The Influence of Emotions and Social Value Orientation on Risk Tolerance and Sustainable Investment Choices

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Abstract

Purpose - The intricacy of the decision-making process has increased due to the inherent uncertainty surrounding investments. Therefore, the study aims to investigate the impact of individuals' Social Value Orientation (SVO), Emotional Instability (EI), and demographic factors on their Financial Risk Tolerance (FRT) levels. Additionally, it aims to investigate whether SVO and EI influence the adoption of socially responsible investment (SRI) funds and the diverse investment choices made by individuals.

Methodology - A convenient sampling technique was employed to gather data from 355 Indian retail investors through a structured questionnaire. Subsequently, the collected data was then examined and interpreted using binary logistic regression and chi-square tests facilitated by the SPSS 26 software.

Findings - The results emphasize that SVO, EI, Age, Marital status and Gender are significant predictors of investors' FRT. Furthermore, our study unveils that investors with a pro-social mindset are more inclined to invest in SRI funds compared to those who prioritize themselves.

Originality – The current study contributes to the existing literature by introducing a novel and unexplored variable, i.e., SVO, for academic consideration in risk tolerance. Moreover, this study imparts a profound understanding of behavioural finance by illuminating the influence of investors' values and emotions on their inclination to embrace risk.

Social Implication - By examining investors' preferences and interests in SRI, we gain valuable insight into the growing importance of sustainable funds. This aligns harmoniously with the overarching pursuit of Sustainable Development Goals (SDGs), as these conscientious investment funds scrutinize and eliminate companies that harm society.

Keywords: Social value orientation; Emotional instability; Financial risk tolerance; Socially responsible funds; Sustainable investment

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1. INTRODUCTION

Investment decisions have become more complex since they inevitably include some risk (Filbeck *et al.,* 2005). This intricacy arises from investors' limited understanding of 'risk,' defined by Head (1967) as "an event with an uncertain outcome." Risk incorporates various components, with risk tolerance (RT) being a significant contributor (Ferreira, 2019). Therefore, it becomes crucial to understand the RT level of individual investors. Grable (2000) defines RT "as the maximum uncertainty someone is willing to accept when making a financial decision." Over time, two perspectives, utility and behavioural prospect theories, have developed (Filbeck *et al.,* 2005). Utility theory posits that economic behaviour drives rational decision-making. On the other hand, the theory of behavioural prospect suggests that cognitive biases and emotional considerations cause individuals to deviate from rationality while evaluating investment possibilities (Thaler, 2000). For instance, the works of Kuhnen and Knutson (2011) and Breaban and Noussair (2018) explore the profound influence of emotions on risk-taking. Meanwhile, Chitra and Sreedevi (2011) found the significant impact of emotional stability on investment decision-making. These studies emphasize the importance of understanding the cognitive traits that individuals engage in when taking risks.

Although a great deal of research has been done on the impact of various personality traits, including the well-known Big Five personality traits (Akhtar and Das, 2020; Rodrigues and B.V, 2023), little is known about the role of "Social Value Orientation (SVO)" in connection to investors' RT. SVO is a comprehensive term that understands an individual's preference for their own self (pro-self orientation) and for others (pro-social orientation), and it provides insights into the fundamental principles and motives that influence human behaviour. The incorporation of SVO is significant for two persuasive reasons. Firstly, the impact of SVO on an individual's RT is an undefined area that requires exploration. Secondly, investors' social orientation provides important information about their beliefs and behaviours in relation to socially responsible investment (SRI) practices (Dilla *et al.*, 2011; Riedl and Smeets, 2017). By exploring these two domains, we can augment our knowledge of investor psychology concerning risk tolerance and investment choices.

Recent research by Kuzniak *et al.* (2017) and Shanmugam *et al.* (2023) has revealed that a range of factors, including demographic, socioeconomic, and cognitive characteristics, influence an individual's willingness to take risks. Furthermore, Weller and Tikir (2011) highlight the significance of personality in determining risk-taking behaviour, making it a crucial cognitive factor to consider. In examining the impact on the investor's RT level, we also acknowledge the importance of demographic factors and Emotional Instability (EI), similar to the neuroticism trait. By integrating the concept of EI, we gain a deeper comprehension of individuals' emotional states, enabling us to comprehend better the influence of values and emotions on investors' RT levels and investment choices.

The present study presumes that individuals who possess a pro-self orientation and exhibit emotional instability are more likely to show lower levels of RT. Building upon these foundational assumptions, our study endeavours to accomplish two significant objectives. Primarily, we aim to investigate the influence of SVO, EI, and various demographic factors on the RT levels of Indian investors. Secondly, we aim to ascertain whether investors' investment choices depend on their SVO and EI.

The results emphasize that SVO, EI, Age, Marital status and Gender are significant predictors of investors' FRT levels. The study discovered that individuals with pro-self orientation have lower RT levels than prosocial-oriented investors. Similarly, emotionally unstable investors exhibit a lower capacity for embracing risks. Furthermore, our study unveils that investors

with a pro-social mindset are more inclined to invest in SRI funds compared to those who prioritize themselves. However, we did not observe any significant influence of EI on investment choices.

The current study will contribute to behavioural finance literature by shedding light on the profound impact of investors' values and emotions on their risk-tolerance levels. Moreover, the study introduces a novel and captivating factor, SVO, to assess investors' tolerance for risk. Furthermore, we can illuminate the escalating significance of sustainable funds through a perceptive understanding of investors' preferences and their inclination towards SRIs, which prove vital to managers and investment advisors as they can construct bespoke investment portfolios for their clients.

The rest of the article is organized as follows: Section 2 provides a concise overview of relevant literature and establishes the foundation for the hypothesis. Section 3 outlines the methodology and research approach employed in the study. The findings are then presented and discussed in Section 4. The robustness results are shown in Section 5. Finally, Section 6 concludes with a comprehensive summary, drawing implications and outlining potential directions for further investigation.

2. CONCEPTUAL FRAMEWORK AND HYPOTHESIS FORMATION

The conventional beliefs held by economic and finance theories suggest that individuals are rational actors who strive for optimal utility in their decision-making processes. However, behavioural finance offers a different perspective, illuminating the existence of irrationality in decision-making processes. It acknowledges the impact of individual behaviour, cognitive biases, personal values, social influences, and emotions on decision-makers (Busic-Sontic *et al.,* 2017; Cristofaro, 2017, 2020). Research suggests heightened emotional states can hamper sound financial decisions, potentially steering investors towards choices that may not optimize expected risk-adjusted returns (Lo *et al.*, 2005; Brooks and Williams, 2021). Moreover, investors' underlying values are crucial in shaping their perspectives on investment choices. For instance, Nilsson's (2008) research has established a direct and compelling connection between investors' pro-social inclination towards SRI factors and their allocation of funds in SRI-profiled mutual funds. Numerous scholarly works have consistently highlighted the influential role of factors like Big Five Personality traits (Mayfield *et al.,* 2008; Pak and Mahmood, 2015; De Bortoli *et al.*, 2019), Psychological biases (Amiri et al., 2013; Kubilay and Bayrakdaroglu, 2016), Prospect theory (De Bortoli *et al.*, 2019), and Demographic factors (Grable and Lytton, 1998; Sarin and Wieland, 2016) on investors' levels of RT. With a deep understanding of the complex interplay among these factors, this study aims to provide a comprehensive insight into the intricate aspects that influence investors' RT levels.

2.1 Hypothesis Development

2.1.1. Social Value Orientation and Risk Tolerance Level

Van Lange (1999) put forth the idea that SVO plays a crucial role in shaping individuals' behaviour, reflecting their inherent inclination towards resource allocation between themselves and others. Extensive empirical research conducted by Fehr and Gintis (2007) and Kocher *et al.* (2008) have firmly disproven the notion that individuals primarily act in their self-interest. Some individuals consistently prioritize maximizing their utility, while others display different orientations that consider the well-being of others, as noted by Engel (2011) and Murphy *et al.* (2011). The literature commonly categorizes SVO into two groups: pro-social and pro-self (Murphy *et al.,* 2011; Zhang *et al.,* 2020; Qi *et al.*, 2023). These orientations significantly influence individuals' attitudes, decision-making processes, and risk

preferences. SVO can also shape how individuals perceive and evaluate risks. Pro-social individuals prioritizing collective well-being tend to view risks as less daunting and are more inclined to take greater risks. On the other hand, pro-self individuals, driven by self-interest, perceive risks as more menacing and are more likely to exhibit risk aversion. It is evident that SVO profoundly influences individuals' decision-making processes.

Considering the influence of SVO on decision-making processes, it is reasonable to hypothesize that SVO can shape individuals' RT. Therefore, we propose the following hypothesis:

H1: The pro-self orientation of investors is negatively associated with a risk tolerance level.

2.1.2. Emotional Instability and Risk Tolerance Level

Emotions play a crucial role in decision-making, particularly in the realm of finance, where individuals must navigate intricate and abundant information (Brooks and Williams, 2021). Extensive scholarly research has focused on the concept of emotional instability, commonly referred to as neuroticism (Allik and McCrae, 2002). John *et al.* (2008) classified individuals into two distinct groups: emotionally stable, who are characterized by their self-assured and unperturbed nature even in the face of stress, and neurotic or emotionally unstable individuals, who tend to be moody, anxious, prone to depression, and tense. This understanding was reinforced by the work of De Bortoli *et al.* (2019), who stated that individuals with neurotic tendencies often experience anxiety when confronted with ambiguity and uncertainty, leading them to avoid such situations. Drawing from the existing literature, it is widely acknowledged that emotional instability has a negative impact on RT (Pan and Statman, 2013; Mathur and Nathani, 2019). These findings align with the empirical evidence presented by Nicholson *et al.* (2005) and Soane and Chmiel (2005), which demonstrated a significant negative correlation between emotional instability and willingness to take financial risks. Consequently, we hypothesize:

H2: Emotional Instability (neuroticism) negatively impacts the risk tolerance level of investors.

2.1.3. Demographic Variables

Extensive research in the field of finance has consistently shown that individuals' FRT is significantly influenced by their demographic characteristics. Notable studies conducted by researchers have shed light on the importance of demographic variables in understanding one's attitudes and preferences towards risk (Grable, 1999; Yao and Hanna, 2005; Rabbani, 2016; Bayar *et al.*, 2020; Grable *et al.,* 2021). Previous studies (Grable and Lytton, 1998; Kannadhasan, 2015; Bayar *et al.*, 2020) have investigated the financial attitudes of adults, revealing that men generally exhibit a greater inclination for risk compared to women. Additionally, Roszkowski (1993) observed that women tend to be more cautious than men, and this distinction is attributed to the more "thrill seeker or sensation seeker" personality trait in men compared to women. Dhiman and Raheja (2018) and Bayar *et al.* (2020) have also observed that age, gender, marital status, income, and educational background significantly shape investors' RT. Hallahan *et al.* (2004) have indicated a negative correlation between RT and marital status, suggesting that unmarried individuals are more willing to embrace risks. Daly and Wilson (2001) propose that increased responsibilities associated with marriage and children tend to make men more inclined towards risk.

Furthermore, research conducted in the Indian context by Purkayastha (2008) has found a significant inclination among younger investors to embrace risk. Similarly, Finke and Huston (2003) and Jianakoplos and Bernasek (2006) have uncovered a negative correlation between age and FRT. Conversely, Wang and Hanna (1997) and Grable (2000) have discovered a

positive relationship between age and RT. It is worth noting that this relationship may not follow a linear trajectory. In simpler terms, RT tends to decline with age until reaching a certain threshold, after which it begins to rise again (Nosita *et al.*, 2020).

Furthermore, numerous studies have failed to establish a significant link between age and RT (Grable and Lytton, 1998; Grable, 1999). Moreover, Riley and Chow (1992) have observed that individuals with lower educational attainment tend to adopt a more conservative investment approach, even when controlling for income levels. Reddy and Mahapatra (2017) stated that education had been posited as a key factor in enhancing an individual's ability to evaluate the inherent risks associated with investment and cultivate a higher level of FRT.

Extensive prior research suggests that individuals can be categorized into risk-tolerant or risk-averse groups based on their demographic and socioeconomic factors. To substantiate these assertions, it is crucial to delve deeper into these presumed connections (Botwinick, 1966; Sung and Hanna, 1996). Thus, the current study intends to investigate the impact of individuals' demographic characteristics, such as age, gender, marital status, and education, on their FRT. In light of these previously researched demographic factors, we postulate:

H3: Demographic characteristics such as (a) age, (b) gender, (c) marital status, and (d) education level impact the risk tolerance of investors.

2.1.4. SVO, EI and Investment Choices

Recent studies have revealed the profound impact of pro-social preferences on investment choices (Riedl and Smeets, 2017), leading to significant flows of funds towards sustainable investments (Hartzmark and Sussman, 2019). SRI has emerged as a progressive and dynamic concept in today's investment landscape, seamlessly combining economic prosperity with social well-being (Mishra *et al.,* 2023). A wide range of conscientious investment options has been introduced to address environmental, social, and governance (ESG) concerns while simultaneously ensuring favourable financial outcomes (Dilla *et al.*, 2011; Pacelli *et al.,* 2023). Nilsson (2008) discovered that investors' pro-social attitudes and their belief in their ability to effect change as consumers significantly influence their inclination to engage in SRIs. These attitudes encompass a profound appreciation for companies that prioritize workplace rights, tackle environmental issues, refrain from producing harmful goods, and demonstrate a commitment to ethical business practices. Consequently, SRI becomes an investment philosophy that harmoniously combines profit maximization with intrinsic and social values. In examining individual choices concerning profitability and ethical responsibility, O'Neil and Pienta (1994) constructed a profile of an 'ethical' individual, concluding that ethical individuals possess an other-centred mindset, in contrast to less ethical individuals who tend to be self-centred.

The results of a study conducted by Oehler *et al.* (2018) in the asset market domain underscore the strong association between emotional instability and investment decision-making. Jiang *et al.* (2023) conducted a study on a sample of US investors to examine whether neuroticism affects their financial decision-making. The results indicate that neuroticism significantly influences the decisions made by investors. This aligns with the research conducted by Gärling *et al.* (2009), Kleine *et al.* (2021), and Rao and Lakkol (2022), further strengthening the notion that neuroticism holds immense sway over individuals' investment decisions. Existing literature has extensively explored the influence of social preferences and EI on investment decisions (Riedl and Smeets, 2017; Hartzmark and Sussman, 2019; Bauer *et al.*, 2022). Therefore, we propose the following hypothesis:

H4(a): Investors' social orientations impact their investment decisions.

H4(b): Investors' emotional instability impacts their investment decisions.

3. METHODOLOGY

3.1 Data

The current study utilized the convenient sampling technique to gather data from various regions throughout India from April 2023 to November 2023. A structured questionnaire comprising 35 items was administered to collect relevant information from investors. The questionnaire included two sections, first capturing investors' demographic information and second focusing on investors' personality traits. A total of 850 questionnaires were distributed electronically, resulting in 355 responses, out of which 341 were deemed usable, leading to a response rate of 41.7%. To assess the reliability of the scales, a pilot study involving a sample of 30 investors was conducted, and the results provided strong evidence of the scales' reliability. The statistical analysis was performed using the "Statistical Package for the Social Sciences (SPSS) 26" software.

3.2 Method

The study's objective is achieved by employing a binary logistic regression method and a chi-square test of independence. Binary logistic regression is appropriate when the dependent variable has a binary outcome of 0 or 1. The choice of logistic regression was due to its flexibility in assumptions compared to similar methods such as discriminant and regression analysis. However, it assumes that there should not be multicollinearity between the independent variables and that there is a linear relationship between the continuous independent variable and the logit of the outcome. A "variance inflation factor (VIF)" was calculated for each explanatory variable to test for multicollinearity. All VIF values were below five, indicating no major multicollinearity problems. In addition, Box-Tidwell transformations did not reveal any nonlinearities in the model, further confirming the assumption of linearity. The logit regression equation for the model is presented below:

$$\ln(p/1-p) = \alpha + \beta_1*GEN + \beta_2*AGE + \beta_3*MARSTA + \beta_4*EDU + \beta_8*SVO + \beta_9*EI \quad (1)$$

Equation 1 represents the model, where p denotes the predicted probability of the event coded as 1, and 1-p denotes the predicted probability of the alternative decision. The logarithm of 'p divided by one minus p' is called the logit or link function. In the equation, α represents the constant term, while β_n represents the model's parameters.

The SVO, EI, EIPS, and FRT scale measurements are as follows:

3.2.1. Social Value Orientation

The study employed the SVO Slider Measure, a "well-validated tool" for evaluating SVO (Murphy and Ackermann, 2014). This paper-based choice task, developed by Murphy *et al.* (2011), encompasses "six primary items and nine secondary (optional) distinct allocation options" for one's payoff and the other person's payoff. Investors participating in the study had to select their preferred allocation option for each item, indicating their desired distribution of payoffs between themselves and others. To determine the resulting SVO angle, the study computed the mean allocation for the self (Ps) and the mean allocation for the other (Po). The base of the resulting angle is then shifted from the Cartesian origin to the centre of the circle (50, 50) by subtracting 50 from each of these means. The SVO angle (SVO°) is then obtained by computing the "inverse tangent of the ratio between these means" (Murphy *et al.,* 2011), as shown in Equation 2.

$$SVO^{0} = \arctan\left\{\frac{\sum(P_o - 50)}{\sum(P_s - 50)}\right\} \quad (2)$$

In line with previous research by Liu *et al.* (2019) and Qi *et al.* (2023), the investors were categorized as pro-social if their SVO° > 22.45°, while investors with an SVO° ≤ 22.45° were classified as pro-self. According to our survey's statistics, 47.8% of respondents were categorized as pro-social and 52.2% as pro-self.

3.1.2. Emotional Instability

The neurotic personality scale utilized in this study was adapted from research conducted by McCrae and Costa (1994) and Mayfield *et al.* (2008). The score on the scale ranges from 5 to 25, where higher scores indicate greater emotional instability and lower scores indicate higher emotional stability. Based on the median score (15), the investors in our sample were categorized into two groups: emotionally stable and unstable. It was found that 59.2% of the investors demonstrated emotional stability, while 40.8% exhibited emotional instability.

3.1.3. Ethical Investment Preference Scale (EIPS)

The self-designed scale consists of seven items, graded on a 3-point Likert scale. These questions delve into the preferences of investors, exploring whether they are inclined to invest in SRI funds despite the allure of higher returns offered by conventional funds. By utilizing this scale, we aim to gauge investors' inclination to support companies that prioritize ecological sustainability, refrain from harmful production methods, abstain from animal experimentation, and other ethical considerations. Rigorous scrutiny has been conducted to establish the scale's reliability and validity. The "Kaiser-Meyer-Olkin" measure of sampling adequacy yielded a result of 0.917, indicating the consistent nature of the variables. The scale's reliability was evaluated by assessing the internal consistency of its dimensions. Furthermore, face validity, which refers to the extent to which the scale items appear to measure the construct of interest, was examined. Experts who have done research in this field were asked to provide their insights on what the EIP scale was measuring, and their responses, including 'investment choices,' 'values,' and 'importance of social responsibility while investing,' confirmed that the scale items accurately reflect the construct of EIPS. To assess the dimensionality of the EIP scale, exploratory factor analysis was conducted. This analysis revealed a single factor that accounted for an impressive 71.1% of the variance. Following Churchill's guidelines, items with low factor loadings (less than 0.40) or split loadings (loading 0.40 or more on more than one factor) were considered for deletion. Fortunately, no such items were identified. The factor loadings and corresponding items for each factor are provided in Table I.

Table I: Factor loadings of EIPS.

Would you be interested in investing in the following companies if they offered higher returns than socially responsible funds?	**Factor loadings**
1. Produce products like Alcohol, Tobacco, Pork-production, etc., or engage in Gambling.	.734
2. Invest in or Promote Weapons, Pornography.	.798
3. Poor environmental/waste management practices.	.879
4. Unequal treatment of workers.	.907
5. Poor relationship with local communities	.912
6. Do experiments on animals	.811
7. Don't care for social welfare activities such as charity, child education, or healthcare.	.845

3.1.4. Financial Risk Tolerance

The dependent variable of the current study is Risk Tolerance. The Grable and Lytton 13-item risk-tolerance (GL-FRT) scale, with known reliability and validity estimates (Kuzniak *et al.*, 2015), was used in the study to reflect the multidimensional aspect of the FRT. The scale comprises 13 items that assess risk comfort, investment risk, and speculative risk (Grable, 1999). Each question's response was weighted based on riskiness, ranging from 1 to 4, where 4 indicates higher weight. The findings of the present study revealed that the investors' RT index scores varied between 16.5 and 41, with a median of 28 (standard deviation: 4.7394). According to the median score, individuals who scored 28 or higher on the scale were coded as 1, while those who scored lower than 28 were coded as 0. This classification aligns with earlier research that used the same approach (Grable, 1999; Mishra and Mishra, 2016). In our sample, 52.8% of respondents exhibited high RT, while 47.2% displayed low RT levels.

4. EMPIRICAL RESULTS

A binary logit model was employed to investigate the personality traits and demographic variables that possibly impact the RT level of Indian investors. The reliability of the variables was assessed using Cronbach's α coefficient. According to commonly accepted guidelines, a Cronbach's α value of ≥ 0.7 is considered good when using a scale (Hair *et al.*, 2010). In our study (Table II), the RT, EI, EIPS, and SVO scale exhibited Cronbach's α coefficients of .702, .855, .929 and .836 (test-retest reliability). All four scales surpassed the threshold of 0.7, indicating a high level of reliability in these measurements.

Table II: Reliability Analysis

Scale	Cronbach Alpha (α)
Risk Tolerance	.702
Emotional Instability	.855
Ethical Investment Preference Scale	.929
SVO (test-retest)	.836

Table III summarises the demographic variables of 341 Indian investors. The majority, 86.8%, of the participants in our study are male, while 13.2% are female. Among them, 77.7% are single, while 22.3% are married. Regarding the participants' educational background, 66% of the sample held a post-graduate or higher degree, 30.8% possessed a bachelor's degree, and only 3.2% of the sample were high-school pass out. These statistics indicate that the majority of the investors in the sample possess a high level of education. Examining the SVO, a relatively even distribution is observed, with 52.2% of participants demonstrating a pro-self orientation, while 47.8% embrace a pro-social perspective. Remarkably, a significant % of investors (59.2%) exhibit emotional stability, whereas 40.8% display higher propensities for emotional instability. Among the 341 investors surveyed, 38.4% express no willingness to invest in SRI funds, 20.8% remain impartial regarding their investment decisions, and 40.8% eagerly embrace the opportunity to invest in SRI funds. Within the sample, 52.8% of respondents exhibited high RT, while 47.2% displayed low RT levels.

Table III: Frequencies Description of Demographic Variables

No. of respondents (n) = 341			
	Frequency	Percentage (%)	Cumulative %
Gender			
Male	296	86.8	86.8
Female	45	13.2	100.0

Marital Status			
Single	265	77.7	77.7
Married	76	22.3	100.0
Education Level			
High-school	11	3.2	3.2
Under-graduates	105	30.8	34
Post-graduates	225	66	100.0
Risk Tolerance			
Low RT	161	47.2	47.2
High RT	180	52.8	100.0
SVO			
Proself	178	52.2	52.2
Prosocial	163	47.8	100.0
Emotional instability			
Emotionally stable	202	59.2	59.2
Emotionally unstable	139	40.8	100.0
EIPS			
Not at all willing	131	38.4	38.4
Neutral	71	20.8	59.2
Very much willing	139	40.8	100.0

The descriptive statistics of the 'Age' variable for the participants are presented in Table IV. The mean age is 27.11 years, with a median of 26 years. The standard deviation is 5.760, and the age ranges from 17 to 48 years.

Table IV: Descriptive Statistics of Age

Variable	Mean	Median	S. D	Skewness	Kurtosis	Min	Max
Age	27.11	26	5.760	1.479	2.267	17	48

4.1. Results of the Logistic Regression Analysis

The current section delves into examining the association of SVO, EI, and demographic factors on the levels of FRT among Indian investors. The efficacy of logistic regression can be evaluated by examining the model prediction (refer to Table V), which reveals that the model accurately classified 55.3% of individuals with low RT and 72.2% with high RT. As a result, the overall correct classification rate for the original group is 64.2%.

Table V: Overall Classification results of the model

		Predicted		
		Risk Category		
Observed		Low RT	High RT	Percentage Correct
Risk Category	Low RT	89	72	55.3
	High RT	50	130	72.2
Overall Percentage				64.2

Table VI summarises the model fit in terms of goodness-of-fit statistics and relevant measures. The log-likelihood value of 428.246 represents the maximum logarithm value attained by the likelihood function within the statistical model. The pseudo-R2 value reflects the variance the model can account for, and the Cox and Snell value indicates that the model explains approximately 12% of the variability in the dependent variable. However, to provide a more reliable estimate, we rely on the Nagelkerke R2 value, an adjusted version of the Cox and Snell R2. It indicates that the given model explains 16% of the variance. The omnibus

test results show that the model has a strong overall fit and is statistically significant in predicting the outcome variable. Further, the 'Hosmer and Lemeshow test' assesses the model's goodness of fit. The test reveals that the model adequately fits the data, as indicated by the chi-square value (3.444) with 8 degrees of freedom and a p-value of 0.904. These results indicate a significant fit of the model.

Table VI: Summary of the model

Model Summary			
	-2Loglikelihood	Cox & Snell R	Nagelkerke R
Model	428.246	.12	.16
Omnibus Test			
	Chi-square	df	Sig.
Model	43.421	7	.000
Hosmer & Lemeshow Test			
	Chi-square	df	Sig.
Model	3.444	8	0.904

The coefficient estimates in Table VII shed light on the relationship and odds ratio between independent variables and high RT. The age coefficient divulges a positive relation with high RT, as each incremental unit in age corresponds to a 4.1% surge in the odds of possessing a high RT. This intriguing association can be attributed to the fact that our study predominantly comprised individuals in their middle years, with a maximum age of 48. As this demographic does not fall within the category of older individuals, these investors enjoy a stable and consistent income and ample time to strategize for retirement. Consequently, these factors contribute to their heightened propensity for taking risks in their investment decisions. Conversely, female and married investors exhibit a negative relation with high RT compared to male and single investors. Specifically, female investors have approximately 45.4% lower odds, while married investors have 36.4% lower odds of taking high RT.

Furthermore, individuals with pro-self orientation exhibit a negative relation with high RT, and there are 39.7% lower odds of possessing a high RT than those driven by pro-social values. These results align with our expectations. Similarly, individuals with emotional instability display 45.5% lower odds of possessing a high RT than those with emotional stability, and these results are similar to the past literature. Interestingly, while higher education is generally associated with a greater capacity for risk-taking, our results challenge this assumption. Surprisingly, individuals with a lower level of education display a positive relationship with high RT, although this association lacks statistical significance.

Furthermore, individuals holding a bachelor's degree have 1.784 times higher odds of having a high RT than post-graduate investors, suggesting that higher education does not necessarily equate to a willingness to take on greater risks. The constant term in our analysis represents the odds of having a high RT when all other variables are at zero. The exponentiated constant coefficient reveals that these odds are approximately .961 times lower, although this finding does not reach statistical significance. In summary, these findings underscore the significant impact that age, gender, marital status, SVO, and EI have on RT levels. Consequently, we can accept our first and second hypotheses while acknowledging that our third hypothesis pertaining to education yielded only partial significance.

Table VII: Variables in the equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Gender						
female	-.791	.355	4.965	1	.026**	.454
Marital status						
married	-1.010	.290	12.136	1	.000***	.364
Education			5.029	2	.081*	
high-school	.396	.647	.375	1	.540	1.486
under-graduate	.579	.260	4.955	1	.026**	1.784
SVO						
pro-self	-.925	.245	14.228	1	.000***	.397
Age	.040	.021	3.588	1	.058*	1.041
Emotional instability						
emotional instability	-.787	.248	10.059	1	.002***	.455
Constant	-.030	.607	.002	1	.961	.970

Note: ***, ** and * indicate the 1%, 5% and 10% significance levels, respectively.

4.2. Results of the Chi-square test of Independence

Table VIII presents the data on investors' inclination to invest in SR funds. Among the 341 participants, 178 investors exhibited a pro-self-oriented perspective, while 163 investors possessed a pro-social orientation. Of the 178 self-oriented investors, 33.7% are highly enthusiastic about investing in SR funds. Conversely, of the 163 pro-social investors, an impressive 48.4% express a strong willingness to invest in SR funds. It can be observed that pro-social investors exhibit a higher propensity to engage in SR investments juxtaposed to their pro-self counterparts. These findings are the same as those of the studies by Nilsson (2008), Dilla *et al.* (2011), and Riedl and Smeets (2017). Moreover, Table IX further strengthens this argument by presenting the chi-square test results. The p-value derived from the test convincingly rejects the null hypothesis and embraces the alternative hypothesis for SVO.

Consequently, it becomes clear that their orientations influence investors' investment choices. These findings emphasize the undeniable link between investors' orientations and their investment decisions, thereby underscoring the importance of understanding and capitalizing on this relationship. Moreover, it is noteworthy that emotionally unstable investors demonstrate a greater inclination (42.4%) towards investing in SRI funds compared to emotionally stable investors (39.6%). However, upon closer examination of the p-value, we find that emotional instability does not significantly influence the investment choices of investors. Consequently, this suggests that while values are pivotal in shaping investment choices, emotions do not hold the same sway over investors.

Table VIII: Cross-tabulation of SVO and Willingness to invest in SRI funds

		Not at all willing	Neutral	Very much willing	Total
SVO	Pro-self	82	36	60	178
	Pro-social	49	35	79	163
EI	Emotionally stable	78	44	80	202
	Emotionally unstable	53	27	59	139

Table IX: Test of independence

Chi-Square Test

	SVO			EI		
	Value	df	Sig.	Value	df	Sig.
Pearson Chi-Square	10.284[a]	2	.006	.388[b]	2	.824
Likelihood Ratio	10.363	2	.006	.389	2	.823
Linear-by-Linear Association	10.148	1	.001	.115	1	.735
N of Valid Cases	341			341		

a. 0 cells (0%) have an expected count of less than 5. The minimum expected count is 33.94.
b. 0 cells (0%) have an expected count of less than 5. The minimum expected count is 28.94.

5. ROBUSTNESS TEST

To ensure the credibility of our findings, we implemented a bootstrapping technique consisting of 2000 and 5000 iterations. We resampled the initial group of 341 investors with replacements during each iteration. By conducting this resampling procedure, we constructed a resilient sampling distribution, ultimately providing enhanced accuracy and certainty when estimating the desired parameters. The findings of our analysis unequivocally demonstrate that the coefficients of most variables, such as Gender, marital status, age, EI, and SVO, remain consistently significant and reliable[3]. These captivating and illuminating outcomes underscore the unwavering strength and vital significance of the logistic regression model in accurately forecasting investors' behaviour.

6. CONCLUSION

Risk tolerance refers to the degree of uncertainty individuals are willing to accept in their financial decision-making. While investors are generally assumed to make rational decisions, various factors, including demographics and cognitive traits, can influence their financial choices (Aini and Lutfi, 2019). Personality measures, like other psychological preferences, have the potential to impact an investor's decision-making process. So, the objective of this study is twofold in nature. Firstly, it seeks to examine the influence of SVO, EI, and demographic factors on the FRT of investors by implementing binary logistic regression. Secondly, it aims to explore the profound influence of SVO and EI on adopting SRI practices, thereby emphasizing the different investment choices based on individual orientations. The findings of our study demonstrate that individuals with a pro-self orientation were found to have a negative association with RT.

In contrast, those with a pro-social orientation showed a positive relationship. Additionally, our results indicate that age positively relates to FRT, while females exhibit lower RT levels than males. Also, married investors demonstrated a lower propensity for risk-taking, and investors with emotional instability showed a lower tolerance for risk. These findings align with previous studies and further reinforce their validity. Furthermore, our study uncovers that investors with a pro-social proclivity are more inclined to invest in funds promoting ethical and SRI practices, in contrast to those who prioritize their own interests.

6.1. Implication and Future Research

With the integration of SVO, EI, and demographic factors, this comprehensive investigation bestows upon a refined comprehension of the intricate elements that shape RT levels within the realm of Indian retail investors. This study will enrich the literature on behavioural finance by shedding light on the profound impact of investors' values and emotions on their risk-tolerance levels. In doing so, we transcend the conventional focus from the Big Five personality traits and introduce a novel and captivating factor (SVO) for academicians to

[3] Results of bootstrapping using 5000 iterations are shown in Appendix and the results of 2000 iterations is untabulated for brevity.

assess investors' tolerance for risk. We firmly believe these variables should be considered to holistically comprehend the broader ramifications of personal characteristics on RT. Through this study, we strive to deepen our understanding of financial decision-making's intricate and subtle nature.

Subsequently, it will prove vital to managers and investment advisors as they can construct bespoke investment portfolios for their clients. Furthermore, through a perceptive understanding of investors' preferences and their inclination towards SRI, we are able to illuminate the escalating significance of sustainable funds. This harmoniously aligns with the overarching pursuit of Sustainable Development Goals (SDGs), as these conscientious investment funds painstakingly scrutinize and eliminate companies that have detrimental effects on society, such as those involved in manufacturing deleterious products like tobacco or those that pose threats to our environment. Simultaneously, they actively embrace companies that contribute to society's betterment through benevolent endeavours and philanthropy.

Notwithstanding the authors' earnest endeavours, it is important to acknowledge that the study is not devoid of limitations. Primarily, the conclusions drawn are rooted in a relatively modest sample size of 341 Indian retail investors, which inevitably curtails the extent to which the findings can be extrapolated to a broader population. Future research with more diverse samples is recommended to validate and extend our findings. Moreover, the underrepresentation of female investors, with only 45 out of 341 respondents, necessitates future studies to ensure a more balanced and representative gender distribution. Lastly, our study exclusively focused on Indian retail investors, exploring the influence of SVO in other countries would yield a more comprehensive perspective on investor behaviour.

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APPENDIX

Appendix I: Robustness check using the 5000 Bootstrapping iterations.

					95% Confidence Interval	
	B	Bias	S.E	Sig. (2- tailed)	Lower	Upper
Gender						
female	-.791	-.033	.371	.024**	-1.583	-.103
Marital Status						
married	-1.010	-.024	.297	.000***	-1.637	-.447
Education						
12th	.396	.112	2.088	.521	-1.037	1.956
Under-graduates	.579	.011	.263	.023**	.085	1.116
SVO						
Pro-self	-.925	-.030	.253	.000***	-1.465	-.491
Age	.040	.002	.025	.085*	-.003	.093
Emotional instability						
Emotionally unstable	-.787	-.024	.253	.001***	-1.326	-.326
Constant	-.030	-.012	.672	.969	-1.402	1.235

Note: ***, ** and * indicate the 1%, 5% and 10% significance levels, respectively.