Risk Attitudes and Personality Traits Among Investors in Funds

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Abstract

How do an investor's thoughts and feelings influence their behavior? Financial institutions must assess the risk attitudes of investors to ensure investors are being recommended appropriate financial products. This study is a further examination into whether risk attitudes are correlated with personality traits and to determine the risk attitudes of investors from different backgrounds.

The risk attitudes of investors were examined according to the Big Five personality traits. Investor personality traits were linked to their investment decisions and risk attitudes. Differences in risk attitudes between investors from different backgrounds were also explored. A questionnaire survey was administered. Investors with fund investment experience were recruited. Correlations were observed between the Big Five personality traits and risk attitudes. Extroversion, agreeableness, conscientiousness, and openness to new experiences were positively correlated with risk attitudes, and neuroticism was inversely correlated with risk attitudes. These results indicated direct relationships between the Big Five personality traits and risk attitudes. This study also revealed significant differences in risk preferences between gender, marital status, discretionary budget, fund investment experience, and risk profile. The study results provide a broader reference for establishing investment risk profile charts that integrate personality traits into behavioral finance models in financial practices.

Keywords: Mutual Fund Investors, risk attitude, The Big Five Personality

1. Introduction

Zuckerman (1994) asserted that risk tolerance is associated with investor personality; for example, extroverts, who enjoy stimulation, may have high risk tolerance levels. Soane and Chmiel (2005) investigated the effects of personality traits and risk preferences on investor behavior and found that risk preferences can be predicted by different combinations of personality traits and investment decisions. Investing involves risk and the consideration of multiple perspectives. With the rise of behavioral finance, research on the associations of personality traits, behaviors, and risk preferences of investors has gained prominence. How risk tolerance affects an individual's financial behaviors and financial industry players' commitment to creating financial portfolios that fit the investor's needs will be further examined in subsequent studies.

Investors must consider their risk tolerance level when making investment decisions. Banks must adhere to government regulations. Article 4 of the Financial Consumer Protection Act, established by the Financial Supervisory Commission (FSC), requires that entities providing investment products and services establish procedures for collecting customer information, including information about the customer's identity, financial background, source of funds, risk preferences, investment history, and investment purpose. The FSC also requires that such entities make investment recommendations commensurate with each customer's cash management status, professional ability, investment profiles, risk understanding, and risk tolerance. Consequently, customers undergo risk preference assessments during the onboarding process. However, financial consumer disputes still occur from time to time. Investors may complain about the suitability of an investment product, their lack of understanding of the investment product, or improper sales by the salesperson. Disputes and arbitration can compromise a bank's professional image, are costly, and can be stressful for salespeople. The present study determined how to conduct effective risk assessments. The study also investigated whether personality traits can predict risk preferences. The study objectives were as follows:

1) Examine the demographic characteristics and risk attitudes of investors.

2) Examine the relationships between personality traits and risk attitude.

2. Literature Review

2.1 Risk Tolerance

Investment decisions are influenced by risk attitudes, which can be evaluated using risk questionnaires. Yook and Everett (2003) found questionnaires to be effective in assessing an individual's tolerance for financial risk. Several studies have shown a positive correlation between income and risk tolerance, with investors who score higher on risk tolerance scales tending to have more risky investment portfolios (Corter & Chen, 2006). Experienced investors typically exhibit greater risk tolerance and understanding of their own attitude toward investment risks, aiding them in making appropriate investments (Chia & Lin, 2018). Thanki and Baser (2019) emphasized that investor decisions largely hinge on their risk tolerance level, which is determined by a variety of factors. Wahl et al. (2020) highlighted the need for financial consultants to use reliable tools for assessing investor risk tolerance before recommending investment portfolios. Consequently, an investor's ability to accept risks when making investment decisions is often referred to as their financial risk tolerance (Thanki & Baser, 2021).

Pan and Statman (2012) highlighted the limitations of traditional risk assessment questionnaires post-Financial Recession, concluding that these assessments should also consider an investor's environment and psychological state. They also explored the relationships between personality traits, risk tolerance, and investor behavior (2013). Davis and Brooks (2014) investigated how an investor's risk tolerance affects investment suitability through efficient asset allocation and argued for considering both personality and financial circumstances to maintain stable risk tolerance. Gerrans et al. (2015) studied investors' tolerance for financial risk following the 2007–2009 global recession and found that financial risk tolerance is a psychological state that is largely affected by market conditions. The effects of major financial events on investor risk tolerance are stable in the short term and may become more pronounced over time. Bucciol and Zarri (2017) asserted that investment portfolio decisions are affected by personality traits, with a significant and negative correlation between the personality trait agreeableness and tolerance of financial risk. Akhtar and Das (2020) found that understanding how personality traits affect risk tolerance, overconfidence, and investment performance can help with making sound investment decisions. Snell (2021) verified correlations between the Big Five personality traits and financial knowledge, risk tolerance, income, and net assets, noting positive correlations among extroversion, financial risk tolerance, and income and a negative correlation between conscientiousness and financial risk tolerance.

McInish (1982) investigated associations of demographic characteristics with risk tolerance and demonstrated that marital status did not correlate with financial risk tolerance. Palsson (1996) found that risk aversion increases with age. Grable (2000) discovered that gender is a major differentiator of risk tolerance, with women being less risk tolerant than men. Being male, older, and married, receiving more education, and having more financial knowledge were significantly associated with increased risk tolerance. Hallahan et al. (2003) identified significant differences among investors' demographic variables (e.g., gender, age, income, and wealth) as determinants of risk tolerance. Gambetti and Giusberti (2012) argued that investment experience was positively correlated with risk tolerance level and that inexperienced investors pay greater attention to their investment portfolios than do experienced investors. Cooper et al. (2014) observed that investors with higher levels of education and more investment experience were more tolerant of risk. Awais, Laber, Rasheed and Khursheed (2016) demonstrated that investment experience has significant effects on risk tolerance and investment decisions and that investment experience was positively correlated with risk tolerance. Subramaniam (2016) found that age, education, investment experience, and income were significantly associated with risk tolerance. Liu and Hon (2017) examined the correlation between personality traits and risk attitudes and revealed a significant correlation between extroversion and a preference for funds and derivatives and between conscientiousness and a preference for bonds, stocks, savings insurance, and other investment products. They also revealed that agreeableness and neuroticism were not correlated. Misra et al. (2022) determined that during the COVID-19 pandemic, investors preferred safe and highly liquid asset types and particularly favored fixed-income securities. Research has also shown that inexperienced investors are prone to panic, whereas experienced investors tend to keep their equanimity.

2.2 Personality Traits

Chitra and Ramya Sreedevi (2011) found that personality traits influence investment decisions to a greater extent than do demographic characteristics. Bucciol and Zarri (2017) asserted that investment portfolio decisions are affected by personality traits. Paliwal et al. (2018) studied the effects of personality traits on investment intentions to purchase mutual funds and revealed that extroverted and agreeable individuals were more willing to

invest in mutual funds than were neurotic individuals. Imran and Bhutto (2019) suggested that the effects of psychological biases (such as overconfidence and loss aversion) and personality traits (extroversion, openness, and agreeableness) on trading behaviors should be taken into account to mitigate the trading errors often made by investors, regulatory agencies, and investment consultants. Shanmugam et al. (2023) stated that investment decisions are made in the pursuit of better returns in the future by sacrificing an immediate advantage; their study further revealed that demographic characteristics and risk attitudes do not affect an investor's investment decisions but that the personality trait openness had a significant effect on investment decisions.

2.3 Personality Traits and Risk Tolerance

Wong and Carducci (2013) discovered that the personality traits extroversion and openness were positively correlated with financial risk tolerance, whereas conscientiousness and agreeableness were inversely correlated; emotional stability was not correlated with financial risk tolerance. Pan and Statman (2013) found correlations between personality traits and risk tolerance; individuals who are highly extroverted and open tend to be more risk tolerant, whereas individuals with a greater sense of responsible are less tolerant. Pak and Mahmood (2015) discussed how personality traits have a certain effect on risk tolerance, furthering influencing their investment decisions regarding stocks, securities, and bonds. Pinjisakikool (2018) argued that personality traits can be significant predictors of financial risk tolerance. Rabbani et al. (2019) asserted that financial risk tolerance is a key concept behind financial planners' recommendations of financial products to clients. With that assertion, Rabbani et al. (2019) examined correlations between risk tolerance and the Big Five personality traits among investors in the baby boomer generation (those born between 1946 and 1964) and observed that individuals with higher degrees of extroversion and openness and lower degrees of neuroticism were more risk tolerant, whereas those with higher degrees of agreeableness and conscientiousness were less risk tolerant. This generation is driven to financially prepare for retirement, leading to significant differences in investment attitudes and behaviors compared with other generations. Wang and Yan (2020) found that COVID-19 had a relatively small effect on risk attitudes and was more likely to have social effects than financial effects. Thuy and Ngoc (2021) found that neuroticism, extroversion, and conscientiousness had significant and direct effects on risk aversion, whereas agreeableness and openness were inversely linked to risk aversion; the results further indicated that risk aversion produced negative effects on investment decisions.

Thanki and Baser (2021) discovered that personality traits and demographic variables such as gender, income, and marital status had positive and significant effects on financial risk tolerance. Aumeboonsuke and Caplanova (2023) further noted that older adults and women were more likely to be risk averse, whereas men and married individuals demonstrated lower levels of risk aversion; education and income had no significant bearing on risk aversion. Antony and Selvarathinam (2022) examined the effects of the Big Five personality traits on investment decisions and revealed that agreeableness, conscientiousness, and extroversion produced significant effects on investment decisions; however, risk tolerance exerted a significantly negative effect on investment decisions through openness and a significantly positive effect through neuroticism. In their study of personality traits as factors influencing investment risk aversion, Aumeboonsuke and Caplanova (2023) discovered that individuals characterized by agreeableness and emotional stability demonstrated lower levels of risk aversion, whereas conscientiousness and openness were linked to higher levels of risk aversion. Harini and Subramanian (2023) further determined a negative correlation between neuroticism and risk tolerance, and their findings about behavioral finance contribute to a greater understanding of investor behaviors.

3. Research Process

3.1 The Research Questions of the Present Study Are as Follows

(1) What are the differences between various demographic variables and risk attitudes?

(2) What are the correlations between personality traits and risk attitudes?

On the basis of the literature review and research goals, the examination was distinguished into three major components: "demographic variables," "personality traits," and "risk attitude."

3.2 Variable Definitions and Research Instruments

On the basis of the research goals, the present study considered the following demographic variables: gender, age, level of education, annual discretionary investment amount, investment risk profiles, and investment experience. Participants were predominantly investors with fund investment experience. The study questionnaire was administered as an online survey to enhance its validity. The study questionnaire identified and examined factors influencing investors' personality traits and risk attitudes following the COVID-19 pandemic. The operational definitions of personality traits and risk attitudes are presented as follows.

The risk attitude questionnaire was developed according to existing customer risk profiles in conjunction with the goals of this study. Prior to conducting the main survey, to ensure that the wording of the questionnaire was comprehensible and that the questionnaire items accurately represented the structure of the intended study scale, a pilot questionnaire was administered to a panel of experts (scholars and professional investors) in relevant fields to be assessed on its content validity. The pilot questionnaire had 1 item on fund investment methods that had four options worth one to four points, with higher scores indicating greater investment aggressiveness and risk tolerance, and 11 items on risk preference and identification, each comprising five options worth one to five points. Respondents were instructed to choose the option with the greatest risk profile. Total scores ranged from 12 to 59 points, with higher scores indicating higher levels of risk tolerance.

The operational definition of personality traits and their item designs were based on the comparison and development of scales measuring the Big Five personality traits in different countries and languages, each with their own personality classifications and citation indices. The questionnaire items were written in simple and concise language to increase investor willingness to take part in the survey and to ensure the consistency of the terminology, thereby enhancing the comprehension, validity, and reliability of the questionnaire. The Chinese Shortened Version of the Big Five Inventory (BFI-15) developed by Li and Chung (2020) was employed. The BFI-15 comprises 15 items measuring the Big Five personality traits: extroversion, agreeableness, conscientiousness, neuroticism, and openness to new experiences. Each item is graded on a five-point Likert scale, with endpoints 1 (*disagree strongly*), 2 (*disagree a little*), 3 (*neither agree nor disagree*), 4 (*agree a little*), and 5 (*agree strongly*). Higher scores indicate greater proclivity toward that personality trait.

4. Data Analysis

4.1 Descriptive Statistics

The sample comprised 218 valid surveys. The distribution and investment risk attitudes are presented in frequencies and percentages (Tables 1 and 2). In total, 70.6% of the respondents were women, 64.7% of the respondents were aged 41 to 64 years, 65.6% of the respondents were married, and 57.8% of the respondents graduated from college or university. Segmenting the sample according to annual discretionary investments, the largest group spent NT$120,000 or less (29.4%), and the second largest group spent NT$120,00–$250,000 (26.6%). Investment experience was mostly 15 years or more (35.8%) or 10 years or more (23.9%). Most fund investment risk profiles (70.6%) were aggressive.

Analysis of investment risk attitudes revealed that 55.5% of investors had once held emerging market equity funds, emerging nation equity funds, and derivatives; 48.6% of investors preferred investing in emerging market equity funds, emerging nation equity funds, sector equity funds, and over-the-counter funds; 69.7% of investors were accustomed to making investments using a lump sum approach or by dollar-cost averaging; and 32.6% expected mean annual returns on their investments of 12% or more. By maximum acceptable loss per year, the largest group was 3%–5% (19.3%), followed by 9%–12% (18.3%). Investors able to invest 11%–20% or at least 31% of their income were 24.8% and 24.8% of respondents, respectively, and 39.9% planned to hold their funds for 3 years before redemption. Most investors (57.3%) had emergency funds for 9 or more months, and 42.7% were willing to accept price fluctuations 25% or more in either direction; 47.2% of investors agreed that protecting their investment portfolio was more important than high returns, and 30.3% highly agreed with the sentiment. When investment losses reach 15% or more, 40.4% of investors stated they would continue to monitor the investment, and 33.5% would consider bargain hunting. As for customary investment products, 54.1% frequently chose stocks and derivatives, and 39.4% tended to invest in equity funds and insurance policies.

Table 1. Respondent demographics

Demographic	Variable	Count	Percentage (%)
Gender	Male	64	29.4
	Female	154	70.6
Age (years)	30 or younger	24	11.0
	31–40	42	19.3
	41–50	72	33.0
	51–64	69	31.7
	65 or older	11	5.0
Marital status	Not married	72	33.0
	Married	143	65.6
	Other	3	1.4
Level of education	Graduate school	85	39.0
	College or university	126	57.8
	High school or vocational school	7	3.2
Annual discretionary investment budget (NT$)	1. 120,000 or less	64	29.4
	2.120,000~250,0000	58	26.6
	3.250,000~300,000	32	14.7
	4.300,000~500,000	25	11.5
	5. 500,000 or more	39	17.9
Fund investment experience	Less than 5 years	45	20.6
	5–10 years	43	19.7
	10–15 years	52	23.9
	15 years or more	78	35.8
Fund investment risk profiles	Conservative	11	5
	Moderate	50	22.9
	Aggressive	154	70.6
	Not sure	3	1.4

Note. N = 218.

Table 2. Descriptive statistics of investor risk attitudes

Item	Option	Count	Percentage (%)
Investment products that the investor has held[1]	1. Cash, deposits, time deposits, money market funds, and capital guarantee funds	8	3.7
	2. Investment-grade bond funds	5	2.3
	3. Foreign currency deposits, non-investment-grade bond funds, balanced mutual funds	20	9.2
	4. Stocks, global equity funds, investment-type insurance policies	64	29.4
	5. Emerging market equity funds, emerging nation equity fund, derivatives	121	55.5
Preferred investments[1]	1. Money market funds	3	1.4
	2. Government bonds from developed nations	7	3.2
	3. Balanced mutual funds	32	14.7
	4. Global equity funds	70	32.1
	5. Emerging market equity funds	106	48.6
Customary investment practices[1]	1. Only purchases of money market funds	1	0.5
	2. Dollar-cost averaging	51	23.4
	3. Lump sum or dollar-cost averaging investments	152	69.7
	4. Lump sum or private placements	14	6.4
Expected average annual returns[2]	1. 1–2% gains	1	0.5
	2. 3–5% gains	36	16.5
	3. 6–8% gains	65	29.8
	4. 9–12% gains	45	20.6
	5. 12% or more gains	71	32.6
Max acceptable loss[2]	1. 1–2% loss	31	14.2
	2. 3–5% loss	42	19.3
	3. 6–8% loss	39	17.9
	4. 9–12% loss	40	18.3
Percentage of income that can be invested[2]	1. 0~5%	20	9.2
	2. 6~10%	44	20.2
	3. 11~20%	54	24.8
	4. 21~30%	46	21.1
	5. 31% or more	54	24.8
Duration before redeeming the investment[2]	1. Less than half a year	12	5.5
	2. Half a year to 1 year	37	17.0
	3. 1–2 years	54	24.8
	4. 2–3 years	28	12.8
	5. 3 years or mor	87	39.9
Emergency funds[2]	1. No emergency fund	1	0.5
	2. For up to 3 months	15	6.9
	3. For 3–6 months	44	20.2
	4. For 6–9 months	33	15.1
	5. For 9 months or longer	125	57.3
Tolerable price fluctuations[2]	1. 5%	21	9.6
	2. 10%	40	18.3
	3. 15%	36	16.5
	4. 20%	28	12.8
	5. 25% or more	93	42.7
Importance of the investment profile[2]	1. Strongly agree	66	30.3
	2. Agree	103	47.2
	3. Neutral	24	11.0
	4. Disagree	20	9.2
	5. Strongly disagree	5	2.3
Response to a 15% investment loss[2]	1. Redeem the full investment	10	4.6
	2. Redeem some of the investment	20	9.2
	3. Observe	88	40.4
	4. Consider buying more at lower prices	73	33.5
	5. Aggressively buy more at lower prices	27	12.4
Frequently used financial tools[1]	1. Deposits	4	1.8
	2. Foreign currency investments	1	0.5
	3. Bonds	9	4.1
	4. Equity funds investment policies	86	39.4
	5. Stocks/derivatives	118	54.1

Note. 1. Scores calculated based on participant selection of the option with the largest risk profile; higher scores indicate higher risks. 2. Items on proportion of fund investments, returns, duration, and risk tolerance are presented in order of conservative to aggressive or low tolerance to high tolerance; scores are determined by highest risk. Higher scores indicate higher levels of risk.

4.2 Difference Analysis

Analysis and explanation of differences in individual demographic variables and risk attitudes (Table 3).

Significant associations were observed between differences in risk preferences in investment products that the investor has held and gender, marital status, discretionary budget, fund investment experiment, and risk profile. Men were significantly more tolerant of risks than women, and married investors were more tolerant than were unmarried investors. Those with discretionary budgets of less than NT$120,000 were significantly less risk tolerant than were those with larger discretionary budgets (NT$120,000–$250,000, $250,000–$300,000, $300,000–$500,000, and $500,000 or more), and those with discretionary budgets of NT$120,000–$250,000 were also significantly less risk tolerant than were those with discretionary budgets of $500,000 or more. Those with less than 5 years of investment experience were significantly less risk tolerant than were those with more than 5 years of experience, and those with 5–10 years of experience were significantly less risk tolerant than were those with more than 15 years of experience. Those with conservative or moderate risk profiles were significantly less risk tolerant than were those with aggressive risk profiles. Age and level of education had no significant effect on risk attitude.

Table 3. Difference analysis of demographic variables and risk attitudes

Risk attitude	Demographic	Differential group (mean)				P value
Investment products that the investor has held	Gender	Male	44.84	Female	42.30	.019*
	Marital status	Not married	41.15	Married	44.04	.024*
	Discretionary budget	NT$120,000 or less	38.08	NT$120,000–$250,000	43.31	.001**
		NT$120,000 or less	38.08	NT$250,000–$300,000	44.19	.001**
		NT$120,000 or less	38.08	NT$300,000–$500,000	46.52	.000**
		NT$120,000 or less	38.08	NT$500,000 or more	47.64	.000**
		NT$120,000–$250,000	43.31	NT$500,000 or more	47.64	.037*
	Fund investment experience	Less than 5 years	38.00	5 to 10 years	42.49	.023*
		Less than 5 years	38.00	10–15 years	43.12	.004**
		Less than 5 years	38.00	15 years or more	46.22	.000**
		5 to 10 years	42.49	15 years or more	46.22	.040*
	Investment risk profiles	Conservative	32.91	Aggressive	36.38	.000**
		Moderate	36.38	Aggressive	46.09	.000**

Note. 1. N = 218; 2. **. Correlation was significant given a threshold of 0.01 (two-tailed); 3.*. Correlation was significant given a threshold of 0.05 (two-tailed).

4.3 Correlation Analysis

Correlations between personality traits and risk attitude were investigated (Table 4). Extroversion, agreeableness, conscientiousness, and openness to new experiences demonstrated positive correlations, indicating covariance between these traits and risk attitude. Personalities that are more extroverted, agreeable, conscientious, or open to new experiences are more tolerant of risk. Conversely, neuroticism demonstrated a negative correlation with risk attitude, indicating that neurotic personalities are less tolerant of risk.

Table 4. Correlations between personality traits and risk attitude.

Personality trait		Extroversion	Agreeableness	Conscientiousness	Neuroticism	Openness to new experiences
Risk attitudes	Pearson coefficients of correlation	.396**	.310**	.267**	-.328**	.286**
	Significance (two-tailed)	.000	.000	.000	.000	.000

Note. 1. N=218; 2.** Correlation was significant given a threshold of 0.01 (two-tailed).

5. Research Findings and Conclusion

Behavioral finance research has tended to focus on personality traits and risk preferences and behaviors. This study investigated the relationships between personality traits, demographic characteristics, and risk attitudes. The findings are as follows:

5.1 Correlations Between Personality Traits and Risk Attitude

The results of this study are consistent with those of several other studies (e.g., Zuckerman, 1994; Wong & Carducci, 2013; Pan & Statman, 2013; Davies & Brooks, 2014; Liu & Hon, 2017; Bucciol & Zarri, 2017; Rabbani et al., 2019; Akhtar & Das, 2020; Snell, 2021; Antony & Selvarathinam, 2022; Aumeboonsuke & Caplanova, 2023). This study further demonstrated that extroversion, agreeableness, conscientiousness, and openness to new experiences are positively correlated with risk tolerance and that neuroticism is inversely correlated with risk tolerance, indicating that neurotic individuals are less risk tolerant than are emotionally stable individuals. These findings are consistent with those of several other studies. Zuckerman (1994), Liu and Han (2017), and Snell (2021) observed that extroversion and conscientiousness were positively correlated with risk tolerance; Wong and Carducci (2013) and Pan and Statman (2013) demonstrated that extroversion and openness were positively correlated with risk tolerance; Rabbani et al. (2019) demonstrated associations of extroversion, openness, and emotional stability with high risk tolerance; and Aumeboonsuke and Caplanova (2023) found that agreeable and emotionally stable individuals were highly risk tolerant.

The present study's findings contradicted those of several studies. Wong and Carducci (2013) found that conscientiousness and agreeableness were inversely correlated with risk tolerance and found no association between neuroticism and risk tolerance. Bucciol and Zarri (2017) discovered an inverse correlation between agreeableness and risk tolerance, and Liu and Hon (2017) demonstrated that agreeableness and neuroticism were not associated with risk attitudes. Rabbani et al. (2019) demonstrated that agreeable and conscientious individuals were less tolerant of risk, and Snell (2021) identified an inverse correlation between conscientiousness and risk tolerance. Antony and Selvarathinam (2022) demonstrated a negative correlation between openness and risk tolerance and a positive correlation between neuroticism and risk tolerance. Aumeboonsuke and Caplanova (2023) stated that people who are conscientious and open to new experiences have higher levels of risk aversion, indicating negative correlations with risk tolerance. Harini and Subramanian (2023) further determined a negative correlation between neuroticism and risk tolerance.

5.2 Differences in Demographic Variables and Risk Attitudes

Consistent with existing research, in the present study gender, marital status, discretionary budget, fund investment experience, and risk profiles were significantly associated with risk tolerance (Hallahan et al., 2003; Gambetti & Giusberti, 2012; Thanki & Baser, 2021; Aumeboonsuke & Caplanvoa, 2023); however, age and education level were not significantly associated with risk tolerance. These findings are inconsistent with those of McInish (1982), who demonstrated that marital status was not significantly associated with risk tolerance. Palsson (1996) demonstrated that risk tolerance decreases with age, and Grable (2000) demonstrated significant associations of age and higher education with risk tolerance. Cooper et al. (2014) demonstrated that higher education levels were associated with greater risk tolerance. Subramaniam (2016) concluded that an investor's age, level of education, investment experience, and income have significant bearing on their risk tolerance. Shanmugam et al. (2023) argued that demographic variables do not significantly influence investment decisions or risk attitudes.

This study further found that men were significantly more risk tolerant than were women and that married investors were significantly more risk tolerant than were unmarried investors. Those with annual discretionary budgets of less than NT$120,000 had significantly lower risk tolerance levels than did those with annual discretionary budgets of more than NT$120,000. Those with annual discretionary budgets of between NT$120,000 and $250,000 had significantly lower risk tolerance levels than did those with annual discretionary budgets of more than NT$500,000. Investors with less than 5 years of investment experience had significantly lower risk tolerance levels than did those with more than 5 years of experience. Investors with 5 to 10 years of investment experience had significantly lower risk tolerance levels than did those with 15 or more years of experience. Those with conservative or moderate risk profiles had significantly lower risk tolerance levels than did those with aggressive risk profiles. These findings are consistent with studies that showed that men have higher levels of risk tolerance (Hallahan et al., 2003; Hanaoka et al., 2018) and that men and married individuals are more risk tolerant (Grable, 2000; Aumeboonsuke & Caplanova, 2023). Gambetti and Giusberti (2012) and Cooper et al. (2014) demonstrated that investment experience was positively correlated with risk tolerance, and Yook and Everett (2003) demonstrated that risk tolerance was positively correlated with salary. Awais et al. (2016) demonstrated that investors with aggressive investment experiences were more tolerant of risk.

On the whole, this study found correlations between the Big Five personality traits and risk attitude. Being male, married, having a discretionary budget of more than NT$120,000, having more than 10 years of investment experience, and having an aggressive investment profile are linked to higher risk tolerance levels. These findings

validate those of Pan and Statman (2012), who discussed the shortcomings of traditional risk questionnaires and the need to include behavioral finance in assessments of risk tolerance. The influence of personality traits on investment risk tolerance assessments is evident. This study provides a broader reference for establishing investment risk profile charts in financial practices and drafting of questionnaire items that integrate personality traits into behavioral finance models. This will assist with the management of mutual fund portfolios according to each investor's personal background and personality traits and provide investment institutions and salespeople with deeper insight into each investor's risk attitude, allowing them to make proper investment decisions and improve customer satisfaction, ultimately leading to financial environments that benefit both the customer and the institution.

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