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Impact of Big Five Personality Traits on Risk Tolerance

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Abstract

Purpose – The aim of this paper is to examine the connection among Investors' personality & risk-taking. With the Big Five Factor Inventory the personality traits of openness to experience, neuroticism, agreeableness, extraversion, & conscientiousness were measured.

Design/methodology/approach – The study employed non-probabilistic sampling method of convenience sampling. Primary & secondary sources were gathered for the research project. Using a standardized questionnaire, primary data was collected from salaried investors engaged in the public & commercial sectors (the respondents). The questionnaires were initially served to 350 individuals, but after adjusting for incomplete and invalid questionnaires, the final sample size came to 296. The data analysis has been done using SPSS software. The sample was gathered in Delhi, India, between January & December of 2018.

Findings – The findings demonstrated that investors' risk tolerances were influenced by their personality attributes. Participants in the study have low financial risk tolerances. An investor who is an extrovert, neurotic and open person is more likely to presume risk.

Originality/value – The present study is exclusive in the sense that it seeks to evaluate the relationship among Personality traits, demographics & Risk taking, especially in context of Indian investors. Thus, this study will significantly add to the knowledge of investor behaviour in countries & assist policymakers and investment bankers in formulating appropriate financial advice recommendations.

Keywords Risk Taking, BFI, Investment Strategy, Personality, Investment Choices

Introduction

The terms of risk propensity have significant consequences for the theoretical modelling of risk behaviour & for the practical understanding of the motivations underlying individual-level decisions regarding risky conduct. Organizationally speaking, a greater comprehension of risk behaviour could considerably contribute to risk management initiatives. Every Individual has unique sets of characteristics make each individual a unique person, who behaves in a unique manner, to optimize his unique perceived benefits, instead of that specializes in only maximizing outcomes, as per classical theory.

In the recent research finance field indicate that individual investors fail to maximise their alternatives wisely, diversify portfolios, and minimize risk in their investments, despite their desire to do so. Thus, human behaviour does not always rely on a logical foundation as defined by traditional financial theories and may deviate over time from rational behaviour (Kahneman and Tversky 1979). Individual investors in financial markets are recognised to be restrained from acting rationally by a number of significant variables (Camerer 1995; Loewenstein 1999).

This paper attempts to explore the underlying demographic and Personality traits characteristics which affect the risk tolerance of an investor. This research has tremendous implications for the investment advisory sector. Gone are the days of Machiavellian agents, who could force individuals to purchase the investments, according to their own vested interests. Subsequently, advisors would need to optimize the financial as well as the psychological well-being of the investor, or perish in this era of fast-paced investorism.

Literature Review

S. No.	Author & Year	Research Objective	Sample	Research Methodology	Study Findings
1	Hood, Nofsinger & Varma (2014)	To discover the variables that impac socially liable investors' investment decisions	List of firms from Nation-wide stock brokerage 1991-1996.	Logistic Regression, Descriptive Statistics, Correlation and Clustered SE Approach.	Individual investors' stock holdings were affected by their social traits & personal ideals

2	Bhushan (2014)	Determine the level of financial product knowledge & investment behaviour of salaried persons	516	Descriptive Statistics	The respondents are well informed & invest in classic & secure financia products, although the population's awareness o new-generation financia products is minimal
3	Jagongo & Mutswenje (2014)	To ascertain the elements that influence Nairobi Stock Exchange investment decisions	42	Factor analysis, Friedman's test, & descriptive analysis	Individual investmen decisions were influenced by the following factors the position of firm in the industry, anticipated corporate earnings, profi & statement condition past performance o firm's stock, price pe share, economic sentiment, & expected divided by investors.
4	Raza (2014)	To examine the significant breakthroughs in the subject of behavioural finance & show how behaviour finance is a growing subject in investment decision-making	50	Descriptive Analysis & Case Study	Perspectives of investors have a large effect or their financial decisions indicating tha behavioural finance challenges traditiona finance modelling & is therefore, a vital rising field of financial decision making that needs to be examined
5	Charles & Kasilingam (2014)	To evaluate whether or not an individual's emotions establish their investment personality	742 retail investors	SEM	The emotiona intuitiveness of an investor influences thei investment personality
6	Amiri, Razavizade & Gholam (2013)	To investigate the relationship in investing decisions made at the Tehran Stock Exchange in 2011 among 5 personality traits & demographic characteristics, as well as behavioural biases	215	. SEM .	Findings indicate that the investing biases o individual researchers have a significant link with personal qualities and a weak relationship with specific demographic variables

7	Wamae (2013)	To establish the behavioural elements that influences the actions of individual investors at the Nairobi Stock Exchange	47	Descriptive, Correlation, Regression Analysis &	Herding impact prospecting, & anchoring impact stock marke investment decisions
8	Elankumaran & Ananth (2013)	To study the factors of commodity market affecting investor behaviour in India	525	Descriptive & Factor Analysis	High return, Low risk, & objective information have a higher impact on the behaviour of investors than anyothe characteristics
9	Jayaraj (2013)	To uncover the elements that influences the investment decisions of individual investors. To determine if Indian investors have any psychological biases	300	Principle element analysis	The findings suggest tha the psychological axes of conservatism, diligence & discretion, & remorse abhorrence are consisten with past study, howeve the multivariate analysis reveals that prudence & under confidence are contradictory behaviour axes
10	Bhardwaj, Sharma (2013)	To provide light on the Bahra University, Solan District worker's investing behaviour	50	Descriptive . analysis	Many workers know tha financial assets can be bought and sold, but they don't do it as they think it's too risky
11	Bhushan & Medury (2013)	To investigate gender variations in employee investment behaviour	118	Chi Square	Employees' investmen preferences for health insurance, FD, & marke investments vary significantly based on gender
12	Murithi, Narayanan & Arivazhagan (2012)	To examine investors' attitudes toward diverse investment opportunities	100	Descriptive analysis & Correlation	Individual investors continue to favour investing in financia products with risk-free returns

13	Sireesha & Laxmi (2013)	Determine the impact of demographic variables on the selection of investment opportunities by investors in Hyderabad & Secunderabad, India.	165	Descriptive analysis	Study discovered tha gender, age, & friends had the most impact on the investment decisions of participants. The conclusion of the study is that respondents are conservative by nature & are less concerned with money multiplication & liquidity
14	Kothari (2012)	To evaluate the investor's attitude towards Indore city investment opportunities	100	Standard Deviation & Mean	Different age groups of investors have distinc investment strategies, & their choice of investmen vehicles is heavily influenced by their age
15	Sultana and Pardhasaradhi (2012)	To research & recognize the elements that influence Indian individual equity investors' stock selection decisions	. 891 .	Factor Analysis	Risk Minimization, Brand Perception, CSR Financial Expectation Government & Media Economic Expectation, & Advocate suggestion are elements that affec Indian individual equity investor’s behaviour
16	Bahl (2012)	To investigate the investing working women patterns in Punjab	. 100	Descriptive analysis	Women who are employed spend thei funds in insurance policies. Less financially knowledgeable individuals are less likely to employ in suggested financial behaviours, like retirement planning
17	Das (2012) .	To investigate the middle-class household’s investing behaviour in Assam's Barak Valley.	150	Descriptive Analysis	All age groups showed a strong preference for bank deposits & insurance investments in order to maximise thei life & financial stability

18	Suman & Warne (2012) .	To comprehend stock market behaviour of individual investors, particular in their attitudes & perceptions regarding the stock market.	50	Descriptive Analysis	The respondents combine the aims of savings, the factors impacting savings and the decision-making information. Today's investors have complete knowledge of the stock market. The marke fluctuations influence investor's stock marke investment strategies
19	Luong &Ha (2011)	To investigate investors at the Ho Chi Minh Stock Exchange behavioural aspects impacting the actions of individual	300	Factor analysis, SEM	The findings demonstrate that Herding, Market Prospect, gambler's & Anchoring-abilitybias are five behavioural traits tha influence the investmen decisions of individua investors
20	Wood & Zaichkowsky (2004)	To identify & segment individual investors according to their investment attitudes & behaviours.	90	Analysis of hierarchical clusters with Ward's linkage & ANOVA	The study distinguishes 4 categories of investors traders, loss-averse traders, confident traders & long-term conservative traders

Source: gathered from various scholarly studies

Conceptual Framework

The Demographic Variables – The major demographic variables which have been used in this research, based on expert opinions from renowned academicians and practitioners, are Gender, Age group, Educational status, and Marital status.

The Psychographic Variables – The psychographic variables used in this research are based on a prominent and widely accepted personality trait theory called the Big 5 Personality Taxonomy. Extraversion, conscientiousness, openness, & neuroticism are the five variables that comprise the big five personality characteristics. (McCrae & Costa, 1992)A brief description of the big five personality categories has been given here:

Extraversion- It is characterised by happy emotions and a drive to seek the company of people. It demonstrates the propensity to be gregarious, aggressive, active, upbeat, cheery, optimistic, & outgoing. These individuals are naturally very enthusiastic, prefer to be in

groups, enjoy excitement & stimulation, & feel positive effects like energy, zeal, and excitement. (McCrae & Costa, 1992).

Agreeableness- It is the disposition to be trustworthy, compassionate, generous, and kind. These people have a positive outlook on human nature. They are extremely empathetic & have a strong need to support others; in return, they anticipate assistance from others. Fundamentally, agreeable people have a communal perspective toward others. They are pro-social in nature (McCrae & Costa, 1992)

Conscientiousness- These individuals are determined and purposeful. This Feature Individuals prefer to act obediently, exhibit self-discipline, & strive for success relative to a standard or external expectation. Conscientiousness is characterized by socially dictated impulse control that helps task- & goal-oriented behaviour, like thinking before acting, deferring gratification, subsequent norms & rules, prioritising activities (McCrae & Costa, 1992).

Neuroticism- This characteristic evaluates the continuum among emotional stability or adjustment & emotional adjustment problems or neuroticism (McCrae & Costa, 1992). Those who frequently experience dread, nervousness, melancholy, tension, wrath, & regret are neurotic to a high degree. People who score low on the neuroticism scale is emotionally steady & even-tempered (McCrae & Costa, 1992).

Openness – This is an individual's tendency to be sensitive to inner sentiments, imaginative, sensitive, original in thought, appreciative of art, intellectually inquisitive, & sensitive to beauty. (McCrae & Costa, 1992).

The Big Five Personality Traits- Measurement

The research included two scales: the 5 factor personality scale & financial risk tolerance scale. There are various structured scaling instruments have been developed by various researchers. The significant ones are Big Five Inventory (BFI), NEO PI-R and NEO-FFI, Big 5 Mini-Markers, Ten Item Personality Inventory (TIPI), etc. This study utilised the Big Five Assessment, a 44-item self-report inventory planned to assess the Big 5 Personality Traits.

Grable and Lytton established the financial risk tolerance scale utilised in the study (1999). Various rankings were assigned based on the responses to the financial risk tolerance questions. Evey response was weighted (1-4) based on its risk level. While the risk ranking of

risk-takers was maintained at a high level, the risk ranking of risk-averse individuals was maintained at a low level.

Objectives of the Study

a) To categorize individuals along the big five Personality Traits using a structured psychometric scale.

b) To analyze the relationship among the big five Personality Traits & financial risk tolerance.

Study Hypotheses

Ha: There is an association among various personality traits, such as extraversion, agreeableness, conscientiousness, emotional constancy (neurotic), openness to experience & financial risk tolerances of investors.

Research Methodology

This research used non-probabilistic sampling method of convenience sampling. The research gathered both secondary & primary data. Using a standardised questionnaire, primary information was gathered from compensated investors engaged in the public & commercial sectors (the respondents). The questionnaires were initially served to 350 individuals, but after adjusting for incomplete and invalid questionnaires, the final sample size came to 296. The data analysis was performed using the SPSS programme. The sample was gathered in Delhi, India, between January and December of 2018.

In order to evaluate the Data's dependability, the Cronbach's Alpha model was considered. Cronbach's Alpha is deemed credible as it is 0.70 or higher (Nunnally & Bernstein 1994). Table A displays the findings of the personality trait & financial risk tolerance scales' analyses of dependability.

Table A. Reliability Testing

Scale	Cronbach's Alpha	No. of Questions
Big Five Personality Trait	0.826	44

Financial Risk Tolerance	0.755	13

Data Tabulation

The data collected through structured questionnaires has been tabulated with regard to the demographic profile (Table 1), (Table 2) shows Descriptive statistics of personality trait of respondents, & (Table 3) shows Descriptive statistics for risk tolerance of respondent's. The BFI Scale Scoring Key was used to calculate the values of the Big 5 personality traits. The findings of the Logistic Regression Analysis of the link among 5 factor personality traits & investors' financial risk tolerances showed in Table 4.

Table 1: Demographic Profile of Respondents

Parameters	**Category**	**Absolute Values (N=296)**	**Percentage Values**
Gender	Male	260	88
	Female	36	12
		Total = 296	Total = 100%
Age	18-20	9	3
	21 - 30 years	121	41
	31 - 40 years	95	32
	More than 40 years	71	24
		Total = 296	Total = 100%
Marital Status	Married	142	48
	Unmarried	154	52
		Total = 296	Total = 100%
Educational Status	Doctorate	5	2
	Masters	11	4
	Bachelors	220	74
	Higher Secondary	60	20
		Total = 296	Total = 100%

Fig 1: Demographic Profile of Respondents

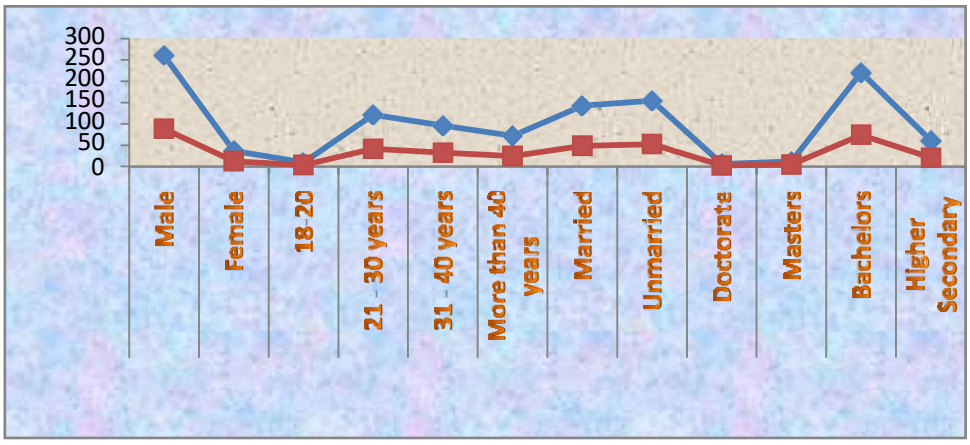

Table 2: Descriptive statistics concerning the respondent's traits of personality

Parameters (Personality Trait)	Absolute Values (N=296)	Percentage Values
Extraversion	260	88
Agreeableness	290	98
Conscientiousness	287	97
Neuroticism	183	62
Openness to Experience	287	97

Fig 2: Descriptive statistics concerning the respondent's traits of personality

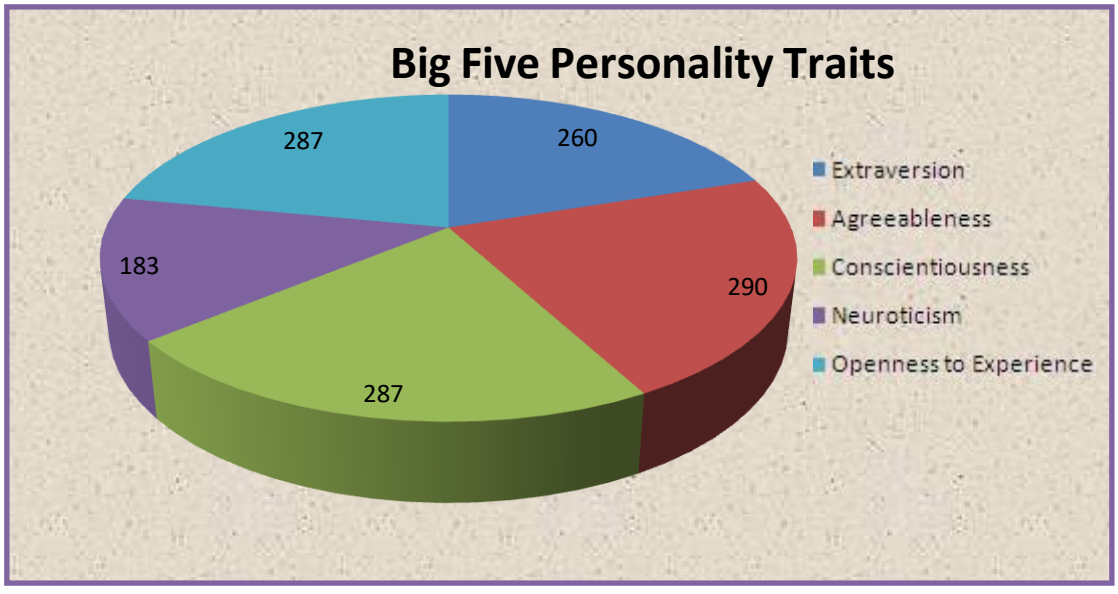

Table 3: Descriptive statistics concerning the respondent's risk tolerance

Parameters (Financial Risk Tolerance)	Absolute Values (N=296)	Percentage Values
High	128	43
Low	168	57

Fig 3: Descriptive statistics concerning the respondent's risk tolerance

As per Table 1, 88% of the 296 investors are men, while 12% are women. Thus, it was determined that males dominate financial market transactions. This could be due to men being more inclined to invest in the stock market or in the labour force. Taking the investor age groups distribution, it can be noted that among the ages of 21 & 30 investor's total make up is 41%. Within the scope of the study, it is possible to determine that the majority of financial market investors are young & of working age.

The division of respondents via marital status reveals that 52 % are unmarried. Therefore, there is no major difference among responders who are married. 74% of respondents had a bachelor's degree & 4 % have a master's degree indicates a high level of education. It may be claimed that a particular degree of education is required for financial market transactions; hence, those with a certain level of education are interested in financial markets.

It can be shown in Table 2 that around 98% of the investors involved in the study had generally likeable personality attributes. This is followed by 97% of investors with the trait of being open to experience and 97% of those with the trait of being conscientious. In addition, while around 88% have extraverted personality traits and 62% have neurotic personality traits. Table 3 shows that 57% of respondents had poor tolerance for financial risk, whereas 43 percent have a high tolerance. It was determined that there wasn't much distinction among them, so investors didn't want to take a chance.

Table 4: Logistic Regression Analysis- the association among 5 personality traits & investors financial risk tolerances

	. Variables .	. B .	.S.E	.Wald .	P	Exp (B)
Panel 1	Extraversion	0.25	0.13	3.77	.049*	1.29
	Constant	-0.11	0.45	6.16	.013	.32
Panel 2	Agreeableness	-0.12	0.16	.51	.047*	.88
	Constant	0.18	0.62	.08	.769	1.20
Panel 3	Conscientiousness	-0.13	0.13	1.03	.031*	.87
	Constant	0.25	0.51	.24	.624	1.28
Panel 4	Neuroticism	0.22	.13	2.85	.020*	.80
	Constant	0.35	0.37	.89	.345	1.42
Panel 5	Openness to Experience	0.20	0.15	1.86	.017*	1.22
	Constant	-1.03	0.57	3.25	.071	.35

Notes: Above table displays the Logistic regressions model estimated coefficients.

Pr (Financial Risk Tolerance, high=1; low=0 = βo + $\beta 1$ Agreeableness it, + εit

Pr (Financial Risk Tolerance, high=1; low=0 = βo + $\beta 1$ Neuroticism it, + εit

Pr (Financial Risk Tolerance, high=1; low=0 = βo + $\beta 1$ Extraversion it, + εit

Pr (Financial Risk Tolerance, high=1; low=0 = βo + $\beta 1$ Conscientiousness it, + εit

Pr (Financial Risk Tolerance, high=1; low=0 = βo + $\beta 1$ Openness to Experience it, + εit

In Logistic regression categorized dependent variable is used. So, the amount of financial risk one is willing to take is a categorical variable. If a person is willing to take on a lot of

financial risk, the category variable would have a value of 1, not 0. Personality traits are separate from other factors. The Hosmer–Lemeshow test is a statistical test to determine if logistic regression models are well-fitting. Cox & Snell R2 & Nagelkerke R2 define as the strength of the association among independent & dependent variables. For all models these values are satisfactory. At the 5% level the coefficient is statistically significant.

Table 4, Panel 1 displays the findings of association among the financial risk tolerance & extraversion using logistic regression. Extraversion is a substantial analyst of financial risk tolerance, as evaluated by Wald criteria ($p = 0.049<0.05$). As the P-value is smaller than the (.05), the test is deemed significant. According to the research, the extraverted personality trait reflects financial risk tolerance, & extraverts have a high risk tolerance.

Panel 2 displays the findings of the relationship among the financial risk tolerance & agreeableness using logistic regression analysis. According to the Wald criterion, it was established that the attribute of Agreeableness is predictive of financial risk tolerance p value is 0.047. As the P-value is smaller than the (0.05), the test is deemed significant. It is considered as statistically significant. This conclusion explains what agreeableness means in terms of financial risk tolerance, but it also shows there are low financial risk tolerances for agreeable people.

Panel 3 displays the Link between the financial risk tolerance & conscientiousness personality characteristic. As per the Wald criterion, the Conscientiousness personality trait is predictive of financial risk tolerance P-value is 0.031. Since the P-value less than the level of significance value (0.05) so test is found to be Significant. It is statistically accepted as significant. As the Beta value is negative which result that the financial risk tolerances have low financial risk tolerances for Conscientiousness people.

Panel 4 displays the results of the association among the financial risk tolerance & neuroticism using logistic regression analysis. Neuroticism is the significant predictor of financial risk tolerance, as evaluated via the Wald criteria p value is 0.020. Since the P-value less than the level of significance value (0.05) so Test is found to be Significant. According to the findings, the Neuroticism personality characteristic explains financial risk tolerance, & those with Neuroticism have a high financial risk tolerance.

Panel 5 displays the findings of the association among the Openness to Experience & the financial risk tolerance using logistic regression analysis. As per the Wald criterion, it was established that the characteristic of Openness to Experience is predictive of financial risk tolerance P-value is 0.017. As the P value is smaller than 0.05, the test is deemed significant. According to the results, the Openness to Experience personality characteristic describes

financial risk tolerance, and Openness to Experience individuals have a high tolerance for financial risk.

Conclusion

As per the study results, the relationship among personality traits & risk tolerance is studied. This study also showed that the majority of financial market investors are young & working age, and that those with a particular level of education are interested in financial markets. Study also conclude that Agreeable and Conscientiousness people have low financial risk tolerances whereas Openness to Experience, Neuroticism and Extravert people have High financial risk tolerances. "Logistic regression analysis" was utilized to examine the association among five-factor personality traits & financial risk tolerance. The study also concludes that investor's financial literacy & investor's gender has a great impact on risk tolerance. Demographic variables like age, educational qualifications, gender & marital status of the investors play a vital role in deciding investor's behavior. All the Five personality traits of the investor have a great influence on the risk tolerance.

Parameters	**Beta Value**	**P Value**	**Result**
Extraversion	0.25	0.049	High Risk Tolerance
Agreeableness	-0.12	0.047	Low Risk Tolerance
Conscientiousness	-0.13	0.031	Low Risk Tolerance
Neuroticism	0.22	0.020	High Risk Tolerance
Openness to Experience	0.20	0.017	High Risk Tolerance

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