk that investors are willing to bear is influenced by each investor's risk tolerance. Each investor has a different risk tolerance depending on the behavior of the investor concerned (Hallahan, Faff, & Mckenzie, 2004). Risk tolerance is an individual characteristic, not a situation, so it can be determined from various factors such as individual personality traits, demographics and economics (Rabbani, Yao, & Wang, 2019). For an investor, understanding one's risk tolerance level helps determine the appropriate risk and return parameters of an investment portfolio so that the investor's investment plans and strategies are sustainable. Understanding the relationship between a person's personality and financial risk tolerance can provide some useful insights into a person's behavior in being willing to handle uncertainty in achieving goals (Wong & Carducci, 2013).

In the psychology literature, personality has been linked to risk tolerance (Zuckerman and Kuhlman, 2000). Since the 1980s, personality has often been operationalized using the Big-Five personality traits, also known as the Five-Factor Model. Of the many personality classifications proposed over the years by psychologists, the big five personality traits are one of the most general and most effective models in trait research because they are universal, that is, they show consistent patterns even when tested across cultures, languages, different

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places, times, conditions (Costa & McCrae, 1992). The big five personality traits consist of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism which were developed by Goldbreg (1971). (Bono & Judge, 2003) also added that the big five personality can be used to describe the most prominent aspects of personality because they cover all personality measurements. So the assessment of the five personality traits does not produce a single dominant trait, but shows which trait is the strongest within a person. So research on personality traits is important to research because each investor will show different behavioral patterns according to the strongest traits within each investor in dealing with investment uncertainty.

Research on personality traits and risk tolerance in recent decades has become increasingly interesting for professionals in the fields of finance and psychology. However, according to Baffour, Mohammed, & Rahaman (2019), research on personality traits in previous literature focused too much on developed country markets, but there is little literature on developing countries. Like research conducted by Wong & Carducci in 2013. This research surveyed undergraduate students at Midwestern universities and found a positive influence for extraversion and openness, a negative influence for agreeableness and conscientiousness, and no significant influence for neuroticism. And the latest research conducted by (Rabbani et al., 2019) this research examines the influence between financial risk tolerance and the big five personality traits in the baby boomer generation in the US. They argue that the influence of the big-five personality traits is consistent across the baby boomer generation. They found that baby boomers with high levels of extraversion, emotional stability, and openness to experience had a high risk tolerance. Meanwhile, high conscientiousness and agreeableness have low risk tolerance.

Research in developing countries, research conducted by Baffour et al. (2019); Kubilay and Bayrakdaroglu (2016); Pak and Mahmood (2015). Apart from that, in Indonesia research on personality traits was previously carried out by Utami and Kartini (2016) but this research focused on the relationship between demographics and personality traits and overconfidence, and the sample in this research was investors in Yogyakarta.

Apart from personality traits, there are other factors that influence a person's attitude towards risk tolerance, namely gender. According to (Twumasi Baffour et al., 2019) that in decision making under uncertainty there are differences between men and women, where women are more likely to avoid risks than men. Jain and Mandot (2012); Barber and Odean (2001) concluded that men are braver in taking high-risk investment products, because men tend to be overconfident than women and male investors are also more active in carrying out stock buying and selling transactions compared to women. Research on gender differences in risk tolerance is very important to do, because this has important implications for women. Variations in risk preferences between men and women may lead to differences in portfolio

allocation that result in wealth inequality (Yao, Sharpe, and Wang, 2011). In Indonesia, this gap is reflected in data released by KSEI as of 27 December 2019, which shows that the number of investors in the Indonesian capital market is still dominated by men at 59.41% and women at 40.59%. In terms of total assets, there is much difference between male and female investors, male investors have assets worth IDR 343.17 trillion, while female investors only control IDR 89.44 trillion in the capital market.

Therefore, this research was conducted to strengthen empirical evidence in Indonesia that personality can influence financial risk tolerance and also to examine the influence of gender factors to see differences in the level of financial risk tolerance of men and women.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Behavioral Finance

Traditional financial theory has governed things in the fields of finance and investment for many years. This theory is built on four main assumptions: (1) investors behave rationally and logically to maximize their wealth when investing, (2) markets are efficient, (3) investors build their portfolios based on the rules of mean-variance portfolio theory, and (4) the expected return function is risk, where risk is measured by beta (Statman, 2014). The basis of this traditional approach to finance is related to the Efficient Market Hypothesis (EMH), Capital Asset Pricing Model (CAPM), and Modern Portfolio Theory (MPT) theory (Ricciardi and Simon, 2000). According to the efficient market hypothesis, rational behavior makes investors value financial assets according to their net asset value. In contrast, Behavioral finance combines perceptions from the fields of psychology, sociology, finance, and economics to apply behavioral concepts in the study of portfolio investment, corporate finance and capital markets. Behavioral finance is an approach to financial management that identifies behavioral factors that can hinder the application of various existing concepts or theories such as the assumption of rationality (Asri, 2015). This marks a departure from the assumptions of rationality that underpin traditional financial theory, with a focus on studying the influence of psychological factors on financial markets and on the behavior of market participants, such as institutional and individual investors (Sewell, 2010).

Personality Traits

The trait theory approach is widely used by experts in understanding personality. Trait theory states that personality consists of broad characteristics, called traits, which tend to produce typical responses (Santrock, 2014). In other words, people can be described by basic ways of behaving, such as whether they are friendly or friendly or whether they are dominant and passive. Traits are grouped into five major ones known as the Big Five Personality Traits (Costa and Mccare, 1992). Big Five Personalities according to Costa and McCrae (1992) are

dimensions of individual differences in the tendency to show consistent patterns of thoughts, feelings, and actions. Bono & Judge (2003) also added that the Big Five Personality can be used to describe the most prominent aspects of personality because they cover all personality measurements. So the assessment of these five personality traits does not produce a single dominant trait, but shows which trait is the strongest in a person. According to Gosling, Rentfrow, and Swann (2003), the Big Five is a hierarchical model of personality that divides personality into five factors, 15 of which each factor explains personality clearly and very broadly. Big Five Personality has five very broad dimensions of traits and includes other traits, namely openness to experience, conscientiousness, extraversion, agreeableness, and neuriticism, or usually abbreviated as OCEAN (McCrae and John, 1992).

Personality Traits and Risk Tolerance

Investors' financial risk tolerance is closely described as a stable personality characteristic, in which each individual will tend to choose the same level of risk in various situations (Weber & Figner, 2015). Despite the importance of assessing financial risk tolerance, in practice the assessment process tends to be very difficult due to the subjective nature of risk taking (Grable, 2000). This is because it turns out that investor psychology is an important factor that can influence perceptions about the market or their behavior towards risk (Chang, 2008). According to Soane, Dewberry, and Narendran (2010), personality can influence attitudes towards risk taking in various areas of a person's life, including social and investment decisions. Research evidence has revealed that, under uncertain circumstances, personality traits 22 influence individual decision-making behavior (Back and Seaker 2004). These personality traits consist of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.

Openness To Experience (O)

Is a person who likes new things. This individual has an imaginative, creative and broad-minded nature. Personalities with these characteristics also reflect individuals who are idealistic, highly intellectual, clever, and like adventure (John, Robins, and Pervin, 2008), and tend to use emotions and fantasies in their decision-making approach (Joyce & L, 2013). Openness to experience and financial risk tolerance have a positive influence. This is because individuals who have a high openness personality will not hesitate to try new experiences, like new challenges because they like adventure. Such experiences require taking risks. They are attracted to experiences that contain a significant element of risk and worry less about the consequences of failure. The emphasis is not on judging whether it works or not, but on seeking sensation (Wong & Carducci, 2013). So if it is related to finance, investors who have a high openness personality like investments that have high risks and without worrying about the returns they receive. This is also supported by various literature in research on personality

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traits and financial risk tolerance (Dhiman & Raheja, 2018; Bashir, 2013; 23 Parameshwari and Krishnan 2015; Chavali and Mohanraj 2016). This is based on that Investors with high openness show a strong preference for new things and easily accept new market information and change their investment portfolio along with changes in the market situation. Apart from that, Kubilay & Bayrakdaroglu (2016) also prove that investors who have a high level of openness also like high risk.

H1: The higher the openness to experience, the higher the opportunity for investors to be tolerant of risk

Conscientiousness (C)

Is a person who reflects an individual who is stable and not easily influenced. Individuals with this personality are often described as diligent, disciplined and thorough in their decision making. Individuals with this trait tend to be more oriented towards rationality in determining their investments (Joyce & L, 2013). Characteristics related to conscientiousness tend to make investors who have high conscientiousness have a lower risk tolerance (Wong & Carducci, 2013). According to investors who have a high conscientiousness personality, higher risks can produce higher returns but also the possibility of experiencing higher losses which can cause bad consequences that an investor's conscience regrets (Wong & Carducci, 2013). Apart from that, conscientiousness consists of 24 aspects of competence, order, obedience, achievement, self-discipline, and full of prudence, which clearly contradicts the idea of deviance (Chauvin, Hermand, Mullet, 2007). In other words, the conscientiousness personality does not like failure. This is proven by research conducted by Kubilay & Bayrakdaroglu (2016) that people who have a high Conscientiousness trait have a low financial risk tolerance, this is related to doing what is 'right' or 'good' and being more alert in taking significant financial risks big.

H2: The higher the conscientiousness, the lower the opportunity for investors to be tolerant of risk

Extraversion Extraversion (E)

Is a person who is oriented to the external environment. Individuals with these characteristics are described as sociable, assertive and have a strong leadership spirit (John et al., 2008). Apart from that, according to Sadi, Rostami, Gholipour, and Gholipour, (2011) people who have extraversion describe someone who is friendly, sociable, warm and not bound by rationality or principles. Extraversion and financial risk tolerance have a positive influence. This is because people or investors who have a high extraversion personality tend to be enthusiastic, action-oriented individuals who have high group visibility and pursue great achievements, are more optimistic and have a positive attitude about life and 25 events so

that they can increase their self-confidence. high and underestimate possible risks (Lo, Repniz, and Steenbargery, 2005). In addition, they are more susceptible to being guided by others and, as a result, take more impulsive risks than introverts who are closed to others (Wong & Carducci, 2013). Kubilay & Bayrakdaroglu (2016); Raheja & Dhiman (2017) prove that high extraversion personalities have a high financial risk tolerance.

H3: The higher the extraversion, the higher the opportunity for investors to be tolerant of risk

Agreeableness (A)

Reflects an individual who is warm, gentle, friendly, and forgiving. This personality is often described as feminine and narcissistic (John et al., 2008). According to Chitra and Sreedevi (2011), agreeableness is usually skeptical, curious and always considers information more than extraversion. Agreeableness and financial risk tolerance have a negative influence. This is because investors who have a high agreeableness personality are more careful about the information they obtain and they make more calculative investment decisions (Chitra and Sreedevi 2011). Apart from that, investors who are very pleasant have more concerns about their image and they try to maintain their image by always being a pleasant person with other people and this is done so that other people can accept them. If it is related to finance, investors with a high agreeableness personality have a good image in investing, with a history of good investment success so they tend to maintain the image they have by avoiding investments that have low risk (Wong & Carducci, 2013). This is proven by Kubilay & Bayrakdaroglu (2016) that investors who have high agreeableness have low risk tolerance.

H4: The higher the agreeableness, the lower the opportunity for investors to be tolerant of risk

Neuroticism (N)

Reflecting on individuals with emotional instability is associated with high anxiety and high sensitivity (John et al., 2008). Individuals who are high in neuroticism tend to be prone to worry, fear, easily feel anxious, depressed and impulsive (Burger, Jerry M, 2006). Individuals with high neuroticism have a low level of financial tolerance. This is because these individuals or investors are unable to face stressful situations, they view risk as a danger that must be avoided (Rabbani, Yao, & Wang, 2019) and they tend to have a pessimistic view regarding success. (Joyce & L, 2013). According to Mayfield, Perdue, and Wooten, K. (2008), it is known that personality, especially neuroticism, tends to avoid short-term investments with high fluctuations, and this is in line 27 with research (Kubilay & Bayrakdaroglu, 2016) that neuroticism has an influence which is negative for risk tolerance.

H5: The higher the neuroticism, the lower the opportunity for investors to be tolerant of risk

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Gender and Financial Risk Tolerance

Financial risk tolerance shows a person's availability to make financial decisions in the event of uncertainty. Investors are divided into two, namely high risk (risk seekers) and low risk (risk averters). Men and women have different perceptions regarding risk. Gender differences in risk tolerance have important implications for women. Variations in risk preferences between men and women can lead to differences in portfolio allocation resulting in wealth inequality, women with lower levels of risk tolerance do not prepare adequately for retirement (Fisher & Yao, 2017) Financial advisors have also reported that women hold poorer portfolios. more conservative and generate lower returns (Wang, 1994). Conservative investing can lead to lower levels of wealth accumulation which contributes to the gender gap in wealth. A large body of research in behavioral finance has investigated gender differences in risk preferences. The research consistently reports that men are bolder in choosing high risks than women (Grable, 2000). Apart from that, research by Jain and Mandot 28 (2012); Barber and Odean (2001), the results of their research, concluded that men are braver in taking high-risk investment products, because men tend to be overconfident than women. Research results from Fisher & Yao (2017) also concluded that women tend to be more risk-averse than men, because women tend to lack confidence.

H6: Men have a higher chance of risk tolerance than women.

Based on the hypothesis that has been formed, the conceptual framework in this research is as follows:

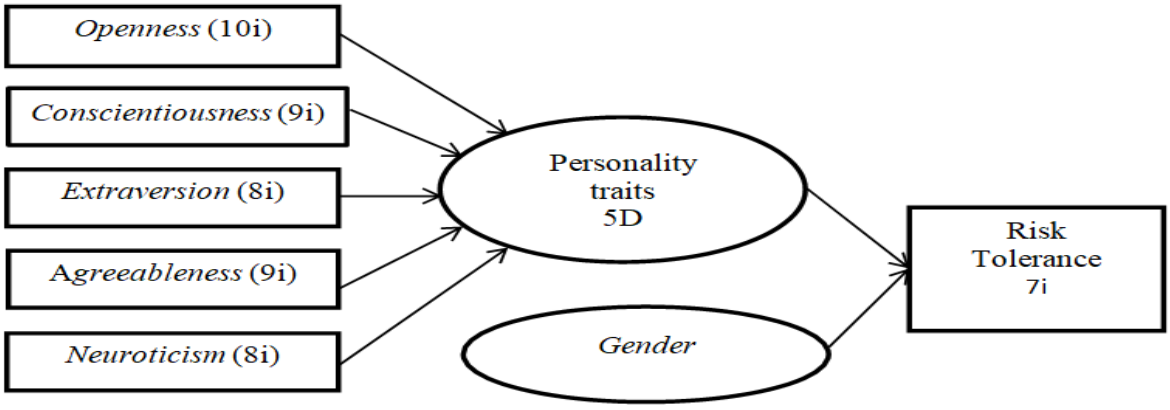

Figure 1.1 Conceptual Framework

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METHOD

Data and Data Sources

This research uses primary data. Primary data is data that refers to information obtained directly through distributing questionnaires to respondents and is related to the variables used in this research, namely, personality traits and financial risk tolerance.

The data source in this research is via the internet. Researchers distributed questionnaires online to respondents both those who were members of the investor chat group and respondents who were not members of the investor chat group. For respondents who were not members of the investor chat group, the questionnaire was distributed personally to respondents via short message.

Sample

In this research, the sampling technique uses a non-probability technique, namely a technique that does not provide the same chance or opportunity for each element or member of the population to be selected as a sample (Cooper & Schindler, 2014). This research uses individual analysis units, with a purposive sample collection method. Some of the reasons behind researchers using this technique are due to the unavailability of secondary data regarding personal attributes such as gender, age, investment experience, income, personality traits and risk tolerance which are needed in this research. Furthermore, data from investors is private so it is difficult to obtain it. This research takes samples from a variety of different individual backgrounds and of course can be reached by researchers, apart from that, the individuals sampled must also meet the following criteria:

1. Have a securities account with one of the securities in Indonesia
2. have investments in financial instruments in the capital market.

Instrument and Measurement

The instrument used in this study is an online self-administered questionnaire. The first section covers the socio-demographic variables of the respondents, while Sections 2-6 cover the main variables of this study. Details of the questionnaire are summarized as follows:

Openness To Experience

The measurement for this variable uses 10 indicators that have been used by John, O. P., & Srivastava, S., (1999). The scale used is Likert Likert 1-5: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Table 3.2 describes the measurements for the openness variable with 10 statement indicators used in this research.

Table 1 Indicators for Openness to Experience Variables.

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No.	Openness Variable Indicator
O1	I always have new ideas that come from my own thoughts.
O2	I am always curious about things that are different from my thoughts.
O3	I am a person who thinks deeply about things.
O4	I am a person who has a high imagination
O5	I am an innovative person.
O6	I have an interest in things that contain artistic value and beauty.
O7	I don't like jobs that have routines.
O8	I like to reflect to create new ideas.
O9	I have no interest in works of art.
O10	I am good at art, music or literature.

Conscientiousness

The measurement for this variable uses 9 indicators that have been used by John, O. P., & Srivastava, S., (1999). The scale used is Likert Likert 1-5: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Table 3.3 describes the measurement for the conscientiousness variable with 9 statement indicators used in this research.

Table 2 Conscientiousness Variable Indicators.

No.	Conscientiousness Variable Indicator
C1	I always do the work until it is finished.
C2	I am a careless person.
C3	I am a reliable person.
C4	I am a disorganized person when it comes to doing things.
C5	I am a person who tends not to be diligent.
C6	I am always diligent in working on something until it is finished.
C7	I tend to do everything efficiently.
C8	I do things according to the plan I made beforehand.
O9	I easily lose concentration when doing something.

Extraversion

The measurement for this variable uses 9 indicators that have been used by John, O. P., & Srivastava, S., (1999). The scale used is Likert Likert 1-5: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Table 3.4 describes the measurements for the extraversion variable with 8 statement indicators used in this research.

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Table 3 Extraversion Variable Indicators

No.	Extraversion Variable Indicator
E1	I enjoy chatting about many things with other people.
E2	I am a quiet person.
E3	I always do everything with passion.
E4	I can make the people around me as enthusiastic as I am.
E5	I am not a quiet person.
E6	I am a person who cares about other people.
E7	I am a person who has high self-confidence.
E8	I like to reflect to create new ideas.
E9	I'm easy to get along with.

Agreeableness

The measurement for this variable uses 9 indicators that have been used by John, O. P., & Srivastava, S., (1999). The scale used is Likert Likert 1-5: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Table 3.5 describes the measurements for the agreeableness variable with 9 statement indicators used in this research.

Tablel 4 Indikator Variabel Agreeableness

No.	Agreeableness Variable Indicator
A1	I am a person who does not like to find fault with other people.
A2	I like helping others and am not selfish.
A3	I like to avoid things that could trigger disputes.
A4	I am a person who easily forgives other people's mistakes.
A5	I am a trustworthy person.
A6	I have a warm personality in social situations.
A7	I am always caring and kind to almost everyone.
A8	I like to avoid being rude when interacting with others.
A9	I like working together with other people.

Neuriticism

The measurement for this variable uses 8 indicators that have been used by John, O. P., & Srivastava, S., (1999). The scale used is Likert Likert 1-5: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Table 3.6 describes the measurements for the neuriticism variable with 8 statement indicators used in this research.

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Table 5 Indicators of Neuriticism Variables

No.	Indicator variable neuriticism
N1	I get stressed easily when there are problems.
N2	I am a person who can control stress well.
N3	I easily feel tense under certain conditions.
N4	I worry about things easily.
N5	I have unstable emotions.
N6	I have an unstable nature or can change in a moment (moody).
N7	I am a person who is not calm in tense situations.
N8	I am a person who gets nervous easily when facing something.

Financial Risk Tolerance

Financial risk tolerance is a person's willingness to agree to make financial decisions in the event of maximum uncertainty (Prabhakaran and Karthika 2011). Table 3.6 presents the measurements for the financial risk tolerance variable with 7 statement indicators referring to research (Khan, Azeem, & Sarwar, 2017) and Erapo Pinjisakikool (2018). Measurement for this variable uses 3 indicators that have been used by (Khan et al., 2017) and 4 indicators that have been used by Erapo Pinjisakikool (2018). The scale used is Likert Likert 1-5: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Table 7 describes the measurements for the financial risk tolerance variable with 7 statement indicators used in this research.

Table 6 Financial Risk Tolerance Variable Indicators

No.	Variable indicator of financial risk tolerance
RT1	I am willing to accept the risk by investing in shares.
RT2	I don't like investing in shares where the price moves up/down quickly.
RT3	I think it is better to have safe investments with low but guaranteed returns, rather than taking risks to have a chance of getting high returns.
RT4	I always feel sorry when the price of the shares I have bought goes down.
RT5	I don't invest in shares, because I think it's too risky.
RT6	I am ready to risk losing money, when there is an opportunity to earn money.
RT7	If I want to improve my financial position then, I have to take financial risks.

Data Analysis Techniques

The data obtained is then processed into a series of information which is used as the final conclusion. Before testing the hypothesis, it is necessary to test instruments such as

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missing values, validity tests and reliability tests using Confirmatory Factor Analysis (CFA). The questionnaire used in this research comes from previous research which already has good validity and reliability values, however, validity and reliability testing must still be carried out because the research was conducted in different areas or places, with different times and different research objects. . Therefore, validity and reliability testing still needs to be carried out to ensure that the instruments used are truly valid and reliable even though they are used in different places, times and objects. Meanwhile, hypothesis testing in this research was carried out using the logistic regression method, using the STATA statistical tool.

Logistic Regression Analysis

Testing the influence of personality traits and gender on financial risk tolerance uses a logistic regression test. This is because the dependent variable is categorical, namely from the choice of high (risk seeker) and low (risk avers) risk tolerance levels. Therefore, the appropriate model for estimating a categorical dependent variable according to Wooldridge (2016) is to use probit or logit. Both methods are almost the same in providing estimated values in models whose dependent variables are categorical. The main difference between probit and logit lies in the distribution of variance. Probit follows a normal distribution, while logit follows a logistic distribution. There is no particular reason why it is better to follow which method is better (Gujarati, 2004) this depends on preferences and the context being studied. The researcher's decision to choose an analysis method using probit regression is because economists tend to prefer normal assumptions for error values, therefore in the field of econometrics the probit model is more popular than logit. Then, using the probit model is easier to analyze because it uses a normal distribution (Wooldridge, 2016).

Marginal Effects Regression

In probit regression coefficient results cannot be directly interpreted. This is because the regression results do not provide information regarding the direction and magnitude of the coefficient. So the direct interpretation of the coefficient is basically ambiguous (Greene and Hensher, 2009). To find out the magnitude of the influence of the independent variable on the dependent variable, we need to carry out marginal effects regression. The following is a general model used for Probit:

$$P(RT = 1|x) = \alpha_i + \beta_i\ openness\ to\ experience + \beta_i\ conscientiousness + \beta_i\ extraversion + \beta_i\ agreeableness + \beta_i\ neuriticism + \beta_i\ gender + \beta_i\ age + \beta_i\ income + \beta_i\ education + \beta_i\ experience$$

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RESULTS AND DISCUSSION

Outliers and Missing Value Analysis

The initial analysis carried out before testing the measurement model and structural model is to analyze outliers and missing values. Based on the results of the outliers test, there were 16 samples that had a z-score range outside -4 to 4, so these values were said to be outliers and had to be removed from the data. The next test result was that no missing values were found in the data, or in other words the missing values in this research data were 0% and were below the maximum missing value for the number of indicators per indicator, namely 5%.

Model Specifications

Estimation using logit and probit analysis models requires researchers to measure model fit. Hair et al (2014) stated that one of the model fit tests was using the Hosmer and Lemeshow test (H-L test) which aims to group based on probability values. This test is proportionally reduced in the absolute value of the log-likelihood which is measured by how much a bad model influences the estimated results of the predictor variable. A good R2L value is indicated by a Prob value < 0.05 so that it can be concluded that our model is fit or that there is no misspecification. A good R2L value is indicated by a Prob value > 0.05 so that it can be concluded that our model is fit or that there is no misspecification. The hypothesis formation for this test is as follows: H0: There is no difference between the observed value and the model predictive Ha: There is a difference between the observed value and the model prediction. The hypothesis H0 can be accepted if the test value is <0.05, which indicates that the research model is fit. Wooldridge (2014) also stated that apart from measuring the goodness of fit value, measuring model fit can also use the likelihood ratio test. The LR test is based on the same as the F test in the linear model. The LR test is based on the difference in the log likelihood function for unrestricted and restricted models. So, the idea of the LR test is because maximum likelihood estimation maximizes the 49 log likelihood function, then it will eliminate variables whose log likelihood values are smaller. The following is a summary of the model specification results:

Table 7 Model Specification Test

Indikator	**Nilai**
Goodness of Fit	**0,3413**
Pseudo R2	**0,1442**
Prob > chi2	**0,000**
Observasi	**434**

Note: The Hosmer and Lemeshow tests are interpreted through goodness of fit values. Meanwhile, pseudo R2 and Prob > chi2 values were obtained from probit regression results using the STATA application. The Prob > chi2 value displayed in the table is the likelihood value of variable x.

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The results of table 7 above are based on the Hosmer and Lemeshow test that the model in this study is fit or there is no model misspecification, because the goodness of fit value is 0.3413, which is greater than 0.05. Therefore, researchers fail to reject the null hypothesis which states there is no difference between the observed values and the model predictions. So, it can be concluded that the estimated model fits the data. The Pseudo R2 value is 0.1442, which means that the model is only able to explain 14.42% of investors' personality towards risk. Another test in testing the model specifications is by looking at the LR test value, namely Prob > chi2. The Prob > chi2 value is 0.000, which indicates that the independent variables together significantly influence the dependent variable, so the model can be said to be fit.

Measurement Model Analysis (Outer Model)

The measurement model in SEM describes the relationship between latent variables and the observed variables. Before testing the hypothesis, validity and reliability testing must be carried out. The test results will be explained in the sub-chapter below. 4.5.1 Construct Validity Test Analysis The validity test was carried out in two stages, namely convergent validity test and discriminant validity test. Hair et al., (2014) stated that the convergent validity test criteria are said to be valid if the indicator loading value is more than 0.7, however values below 0.7 (still between 0.41 to 0.69) must still be considered, whereas For indicators that have a loading of less than 0.4, the indicator must be deleted. Indicator deletion is permitted if it meets the requirements, namely first, the indicator being deleted is an indicator that comes from a reflective construct and the second condition is that deletion of this indicator is permitted if it can increase the AVE and composite reliability values (Hair et al., 2014).

Table 8 Validity Parameter Value

Indicator	***Average Variance Extracted* (AVE)**
Openess	**0.57**
Conscientiousness	**0.501**
Extraversion	**0.526**
Agreeableness	**0.537**
Neuroticism	**0.517**
Risk Tolerance	**0.507**

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Based on the table above, it can be seen that all constructs meet the requirements for convergent validity. After analyzing at the indicator level, discriminant validity analysis was then carried out. The following is the square root value of AVE for each indicator.

Table 9 Square Root of AVE

Indicator	Openess	Cons	Extra	Agree	Neuro	RiskTol
O	0.755					
C		0.708				
E			0.726			
A				0.733		
N					0.719	
RT						0.712

Table 9 presents the AVE square root values of all constructs and proves that the data used in this research meets discriminant validity. Consecutively, the loading values for constructs O, C, E, A, N, and RT are 0.755; 0.708; 0.726; 0.733; 0.719 and 0.712. As explained in the previous chapter, a construct has discriminant validity if the construct indicator has the highest loading value in its own construct group.

Reliability Test Analysis

As explained in the previous chapter, the generally used rule is that the value of Cronbach's alpha and composite reliability is ≥ 0.70. However, a number of other authors say that Cronbach's alpha ≥ 0.60 is still acceptable (Hair et al., 2014).

Table 10 Reliability Parameter Values

Indicator	*Cronbach'sAlpha*	*Composite Reliability*
O	0.748	**0.841**
C	0.747	**0.833**
E	0.773	**0.847**
A	0.709	**0.822**
N	0.843	**0.882**
RT	**0.672**	**0.803**

Table 10 shows the Cronbach's alpha and composite reliability values for all constructs. It can be seen that there is one construct that has a Cronbach's alpha value of less than 0.7, namely RT, but the composite reliability value for each construct is more than 0.7, therefore all zconstructs can be said to be reliable.

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Structural Model

The research method used in hypothesis testing is probit regression because the dependent variable in the testing model is a dummy (nominal) variable. However, there are differences in interpretation between coefficient values in ordinary regression and probit or logit regression. The coefficient shown in the probit regression results only shows the direction of influence of the independent variable on the dependent variable, so the coefficient value in probit cannot explain the probability of change between each unit in the independent variable. This is because probit regression has a nonlinear relationship, where the value is limited to only between 0 and 1 (Hair, 2014). So, the implementation of a coefficient value with a negative sign indicates that the influence of the independent variable (x) on the dependent variable (y) is negative, and vice versa if the coefficient value has a positive sign. Meanwhile, to interpret the magnitude of the influence between the independent variable and the dependent variable, researchers use the marginal effect value. The following is a summary of the probit regression results for testing the research hypothesis:

Table 11 Summary of Hypothesis Testing Results

Hypothesis	P-value	Marginal effect	Significant	Decision
H1: The higher the openness to experience, the higher the opportunity for investors to be tolerant of risk	0,095*	0,015	Significant	Supported
H2: The higher the conscientiousness, the lower the opportunity for investors to be tolerant of risk	0,009***	0,126	Significant	Not Supported
H3: The higher the extraversion, the higher the opportunity for investors to be tolerant of risk.	0,000***	-0,075	Significant	Not Supported
H4: The higher the agreeableness, the lower the opportunity for investors to be tolerant of risk	0.000***	0,228	Significant	Not Supported
H5: The higher the neuroticism, the lower the opportunity for investors to be tolerant of risk.	0.086*	-0,039	Significant	Supported

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H6: Men have a higher chance of risk tolerance than women.	0.000***	0,182	Significant	Supported

It can be seen in table 11 That of all the hypotheses tested based on the data collected, there were three hypotheses that were supported and three hypotheses that were not supported. Hypotheses that are not supported are H 2 H 3 and H4. The following is a discussion of both supported and unsupported hypotheses.

The results section summarizes the data collected for the study in the form of descriptive statistics and also reports the results of relevant inferential statistically analysis (e.g., hypothesis tests) conducted on the data. You need to report the results in sufficient detail so that the reader can see which statistical analyses were conducted and why, and to justify your conclusions. Mention all relevant results, including those that are at odds with the stated hypotheses (American Psychology Association 2001: 20).

There is no fixed recipe for presenting the findings of a study. We will, therefore, first consider general guidelines and then turn our attention to options for reporting descriptive statistics and the results of the hypothesis test.

Discussion and Conclusion

This research aims to examine the influence of personality traits on risk tolerance and examine the influence of gender on the risk tolerance of investors in Indonesia. The concept of personality traits consisting of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism is an interesting concept to be researched by both practitioners and academics in the field of finance. The research results obtained from 434 respondents who filled out the questionnaire boldly, 3 of the 6 hypotheses in this research were supported. The supported hypothesis is H1, namely the higher the openness to experience, the higher the opportunity for investors to be tolerant of risk. This finding supports the findings of Wong & Carducci (2013) who found the same thing, that investors who have a high openness to experience personality have a desire to try new investments that are challenging and have high risk and without worrying about the returns received. Hypothesis 5 is that the higher the neuroticism, the lower the opportunity for investors to be tolerant of risk. These findings prove that investors who have a high neuroticism personality have a low risk tolerance because they are prone to feeling worried, easily afraid, easily anxious, depressed and impulsive so they are unable to face stressful situations. The final hypothesis 6 is that men have a higher chance of risk tolerance than women. This finding supports the results of research from Fisher & Yao (2017) which states that women tend to be more risk averse than men, because women tend to be less confident.

Hypotheses that are not supported in this research are hypotheses 2, 3, and 4. Hypothesis 2 is that the higher the conscientiousness, the lower the opportunity for investors

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to be tolerant of risk. Hypothesis 3 is that the higher the extraversion, the higher the opportunity for investors to be tolerant of risk. And finally, hypothesis 4 is that the higher the agreeableness, the lower the opportunity for investors to be tolerant of risk.

LIMITATION

This study has several limitations. The first limitation is that this study only tests the direct influence of personality traits and gender on risk tolerance. Further research is expected to examine the indirect influence of personality traits on risk tolerance by adding mediating variables such as overconfidence. The second limitation is because the number of male and female respondents obtained is very different so that researchers only test the influence of gender between men and women on risk tolerance. It is hoped that further research can examine gender by conducting a split sample to see the differences in the influence of personality traits between men and women on risk tolerance.

Finally, this study uses a survey method in collecting research data. The survey method has weaknesses in internal validity so that researchers cannot control all factors that may affect the variables used. Further researchers are expected to use other methods such as experiments where internal validity is better maintained.

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