A STUDY ON BEHAVIOURAL TRAITS OF RISK AVERSE INVESTORS : EVIDENCES FROM INDIA

Athar Mahmood*

Jaipuria Institute of Management, Lucknow, India
mahmood.athar@jaipuria.ac.in

and

Moid U. Ahmad

Scholeio (OPC) Private Limited, NCR, India
professor.moid@gmail.com

Abstract

Behavioural finance is one field of study, which tries to explain the financial anomalies, in relation to individual traits and biases. Since personal biases like risk aversion, may result in market anomalies, it is imperative to explore it. In this paper, we attempt to study risk averseness in Indian investors, by conducting a survey on behavioral traits, which are pertinent to financial and investment decisions. The research was based on a survey, which generated 186 responses to questions on risk averseness and related behavioral traits. Initially, demographics of investors were analyzed, followed by correlation and regression analysis. Three behavioral traits related to thumb rule, natural calamity and double mindness were found to be closely associated with risk aversion. The findings of the research would be useful for market participants, for business development and product development.

***** **Corresponding Author**

1. Introduction

Risk and return are fundamental to business and investments. Behavioural Finance is an emerging field of study, understood as a merger of finance and psychology. It stems from the fact that people indulge in irrational behavior, based on biases of their own, which results in different investment patterns and trends. These biases come from incomplete or wrong information as well as the inability to utilize it correctly even when it is right **(Brav** and **Heaton, 2002).** They are actually "biased beliefs and unconventional preferences, lending to such anomalies, in general" **(Tversky** and **Kahneman, 1974).** Behavioural finance, as a concept, should be understood at macro level as well as micro level **(Pompian, 2006),** where the former studies the market anomalies and later studies the effects of individual behavior. **Goldberg** and **Von Nitzsch (1999)** defined behavioral finance as the financial market theory oriented towards behavior. **Thaler (2000)** stated that behavioral finance is an integration of classical economics and financial theories. **Ritter (2003)** stated that behavioral finance strives to supplement standard financial theories, by introducing psychological dimension into the decision-making process. Levy and **Post (2005)** explained behavioral finance as theories, able to explain market inefficiency and market anomalies. In behavioral finance literature, the utility theory also finds a place **(Fishburn, 1988); Rabin, 2013),** that refers to usefulness of money in decisions. Such biases and errors include overconfidence (Glaser & Weber, 2007) and the tendency to avert losses **(Barberis et al. 2001). Ahmad** and **Mahmood (2013)** pointed out that investors may take decisions, based on personal religious beliefs. There is also the availability bias, which is the phenomenon where investor tends to believe and rely on the easily available current information. Another bias is under reaction or anchoring bias, which is the phenomenon where the investors are rigid and do not update their investments, as per the change in information (Edwards, 1968). Mental accounting bias **(Grinblatt** and **Han, 2004)** is the phenomenon that investors categorize their investments and do mental calculations. An important phenomenon of loss aversion was explained in Prospect Theory **(Kahneman** and **Tversky, 1979),** according to which the behavior is based on net increase or decrease from a reference point and losses are not welcomed. They proposed that loss aversion may lead to regret aversion where investor tries to avoid losses, which could have been predicted and thus avoid regrets. According to **Thaler (2000),** the same amount of loss will bring different effects on behavior, depending on the loss is preceded by a profit or loss. The prospect theory also propounds the concept of weights, implying individuals calculate the probability of returns by categorizing them into nil, probable and positive (0 or 1), based on what they have understood or experienced earlier. While an individual thinks probability low at zero, another may consider it as a certainty. This is another approach to explain the irrational behavior of people while making financial investments, where investors make their own probability estimates which may be discrete or binary **(Kahneman** and **Tversky, 1979).** Behavior, according to utility theory is based on an amount of money and its utility rather than profits and gains from a decision. As a simple example, while comparing two scenarios for two different investors, one, where expected gain from a decision is 100 units but actual receipt is 50 units and in the second scenario, if expected gains from a decision is zero units but actual receipt is 50 units, the second investor would be happy and the first investor would be disappointed, considering the prospect theory but would be indifferent, considering the utility theory **(Quiggin, 1982).** Both the theories are well acknowledged in literature. This study is focused on such irrational behavior of investors and tries to build upon the findings.

2. Review of Literature

Dasgupta (2017) the risk-return perspective, for Indian companies by using the Prospect theory framework that validated the hypothesis that managers and companies, above a target level of returns are risk averse. **Cook et al., (2013)** experimented with Indian respondents and used a Constant Relative Risk Aversion (CRRA) utility function of the firm :

$$U(x) = x^{1-r}, \qquad \ldots\ldots\ldots (1)$$

where 'x' in equation 1 is the lottery winnings and 'r' is the coefficient of risk aversion. **Halek and Eisenhauer (2001)** studied the demographics of risk averse investors and found that demographics (age, gender, race) did affect an individual's tendency of risk aversion. They also analyzed pure risk and speculative risk in the study. **Zuckerman (1994)** found differences in risk aversion by age, gender, nationality, race, socioeconomic status, birth order, and marital status. **Hersch (1996)** examined nonfinancial risk and safety decisions such as use of seat belt and healthcare. On this basis, she determined risk aversion to be higher among whites, females, the wealthy and highly educated than among their respective counterparts. **Banertzi and Thaler(1995)** introduced the concept of Myopic Loss Aversion (MLA) and found that investors, that are risk averse, tend to update their investments more frequently. When information is provided more frequently, individuals evaluate it more frequently. Investors evaluate these more frequent chunks of data as if they are concerned about short-term changes in wealth. This is in agreement with the prospect theory value function, indicating that the weight of losses is more than weight of gains **(Thaler et al., 1997).** According to the study by Fischer and Gerhardt (2007), behavioral factors affecting investment decisions are Fear, Love, Greed, Optimism, Herd instinct, influence of recent experience and overconfidence. **Hon-Snir et al. (2012),** in their study, found out that more proficient investors are less affected by the behavior, based on a study of five behavioral biases in decision-making process: disposition effect, herd behavior, availability heuristic, gambler's fallacy and hot hand fallacy. Risk averseness is also instrumental in building up what may be called as an optimal investment portfolio (**Dow** and **Da Costa Werlang, 1992).** Generally, women are more averse to risk as compared to men (**Eckel** and **Grossman, 2008); Borghans et al., 2009).** It also differs on other demographic basis between individuals (**Halek** and **Eisenhauer, 2001); Guiso** and **Paiella, 2008)** and it has been investigated for online shopping and investments as well **(Jiuan, 1999).** This study attempts to understand the relation between risk averseness, demographic variables and behavioural traits.

3. Statement of the Problem

Involvement of a definite gain and avoiding probable losses make up what is called the risk aversion (**Kahneman** and **Tversky, 2013)** and it is closely related to loss aversion (**Venkatesh, 2002).** Risk aversion has been explained through the prospect theory, (**Tversky** and **Kahneman, 1992)** as well as by the utility theory (**Rabin, 2013).** Risk aversion may be defined as a human behavior that tries to minimize uncertainty when confronted with it. It has a psychoanalytical approach to it (**Kleinübing et al., 2005)** as well as a neural **one (Tom et al., 2007).** Actually, 'bearing one risk should make an agent less willing to bear another risk even when the two risks are independent' **(Kimball, 1993),** but the objective remains to minimize losses. Managers have a tendency to focus more on losses, at the cost of obtaining gains. Most of the time, people reshuffle their portfolios for risk aversion rather than being influenced by other factors and get affected both in short as well as in long term (**Benartzi** and **Thaler, 1995; Fielding** and **Stracca, 2007;**

Fellner and **Sutter, 2009)**. Further, risk taking and avoiding it, finds a place in theories of personality such as Immaturity-Maturity Theory **(Argyris, 1957),** Sixteen Traits Theory **(Catell, 1957)** as well as in Big Five Personality Theory **(Digman, 1989).** This research tries to address the research gap, by linking behavioral traits with demographics, in the context of risk averseness.

4. Need of the Study

This study is needed, to understand more about risk averse investors and their investment behavior, so that more informed decisions can be taken by individuals and institutions. The research attempts to study if risk averse investors would behave differently from other investors.

5. Objective of the Study

The objective of the current research was to study risk averseness and its influence on behavioral traits and demographic variables, for better decision making.

6. Hypotheses of the Study

NH-1: Risk averse investors do not follow the prospect theory

NH-2: Risk averse investors do not invest in long term

The first hypothesis (NH-1) tests if risk averse investors follow the prospect theory and the second hypothesis (NH-2) tests if risk averse investors follow a long term investment horizon.

7. Methodology of the Study

The research measured risk averseness, based on the responses to the survey question, 'Low return with no loss possibility, is more important than profit with high loss probability'. This question was used to measure if respondents had treated losses differently with gains, considering the loss probability and thus attempted to capture risk averseness as a latent variable.

7.1 Sample Selection

Sampling used was judgmental sampling, as the focus of the study was on the respondents who were investors or could invest and attempt was made to avoid non-earning and non-investing respondents.

7. 2 Source of the Data

The geographical market covered was primarily around the State of Delhi and the City of Lucknow, both from northern part of India. Both online and offline questionnaires were used to collect data and subsequently, data from offline questionnaire were merged with the data from online data, for the convenience of collating data together in a soft form.

7.3 Period of the Study

The data were collected, from April, 2018 to October, 2018.

7.4 Tools used in the Study

SPSS 20.0 software was used for the data analysis. The lead investigators developed their own questionnaires (data collection instrument), based on the literature review. All behavioral questions in the questionnaire were rated on a Likert's scale of 1 to 5, with 1 as 'Strongly Disagree' to 5 as 'Strongly Agree'. The finalized questionnaire was sent to about 500 respondents and 186 usable questionnaires (37%) were received and its data were used for further analysis. Face validity was done for content validity of the instrument. The risk averseness of investors was treated as the dependent variable, which was regressed over behavioral traits and demographic variables of the respondents. A similar methodology was used by **Halek** and **Eisenhauer (2001).** Analysis of basic statistics, cross tabulations and regressions were used in the research as the fundamental tools, to understand the underlying relationships.

8. Data Analysis

The reliability of questionnaire was found to be acceptable (0.69) by using Cronbach's Alpha measure **(Cronbach, 1951)**. It was found that out of 186 respondents, about 54% of respondents agreed or strongly agreed that they were risk averse. Analyzing the demographic variables, 72% respondents were found to be salaried, 61% were male, 32% were in the age group of 30-40 years, 61% were post graduates and 32% were earning INR one million and above, per year. Analyzing few cross tabulation of demographics with risk averseness, it was found that 32% of men agreed that they were risk averse and 22% female respondents agreed that they were risk averse. This was contrary to the findings of **Eckel** and **Grossman, 2008; Borghans, 2009.** Also it was found that about 57% of salaried respondents agreed that they were risk averse. Considering the age of respondents, 51% of respondents below 30 years of age (lowest age bracket), agreed that they were risk averse. People, who were more qualified, were expected to be more risk averse as 55% of respondents, with post graduate qualification, indicated their risk aversion. Analyzing the cross tabulations between risk averseness and income, 53% investors, from the INR 3 to 5 lakhs category, and 56% investors from the above INR 10 lakhs income category, indicated that they were risk averse. Investors were found mostly agree (similar in opinion) on two variables, Long term as an investment horizon (CV of 0.22) and loss hurts more than reduction in profits (CV of 0.22). The respondents were found to mostly disagree (were diverse in opinion) on effect of weather and seasons on investment decisions (CV of 0.46). This implied that in general, the respondents maintained a long investment horizon and they were risk averse. This further validated the sampling used.

Table -1 displays the results of correlation analysis, done on all the 23 variables, to study the relationship between risk aversion and other variables. A positive and low correlation (0.03) was found with 'mental accounting' and with 'investor's confidence of earning profits' (0.18). The risk averse investors negated the role of luck in decision making (low correlation of 0.04) and such investors were found to be rarely satisfied (low coefficient of 0.06) with their decisions. The risk averse investors also relied on non-financial information (correlation of 0.16).

In general, the correlations were found to be low for all the pairs of variables and the variables, with top three correlations, were used for further study. These top three correlations found were, Use of a thumb rule in decisions (0.22), Influence of natural calamity in decisions (0.23) and double minded while making decisions (0.21). Thus risk averse investors and their behavior can be highly mapped, with three traits, which may lead to an irrational behavior and consequently, to a financial anomaly.

Univariate regression analysis was conducted, by regressing risk averseness over the three top correlated variables and all the three regressions were found to be significant, as shown in **Table-2**. Further, to understand the effect of five demographic variables (employment type, gender, age, education level and income) on risk averseness, a univariate regression was conducted **(Table-3),** with risk averseness as the dependent variable and all five demographic variables (separately) as independent variables. All the five demographics were found to be statistically insignificant, with risk averseness. Subsequently, multivariate regression was conducted **(Table-4),** with risk averseness as a dependent variable and the top three correlated variables as independent variables. All the three independent variables were found to be statistically significant and the multivariate regression was also found to be significant, with R-squared value of 14.2%. The

combined R-squared value (14.2%) was more than the individual R-squared values (**Table-3**), indicating that together these three independent variables could explain more variance in risk averseness than individually. About 3% of variance in risk averseness was found to be explained by loss aversion (Prospect theory), with a statistically significant regression coefficient (0.24) and significant correlation coefficient (0.2). Hence the null hypothesis (NH-1) was rejected, indicating that risk averseness increased with loss averseness and followed the prospect theory. A low R-squared value (0.3%) was found when risk averseness was regressed over the variable 'long term investment' and this regression was found to be statistically insignificant. Hence, the second null hypothesis (NH-2) was not rejected, indicating that the risk averse investor believed in short term rather than in long term.

9. Findings of the Study

Our research partly concurred with **Benartzi** and **Thaler (1995)** concept of Myopic Loss Aversion (MLA) and found a low and positive correlation between risk averseness and usage of new information to update investments but a higher and positive correlation and a significant regression with flexibility to change in investments. Also, we found that risk averse investors considered non-financial information in decision making. This is a revealing statistic, which may enable policymakers and decision makers, to rethink about the expected relationship between age of investors and risk averseness. Such findings will also enable effective product development. Our research also found that risk averseness was found to be at the highest at an education level of post graduate studies and also was high for high income individuals. This found support from **Hersch (1996),** who found risk aversion to be higher among highly educated people as compared to those with lesser level of education.

10. Suggestions

The findings of the research can help managers, to predict the behavioral pattern better. They can design policies or investment portfolios, according to the needs and risk aversion patterns of various age groups, education levels and income classes. It can come in handy for product development and brokerage companies. Even within organizations, risk taking patterns in investments can help human resource managers to understand employees' behavior and personality.

11. Conclusions

The literature review, findings and analysis indicate that it is difficult to generalize a behavioral finance theory but such a study on behavioral analysis is required to enhance decision making efficiency and better product development. Our research partly conformed to **Benartzi** and **Thaler (1995)** concept of Myopic Loss Aversion (MLA) and found a low and positive correlation (0.06) between risk averseness and usage of new information to update investments but a higher and positive correlation (0.2) and a significant regression (R-squared value of 5%) with flexibility to change in investments. The fact that risk averse investors consider non-financial information in decision making can be reckoned by policy makers and can be further explored by researchers. For example, risk averse investors may become a prolific source of brokerage income for stock brokers if they are constantly provided with relevant non-financial information. Considering the age of respondents, 51% of respondents, below 30 years of age (lowest age bracket) agreed that they were risk averse. This is a revealing statistic, which may enable policymakers, and decision makers to rethink about the expected relationship between age of investors and risk averseness. Such findings will also enable effective product development. Our research also found that risk

averseness was reported the highest at an education level of post graduate studies and also was high for high income individuals. This finds support from **Hersch (1996)** who found risk aversion to be higher among highly educated people as compared to those with lesser level of education. Risk averse investors and their behavior can be highly mapped with three 'abstract and non-logical' traits (usage of a thumb rule in decisions, influence of natural calamity in decisions and being double minded while making decisions). The explained variance (14.2%), for a combined effect of these three traits, was more than the individual explained variance indicating that together these three independent variables could explain risk averseness better rather than individually. This further highlights the irrational behavior of such investors and the genesis of financial anomalies.

12. Limitations of the Study

More geographical spread of respondents may have yielded better robust results. Time and funding limits were other constraints in the study.

13. Scope for Further Research

The study was limited to risk averseness only. Including more personality traits may have increased the scope of the analysis.

14. References

Ahmad, M.U. &Mahmood, A. (2013), An empirical study on awareness about Islamic economics in India, *International Journal of Indian Culture and Business Management,* 7(3): 452 – 460

Argyris, C. (1957). Personality and Organization, New York, Harper & Brothers, p50.

Barberis, N.; Huang, M. & Santos, T. (2001), Prospect Theory and Asset Prices, *Quarterly Journal of Economics, 116,* 1-53.

Benartzi, S. &Thaler, R.H. (1995). Myopic loss aversion and the equity premium puzzle. *The Quarterly Journal of Economics, 110*(1), 73– 92.

Borghans, L.; Heckman, J. J.; Golsteyn, B. H., &Meijers, H. (2009). Gender differences in risk aversion and ambiguity aversion. *Journal of the European Economic Association, 7*(2-3), 649-658.

Brav, A. & Heaton, J.B. (2002). Competing Theories of Financial Anomalies. *Review of Financial Studies, 15,* 575-606.

Cattell, R. B. (1957). *Personality and Motivation Structure and Measurement.* New York: World Book.

Cook, J.; Chatterjee, S.; Sur, D. & Whittington, D. (2013), Measuring risk aversion among the urban poor in Kolkata, India, *Applied Economics Letters, 20*(1), 1-9.

Dasgupta, R. (2017), Behavioral Implications of Risk-Return Associations: An Application of Prospect Theory on CNX NIFTY Companies. *Australasian Accounting Business & Finance Journal, 11*(3), 103-126.

Digman J.M. (1989). Five robust trait dimensions: development, stability, and utility". *Journal of Personality. 57* (2), 195–214.

Dow, J., & Da Costa Werlang, S. R. (1992). Uncertainty aversion, risk aversion, and the optimal choice of portfolio. *Econometrica: Journal of the Econometric Society*, 60(1),197-204.

Eckel, C. C., & Grossman, P. J. (2008). Men, women and risk aversion: Experimental evidence. *Handbook of experimental economics results, 1,* 1061-1073.

Edwards, W. (1968). Conservatism in human information processing. In: Kleinmutz, B (Ed.), Formal Representation on Human Judgment, John Wiley and Sons, New York, 17-52.

Fellner, G., & Sutter, M. (2009). Causes, consequences, and cures of myopic loss

aversion–An experimental investigation. *The Economic Journal, 119*(537), 900-916.

Fielding, D., &Stracca, L. (2007). Myopic loss aversion, disappointment aversion, and the equity premium puzzle. *Journal of Economic Behavior & Organization, 64*(2), 250-268.

Fischer, R., & Gerhardt, R. (2007). Investment mistakes of individual investors and the impact of financial advice, *European Business School Working Paper*, 233

Fishburn, P. C. (1988). Expected Utility: An Anniversary and a New Era. *Journal of Risk & Uncertainty. 1*(3), 267-283.

Glaser, M. & Weber, M. (2007), Overconfidence and trading volume, *The Geneva Risk and Insurance Review, 32*, 1-36.

Goldberg, J., & Von Nitzsch, R. (1999). Behavioural finance. John Willey & Sons.

Grinblatt, M. & Han, B. (2004), Prospect theory, mental accounting, and momentum. *Journal of Financial Economics, 78*, 311-339.

Guiso, L., &Paiella, M. (2008). Risk aversion, wealth, and background risk. *Journal of the European Economic association, 6*(6), 1109-1150.

Halek, M. &Eisenhauer, J.G.(2001), Demography Of Risk Aversion. *Journal of Risk & Insurance,* 68(1),1-24

Hersch, J. (1996), Smoking, Seat Belts, and Other Risky Consumer Decisions: Differences by Gender and Race, *Managerial and Decision Economics,17*(5), 471-481.

Hon-Snir, S.; Kudryavtsev, A., & Cohen, G. (2012). Stock market investors: Who is more rational, and who relies on intuition? , *International Journal of Economics and Finance,* 4(5): 56 72.

Jiuan, T. S. (1999). Strategies for reducing consumers' risk aversion in Internet shopping. *Journal of consumer marketing, 16*(2), 163-180.

Kahneman, D. &Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica, 47* (2), 263-291.

Kahneman, D., &Tversky, A. (2013). Prospect theory: An analysis of decision under risk. In *Handbook of the fundamentals of financial decision making: Part I*, 99-127.

Kimball, M. S. (1993). Standard risk aversion. *Econometrica: Journal of the Econometric Society*, 589-611.

KleinübingGodoi, C.; Marcon, R., & Barbosa daSilva, A. (2005). Loss aversion: a qualitative study in behavioural finance. *Managerial Finance, 31*(4), 46-56.

Levy, H., & Post, T. (2005). Investment. Prentice Hall.

Odean, T. (1998). Are investors reluctant to realize their losses?. *The Journal of finance, 53*(5), 1775-1798.

Pompian, M.M. (2006). Behavioural finance and wealth management: Building optimal portfolios that account for investor biases. John Wiley & Sons.

Quiggin, J. (1982). A theory of anticipated utility. *Journal of Economic Behavior & Organization, 3*(4), 323-343.

Rabin, M. (2013). Risk aversion and expected-utility theory: A calibration theorem. In *Handbook of the Fundamentals of Financial Decision Making: Part I* (pp. 241-252).

Ritter, J.R. (2003), Behavioural finance, *Pacific-Basin Finance Journal,* 11(4): 429-437.

Thaler, R. H. (2000). From homo economic us to homo sapiens. *Journal of economic perspectives, 14*(1). 133-141.

Thaler, R.H.; Tversky, A.; Kahneman, D. & Schwartz, A.(1997). The effect of myopia and loss aversion on risk taking: an experimental

test. *Quarterly Journal of Economics 112* (2), 647–661.

Tom, S. M.; Fox, C. R.; Trepel, C., & Poldrack, R. A. (2007). The neural basis of loss aversion in decision-making under risk. *Science, 315*(5811), 515-518.

Tversky, A. &Kahneman, D (1974). Judgment Under Uncertainty: Heuristics and Biases. *Science*, 185(4157), 1124–1131.

Tversky, A. &Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5 (4), 297–323.

Venkatesh. B, (2002),What is Loss Aversion?, Business Line, Sunday, December 2001.

Zuckerman, M. (1994), Behavioral Expressions and Biosocial Bases of Sensation Seeking (Cambridge: Cambridge University Press).

Table-1: Results of Correlations of Risk Averseness

	Thumb rule	Natural calamity	Double mind
Risk aversion	0.22	0.23	0.21

Source: Primary Data processed using SPSS 20.0

Table-2: Results of Univariate Regression (Dependent Variable: Risk Aversion)

Independent variable	R-Squared (%)	P*
Thumb rule	5.5	Yes
Natural calamity	6.9	Yes
Double mind	6.5	Yes

*Significant at 5% levels
Source: Primary Data processed using SPSS 20.0

Table 3: Results of Regression (Dependent Variable: Risk Averseness)

Independent Variable	R squared (%)	P*
Employment type	0.6	No
Gender	0.3	No
Age	Zero	No
Education Level	0.3	No
Income level	Zero	No

*Significant at 5% levels
Source: Primary Data processed using SPSS 20.0

Table-4: Results of Multivariate Regressions (Dependent Variable: Risk Averseness)

	Unstandardized Coefficients		Standardized Coefficients	t	p-value.
	B	Std. Error	Beta		
(Constant)	1.554	0.334		4.65	0.000
Use of Thumb Rule	0.198	0.077	0.180	2.57	0.011
Influenced by natural calamity	0.207	0.073	0.199	2.82	0.005
Have double minds	0.195	0.074	0.186	2.62	0.009

Source: Primary Data processed using SPSS 20.0