Big Five Personality Traits and Financial Literacy: Effect on Risk Tolerance of Filipino Investors from Higher Education Institutions in Metro Manila

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ABSTRACT

The topic financial risk tolerance has been extensively studied globally. Risk tolerance is the risk that an investor is willing to take or the level of uncertainty that an investor may face. In recent years, factors having influence on risk tolerance of investors is an issue which many financial researchers would like to tackle. This study investigated the influence of the Big Five Personality Traits and financial literacy on risk tolerance. A sample of Filipino investors, comprising of 320 students and faculty members from higher education institutions in Metro Manila, were surveyed via Google forms employing a four-point Likert scale to determine their risk tolerance, Big Five Personality Traits, and financial literacy. Using multiple regression analysis, it was established that the Big Five Personality Traits (Extraversion, Openness to Experience, and Neuroticism), as well as financial literacy, influence the risk tolerance of the respondents. This study may contribute to the literature, specifically on behavioral finance.

Keywords: Risk Tolerance, Financial Literacy, Big Five Personality Traits.

1. INTRODUCTION

An investor would certainly consider different factors before putting his money into an investment. One factor to be considered is the risk that comes with the investment. Whether you are a risk taker or a cautious investor, risk is one thing that you cannot avoid in accordance with the principle of risk return trade-off, where the level of return desired would increase as the level of risk increases and vice versa. In this context, the risk tolerance of an investor plays an important role in his investment decisions.

There are various definitions of risk tolerance in the literature. The maximum uncertainty that an investor is prepared to take before a financial decision is identified as risk tolerance by Bayar et al. (2020). As Heramansson and Jonsson (2021) defined risk tolerance, it is the maximum return that an individual is prepared to receive in making a financial decision. It also means how a person acts and responds if faced with risks in his/her investment (Ainia

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and Lutfi, 2019). For Ali et al. (2021), the maximum uncertainty that an individual gets when making investments is called risk tolerance. Throughout the years, several studies have been carried out to identify factors affecting risk tolerance due to its impact on making investment decisions (Bayar et al., 2020).

There have been variations in the definition of financial literacy despite the call of researchers like Schuchardt's et al. (2009) for consistency. According to Kimiyaghalam and Safari (2015), financial literacy's conceptual definition is proved to be complicated because of the disagreement of financial experts as well as scholars on how they would define the concept. This resulted to the division into four categories of the financial literacy definition, namely: financial concepts knowledge, personal finance management ability, financial decision-making skill, and financial planning confidence (Remund, D. L, 2010 as cited by tKimiyaghalam & Safari, 2015). It is but a component of financial capability, which also includes attitudes and behavior aside from financial knowledge or literacy (Mandigma, 2022).

However, the article reviews are concentrated on the definition of financial literacy by financial concepts knowledge and personal finance management ability to contribute more on the study. Financial literacy is defined as a financial knowledge. This indicates that those who have the knowledge were likely to take part in financial practices (Hilgert, Hogarth & Beverley, 2003 as cited by Kimiyaghalam & Safari, 2015). While financial literacy is also defined by the ability of an individual to perform tasks relating to money that includes but not limited to protecting, earning as well as spending money (Remund, 2010 as cited by Kimiyaghalam & Safari, 2015).

With regard to this, financial literacy has become an interesting issue in both developed and developing countries. Similarly, financial literacy has become increasingly important to nations around the world. This is because most studies reveal that the level of financial literacy remains low (Dewi & Barlian, 2020). If financial literacy is low, economic health will also be poor, thus affecting not only individuals but also the reputation of a country as they can't provide enough aid and support to their people. Developed nations such as New Zealand, Sweden, Italy, Germany, Japan, and the Netherlands, also encounter this type of problem. Despite their well- developed financial markets, they still face the same challenges as developing nations such as Malaysia (Zakaria et al., 2017). Deficient financial knowledge could lead to poor financial decisions in the complicated financial markets, that are damaging to both the individuals and the society as a whole (Kanagasabai & Aggarwal, 2020). Furthermore, financial literacy is a crucial skill for investors. It is a requirement for everyone to be able to confidently invest and manage their money, so all investors must be equipped with financial literacy (Awais, Laber, Rasheed, & Khursheed, 2016).

Personality is defined as how an individual interacts, reacts, and behaves with others and is often displayed through measurable traits (Crysel, Crosier, & Webster, 2013 as cited by Sadiq & Khan, 2019). According to Deniz and Satici (2017), researchers and psychologists have built a consensus on five basic dimensions of personality and produced a widely recognized personality structure, which may be defined by a hierarchical system based on the assumption that there are five primary and universal components of personality. There are five main divisions of personality traits, namely: Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (Peterson, 2012) as cited by Kubilay and Bayrakdaroglu (2016). The Five Factor Personality Model is one of the most successful and accepted models in research about traits. The model argues that each personality trait is a spectrum and that each individual possess all these characteristics in varying degrees. Therefore, individuals are ranked on a scale between two extreme ends in order to assess their level of a specific attribute. Moreover, the model considers the interaction of people with the world according to their personality traits by showing these persons' conducts.

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An investor's willingness to take risk may be affected by some factors, circumstances, and other considerations. Relying on one's ability to understand and apply their knowledge in finance and basing on how their personality reflects on determining their risk tolerance, could give way to new judgement in the process of investors' decision making. Thus, this study examined the effect of personality traits and financial literacy on the risk tolerance of investors. Anchored on the Prospect Theory by Kahneman and Tversky (1979), and the Five Factor Personality Model by Digman (1990) and by Hamza and Arif (2019), the interplay among the aforementioned variables were tested among investors from Universities in Metro Manila.

2. REVIEW OF RELATED LITERATURE

This study adds, to a limited extent, to the literature on behavioral finance. The influence of the personality traits and financial literacy on risk tolerance were examined in order to assess how investment decisions were consequently affected. Previous studies and related literature are listed and synthesized in this section in order to assist readers better understand the different variables used in this research. Some of the extant literature that were examined showed some correlation, causal or otherwise, between several factors (Vibora and Mandigma, 2022).

2.1 Risk Tolerance

Zakaria et al. (2017) proposed that, to some degree, risk tolerance influences individual preferences and financial decisions, including investment decisions. Many risk-taking attitudes and preferences may exhibit themselves in the shape of a person's different behaviors related to finance. Thus, some people are said to be less or high risk-tolerant, while other people could change their appetite for risk depending on the situation.

Bayar et al. (2020) analyzed the relationship among the variables, financial literacy, demographic characteristics, and financial risk tolerance at the Usak University where it was established that financial literacy, educational level, and income level have a positive effect on the individual's risk tolerance. It also showed that women are less tolerant than men, and that a person's risk tolerance is negatively affected by age. According to the study conducted by Anastasia and Basana (2021), millennials who are highly risk tolerant are likely to make more aggressive financial decisions and invest in high-risk assets such as stocks and derivatives trading rather than low-risk assets such as savings and money market mutual funds.

Moreover, Zakaria et al. (2017) examined the relationship between financial literacy and risk tolerance in Malaysia, concluding that financial literacy positively correlates with risk tolerance. Additionally, Hermansson and Jonsson (2021) conducted similar research and explored if risk tolerance is affected by financial literacy and interest rates in Swedish bank customers, revealing that there is a correlation among the variables, interest rates, financial literacy, and risk tolerance, wherein the effect of interest rates is higher than the influence of financial literacy on risk tolerance.

2.2 Financial Literacy

There are several studies that focuses on financial literacy. According to the study conducted by Awais, Laber, Rasheed, and Khursheed (2016), financial literacy is high among people aged of 50 to 60 years old, who are practicing a profession, owners of business, or university or college graduates. It is evident that financial experience can help individuals develop sound financial management skills. From the research result of Sabri and Afiqah (2016), it shows that millennials are more likely to take risks in their investing decisions if they are financially literate. These findings are consistent with Van Rooij et al.'s (2013), as cited by Merkoulova and Veld (2021), that an individual who is less literate about the stock market will unlikely be

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a stock market player. Adding to the school curriculum a course on financial literacy may be essential to remedy the population's lack of financial knowledge (Lusardi, 2015).

Bannier and Neubert (2016) examined the role of financial literacy and risk tolerance, considering the difference in gender when taking risk. The findings revealed that both financial literacy terms, perceived or actual, are equally important to consider when taking risks. In terms of gender differences, both financial literacy terms, perceived or actual, are more associated with men rather than women, where actual financial literacy only is evident.

2.3 Personality Traits

According to Deniz and Satici (2017), researchers and psychologists have built a consensus on five basic dimensions of personality. The first of the Big Five Factors is openness to experience. Individuals attributed with openness tend to take higher risk than their counterparts (Nandanand Saurabh, 2016). Therefore, investors with this personality trait have a positive association with risk tolerance and are willing to invest in stock. The second trait is conscientiousness which makes a person determined, well-organized, reliable, persistent. Conscientiousness has a positive association with trading behavior (R. B. Durand, Newby, Peggs & Siekierka, 2013). Another trait is extraversion which is depicted as an active person who is optimistic, and seeks excitement and tends to socialize in large crowds. The next trait is being agreeable. Studies revealed that agreeable individuals tend to avoid conflict because of their helpfulness and sympathy toward others. The last of the Big Five Factors is neuroticism. Neurotic subjects are generally risk averse who lack effective cognitive skills, with analytical abilities that are weak, and both their critical thinking and conceptual understanding are poor (Pak & Mahmood, 2015). Some researchers found that making investments that are risky is dependent on the traits, extraversion and openness, as against to the traits, neuroticism, agreeableness and conscientiousness (McCrae & Costa, 1996 as cited by Pak & Mahmood, 2015).

Majority of the studies conducted showed that a person's traits affect his tolerance for risk which consequently also affect his decisions concerning investment in securities such as stocks and bonds (Pak & Mahmood, 2015). According to a study by Kubilay and Bayrakdaroglu (2016), every individual possesses different personality traits and experiences psychological biases at varying degrees. Their results reported that personality traits are related to an investor's psychological biases. These personality traits are revealed to have affected the financial risk tolerance of investors. The most crucial factor in this scenario is investors' understanding of their own personality and psychological biases to enable them to make more conscious financial decisions. This is how people recognize themselves because an individual's personality and the personality that he desires might vary. Investors, on the other hand, may be unaware of the reasons for mistakes or failures, as well as the opinions that contribute to such mistakes or failures. Therefore, this reasoning reduces perceived failure and promotes quality decision-making.

Hamza and Arif (2019) examined if investment decisions are affected by financial literacy as mediated by the Big Five Personality Traits. It was found that agreeableness, extraversion, and openness are positively and significantly influenced by financial literacy. On the other hand, neuroticism was negatively and significantly affected by financial literacy. Thus, the Big Five Personality Traits and financial literacy added value and aid investors' decision-making.

Jameel and Saddiqui (2019) investigated if various factors such as demographic characteristics, Big Five Personality Traits, and financial literacy, effect risk tolerance and investor's behavioral biases. Moreover, the classified behavioral biases are gambler fallacy, overconfidence bias, availability bias, anchor bias, representative bias, and loss averse bias.

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The study's findings suggested that among the Big Five Personality Traits, extraversion had a significant relationship with risk tolerance and overconfidence and availability bias. However, openness and conscientiousness show an insignificant relationship with any behavioral bias and risk tolerance. Both actual and perceived financial literacy impacted availability bias while anchor bias and gambler fallacy are affected by risk tolerance. Furthermore, age and qualifications proved to moderate both risk tolerance and anchor bias while investments are moderated through availability bias.

Rabbani et al. (2019) focused on testing whether risk tolerance of pre-retiree baby boomers ages 54–61 in 2019 in America is predicted by personality traits. The findings indicated that the risk tolerance of baby boomers is influenced by the Big Five Personality Traits. Specifically, those with extraversion, stability of emotions, and experience openness are prone to influence their risk tolerance, while those that exhibited agreeableness and conscientiousness trait at a higher degree are deemed to have reduced risk tolerance.

However, a study conducted by Aren and Zengin (2016) has inconsistent findings and says that personality trait is not an important variable, while evidence identified financial literacy and risk perception as significant variables when it comes to the choice of investment.

3. THEORETICAL FRAMEWORK

The study employs two theories — the Prospect Theory, and the Five Factor Personality Model — to link the personality traits and financial literacy of investors on their risk tolerance.

3.1 Prospect Theory

Kahneman and Tversky (1979) created the Prospect Theory in contention to the Expected Utility Theory which is a “normative theory” that describes how a person should act in a particular way when making a decision under uncertainty. Prospect Theory is a “positive theory” which is based on how a person actually acts or behaves. The key assumption in this theory is that decision makers exhibit risk aversion when presented with probable gains and risk seeking when confronted with probable losses. As mentioned, decision makers are classified between risk seekers and risk averse but decision makers can also be classified based on their risk preference. For example, some investors prefer to tolerate their short fall and some are willing to accept a certain level of loss before fully avoiding losses (Grable et al, 2020). A proposition that further helped in the development of Prospect Theory is the reflection effect where investors make mirrored choices between options with gains and losses. Grable et. al (2020) supported this theory wherein results showed that risk avoiders have a low risk tolerance as they prefer outcome with low risk while risk seekers have a high-risk tolerance as they prefer investment that would have high payoffs regardless if the probability of a gain is low.

3.2 Five Factor Personality Model

The Big Five Personality Traits which is often referred to as the Five Factor Personality Model (Digman, 1990; Hamza & Arif, 2019) is a theory which suggests that the differences in the personality of each individual can be classified into five broad domains (Gosling et al., 2003). These five domains are Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. D.W Fiske developed the Big Five Personality Traits and later on expanded and improved by researchers such as Norman (1963), Smith (1967), Goldberg (1981), and McCrae and Costa (1985). Hamza and Arif (2019) used the model and concluded that these personality traits aid the investors when they are making rational investment decisions.

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4. THE HYPOTHESIZED MODEL

The hypothesized model below (Figure 1) is based on well-grounded variables. In this study, the dependent variable is risk tolerance which was highlighted by recent studies. The independent variables in this study (personality traits and financial literacy) were highlighted in several studies as factors that positively influence risk tolerance of investors. Other studies, however, have inconsistent findings, thus making this current research necessary. By assembling these factors in the research model below, this study will be able to provide valuable insights into the resolution of the hypotheses shown in the next page:

Hypothesis H_1: Personality traits influence the risk tolerance of investors.
Hypothesis H_2: Financial literacy influences the risk tolerance of investors.

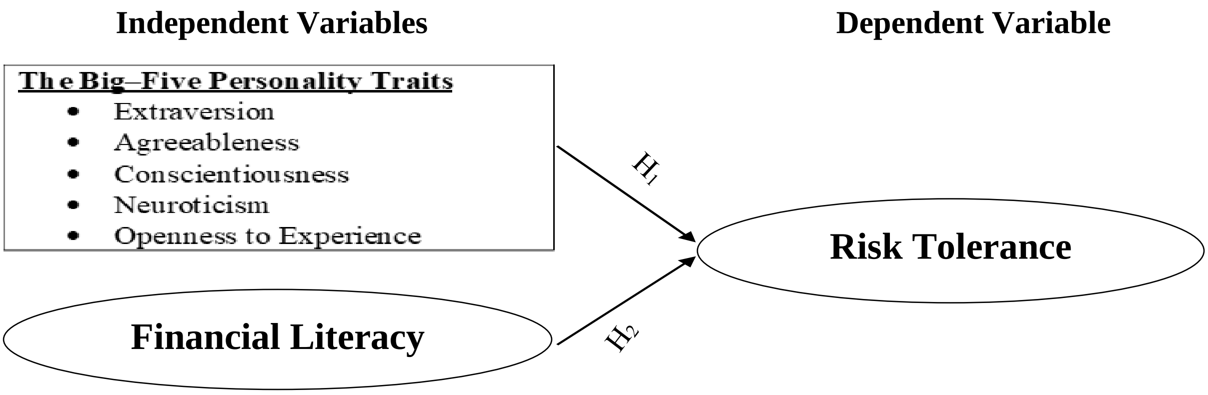

Figure 1
Hypothesized Model

5. METHODS

This study employed a quantitative approach that relied on a descriptive-correlational research design. In addition, the predictive correlational design was also used to identify the direction and amplitude of the relationship between the variables. Further, causal relationship among the variables was also tested with the aid of multiple regression analysis. The respondents' data went through SPSS analysis.

The research population consisted of investors (students and faculty) from higher education institutions in Metro Manila who are actually spending a minimum of P1,000 in either stocks, bonds, or cryptocurrency with the expectation of achieving profit. The respondents were determined using non-probability sampling, specifically the Snowball sampling technique, which is also called chain-referral sampling because the samples have a particular trait that may not be present to all Filipino investors (Mandigma, 2022). It initially involves a small number of respondents that fits the aforementioned criteria, and then these respondents were asked to recruit other contacts that would also fit the criteria and will be willing to be part of the respondents of the study, and so on. The minimum sample size of 305 was estimated using the G Power software, with an effect size of 0.07, probability error of 0.05, and a confidence interval of 95%, though for this study, a total of 320 respondents was used.

In order to measure the variables, the researchers decided to adapt and modify existing measures developed by authors from previous studies. They are: Pak and Mahmood (2015) for questions related to Big Five Personality traits; Hamza and Arif (2019) for questions on

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financial literacy; and Ainia and Lutfi (2019) for the risk tolerance questions. Permissions to use the questionnaires of the aforementioned authors were sought before the survey instruments were modified, tested for reliability, and finally deployed online. The questionnaire was divided into four parts, namely: demographic variables (4 questions), Big Five personality traits (23 questions), financial literacy (20 questions), and risk tolerance (11 questions). The questionnaire allowed the respondents to rate the different aforementioned variables. The ratings were expressed through a Likert scale (Badoc-Gonzales, et al., 2020).

Before using the questionnaire, a pilot test was performed using Cronbach's Alpha model to establish the reliability of the constructs. The Cronbach's Alpha values for the variables, personality traits, financial literacy, and risk tolerance were above 0.80, indicating sufficient internal consistency (Mahmood & Zaigham, 2021).

Table 1. Reliability Analysis - Measurement Scales

	Cronbach's Alpha	No. of Items
Reliability Statistics of the Big Five	.913	23
Reliability Statistics of Financial Literacy	.918	20
Reliability Statistics of Risk Tolerance	.881	11

The survey forms were disseminated online through social media platforms, specifically, Google forms. To ensure accuracy, each possible respondent was screened to see if they fit the profile (investors from universities in Metro Manila with at least P1,000 investment). Data gathered by the researchers were classified as private information and were used for academic purposes only. The respondents participated in the survey on the basis of informed consent and the results were used in the development of the study. Data that the respondents have disclosed will not be shared with unconcerned parties in accordance with the RA 10173, "Data Privacy Act", and shall remain anonymous.

Table 2. Respondents' Demographic Profile

		Frequency (f)	Percent (%)
Age	18-25	297	92.81
	26-35	16	5.00
	36-45	6	1.88
	46-55	0	0
	56 and above	1	0.31
Gender	Female	220	68.75
	Male	99	30.94
	Prefer not to say	1	0.31
Role in Higher Education Institution	Faculty	35	10.94
	Student	285	89.06
Teaching or Studying in	Business Related Course	210	66
	Non-Business-Related Course	110	34
Monthly Family Income (in Php)	10,000 and below	18	5.63
	10,001 - 25,000	35	10.94
	25,001 - 50,000	88	27.50
	50,001 - 75,000	60	18.75
	75,001 - 100,000	57	17.81
	above 100,000	62	19.38

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As shown in Table 2, based on the age groups of investors, the majority of the respondents are young adults aged 18-25 (92.81% or 297 out of 320) with a big difference in the remaining age groups. Results also showed that based on gender, 220 (68.75%) of the respondents are female and 99 (30.94%) are male with only 1 (0.31%) respondent that preferred not to say. Furthermore, the role of the respondents in the Higher Education Institution consists of 35 faculty (10.94%) and 285 students (89.06%). The Results also revealed that 210 (66%) of the respondents are teaching or studying in a Business-Related Course while 110 (34%) are teaching or studying in a Non-Business-Related Course. Moreover, result showed that 18 (5.63%) of the participants have a family income of 10,000 and below, 35 are between 10,001 - 25,000 (10.94%), 88 are between 25,001 - 50,000 (27.50%), 60 are between 50,001 - 75,000 (18.75%), while 57 are between 75,001 - 100,000 (17.81%), and 62 (19.38%) have family income of 100,000 and above.

6. RESULTS AND DISCUSSIONS

6.1. Descriptive Statistics

The questionnaire contained choices using a 4-point Likert scale with the following range: Strongly Disagree (1.0 - 1.74); Disagree (1.75 - 2.49); Agree (2.5 - 3.24); and Strongly Agree (3.25 – 4.0). As seen in Table 3, descriptive statistical results show the mean and standard deviation of the variables. The mean represents the respondent's level of agreement on each variable. In relation to the mean, the Standard Deviation was also considered to identify the distribution of responses on each variable.

Based on these descriptive analyses, the result shows that the respondents have a high level of perception on the risk tolerance with a 3.10 mean (under Agree) and a .4386 standard deviation. Among the Big Five Personality Traits, openness has a 3.18 mean (under Agree) which is the highest and a .5103 standard deviation which is indicative of the respondents' high agreement to being open to new experience or ideas along the way. Agreeableness scored a 3.11 mean (under Agree) and a .6578 standard deviation which denotes that they are helpful and cooperative with others.

The result also revealed that conscientiousness has a 2.99 mean (under Agree) and .6124 standard deviation which means respondents agree to be determined and persistent. With the mean of 2.97 (under Agree) and standard deviation of .6743, respondents also admit that they are into socializing with others through extraversion. The results also show that there are respondents who are pessimistic with a 2.67 mean (under Agree) and standard deviation of .7362 under neuroticism. Meanwhile, the result shows a mean of 3.15 (under Agree) and a .4671 standard deviation which indicates that the respondents have a high perception in terms of financial literacy (Sadiq & Khan 2019).

Table 3. Assessment of Descriptive Statistics

	Mean	Std. Deviation
Risk Tolerance	3.10	.4386
Extraversion	2.97	.6743
Openness	3.18	.5103
Agreeableness	3.11	.6578
Conscientiousness	2.99	.6124
Neuroticism	2.67	.7362
Financial Literacy	3.15	.4671

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The mean and the standard deviation of each of the independent and dependent variables are presented in Table 3. It can be noted that openness has a higher median score of 3.18, which indicates that the majority of the respondents are creative, resourceful, and broadminded. Previous studies have shown that the presence of this personality trait on investors tend to make them high risk-taker thus, they are willing to invest in stock (Nandanand Saurabh, 2016).

6.2. Multiple Regression Result

A multiple regression analysis was performed to ascertain the influence of personality traits and financial literacy on risk tolerance of students and faculty members from Higher Education Institutions in Metro Manila. Coefficient of determination was determined as it denotes the section of the variance for a dependent variable described by an independent variable in a multiple regression model. A significant regression equation was found (F(6, 313) = 40.345, p < 0.00), with R2 of 0.436. It implies that 43.6% of the variation in risk tolerance is because of the variation in personality traits and financial literacy.

Table 4 shows the result of the multiple regression model containing the significance of the independent variables with the dependent variables. The result suggested that among the Big Five Personality Traits, only three, i. e., extraversion, openness to experience and neuroticism, are significant to risk tolerance while the other two, i. e., agreeableness and conscientiousness, are found to be insignificant with risk tolerance. The result also showed that financial literacy significantly impacts risk tolerance.

Table 4 also shows that the respondents' predicted risk tolerance is equal to 0.882 + 0.091E + 0.086O + 0.089N + 0.474FL, where E is extraversion, O is openness, N is neuroticism, and FL is financial literacy indicating that the aforementioned personality traits influence risk tolerance.

Table 4. Multiple Regression analysis results of the significance of the Big Fiver Personality Traits and financial literacy on risk tolerance

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	.882	.156		5.655	.000
Extraversion	.091	.031	.139	2.910	.004
Openness	.086	.043	.100	2.004	.046
Agreeableness	.048	.032	.072	1.484	.139
Conscientiousness	-.067	.038	-.094	-1.755	.080
Neuroticism	.089	.029	.149	3.041	.003
Financial Literacy	.474	.046	.504	10.368	.000

Dependent Variable: isk Tolerance Note: R^2 = 0.436, (N=320,p=0.00)

Extraversion

Results demonstrated that there is a statistically significant association between extraversion and risk tolerance (p= 0.004). According to Sadiq and Khan (2019), an individual showing extraversion traits are those who are "active, optimistic, excitement seeking and tend to socialize in large crowds". This indicates that potential investors with traits as mentioned have the energy and positive emotions in terms of dealing with risk thus influencing its risk tolerance. The result is supported by evidence from Mathur and Nathani (2019), which states that a study by Oehler and Wedlich (2018) examined the relationship between extraversion and

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risk attitude, claiming that extraverts had a high-risk tolerance. Introverts, on the other hand, are regarded to be low-risk takers (Sadi et al., 2011 as cited by Mathur & Nathani, 2019). Conversely, the respondents' predicted risk tolerance increases by 0.091 for every one unit increase in extraversion.

Openness to experience

As shown in Table 4, openness is statistically accepted as significant with risk tolerance (p= 0.46). This result explains that individuals who have the willingness to overcome unconventional situations just to embrace new experience tends to influence their risk tolerance. The findings were backed up by Mathur and Nathani's (2019) study which claimed that people have confidence in external events and are more ready to take risks. Openness to experience shows "creative, broadminded and resourceful" attributes (Sadiq & Khan, 2019). As part of the result, the respondents' predicted risk tolerance increases by 0.086 for every one unit increase in openness.

Agreeableness

According to the results, it is seen that the trait agreeableness does not influence risk tolerance (p= 0.139). The trait agreeableness indicates "altruism, personal warmth, sympathy toward others, helpfulness, and cooperation" (Sadiq & Khan, 2019). This indicates that an agreeable individual tends to avoid conflicts with regard to investing thus non-influence with risk tolerance.

Conscientiousness

Relative to agreeableness, there is also no statistically significant relationship between conscientiousness and risk tolerance (p= 0.080). According to Sadiq and Khan (2019), "determined, well-organized, reliable, persistent, and punctual" are the traits belonging to conscientious individuals. As an investor carrying a conscientious trait, it is unlikely for them to take on risk knowing how goal directed they are. As a result, conscientiousness does not influence risk tolerance of the respondents.

Neuroticism

It is also determined that neuroticism has a significant relationship with risk tolerance (p= 0.003). Because neurotic persons are said to be pessimistic, depressed, anxious, and manifest increased fear of uncertainty and ambiguity" (Sadiq & Khan, 2019), investors carrying this trait tend to be aware of the risk they may face in an investment thus being mindful of their risk tolerance. In effect, the respondents' predicted risk tolerance increases by 0.089 for every one unit increase in neuroticism.

Financial Literacy

As seen in Table 4, it is evident that Financial Literacy influenced the risk tolerance of an individual (p= 0.000). This indicates that when investors are aware of financial concepts, they tend to consider the risk they are willing to take. Considerably, the respondents' predicted risk tolerance increases by 0.474 for every one unit increase in financial literacy.

To enhance the internal validity of the study with the regression equation discussed in the foregoing, income and age were added as control variables in the multiple regression. Table 5 presents the results.

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Table 5. Multiple Regression analysis results with control variables, age and income

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.953	.162		5.864	.000
Extraversion	.077	.031	.118	2.464	.014
Openness	.089	.042	.103	2.095	.037
Agreeableness	.051	.032	.077	1.599	.111
Conscientiousness	-.073	.038	-.102	-1.923	.055
Neuroticism	.083	.029	.140	2.860	.005
Financial Literacy	.481	.046	.513	10.478	.000
Age	.076	.056	.059	1.360	.175
Monthly Family Income (in Php)	-.032	.013	-.107	-2.513	.012

Dependent Variable: Risk Tolerance
Note: $R^2 = 0.451, (N = 320,\ p = 0.00)$

The multiple regression was calculated to predict the influence of personality traits, financial literacy, including age, and monthly family income to risk tolerance. A significant regression equation was found ($F(8, 311) = 31.901$, $p < 0.00$), with R^2 of 0.451. This means that 45.1% of the variation in risk tolerance is because of the variation in personality traits, financial literacy, age, and monthly family income. The respondents' predicted risk tolerance is equal to 0.118E + 0.103O + 0.140N + 0.513FL – 0.107M, where E is extraversion, O is openness, N is neuroticism, FL is financial literacy, and M is monthly family income. Agreeableness and conscientiousness were still found to be insignificant to risk tolerance, just like in the original regression equation, as well as age. This means that the respondents' predicted risk tolerance increases by 0.118 for every one unit increase in extraversion, by 0.103 for every one unit increase in openness, and by 0.140 for every one unit increase in neuroticism. Similarly, the respondents' predicted risk tolerance also increases by 0.513 for every one unit increase in financial literacy. On the other hand, the respondents' predicted risk tolerance decreases by 0.107 for every one unit increase in monthly family income.

7. CONCLUSION AND RECOMMENDATIONS

There are investors that are skeptical about choosing the right investment for them as there is always uncertainty in every decision being made. In this case, many factors are being considered in identifying one's willingness to take risks and factors such as The Big Five Personality Traits and financial literacy. Evidently, every individual possesses these five different personality traits to a certain degree which are measured on a scale. Likewise, an individual's financial literacy may vary depending on the amount of knowledge or skills they have when it comes to handling investments. This could be an advantage for investors in making effective financial decisions. Thus, those variables were presented and tested whether they impact risk tolerance in this study.

This study pioneers the exploration of whether the Big Five Personality Traits and financial literacy influence the risk tolerance among investors in the Philippines. Within this scope, the study performed a multiple linear regression analysis of the aforementioned variables. According to the research findings extraversion, openness, and neuroticism have a positive and significant influence on the risk tolerance of investors. Financial literacy is also found to positively influence risk tolerance, which is consistent with Sabri and Afiqah's (2016)

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and Awais et al's (2016) who stated that those financially literate individuals are more willing to take risks in investment decision-making, thus they have a higher risk tolerance. On the contrary, agreeableness and conscientiousness, as well as the control variable age, were deemed insignificant in influencing risk tolerance. These results must be investigated in future research to know the reasons for such insignificant relationships (Mandigma, 2022). Further, the respondents' predicted risk tolerance is negatively influenced by monthly family income. Overall, the results suggest that investors could make rational decisions with improved financial literacy and some Big Five Personality Traits.

The findings of the study add to the growing understanding of the Big Five Personality Traits with financial implications. Likewise, it also contributes to the study of financial literacy. Also. the results could help investors recognize the possible effects of the interactions between personality traits and financial literacy on the risks and returns of their investment portfolios. Further, the findings could serve as a powerful platform for business and policy proposals from government institutions on areas like financial literacy programs and evaluation of their effectiveness (Mandigma, 2014). The study has several limitations that should be taken into consideration. First, it was conducted only online; the google form containing the questionnaire created by the researchers is disseminated through social media platforms, i.e., email and messenger. Thus, there must be caution in making generalized statements from the findings of the study. Second, since the sample of the study included only the university students and the faculty members, it does not completely describe all investor groups in Metro Manila. Nonetheless, the study is expected to give some insights into the influences of the Big Five Personality Traits and financial literacy on the risk tolerance of investors.

As in prior studies, only questionnaires were utilized as instruments; therefore, other research tools may be used to validate the data collected from the survey. The findings of the study may be applicable to situations in similar context, culture and political environment (Badoc-Gonzales, et al., 2021). The economic and political situation in the Philippines could alter the results of the study and once replicated in the context of other economies having different economic and political conditions, the findings may vary. Qualitative research tools, such as interviewing investors, can be explored to gain more insight into how these variables influence risk tolerance and many other factors that influence investment decision-making. Also, thematic analysis could be employed to measure the qualitative interview transcripts that will allow the proponents to note the emergent themes (Badoc-Gonzales, et al., 2021).

Ultimately, the evidence shows the importance of financial literacy as well as a select few personality traits. The key findings of this study have significant results and implications which allowed the researchers to propose the following recommendations. The study involves implications for the government, which must address the urgent need for financial initiatives to improve financial literacy and investors' risk tolerance. To that aim, it is proposed that financial education be included in the basic and higher school curriculum to enhance financial knowledge, behavior, and attitudes among instructors and students, resulting in improved economic growth and development. In tandem with government initiatives, financial institutions should direct their efforts on increasing financial awareness, particularly in areas with low levels of financial literacy, by funding financial education programs and offering other resources. They may also provide scholarships, sponsor various activities, and collaborate with educators in local areas. Considering all of these, it is proper to look into the prospect of having some network collaboration in the aspects of project performance and continuity (Badoc-Gonzales, et al., 2022).

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