




THE INFLUENCE OF INVESTORS' PERSONALITY ON DECISION MAKING IN THE SECONDARY EQUITY MARKET – BIG FIVE PERSONALITY MODEL

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ABSTRACT

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Decision-making in an unfamiliar environment like the stock market is a difficult task, particularly given the immense amount of information and peer pressure. This study aims to analyze the influence of investors' personality, assessed using the Big Five personality model, on investors' decision-making in the Indian secondary equity market. Indian secondary equity investors in the city of Chennai were selected as the study population, and data was gathered from a sample of 436 investors using the questionnaire survey method. A Pearson correlation analysis was conducted to study the relationships between investors' decision-making tools and personality dimensions, and significant correlation relationships were identified. Multiple linear regression was then used to analyze the linear relationship between the returns earned from equity investment and the personality dimensions and decision-making tools, as well as several demographics and financials. The results of the study could help investors better understand their equity decision-making in terms of the influence of their personality and guide them to adopt appropriate decision-making tools to increase their equity returns. Financial advisors could also benefit from this study as it would allow them to correlate their clients' personalities and decision-making tools and suggest the most appropriate investment strategies.

Contribution/Originality: The findings of the study provide a template for investors and financial advisors to assess investors' decision-making styles and personalities and find useful linkages between the two. The regression model developed contributes to helping investors choose the right decision-making style for their personality to earn high equity returns.

1. INTRODUCTION

Decision-making involves selecting an alternative among several available alternatives after careful evaluation. Decision-making in the stock market is a more complex process that involves both personal and technical factors. Both risk and behavioral factors like cognitive dissonance, mental accounting, heuristics, anchoring, greed, and fear influence decision-making in the stock market (Chandra & Kumar, 2008). However, most investors in the stock market, especially noise traders, make stock market decisions based on sentiment and not on fundamental information, which influences their stock market returns (Ur Rehman, 2013).

Personality is defined as "differences in attitudes and beliefs, many inculcated from birth, which drive differences in behavior" (Smith, 1999). Personality can be assessed with high reliability and validity by using five dimensions. There are various personality models with different labels, but the main dimensions are: (1) Surgency/

Extraversion/ Social adaptability/ Assertiveness (2) Agreeableness/ Friendliness/ Likeability/ Conformity (3) Conscientiousness/ Will to achieve/Responsibility/ Dependability (4) Neuroticism/ Emotional control/ Emotionality/ Stability (5) Culture/Intellect/ Inquiring intellect/ Intelligence (Smith, 1999).

Personality plays a prominent role in decision-making under uncertain circumstances. Personality influences the kind of information decision-makers acquire under conditions of uncertainty, and this in turn influences their final choice (Fr chet, Schotter, & Trevino, 2017). Personality captures the socio-psychological traits of an individual; hence, there is a connection between personality and the propensity to behave in certain ways and make decisions. In short, personality influences investors' decisions (Krishnan & Beena, 2009).

This paper aims to determine the influence of investors' personality, as assessed using the big five personality model, on investors' decision-making. The introduction of this paper is followed by the literature review, a section describing the sample and methodology, results and analysis sections, and finally the conclusion.

2. LITERATURE REVIEW

Personality plays an important role in financial decision-making (Oehler, Wendt, Wedlich, & Horn, 2018). Investors should consider their personality characteristics when making investment decisions (Akhtar, Thyagaraj, & Das, 2018). Personality guides individuals' decision-making preferences. The personality dimensions of Agreeableness, Conscientiousness, and Openness dominate financial decision-making (Nga & Leong, 2013).

The key personality traits mediate the relationship between financial literacy and investment decisions. Via neuroticism, financial literacy has a significant positive influence on investment decisions, whereas, via openness, financial literacy has a significant negative influence on investment decisions (Hamza & Arif, 2019). Neuroticism, openness, and agreeableness each have a direct impact on investors' negative moods, whereas extraversion directly affects investors' positive moods and, in this way, has a significant indirect influence on investment decisions (Trang, Khuong, & Tho, 2016). The Big Five personality dimensions are well-correlated with decision-making styles. Openness and conscientiousness (positively) and neuroticism (negatively) predict the vigilance style of decision-making. Similarly, openness and extraversion (negatively) and neuroticism (positively) predict the buck-passing decision-making style. The hypervigilance decision-making style is predicted only by neuroticism (Rahaman, 2014). Together, personality and decision-making style contribute significantly to the variation in decision-making competence. The personality dimensions of extraversion and neuroticism statistically significantly contribute to explaining the variation in decision-making competence with a negative association (Dewberry, Juanchich, & Narendran, 2013). Both personality traits and decision styles have an impact on investors' financial decisions. The influence of personality on investments is mediated by the various decision-making styles. Investors with an extroverted personality are more likely to make investments (Gambetti & Giusberti, 2019). Extroverted individuals are most likely to adopt the spontaneous and intuitive decision-making style. Individuals whose personality is characterized by openness are most likely to adopt an intuitive decision-making style. Agreeable individuals adopt a dependent decision-making style. Conscientious individuals adopt a rational decision-making style. Finally, neurotic individuals adopt an avoidant decision-making style (Riaz, Riaz, & Batool, 2012).

The Big Five personality dimensions of extraversion, openness, neuroticism, agreeableness, and conscientiousness also influence investors' attitudes towards stock market investment (Rizvi & Fatima, 2015). Neurotic individuals have negative attitudes towards stock investment. Individuals whose personality is open tend to be influenced by peers regarding stock investment, unlike agreeable individuals, who are not influenced by peers. The personality dimensions of extraversion, conscientiousness, and openness positively influence stock market participation (Lai, 2019). Openness, conscientiousness, extraversion, and agreeableness are negatively related to stock market participation, whereas neuroticism is positively related to stock market participation. Direct stock market participation is negatively influenced by openness and extraversion. On the other hand, conscientiousness negatively influences indirect stock market participation (Stinesen, 2021). The relationship between personality and

household financial decision-making varies depending on the type of asset/debt held by the investor. Extraversion has a significant correlation with finances held in terms of assets and debt. Extraversion is also negatively related to the probability of holding shares, whereas openness is positively correlated with the probability of shareholding among couples (Brown & Taylor, 2014).

The relationship between the Big Five personality traits and stock trading behavior is moderated by the key sources of information (Tauni, Rao, Fang, & Gao, 2017c). When information is acquired from financial advice, investors with the neuroticism and openness personality traits trade stocks more frequently; on the other hand, conscientious and extraverted investors trade stocks less intensively with the same information. When information is obtained through word-of-mouth communication, agreeable and extraverted investors trade stocks more frequently. Owing to social interaction, neurotic, open-minded, and conscientious investors alter their portfolios less frequently (Tauni, Fang, & Iqbal, 2017b). The personality of the financial advisor also influences investors' stock trading frequency. When the advisor's personality is characterized by conscientiousness, openness, or agreeableness, financial advice is more likely to increase the investors' stock trading frequency. In contrast, when the advisor's personality is neurotic or extraverted, there are fewer adjustments made to investors' portfolios based on the financial advisor's information (Tauni, Majeed, Mirza, Yousaf, & Jebran, 2018). The differences or similarities between the personality traits of the investor and advisor also influence investors' stock trading performance. Similarity of personality traits like conscientiousness, openness, agreeableness, and extraversion between investor and advisor is positively related to stock trading performance. On the other hand, when investor and advisor are similar in their neuroticism, it negatively influences the stock trading performance (Tauni, Yousaf, & Ahsan, 2020).

The personality dimensions of conscientiousness, openness, agreeableness, and extraversion are significantly positively related to the investment intentions of investors; however, neuroticism is negatively related to their investment intentions (Sarwar et al., 2020). The personality dimensions influence investment intentions via the pathway of financial risk. Openness, neuroticism, and extraversion have a significant relationship with short-term investment intentions, which is mediated by the financial risk attitude. However, agreeableness exerts a partially mediated influence on short-term investment intentions (Nandan & Saurabh, 2016). Extroverted investors are more likely to engage in short-term investing, whereas neurotic investors refrain from this activity. Investors with an open personality are likely to indulge in long-term investing, but this character trait does not forecast short-term investing (Mayfield, Perdue, & Wooten, 2008).

The personality dimensions of agreeableness, extraversion, and conscientiousness significantly predict financial risk tolerance. Extraversion is positively related to financial risk tolerance, whereas agreeableness and conscientiousness are negatively related (Pinjisakikool, 2018). Extroverted investors have higher risk propensity and are hence willing to pay a higher price for riskier assets and also to purchase more when the assets are overpriced. Neurotic investors, on the other hand, sell financial assets at reduced prices and sell when the assets are under-priced (Oehler et al., 2018). The openness personality trait is correlated with higher risk-taking, whereas neuroticism is correlated with lower risk-taking in the gain domain. In the loss domain, the personality effects are reversed, which implies that neuroticism is associated with higher risk-taking for losses (Lauriola & Levin, 2001). In the domains of finance, health, and work, investors who are consistent in their risk preferences score higher in the conscientiousness and agreeableness dimensions and lower in the neuroticism dimension (Soane & Chmiel, 2005).

Extraversion is a strong predictor of borrowing and saving behavior, and agreeableness could also explain certain types of saving (Nyhus & Webley, 2001). Extraversion and conscientiousness boost the positive relationship between trading frequency and information acquisition. On the other hand, openness weakens the positive relationship between the two. Agreeableness and neuroticism do not influence this relationship (Muhammad Zubair Tauni, Fang, & Yousaf, 2015). The stock trading frequency is most likely to be increased by information acquisition among investors with the personality traits of extraversion, agreeableness, and conscientiousness. The stock

trading intensity is reduced by information acquisition among investors with the neuroticism and openness personality traits (Tauni, Fang, Mirza, Memon, & Jebran, 2017a).

Understanding the relationship between personality and decision-making is important for financial planners to cater to specific client personalities and design tailor-made financial products accordingly (Nga & Leong, 2013).

3. SAMPLE AND METHODOLOGY

Chennai-based equity investors actively investing in the Indian secondary equity market were taken as the study population. The sample data were gathered via the questionnaire survey method from two main data sources, Integrated and the Tamil Nadu Investors Association (TIA). Integrated was the only financial company that permitted us to gather data from its clients. Similarly, TIA was the only formal association that permitted us to gather data from its members. The final count of valid questionnaires which were collected was 436; therefore, the sample size is 436.

4. OBJECTIVES OF THE STUDY

The main objectives of the study are:

- a. To examine the relationship between investors' personality (assessed via the Big Five personality model) and their decision-making tools.
- b. To develop a model to predict the returns earned in equity investment with investors' personality dimensions and decision-making tools as the independent variables.

5. RESULTS AND ANALYSIS

This study aims to identify the influence of investors' personality on their decision-making in the secondary equity market. Decision-making in the secondary equity market is measured using 20 variables, each of which is a variable that influences stock investment decisions. The variables were measured using the questionnaire survey method with answers on a Likert scale from a sample of 436 secondary equity investors operating in Chennai. Next, by employing Principal Component Factor analysis and then Varimax orthogonal rotation, these variables were grouped into 5 factors, which were renamed the five decision-making tools.

These five decision-making tools are:

- (1) Economy analysis, comprising the variables: (i) Current economic indicators like inflation (ii) RBI rate (iii) GDP, growth rate, etc.
- (2) Industry analysis, consisting of the variables: (i) Market for the industry to which the company belongs (ii) Technology changes in the industry to which the company belongs (iii) Government policies relating to the industry to which the company belongs (iv) Supply chain constraints in the industry to which the company belongs (v) Future prospects of the industry to which the company belongs.
- (3) Company analysis, comprising the variables: (i) Financial statements of the company (ii) Data in reports & prospectuses of the company (iii) Profits of the company (iv) Bonus shares issued by the company (v) Dividends paid by the company.
- (4) Technical analysis, consisting of the variables: (i) Indicators and oscillators (ii) Support and resistance levels (iii) Moving averages (iv) Chart Patterns like Head and Shoulders, etc.
- (5) Advocate's recommendation, comprising the variables: (i) Friend or co-worker's recommendation to invest in the stock market (ii) Family member's opinion to invest in the stock market (iii) Professional recommendation to invest in the stock market, e.g., stock brokers, financial advisors.

The personality of the investor was assessed using the 44 statements of the Big Five Personality questionnaire. The dimensions of the model are Extraversion, Agreeableness, Openness, Conscientiousness, and Neuroticism.

5.1. Pearson Correlation Analysis

Pearson correlation is used to determine the linear correlation between the derived decision-making tools (factors) and the Big Five personality dimensions as both are quantitative variables.

Table 1 shows the Pearson correlation results between the decision-making tools and the Big Five personality dimensions.

Table 1. Pearson correlation results of decision-making tools and personality dimensions.

Decision Making Tools	Dimensions	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Industry Analysis	Pearson Correlation	0.093	0.073	0.085	0.010	0.167
	Sig. (2-tailed)	0.053	0.127	0.077	0.827	0.000
Technical Analysis	Pearson Correlation	-0.026	-0.060	-0.032	-0.008	0.010
	Sig. (2-tailed)	0.595	0.215	0.509	0.860	0.832
Company Analysis	Pearson Correlation	0.081	0.135	0.154	-0.112	-0.001
	Sig. (2-tailed)	0.090	0.005	0.001	0.019	0.982
Economy Analysis	Pearson Correlation	0.027	0.045	0.025	-0.027	0.105
	Sig. (2-tailed)	0.576	0.345	0.608	0.577	0.028
Advocates Recommendation	Pearson Correlation	0.013	0.026	0.014	0.125	0.004
	Sig. (2-tailed)	0.786	0.586	0.764	0.009	0.928

The results show:

- Significant positive correlation between Industry analysis and Openness (0.167), indicating that investors with an open personality are more likely to adopt Industry analysis, or Industry analysis is most likely to be used by investors with an open personality.
- Significant positive correlation between Company analysis and Agreeableness (0.135), indicating that investors with an agreeable personality are more likely to adopt Company analysis, or Company analysis is most likely to be adopted by investors with an agreeable personality.
- Significant positive correlation between Company analysis and Conscientiousness (0.154), indicating that investors with a conscientious personality are more likely to adopt Company analysis, or Company analysis is most likely to be adopted by investors with a conscientious personality.
- Significant negative correlation between Company analysis and Neuroticism (-0.112), indicating that investors with a neurotic personality are less likely to adopt Company analysis, or Company analysis is least likely to be adopted by investors with a neurotic personality.
- Significant positive correlation between Economy analysis and Openness (0.105), indicating that investors with an open personality are more likely to adopt Economy analysis, or Economy analysis is most likely to be adopted by investors with an open personality.
- Significant positive correlation between Advocates' recommendations and Neuroticism (0.125), indicating that investors with a neurotic personality are more likely to adopt Advocates' recommendations, or Advocates' recommendations are most likely to be adopted by investors with a neurotic personality.

5.2. Regression Analysis

Multiple linear regression is used to determine the linear relationship between the returns earned in equity investment and several independent variables, such as demographics including gender, age, and annual income; financials such as equity investment experience, risk level, investment knowledge, and expected equity return; the

derived decision-making tools, and the Big Five personality dimensions. Multiple linear regression was adopted to analyze the influence of the investors' personality and decision-making tools on the returns earned in equity investments. Equity returns are the main goal of investing, hence determining the influence on equity returns is important for both investors and wealth managers who advise investors.

Table 2. Model summary – regression analysis.

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.776	0.602	0.586	1.164

Table 2 shows that the derived model has an R square value of 0.602, indicating that 60.2% of the variation in equity returns earned (dependent variable) is explained by the variation in the independent variables.

Table 3. ANOVA table – regression analysis.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	856.846	17	50.403	37.216	0.000
	Residual	566.108	418	1.354		
	Total	1422.954	435			

Table 3 indicates that in the One-Sample Kolmogorov-Smirnov test, the Normality condition is significant at the 0.01 level.

Table 4. Coefficients table – regression analysis.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.315	0.702		0.448	0.654		
Gender	-0.239	0.144	-0.058	-1.660	0.098	0.779	1.284
Age	-0.015	0.045	-0.013	-0.330	0.741	0.636	1.572
Annual income	0.023	0.039	0.022	0.590	0.556	0.683	1.464
Equity investment experience	0.083	0.055	0.061	1.500	0.134	0.581	1.723
Equity investment knowledge	0.026	0.071	0.014	0.367	0.713	0.683	1.465
Risk level	0.145	0.049	0.098	2.986	0.003	0.876	1.141
Expected equity return	0.781	0.045	0.637	17.267	0.000	0.698	1.432
Industry Analysis	0.197	0.060	0.109	3.304	0.001	0.874	1.144
Technical Analysis	-0.120	0.058	-0.067	-2.090	0.037	0.939	1.065
Company Analysis	0.035	0.058	0.019	0.603	0.547	0.934	1.071
Economy Analysis	-0.032	0.057	-0.018	-0.567	0.571	0.963	1.039
Advocates Recommendation	-0.127	0.062	-0.070	-2.055	0.041	0.809	1.236
Extraversion	0.010	0.018	0.023	0.592	0.554	0.644	1.553
Agreeableness	-0.009	0.015	-0.025	-0.581	0.562	0.530	1.888
Conscientiousness	0.027	0.017	0.071	1.617	0.107	0.495	2.020
Neuroticism	0.007	0.015	0.015	0.464	0.643	0.865	1.156
Openness	-0.016	0.015	-0.040	-1.038	0.300	0.644	1.553

The results given above in Table 4 show the co-efficients of the regression equation developed in the analysis. The regression equation is as follows:

$$Y = 0.315 - 0.239 X_1 - 0.015 X_2 + 0.023 X_3 + 0.083 X_4 + 0.026 X_5 + 0.145 X_6 + 0.781 X_7 + 0.197 X_8 - 0.120 X_9 + 0.035 X_{10} - 0.032 X_{11} - 0.127 X_{12} + 0.010 X_{13} - 0.009 X_{14} + 0.027 X_{15} + 0.007 X_{16} - 0.016 X_{17}$$

Where Y is the actual annual equity return of the secondary investor; X₁ is the gender, X₂ is the age, X₃ is the annual income, X₄ is the equity investment experience, X₅ is the equity investment knowledge, X₆ is the risk level, X₇ is the expected equity return, X₈ is Industry analysis, X₉ is Technical analysis, X₁₀ is Company analysis, X₁₁ is

Economy analysis, X_{12} is Advocates recommendation, X_{13} is Extraversion, X_{14} is Agreeableness, X_{15} is Conscientiousness, X_{16} is Neuroticism and X_{17} is Openness.

The regression model shows that the variables Risk level (0.003), Expected equity return (0.000), and Industry analysis (0.001) have a significant positive influence on the actual annual return. And the variables Technical analysis (0.037) and Advocates recommendation (0.041) have a significant negative influence. Hence, investors who adopt Industry analysis are more likely to earn higher returns in the equity market, whereas investors who adopt Technical analysis or Advocates' recommendations are more likely to earn lower returns. None of the Big Five personality dimensions are significant, however, although all the dimensions except Agreeableness and Openness have a positive influence on the actual equity return earned annually. This implies that Agreeable investors and investors with an open personality are more likely to earn lesser equity returns than investors with other personality types.

Table 4 also shows the collinearity statistics among the various independent variables. The Tolerance statistics measured are closer to 1, showing that only some of the variability in the independent variable is explained by the remaining independent variables. Therefore, issues of multicollinearity are ruled out. The reciprocal of the Tolerance statistic, the Variance Inflation factor/VIF, is also lower than 2 for all the independent variables, thereby providing no sign of multicollinearity.

6. CONCLUSION

This article has probed into the relationship between investors' decision-making tools (derived using Principal Component Factor analysis from variables influencing their stock investment decisions) and investors' personality dimensions (assessed via the Big Five personality model). From the population of Indian secondary equity investors residing in the city of Chennai, a sample of 436 investors was surveyed using the questionnaire survey method. The relationship between the investors' personality and their decision-making tools was analyzed using the Pearson correlation analysis. The correlation results showed significant positive correlations between (i) Industry analysis and Openness (ii) Company analysis and Agreeableness (iii) Company analysis and Conscientiousness (iv) Economy analysis and Openness and (v) Advocates' recommendations and Neuroticism, as well as a significant negative correlation between Company analysis and Neuroticism. Finally, a robust regression model was developed to predict the returns from equity investments using multiple linear regression with the personality dimensions and decision-making tools as the independent variables. The results of the study are useful to both investors and financial advisors. Investors will be better able to understand the influence of their personality on equity decision-making, which will allow them to choose the right decision-making tool to earn higher returns. Financial advisors, on the other hand, will be able to better understand the personality of their clients and hence suggest the most appropriate decision-making technique for their personality profile.

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