Measuring Financial Risk taking using a dual preference approach for determination of Financial Satisfaction

Authors Name and Mailing Address

First Author
Shalini Kalra Sahi*
Assistant Professor- Finance
Management Development Institute
Sukhrali, Mehrauli Road
Gurgaon-122001
Haryana, INDIA
Email: skalrasahi@mdi.ac.in; skalrasahi@gmail.com

Second Author
Prof. Satish Kumar Kalra
Professor- Organization Behaviour
International management Institute
B-10, Qutab Institutional Area,
New Delhi
Email: satishkkalra@imi.edu

*CORRESPONDING AUTHOR

All Correspondence should be mailed to:

Shalini Kalra Sahi
Assistant Professor- Finance
Management Development Institute
Sukhrali, Mehrauli Road
Gurgaon-122001
Haryana, INDIA
Email: skalrasahi@mdi.ac.in; skalrasahi@gmail.com

Abstract

The purpose of this study[1] is to measure the dual dimensions of financial risk taking and to find out how these dimensions relate to the financial satisfaction of the individual investors. A context specific measure of financial risk taking was developed based on existing measures and the final survey was conducted on 377 respondents. The results showed that clusters of the dimensions of financial risk taking were found to be significantly associated with financial satisfaction and for high risk control attitude, an increase in speculative risk tendency increases financial satisfaction. The paper presents a novel insight into the dimensions of financial risk taking and how they relate to financial satisfaction.

Keywords: Financial Risk Taking, Investor behaviour, financial satisfaction, behavioural finance

[1] This study is a small part of a larger research study that was conducted (by the first author), to find out the behavioural undercurrents of the financial investment decisions.

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1. Introduction

An individual is exposed to risk in any situation where there is more than one possible alternative or outcome. The attitude towards risk varies between the individuals, i.e. people perceive risk differently. Various studies have shown that an individual's attitude towards risk is domain specific (Weber, Blais & Betz 2002; Lampenius & Zickar, 2005; Blais & Weber, 2006; Nosic & Weber, 2007). Corter and Chen (2006) stated that investment risk tolerance cannot be explained by a general cross domain appetite for risk. Various studies exist in the literature that measure the domain specific financial risk taking, however, the assessment of such risk measures are not based on the dual preference approach. This implies that while these studies measure the individual's financial risk taking attitude or tolerance on a continuum ranging from low risk tolerance or risk aversion to high risk tolerance or risk seeking, they don't take into consideration the simultaneous assessment of the risk aversion and risk seeking dimensions of the attitude. Evidence of the multiple dimensions of attitude towards financial risk taking are found in our everyday life when on the one hand, a person would speculate in the stock market, yet on the other hand would also invest in fixed deposits and buy insurance policies.

However, the measurement of these multiple dimensions of financial risk taking and how they simultaneously influence financial behaviours has not been extensively researched in the literature. This study aims to fill this gap in the literature and attempts to find out how the multiple dimensions of risk taking can impact the financial satisfaction of the individual investors. The reason for considering financial satisfaction is on account of the fact that individual's choices on saving and investment are with the intent of achievement of particular

financial goals and if the individual feels that his/ her goals can be achieved, they experience a sense of satisfaction with the management of their finances. Financial risk taking attitude would thus have an influence on the financial satisfaction levels of the individuals. Based on a sample drawn from the individual investor population segment in India, the study has the following objectives: 1) To develop a measurement instrument that captures the dimensions of the attitude towards financial risk taking based on modification and adaption of existing measures; 2) To find out how the dimensions of financial risk taking impact the financial satisfaction of the individual investors.

The paper is organized as follows: in the next two sections a review of financial risk taking and its measurement has been mentioned. Section four discusses the relationship between financial risk taking and financial satisfaction. Section five states the research hypothesis and section discusses in detail the research methodology. Section seven discusses the results. Section eight discusses the implications and concludes the study.

2. Literature review on Financial Risk Taking

Risk is an important attribute of an investment hence an indispensable component of financial investment decisions (Ganzach, 2000; Hallahan, Faff, and McKenzie, 2004; Bailey & Kinerson, 2005; Lampenius & Zickar, 2005; Raja, 2006; Sevdalis & Harvey, 2007; Kuhnen & Chiao, 2009; Roszkowski, Delaney & Cordell, 2009). Most research on financial risk taking and financial risk tolerance has been based on the principle of economic theory, where people are assumed to be risk averse or have low acceptance to risk (Chaulk, Johnson & Bulcroft, 2003). Standard finance scholars use the 'traditional approach based on expected utility theory' to measure risk based on statistical measures and the distribution of possible outcomes. Objective risk measures which include historical risk (beta, standard deviation) that are "based on a number of observations or

calculations, with a focus on long-term data over a specific time period, and sophisticated statistical calculations or financial models to measure risk for specific financial instruments" (Ricciardi, 2007, p.6). Thus, neoclassical finance treats financial risk as a set of attributes pertaining to the financial hazard, without looking at the attributes of the investor (Olsen, 2008).

However, "behavioural finance scholars employ the 'behavioural approach' to evaluate risk, based on data from laboratory experiments and survey/questionnaire instruments" (Ricciardi, 2007, p.8). Risk in behavioural finance has a subjective (perceived) component and is determined by examining the beliefs, attitudes, and feelings towards risk for a specific situation, activity or circumstance (Slovic, 1987; Ricciardi, 2007). Since the financial risk taking propensities are related to the level of financial investment risk that an individual is willing to take, it is essential to understand this phenomenon when studying financial investment behaviour (Masters, 1989; Riley & Chow, 1992; Hallahan, Faff, and McKenzie, 2004). Ganzach (2000) opined that "risk is negatively related to preference. The higher the risk, the less favorable the alternative." (p.353). However, this is not been found to be true in many cases, else what explains the choice to invest in speculative investments, where risk is high.

Hence, empirical research has revealed that people's actual behaviour deviates from the axioms of expected utility theory and that people have a tendency towards certain heuristic driven biases (Kahneman and Tversky, 1974; Kahneman & Tversky, 1982; Kahneman, Slovic & Tversky, 1982) and their decisions are also influenced by the framing of the outcomes (Tversky & Kahnemen, 1981; Kahneman & Tversky, 1982). Further, insights from the works of Kahneman and Tversky (1979) show that people are risk averse when it comes to gains and risk seeking when it comes to losses, which makes them prefer one investment option over another (Sevdalis & Harvey, 2007). Hence, the financial risk attitude that an individual adopts towards

an investment decision(s), would also depend upon the way the individual internally frames the decision (McCrae, 2006). Therefore, in the context of Individual investor decision making, risk is "any consciously or non-consciously controlled behaviour with a perceived uncertainty about its outcome, and/ or about its possible benefits or costs for the physical, economic or psycho-social well being of oneself or others" (Trimpop, 1994, p.9)

"Risk tolerance refers to an investor's comfort with the inherent risk in a given type of investment. This is also referred to as the "sleep factor"- the level of risk an investor can withstand and still be able to sleep at night." (Ricciardi, 2007, p.19). Grable (2000) stated that financial risk tolerance is "the maximum amount of uncertainty that someone is willing to accept when making a financial decision" (p.625). It measures the subjective nature of risk taking (Grable, 2000). It helps in determining the appropriate composition of assets in the portfolio of the individual which is matching with the needs of the individual, in terms of risk and return (Hallahan, Faff & Mckenzie, 2004). Further, various studies have shown that financial risk tolerance and financial risk taking attitude are positively associated with each other (Tigges, Riegert, Jonitz, Brenglemann, & Engel, 2000; Grable, Britt & Webb, 2008).

"Analyzing portfolio choices of the investors and predicting their risk taking behaviour is an integral part of both decision research and investment advice." (Nosic & Weber, 2007, p.2) Corter and Chen (2006) stated that the importance of assessing individual difference in the risk attitude on account of the fact that, "people have varying risk attitudes that exist independently of their financial circumstances, and that these attitudes affect investment behaviour" and predict the investor's comfort level with different investment strategies, (p.370). Studies have shown that individual's financial risk taking decisions can be, predominantly of three types, namely risk seeking, risk neutral and risk avoiding (LeBaron, Farrelly & Gula, 1989; Masters, 1989; McCrae,

2006). Grable (2000) stated that factors such "gender, age, marital status, occupation, income, and expectations may influence a person's level of risk taking in everyday money matters" (p. 626). Differences in financial risk taking have been explained using biological, social theories and neurofinance insights. While biological theories emphasize on the fact that differences between men and women arise on account of hormones and genes, social theories explain the differences on account of gender socializations (Meier-Pesti & Goetze, 2006). Psychological gender has been distinguished from biological gender when it comes to predicting risk taking behaviour and Masculinity has been seen to positively impact financial risk taking (Meier-Pesti & Goetze, 2006; Meier-Pesti & Penz, 2008). Socialization theories explain how the parent's attitude towards money impacts the child's future economic behaviour (Furnham & Argyle, 1998). Further, individual differences in personality traits, attitudes, biochemical structures also influence the financial choices that are made (Zaleskiewicz, 2001). Also, Neurofinance studies have found that, the brain structure is such that it operates on two types of goal-directed behaviours, namely reward pursuit and loss avoidance and both these can be activated or deactivated independently (Peterson, 2010).

With regard to the stability of the risk attitude measures, Yip (2000) found that financial risk tolerance measures were found to be stable across time, unaffected by increase in financial knowledge and experience and unaltered even in the event of major stock market crash. Thus, Risk attitudes or risk tolerance have been considered as a trait, i.e. a relatively enduring way in which one individual differs from another (Van de Venter & Michayluk, 2009). Hence, financial risk tolerance or financial risk taking attitude is generally recognized as an essential ingredient in investment portfolio construction, and thus, an accurate assessment of individual's perception of financial investment risk is essential to the understanding of Investment decision behaviour.

3. Assessment of Financial Risk Taking Attitude- Dual Preference Model

Hence, financial risk attitudes indicate preferences and tolerances for financial investment risk (McCrae, 2006). Risk taking attitudes towards investments are determined by a system of beliefs learnt over long periods of time and are enduring in nature (McCrae, 2006). Further, Callan and Johnson (2002) contended that attitudes have two components, a spoken component concerning the person's beliefs and an unspoken component which reflects the person's feelings and emotions (Hallahan, Faff & Mckenzie, 2004). Hallahan, Faff and Mckenzie (2004) and Faff, Mulino and Chai (2008), stated that there are three methods for measuring/assessing Financial Risk Taking Attitude, as available in the literature; 1) observing actual behaviour, 2) assessing choices in an experimental setting where decisions have financial consequences or in hypothetical scenarios, and 3) questionnaire administered through survey design. Faff, Mulino and Chai's (2008) study showed that risk aversion behaviour in case of experimental settings was similar to the financial risk tolerance scores obtained from psychometrically validated survey instrument. Even the demographic determinants were found to be consistent across these measures. Hence, though many studies have used experimental questionnaires to assess financial risk tolerance, however, due to the "complexity of the attitudinal construct, a sophisticated psychological testing instrument is required to elucidate a person's attitude towards financial risk" (Hallahan, Faff & Mckenzie, 2004, p. 59).

Most of the psychometric measures of individual's financial risk tolerance or risk taking, result in a composite score which lies on a continuum, with two extreme possibilities (Warneryd, 1996; Carducci & Wong, 1998; Grable, 2000; Lin & Lee, 2004; Filbeck, Hatfield & Horvath, 2005; Roszkowski, Delaney & Cordell, 2009) Hence, people are either high on the score or low on the score. This implies that if an individual has high risk tolerance then he can take more risk

or is more risk seeking and thus he would be preferring investments which entail a high degree of risk and visa-versa. However, various studies have shown that risk attitudes are not a homogenous dimension (Kahneman & Tversky, 1979; Slovic, 1987; Zaleskiewicz, 2001; 2004). Empirical research shows that people's behaviour deviates from the axioms of the expected utility theory and these behaviours are driven by different motives like achievement motivation, sensation seeking, locus of control (Kahnemen & Tversky, 1979; Zaleskiewicz, 2001). As elabourated by Zaleskiewicz (2001), "risky behaviour motivated by the need for achievement differs from risky behaviour motivated by the need for stimulation." (p.106)

According to Zaleskiewicz (2004), "traditional formal models of decision making have typically ignored the distinction between instrumental and stimulating motives in risk behaviour." (p.77) He further added that "risk taking driven by the need for excitement differs from the risk taking motivated by the aspiration to a particular goal in future" (p.77). When risk taking is undertaking for the purpose of achieving a certain investment goal, the amount of risk that an individual is willing to take is controlled, whereas when the risk taking is undertaken as motive driven by need for stimulation, the amount of risk that an individual is willing to take is driven by emotional excitement from making huge investment gains (Grable & Lytton, 1999; Loewenstein, Weber, Hsee, & Welch, 2001; Zaleskiewicz, 2001; Lampenius & Zickar, 2005).

In their study on financial risk attitude, Lampenius and Zickar (2005), referred to the two dimensions as Risk Control and Speculative Risk. These are in the lines of the Instrumental Risk Taking and Stimulating Risk Taking. The Stimulating aspect of risk taking is similar to the speculative risk i.e. the individual's tendency towards the risk taking side. It captures the gambling behaviour of the individual and the tempting option that by accepting a higher level of risk the expected return will increase (Zaleskiewicz, 2001; Lampenius & Zickar, 2005).

Similarly Instrumental risk taking is similar to the concept of Risk Control i.e. the individual's tendency towards the risk averse side. It influences the decision maker by reminding him/her that by accepting a higher level of risk, the potential for future losses will increase (Zaleskiewicz, 2001; Lampenius & Zickar, 2005).

Thus, with reference to financial investments, Warneryd (1996) stated that "people buy insurance but they also gamble and take investment risks." (p.749) Chang (2008) explained that an individual who is a risk avoider at a certain income level can become a risk seeker at another income level and that people who are risk averse can also engage in risk taking activities at the same time. The effect of mental accounting principle, which people follow to segregate their income and expenditure, on the risk perception of the portfolio by the investors was also studied by Shefrin & Statman (2000). Hence, people can be both risk seeking and risk averse in financial decisions (Kahneman & Tversky, 1979; McCrae, 2006; Chang, 2008). Neurofinance studies have showed that not only are risk and reward evaluated by different parts of the brain and carry different neural signatures, also, risk and uncertainty are experienced differently in the brain (Bechara & Damasio, 2005; Kuhnen & Knutson, 2005)

If financial risk taking is measured on a continuum, then, for example, the above average risk tolerant individual would be assumed to be the one with higher tendency towards the risk taking side, which would conversely imply that the he/she is less averse to risk. But if people have been empirically observed to be both risk seeking and risk averse with respect to financial decisions, then it signifies that risk taking attitude requires the understanding of how an individual perceives risk on both these dimensions. Thus, the individual differences in financial risk taking have to take into consideration these two motivational forces and measuring these attitudes in an individual. Lampenius and Zickar (2005) developed a model that classified the

individual on the dimension of risk aversion based on their Speculative risk scores and Risk control scores. Though they considered two dimensions of risk, they considered both these "for the successful classification of the individual on the risk taking—aversion continuum." (p.131) This study proposes that both the dimensions are independently active in the individual and depending on the attitude of the individual on both these forces, the individual's financial investment choices, get impacted, and thus their financial satisfaction levels. Thus, the comprehensive measure of financial risk taking should take into consideration both the dimensions of risk.

4. Financial risk taking and Financial Satisfaction

Financial satisfaction refers to the "satisfaction with various aspects of the financial situation" (Hira & Mugenga, 1998, p.77). It is the subjective measure of financial well-being (Zurlo, 2009). An individual who is financially satisfied is the one who feels that the resources that they have are adequate for the achievement of their financial goals. Ones financial attitudes determine ones financial satisfaction (Joo & Grable, 2004) and one of the important aspects of financial attitude is the attitude towards financial risk taking. When it comes to parting with money for saving and investment decisions, the individual has to make a choice among the various investment options that would enable him/her to achieve their financial goals. The choices that the individual makes would depend upon, among other factors, their attitude towards financial risk taking. Hence, attitude towards financial risk taking would impact the financial satisfaction that the individual experiences.

5. Research Hypothesis

As suggested by the extant review of the literature and the exploratory interviews, individual have both the dimensions of financial risk taking, namely the tendency to be controlled or averse

to risk in some circumstances and in others the tendency to take that risk. Hence, the Risk Control and Speculative Risk aspects of the financial risk taking attitudes were found to be present in the individuals. In the endeavor to understand whether these attitudes were individually impacting the financial satisfaction of the individual or collectively impacting, the following research hypotheses were raised:

H1: Risk Control is positively associated with financial satisfaction

Risk Control has been defined as "the individual's tendency towards the risk averse side" (Lampenius & Zickar, 2005, p.131). It influences the decision maker by reminding him/her that by accepting a higher level of risk, the potential for future losses will increase. Risk control behaviour allows the individual to constructively plan to achieve a particular investment goal and this is the motivation for the tendency towards this behaviour (Zaleskiewicz, 2001). Further, a risk averse individual always wants to be sure of their future and that way is able to plan the way they want to prioritize their goals. This would lead to sense of satisfaction for the individual.

H2: Speculative Risk is positively associated with financial satisfaction

Speculative Risk has been defined as "the individual's tendency towards the risk taking side" (Lampenius & Zickar, 2005, p.131). It captures the gambling behaviour of the individual and the individual's temptation that by accepting a higher level of risk the expected return will increase. People who are more willing to incur risks are having high financial satisfaction levels (Grable, Britt & Webb, 2008; Sages & Grable, 2010). Neurofinance studies have shown that the part of the brain that is governed by the reward system comprises of the neurons that communicate through the dopamine neurotransmitter. This dopamine is the pleasure chemical of the brain and people who have significant release of this chemical, makes people want greater rewards and have intense feelings of well being (Peterson, 2007). Arch (1993) found that those with positive

self-esteem tend to take higher risks and positive self esteem has been linked to financial satisfaction (Grable & Joo, 2004; Grable, 2007; Grable, Britt & Webb, 2008).

H3: For high Risk control, Speculative Risk is positively associated with financial satisfaction.

This hypothesis was raised based on the findings of the exploratory interviews that suggested that when people experienced that they had achieved a certain level of investment base, by investing money in secure or less riskier avenues, they attempted to take more risks thereafter. This hypothesis also endeavours to prove that an individual has both the aspects of financial taking attitude in their personality.

6. Research Method

The primary objective of this study was to test the relationship between the dual approach of measuring financial risk taking and individual's financial satisfaction.

6.1 Respondents

The composition of the sample was based on the combination of judgment and snowballing sampling methods. Despite being a non-probability approach for the selection of sample, this method is useful when the researcher wants only those people to fill the questionnaire, who can provide the information that is pertinent to achieve the objectives of the research. In order to qualify for the purpose of filling the questionnaire, the respondent was required to fulfill certain criteria, namely:-1) A resident of the National Capital Region (NCR), of Delhi, India; 2) Must have been making financial investment decisions in household at least since last 2 years; 3) Respondent's family should belong to Socio-Economic Classification (SEC)- A^2; 4) Respondent must have investment in at least 3 investment categories.

[2] http://www.timm.indiatimes.com/timm/ecoclass.jsp

Around 450 individual investors from the National Capital region of Delhi, India were approached and were asked whether they were interested in participating in the survey. Only when the respondent permitted, the survey was administered, personally. In total, the questionnaire was filled by 405 respondents, giving a response rate of 90%. After data validation checks, 377 responses were considered for further data analysis.

6.2 Respondents Profile

Of the total sample of 377, 81% were men and 19% were women. Around 56% of the sample was in the age bracket of 26-35 years and around 30% in the age bracket of 36-55 years. Around 83% of the respondents had a post graduate or a professional qualification and around 68% of the respondents had more than 5 years of work experience. Around 85% of the respondents had income of greater than Rs. 5 lakhs per annum. About 32% of the respondents were employed in government and semi-government organizations and 51% were in private sector.

6.3 Questionnaire[3]

6.3.1 Exploratory Interviews.

Exploratory research was undertaken to explore the dual personality aspect of financial risk taking among the Individual Investors. In-depth interviews were conducted with 30 individual investors to understand the manifestation of the dual aspect of financial risk taking. The sample drawn was based on purposive sampling so as to get the view point of people with varied characteristics. Sample comprised respondents from male/female, high income low income, middle income, business, service, retired, housewives, and different age groups. Table 1 gives a brief of the findings of the exploratory study.

[3] Part of an unpublished thesis

Table 1: Dual Personality of Financial Risk Taking based on exploratory interviews- brief findings

Respondent	Managing risk	Speculative aspect of risk
1	I have a preference for Fixed Deposit; Fixed Deposit is like creating your pension	I would put money in the share market when it goes up; I would put money in the share market when it goes down
2	I tend to play safe with my investment	I like risk taking as it gives me a sense of exhilaration.
3	I take insurance only to ward off risk and not with the perspective of returns	I want to gain money overnight; I get excitement out of putting money in the stock market
4	Security of my money is important for me	I am a big risk taker as long as it is not hampering my day to day life; I invest in IPOs
5	For retirement, I am investing in PPF, safe investment	I believe in taking risk; More risk more gain

The insights from the exploratory interviews were used in modifying and adapting the financial risk taking scale.

6.3.2 Financial Risk Taking – Scale Adaptation and Modification.

To measure the financial risk taking ability among the Individual investors a relative new measurement instrument was used, developed by Niklas Lampenius & Michael J. Zickar (2005). This instrument consists of 10 items and 2 factors, namely Risk Control and Speculative Risk. For the purpose of the study, Risk Control was defined as, *the individual's tendency towards the risk-averse side* and Speculative Risk was defined as, *the individual's tendency towards the risk-taking side*. To adapt and modify the existing scale, the Churchill's (1979) methodology for scale development was followed. Apart from the 10 items from the original scale, 15 additional items were added from previous research studies(Warneryd, 1996; Grable & Joo, 2004; Lin & Lee, 2004; Wood & Zaichkowsky, 2004, Nilsson, 2009) and exploratory interviews. After the Qualitative item evaluation, 20 items remained, which were pilot tested over a sample of 154 respondents. Factor analysis was conducted and the results were analyzed for the original scale and the modified and adapted scale (see table 2).

Table 2: Financial Risk Taking Scale Construction (Original and New Items)

	Sub Dimensions	No. of Items	Cronbach Alpha	Total Variance Explained
Original Scale Items Lampenius & Zickar (2005)	Risk Control	5	0.73	
	Speculative Risk	5	0.73	
Risk Control & Speculative Risk		*10*		34% (approx)
Original Scale Items (pilot Study *on the Indian sample*)	Risk Control	5	0.60	
	Speculative Risk	5	0.686	
Risk Control & Speculative Risk		*10*		*44.581%*
New Scale Items (after Pilot Study)	Risk Control	6	0.817	
	Speculative Risk	6	0.765	
Risk Control & Speculative Risk		***12***		***50.106%***

A comparison of both the scales revealed that the new scale was explaining more variance in the data and had higher cronbach alpha reliabilities. Since the new scale had better properties and was more reliable and explained greater variance in the data, it was decided to use the new financial risk taking scale items for the purpose of the study. The rotated component matrix for the modified and adapted financial risk taking scale, post the pilot study is shown in Table 3.

Table 3: Financial Risk Taking (new items), Rotated Component Matrix

	Risk Control	Speculative Risk
Security of my money is important for me	.826	
When it comes to investing, safety of principal is more important than returns*	.740	
When I invest money a safe return is important for me*	.732	
I prefer to invest in financial instruments which are guaranteed	.701	
When I invest money I want to be sure of the return*	.675	
It is important for me to know the amount of money my investment will provide me in the future*	.642	
I get excitement out of putting money in the stock market		.779
A high return on my investment, even though it means accepting a high degree of risk, is important for me *		.698
I like to seek thrills in having high returns on my investments. *		.693
I prefer to invest in stocks that have undergone significant fluctuations in price during the previous 6-months because then there is a potential for a high return on the investment. *		.636
I get a thrill out of investing my money*		.632
I can handle the uncertainty that the stock market entails		.582

*Adapted and Modified, (Lampenius & Zickar, 2005)

6.3.3 Measure of Financial Satisfaction.

The dependent variable in the study was financial satisfaction. Financial satisfaction for this study was defined as, "satisfaction with one's present financial situation" (Joo & Grable, 2004). In order to measure the construct of financial satisfaction among the Indian individual investors, existing measures were adapted and modified for the purpose of this study. For the development of the measure of financial satisfaction, reference was made to the existing literature on financial satisfaction and the exploratory interviews (Hira (1987), Berger, Powell & Cook (1988) Hira & Mugenga (2000) Loibl & Hira (2005) Loibl & Hira (2009). The final list of dimensions on which an individual investor's financial satisfaction was measured is stated as follows: Satisfaction with funds for retirement/ children education/ investment for future; Satisfaction with saving; Satisfaction with present level income; Satisfaction with money available for basic necessities; Satisfaction with ability to plan for tax saving; Satisfaction with ability to manage money to protect from inflation; Satisfaction with the ability to pay back the amount of money owed; Satisfaction with ability to meet family emergencies. The eight item financial satisfaction scale, was pilot tested and had a cronbach alpha of 0.851.

7. Results- Financial Risk Taking and Financial Satisfaction

7.1 Risk Control and Financial Satisfaction

Regression analysis was performed with 'Risk Control as an independent variable and 'financial satisfaction' as dependent variable. Results showed no significant relationship between 'Risk Control and 'financial satisfaction'. The Table 4 below gives required details of the regression analysis. Hence the hypothesis that states that there is a significant relationship between Risk Control and financial satisfaction is rejected.

Table 4: Risk Control and Financial Satisfaction

Independent variable	Dependent variable	F value	Significance (p value)	Adjusted R^2	Standardized Beta
Risk Control	Financial Satisfaction	0.106	0.745	-0.003	-0.017

7.2 Speculative Risk and Financial Satisfaction

Regression analysis was performed with 'Speculative Risk as an independent variable and 'financial satisfaction' as dependent variable. Results showed no significant relationship between 'Speculative Risk and 'financial satisfaction' at $p<0.05$. The Table 5 below gives required details of the regression analysis –

Table 5: Speculative Risk and Financial Satisfaction

Independent variable	Dependent variable	F value	Significance (p value)	Adjusted R^2	Standardized Beta
Speculative Risk	Financial Satisfaction	2.840	0.093	0.005	0.089

Hence the hypothesis that states that there is a significant relationship between Speculative Risk and financial satisfaction is rejected at $p<0.05$. Hence, the regression results for both the risk control variable and the speculative risk variable showed that no significant relationship exists with financial satisfaction, individually (at $p<0.05$).

7.3 Combination of Risk control & Speculative Risk and financial satisfaction

Lampenius & Zickar (2005) in their study classified the respondents into four quadrants as 'Conservative Investor', 'Risk managing Investor', 'Speculator', or 'Non-Investor', based on the two dimensions of risk, namely Risk Control and Speculative Risk. The classification was determined by the individuals score on both the constructs. For the purpose of looking at the combinations of the two risk variables, in our study, it was decided to find out if clusters of these variables could be found. Hence, to understand the natural homogenous groupings of the investors in terms of their financial risk attitudes, cluster analysis was conducted. The K-Means

Cluster Analysis was conducted and the 4- Cluster solution was found to be significant and well-represented. The financial cluster solution for the risk control and speculative risk constructs and the results of ANOVA are shown in table 6. The ANOVA test showed that the clusters were statistically different for both the constructs.

Table 6: Financial Risk Clusters : Final Cluster Centers

	F	Sig.	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Risk Control	176.053	.000	4.41	4.22	3.09	3.93
Speculative Risk	432.761	.000	1.97	3.59	3.71	2.75

The clusters were analysed and interpreted based on the mean values of the risk control and speculative risk scores and were named as ***Conservative Investor*** - These respondents had very high Risk control scores and low speculative risk scores; ***Risk Managing Investor-*** these respondents had high risk control scores and also high speculative risk scores; ***Speculative Investor-*** these respondents had low risk control scores and very high speculative risk scores.; ***Indifferent Investor-*** these respondents had medium risk control and medium speculative risk scores. The only difference in the naming of the clusters based on our study and the study conducted by Lampenius & Zickar (2005) was that in lieu of 'Indifferent Investor', they had stated 'Non-investor'. We choose to call this category of people as Indifferent Investors as they preferred medium risk control and medium speculative risk in their investment decisions.

To check for the significance difference of the financial satisfaction scores across the risk clusters, ANOVA was conducted. The dependent variable was 'Financial Satisfaction' and the clusters were the independent variables. The results indicated that financial satisfaction scores across the clusters were found to be significantly different (Table 7). Further as Figure 1 states that the financial satisfaction levels were low for conservative investors and high for Risk Managing Investors and moderate for both Speculative and Indifferent investors.

Table 7: ANOVA of Financial Risk Taking Clusters and Financial Satisfaction

	F- Value	Sign
Risk Control and Speculative Risk Clusters	***3.027***	***0.030***

Figure 1: Financial Risk Taking Clusters

		Speculative Risk	
		Very Low	**Very High**
Risk Control	Very High	***Conservative Investor*** • N=77, • *Very High Risk Control* • *Very low speculative risk taking* • Low level of financial satisfaction	***Risk Managing Investor*** • N=100, • *High Risk Control* • *High speculative risk taking* • High financial satisfaction
	Very Low	***Indifferent Investor*** • N=124, • *Medium Risk Control* • *Medium speculative risk taking* • Moderate financial satisfaction	***Speculative Investor*** • N=66, • *Low Risk Control* • *Very High speculative risk taking* • Moderate financial satisfaction

This implies that those investors who have both high risk control tendencies and speculative risk tendencies are more financially satisfied of the lot. This could be explained on account of the fact that those who come in the category of the conservative investors, may not be able to achieve their financial investment goals in the long run as they are not able to take the advantage of investing in securities that help to beat the inflationary trends. Further, those who are highly speculative may not have much secure investments if they happen to make loss in these risky investments. This causes people with these tendencies to experience lesser financial satisfaction levels as compared with those who manage their investments both from the perspective of safety and security and playing on the risks. Hence, financial satisfaction would be more for the risk managers as they plan their investments better. For the purpose of finding out whether the people who have achieved a sense of security in their investment planning, felt more satisfied when they took more risk, the third hypothesis was tested. For testing the third hypothesis, the regression results for the association between speculative risk and financial satisfaction, when the individual

had achieved some degree of risk control was checked and the results showed that for individuals who had risk control scores greater than 3(on a scale of 1-5), speculative risk tendency had a positive and significant association with financial satisfaction (Table 8).

Table 8: Risk Control & Speculative Risk and Financial Satisfaction

Risk Control >3					
Independent variable	**Dependent variable**	**F value**	**Significance (p value)**	**Adjusted R^2**	**Standardized Beta**
Speculative Risk	Financial Satisfaction	5.293	0.022	0.013	0.126

Hence, not only is there a significant difference in the financial satisfaction scores in the combinations of Risk Control and Speculative Risk dimensions and this difference is statistically significant at $p<0.05$, but also for individuals with risk control scores greater than 3, speculative risk is positively and significantly associated with financial satisfaction and this hypothesis is accepted at $p<0.05$. These findings are consistent with the findings from the neurofinance literature which states that people evaluate both the aspects of risk from different parts of the brain and hence both these constructs, when taken into consideration in combination, for the purpose of investment decision making show difference in the individual's financial satisfaction levels.

8. Discussion and Conclusion

Hence the results of the study show that though individual risk control and speculative risk constructs are not significantly associated with financial satisfaction, however the clusters of the risk constructs are significantly different with regard to the financial satisfaction scores. Further, though risk control scores have no significant relation with financial satisfaction, however, once an individual has achieved some degree of risk control, any subsequent increase in speculative risk tendency is significantly associated with their financial satisfaction levels. These findings are consistent with the findings from the neurofinance literature which states that people evaluate

both the aspects of risk from different parts of the brain and hence both are taken into consideration in combination, in investment decision making and thus would influence the individual's financial satisfaction levels. Hence, according the Kuhnen and Knutson (2005), "risk-seeking choices (such as gambling at a casino) and risk-averse choices (such as buying insurance) may be driven by two distinct neural circuits involving the nucleus accumbens (NAcc) and the anterior insula".(p.768) In order to understand the financial consumer better, it is essential to find out how the individual perceives both the dimensions of risk rather than measuring risk on a continuum. Hence each individual has a certain degree of risk control and a certain degree of speculative risk tendencies. These tendencies can be independent of each other or at times one tendency overshadows the other tendency.

Hence, a Risk Managing Investor, has the ability to evaluate both the aspects of risk and is able to build his/ her portfolio keeping into consideration the needs for security and stability and the need for growth and higher returns. This allows the investor to experience higher levels of financial satisfaction. Further, this study also supports the hypothesis that once an individual achieves some stability and security in their financial status, the individual is able to take higher risks, which leads them to be financially satisfied. This was also observed in the exploratory interviews. Hence, this study supports the view that it is essential to measure the financial risk taking attitude of the investor taking into consideration both the dimensions of risk, simultaneously. The financial risk taking as a dual risk preference model in the case of financial investment decisions and its relationship with financial satisfaction had not been earlier studied and this research furthers the understanding of financial risk taking. Also the combinations of these financial risk tendencies would yield different levels of satisfaction to the individual, which was also observed from the results of this research. These insights would enable policy makers

and financial service providers to understand what makes an investor financially satisfied and thus work towards achieving this end. The limitation of the study is that data was collected from the people in the SEC A segment, which represent the high socio-economic classes. Further, the data was collected from only those people who were willing to participate in the study. Thus, the sample was collected based on the judgment and snowballing methods, which has its own limitations on account of it being a non-probability based sampling method. Despite the above limitations, this study paves the way for a better understanding of the investor psychology and the way financial risk is perceived by the individuals. The cluster of risk taking behaviours is a practical tool that can help the financial service providers to target their audience more sharply.

Further research in this area needs to be done to understand whether the financial risk taking attitudes remain stable over a period of time for an individual. Also the profiling of the investors can be done based on the various clusters of financial risk taking. Further research also needs to be conducted across other parts of the country and across the world to see whether the relationships as shown in this research can be generalized to other countries and cultures.

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