Risk Preference and Risk Tolerance of Household Investors

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Abstract

The technological advancement impacted the investment pattern and investment behavior of the household investors. At present the investors are more informative and aware about investment avenues than previous years. The investment decision of a investor depends upon their individual behavior and sentiments. This paper aims to establish a relationship between behavioral finance and investment decisions.

Keywords- Risk, Risk Preference, Risk Tolerance, Risk Taker, Risk Averse

Introduction

Investing is a skill. Mastering it, however, is not as simple as sticking to theory. Emotions can come into play and personality type may influence how one can invest his/her money. The two "investment personality" extremes are quite straightforward: on one hand, there is the risk-taker; on the other, an individual who is risk averse. A risk-taker is the kind of person who is comfortable making choices that can have extreme positive or negative consequences. On the other end of the continuum, risk-averse individuals calculate and extrapolate virtually every possible eventuality before making an investment.

Knowing whether a person is a risk taker or a risk averse will help people in finding an investment strategy that strikes a balance between offering comforts and attempting to remove unhelpful emotions from investment and saving decisions. This will allow compensating for biases by increasing the equity portion of portfolio if an investor is too cautious, or is certain that an investor have exposure to other asset classes if he/she is of too much of a risk-taker.

Investor's Attitude towards Risk on Investment and their Risk Preference

Risk is the chance of loss due to variability of returns on an investment. In case of every investment, there is a chance of loss. It may be loss of interest, dividend or principal amount of investment. However, risk and return are inseparable.

Risk averse

In finance risk aversion is the behavior of humans especially investors who expose uncertainty, to attempt to reduce that uncertainty. It is the reluctance of a person to accept a bargain with an uncertain payoff rather than another bargain with more certain, but possibly lower, expected pay off. A risk averse investor prefers lower returns with known risks rather than higher returns with unknown risks. In other words, among various investments giving the same return with different level of risks, this investor always prefers the alternative with least interest.

Risk-tolerant

A measure of risk tolerance is useful in summarizing an investor's perception about the tradeoffs between risk and the compensation required for bearing risk.[1]

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[1] Pandey I.M. (2011) Financial Management,10th edition, Vikas publishing house pvt.Ltd, New Delhi

Table 1

Source	Finding
Saptarshi Purkagastha (2008)	The investors on the basis of their demographics into different risk tolerance categories revealed that younger investors and those with high income are willing to take more risk, and self employed investors and those with few dependants are willing to take less risk.
Kasilingam,R & Jayabal. G (2009)	Perception of investors has an impact on their risk bearing capacity and range of investment. It is also stated that perception is influenced by age, experience, and tax payment and it has an association with saving motives and behavior of individual
Prabakaran.G & Jayabal.G (2009)	The mutual fund investors are form low and moderate risk tolerant groups and the socio-economic variables do alter the risk tolerance of individual investors.
Dr. Sunny & Rajesh M..N (2009)	Liquidity and safety should be the prime factors while making investments. Economic condition and market situation should be properly evaluated while making investments and the investors should adopt a diversified and liquidity oriented approach while constructing and managing the portfolio for investment. Systematic risk can be minimized by a detailed analysis of economic situation and market condition while making investment and unsystematic risk of the investment can be minimized by way of a detailed analysis of financial statement of concern, government policies and strategies, past history of the concern and the financial management system of that concern
Guarav Kabra et.al (2010)	Modern investor is a mature and adequately groomed person and they prefer investment according to their risk preference, risk averse and they choose life insurance policy , fixed deposit with banks and post office.
Shyan Rong Chou,et.al (2010)	Investors with trading experience have higher risk propensity and tend to have a risk embracing character .Investors with more experience invested relatively higher proportion of their overall investment in high risk products.
Syed Tabassum Sultana (2010)	The most of the individual investors still prefers to invest in financial products which give risk free returns. This confirms that Indian investors even if they are of high income, well educated, salaried, independent investors prefer to play safe.
Gaurav Kabra ibid (2010)	Investor's age and gender predominantly decides the risk taking capacity of investors
Rui Yao (2011)	There are two major categories of risk tolerance: objective risk tolerance and subjective risk tolerance. Objective risk tolerance evaluates the capacity to bear risks. Subjective risk tolerance refers to the willingness to accept risks regardless of one's financial and other household characteristics and Males are found to be more willing to take risks than females
Alagu.V & Thangadurai .G (2013)	Investors cannot avoid risk but they can minimize the risk by Investing their money in various forms of investments so that they can get a moderate profit.

Paul Sundar. J & Suja S. (2013)	Irrespective of gender, most of the investors (51%) are found have low risk tolerance level and many others (21%) have moderate risk tolerance level and only 11% of them have high risk tolerance level. It is also found that there exists significant difference between stock market experience and reaction to bearish market. Personal financial needs largely influence the investor's decisions in stock entry and exit.
Priya Vasagadekar (2014)	Most of the women are low in financial literacy; it becomes hardly possible for them to manage their portfolios on their own. Also the risk bearing capacity of working women in India is low. This is due to lack of sound financial knowledge.
Rachna Bajaj (2014)	Investors are risk averse; so as to diversify risk they are investing in the mutual funds. No one is holding securities for longer period as they are getting newer offers for the investments.
Samreen Lodhi (2014)	Financial literacy and accounting information helps investors in lowering information asymmetry and allows investors to invest in risky instruments. But as age and experience increases investors preference changes to less risky investments, it does not mean that investors does not prefer to invest in shares, he will but with the intension of getting dividend return rather than capital gain.
Shinde. C. M & Priyanka Zanvar (2014)	Influence investment behavior and ways these factors impact investment risk tolerance and decision making process among men, women and among different age groups and the study concluded that investor's age and gender predominantly decides the risk taking capacity of investors
Sonali N & Parchure, ibid (2016)	Guidance from elders to invest in conservative investment avenues also becomes a hurdle in financial planning. It develops a conservative attitude amongst the investors of taking less risk rather than exploring other investment avenues that lead to maximization of their wealth and thus help them in their needs or contingencies.

Objectives of the Study

The objectives of the study are as follows:

1. To study the socio-economic, investment profile of the respondents.

2. To study the average investors' attitude towards risk on investment and classify them into risk averse or risk takers.

3. To examine the average investors' preference for making an investment **Hypotheses of the Study**

Hypothesis $(H_0)1 = $ All the identified latent variables have equal influence on the investors perception of risk and return

Research Methodology

Sample Size

In the present study the sample includes both risk takers and risk averse investors, risk takers are identified as p and risk adverse investors are noted as q. Since the population of risk takers and risk averse is unknown using the above formula sample size for the research is determined as six hundred

$$N = \tfrac{1}{4} [(1.96)^2 / (0.04)^2]$$
$$= 0.25 [(3.84)/(0.0016)]$$
$$= 0.25 [2400]$$
$$= 600$$

Sampling Method

The researcher used two major sampling techniques, probability sampling and non probability sampling in this study. With probability sampling, all elements in the population have some opportunity of being included in the sample. Under this study, the average house hold investors from Kanyakumari district is taken as the sample population and with the view of providing equal opportunity to average investors from different taluks each taluk is considered as a separate strata respondents from all the taluk has given an opportunity to become a sample for the study. A random sample is selected from each stratum based upon the percentage that each subgroup represents in the population. With nonprobability sampling, in contrast, average household investors are selected on the basis of their availability (e.g., because they volunteered) or because of the researcher's personal judgment that they are representative. Since there is no clear cut method is available to identify the risk averse investors and risk taker investors, the researcher considered judgment sampling is the most appropriate method for the present study. Judgment sampling helps to locate and gain access to the average household investors who have required information. It is used when the required information is possessed by a limited number of people.

Universe for the Study

Average household investors of all the four taulks in Kanyakumari district are considered as the population for this research study. Four taulks in Kanyakumari district such as Kalkulam, Thovalai, Vilavancode and Agastheeswaram are selected as the study area for this research. The study population includes all type of investors such as business people, professionals, employees of private sector, public sector organizations, self employed, retired people, homemakers etc.

Sources of Data

a. Primary Data

Primary data were collected with the help of structured questionnaire, which is, distributed and collected from the respondents of all the taluks in Kanyakumari District. The questionnaire is distributed to respondents both in English and Tamil languages.

b. Secondary Data

To get an insight in to the topic of study the researcher conducted a detailed review of literature using the secondary data. Secondary data were collected through books, journals, articles and web sites.

Data Analysis and Statistical Tools Applied

Primary data collected from average household investors had been analyzed with descriptive statistical analysis. statistical analysis on the samples was carried out by framing suitable hypothesis based on the objectives stated earlier. Inferences were drawn based on descriptive statistical analysis and test statistics using the statistical techniques such as chi-square test, one way ANOVA, discriminant analysis and multiple regression analysis were used to suggest a model on the factors influencing the behaviour of investor.

The behavior of people is influenced by perceived risk than expected risk. This is important, as perceived risk is more important than expected risk. Perceived risk is influenced by many factors like social, environment, and government and financial. Personal characteristics, attitudes towards risks, income and tendency of saving money differ among people. According to traditional finance considerations, individual investors who make their personal investments rationally usually cannot prevent behavioral and psychological factors from affecting their investment preference. Within this scope, this research aims to identify the factors that have an effect on perception of individual investors on risk and return.

General Profile of the Respondents

General characteristics are important determinants which influence a person's preferences and behaviours of investment. Many factors such as age, area of residence, gender and education, influence

the household investment decisions of the average investors. And hence, the investigator has made an attempt to analyse

the general characteristics of the respondents.

Table 2

	Factors	Frequency	Percentage
Gender	Male	309	51.5
	Female	291	48.5
Age	21-30	119	19.8
	31-40	142	23.7
	41-50	165	27.5
	Above 50	174	29.0
Education	Less than and equal to 10th	16	2.7
	12th	87	14.5
	Diploma	38	6.3
	UG	107	17.8
	PG	252	42.0
	Professional	100	16.7
Area wise distribution	Agasteeswaram	278	46.3
	Thovalai	65	10.8
	Villavancodu	111	18.6
	Kalkulam	146	24.3

Predicting Group Membership – Risk Attitude

Discriminant analysis is used to predict the risk attitude of the investor. In other words, it is important to find out whether an investor is a risk taker or a risk averse based on twenty four statements that measure their risk attitude. The importance of factors of decision making that differentiate between a risk-taker and risk-averse investor are identified, here

The two groups (risk-averse/risk-taker) are compared based on twenty-four statements or predictor variables. The table below shows the mean values that provides an idea about the differences in their mean scores.

Table 3

Mean Score of Twenty Four Attributes Influencing Investor Attitude

Predictor Variables	Difference in Mean Score	Std. Deviation
Adapt slowly when things go wrong financially (ATT1)	*0.08**	1.024
Risk in a financial context means danger (ATT2)	-0.05	1.218
Invested a large sum in a risky investment mainly for the capital appreciation (ATT3)	-0.01	1.298
Prefer more security with a small return increase (ATT4)	-0.16	1.328
While Taking Major financial decision, more concerned about the possible losses (ATT5)	-0.11	.978
Prefer an investment where you could choose guaranteed return(ATT6)	-0.10	1.125
Make investments from Saving (other than from household) (ATT7)	*0.00**	.938
Prefer to invest in well performing investment avenues (ATT8)	-0.09	.828
Cautious about performance of portfolio (ATT9)	-0.05	.989
Prefer capital appreciation (ATT10)	*0.04**	1.024
Prefer all low-risk/high-return (ATT11)	-0.05	1.170
Comfortable in low risk based financial assets (ATT12)	*0.02**	1.236
Adapt easily when things go wrong financially (ATT13)	-0.06	1.110
Risk in a financial context means opportunity (ATT14)	-0.03	1.111
Invested a large sum in a risky investment mainly for the thrill of seeing whether it went up or down in value (ATT15)	*0.02**	1.200
Prefer less security for a big return (ATT16)	-0.13	1.448
While Taking Major financial decision, more concerned about the possible gains (ATT17)	-0.10	.999
Prefer an investment where you could choose specific return (ATT18)	-0.16	1.244
Borrowed money to make an investment (other than household) (ATT19)	*0.11*	1.313
Invest in any avenue without considering the risk (ATT20)	*0.04**	1.293
Not bothered about fluctuations in investment value (returns) (ATT21)	-0.12	1.262
Expect short term return (ATT22)	-0.05	1.247
You prefer all high-risk/high-return (ATT23)	-0.10	1.386
Always attracted to investing in risky avenues giving higher returns (ATT24)	-0.12	1.435

*Source: computed data,*indicates values are positive*

It is observed from table 3 that the mean score is positive for variable ATT1, ATT7, ATT10, ATT12, ATT15, ATT19 and ATT20. Therefore, it can be expected that all the other variables (whose mean difference is negative) could be a useful in discriminating between risk-takers and risk-averse investors.

One-way ANOVA is carried out for each attributes to know which of the attributes has a significant difference between the means of the two groups. The attributes are taken as dependent variables and the risk taker and risk averse are taken as independent variables.

Table 4

Test for Difference in Group Means

Tests of Equality of Group Means					
Predictor Variables	Wilks' Lambda	F	df1	df2	Sig.
Adapt slowly when things go wrong financially (ATT1)	.999	.809	1	598	.369
Risk in a financial context means danger (ATT2)	*1.000*	*.294*	*1*	*598*	*.024**
Invested a large sum in a risky investment mainly for the capital appreciation (ATT3)	1.000	.015	1	598	.903
Prefer less security with a small return increase (ATT4)	*.997*	*2.078*	*1*	*598*	*.015**
While Taking Major financial decision, more concerned about the possible losses (ATT5)	*.997*	*1.834*	*1*	*598*	*.037**
Prefer an investment where you could get guaranteed return (ATT6)	.998	1.112	1	598	.292
Make investments from Saving (other than for your home) (ATT7)	1.000	.000	1	598	.997
Prefer to invest in well performing investment avenues (ATT8)	.997	1.884	1	598	.170
Cautious about performance of portfolio (ATT9)	.999	.378	1	598	.539
Prefer capital appreciation (ATT10)	1.000	.163	1	598	.686
prefer all low-risk/high-return (ATT11)	1.000	.272	1	598	.602
Comfortable in low risk based financial assets (ATT12)	1.000	.058	1	598	.810
Adapt easily when things go wrong financially (ATT13)	.999	.413	1	598	.521
Risk in a financial context means opportunity (ATT14)	1.000	.099	1	598	.754
Invested a large sum in a risky investment mainly for the thrill of seeing whether it went up or down in value (ATT15)	1.000	.054	1	598	.816
Prefer less security with a big return (ATT16)	.998	1.162	1	598	.282
While Taking Major financial decision, more concerned about the possible gains (ATT17)	*.998*	*1.477*	*1*	*598*	*.025**
Prefer an investment where you could choose specific return (ATT18)	.996	2.562	1	598	.110
Borrowed money to make an investment (other than for your home) (ATT19)	.998	1.049	1	598	.306
Invest in any avenue without considering the risk (ATT20)	1.000	.128	1	598	.721
Not bothered about fluctuations in investment value (returns) (ATT21)	.998	1.369	1	598	.243
Expect short term return (ATT22)	1.000	.211	1	598	.646
prefer all high-risk/high-return (ATT23)	*.999*	*.793*	*1*	*598*	*.044**
Always attracted to investing in risky avenues giving higher returns (ATT24)	*.998*	*1.053*	*1*	*598*	*.010**

Source: computed data, *Significant at 5% Level

It is observed from table 4 that the significant difference in the mean exists for ATT2, ATT4, ATT5, ATT17, ATT23, ATT24, for which the p values are less than 0.05, i.e,the assumed level of significance. There does not seem any significant differences in the means of the remaining 18 attributes or variables as the p value in each of these cases is greater than 0.05.

Table5
Pooled Within-Group Matrix

	ATT1	ATT2	ATT3	ATT4	ATT5	ATT6	ATT7	ATT8	ATT9	ATT10	ATT11	ATT12	ATT13	ATT14	ATT15	ATT16	ATT17	ATT18	ATT19	ATT20	ATT21	ATT22	ATT23	ATT24
ATT1	1.00	0.15	0.12	-0.04	0.08	-0.09	0.10	0.08	0.16	0.24	-0.07	-0.05	0.35	0.15	0.03	0.11	0.03	-0.01	0.05	0.09	0.06	0.01	0.15	0.18
ATT2	0.15	1.00	0.00	-0.12	0.12	0.27	0.14	-0.10	-0.05	-0.06	0.26	0.39	0.11	-0.13	-0.24	0.10	-0.02	0.21	-0.01	-0.12	-0.07	-0.08	-0.12	-0.11
ATT3	0.12	0.00	1.00	0.47	0.16	-0.21	-0.09	-0.05	0.04	0.04	0.20	0.31	0.18	0.33	0.35	0.21	-0.03	0.13	0.18	0.23	0.34	0.16	0.42	0.34
ATT4	-0.04	-0.12	0.47	1.00	0.10	-0.14	-0.13	0.01	-0.08	0.10	0.21	0.22	-0.04	0.26	0.34	0.31	0.04	-0.29	0.14	0.37	0.41	0.06	0.29	0.30
ATT5	0.08	0.12	0.16	0.10	1.00	0.04	0.20	0.15	0.27	0.27	-0.06	-0.06	0.01	0.09	0.06	0.01	0.25	0.20	-0.24	-0.14	-0.03	0.23	0.04	0.04
ATT6	-0.09	0.27	0.21	-0.14	0.04	1.00	0.37	0.25	0.17	0.01	0.43	0.55	-0.01	0.24	0.32	-0.05	0.30	0.48	0.20	0.32	0.30	0.07	-0.30	-0.37
ATT7	0.10	0.14	-0.09	-0.13	0.20	0.37	1.00	0.41	0.42	0.22	0.26	0.29	-0.03	0.22	0.22	0.07	0.16	0.26	0.14	0.22	0.24	0.20	-0.13	-0.19
ATT8	0.08	-0.10	-0.05	0.01	0.15	0.25	0.41	1.00	0.56	0.27	0.13	0.06	0.09	-0.01	0.08	0.01	0.23	0.13	0.09	0.28	0.15	0.10	-0.10	-0.06
ATT9	0.16	-0.05	0.04	-0.08	0.27	0.17	0.42	0.56	1.00	0.51	0.15	0.09	0.17	-0.01	-0.02	0.09	0.38	0.09	0.20	0.13	-0.09	0.21	-0.02	0.06
ATT10	0.24	-0.06	0.04	0.10	0.27	0.01	0.22	0.27	0.51	1.00	0.15	0.03	0.25	0.15	0.02	0.05	0.25	-0.02	-0.03	-0.03	0.02	0.36	0.08	0.11
ATT11	-0.07	0.26	0.20	0.21	-0.06	0.43	0.26	0.13	0.15	0.15	1.00	0.64	0.06	0.31	0.43	0.22	0.18	0.24	0.01	0.17	0.29	0.07	0.39	-0.43
ATT12	-0.05	0.39	0.31	0.22	-0.06	0.55	0.29	0.06	0.09	0.03	0.64	1.00	0.02	0.37	0.44	0.16	0.16	0.34	0.06	0.17	0.33	0.04	0.42	-0.43
ATT13	0.35	0.11	0.18	-0.04	0.01	-0.01	-0.03	0.09	0.17	0.25	0.06	0.02	1.00	0.32	0.14	0.17	-0.04	0.02	0.10	-0.07	0.17	0.08	0.12	0.16
ATT14	0.15	-0.13	0.33	0.26	0.09	0.24	0.22	-0.01	-0.01	0.15	0.31	0.37	0.32	1.00	0.57	0.39	-0.06	0.21	0.26	0.33	0.45	0.11	0.52	0.49
ATT15	0.03	-0.24	0.35	0.34	0.06	0.32	0.22	0.08	-0.02	0.02	0.43	0.44	0.14	0.57	1.00	0.52	-0.05	0.28	0.30	0.54	0.65	0.04	0.61	0.60
ATT16	0.11	-0.10	0.21	0.31	0.01	-0.05	0.07	0.01	0.09	0.05	0.22	0.16	0.17	0.39	0.52	1.00	0.06	-0.17	0.08	0.39	0.44	-0.02	0.44	0.41
ATT17	0.03	-0.02	-0.03	0.04	0.25	0.30	0.16	0.23	0.38	0.25	0.18	0.16	-0.04	-0.06	-0.05	0.06	1.00	0.25	0.22	0.18	-0.01	0.28	-0.06	0.02
ATT18	-0.01	0.21	0.13	-0.29	0.20	0.48	0.26	0.13	0.09	-0.02	0.24	0.34	0.02	0.21	0.28	-0.17	0.25	1.00	0.10	-0.28	-0.31	0.14	-0.33	-0.33
ATT19	0.05	-0.01	0.18	0.14	-0.24	0.20	0.14	0.09	0.20	-0.03	0.01	0.06	0.10	0.26	0.30	0.08	0.22	0.10	1.00	0.36	0.30	0.13	0.25	0.27
ATT20	0.09	-0.12	0.23	0.37	-0.14	0.32	0.22	0.28	0.13	-0.03	0.17	0.17	0.07	0.33	0.54	0.39	-0.18	-0.28	0.36	1.00	0.68	0.09	0.48	0.46
ATT21	0.06	-0.07	0.34	0.41	-0.03	0.30	0.24	0.15	-0.09	0.02	0.29	0.33	0.17	0.45	0.65	0.44	-0.01	-0.31	0.30	0.68	1.00	0.13	0.60	0.64
ATT22	0.01	-0.08	0.16	0.06	0.23	0.07	0.20	0.10	0.21	0.36	0.07	0.04	0.08	0.11	0.04	-0.02	0.28	0.14	0.13	0.09	0.13	1.00	0.18	0.26
ATT23	0.15	-0.12	0.42	0.29	0.04	-0.30	-0.13	-0.10	-0.02	0.08	0.39	0.42	0.12	0.52	0.61	0.44	-0.06	-0.33	0.25	0.48	0.60	0.18	1.00	0.75
ATT24	0.18	-0.11	0.34	0.30	0.04	-0.37	-0.19	-0.06	0.06	0.11	-0.43	-0.43	0.16	0.49	0.60	0.41	0.02	-0.33	0.27	0.46	0.64	0.26	0.75	1.00

Source: computed data

    The pooled within-group matrix in table 5 presents the correlation matrix for the entire predictor variables. It is very important to examine this for detecting the problem of multicollinearity (a high correlation between the pairs of predictor variables). It is noticed that the correlation coefficient between any pair of predictor variables is greater than 0.75, it indicates that both variables in that particular pair share a large amount of common shared variance and might reflect the same attribute. Table 5 indicates that the correlation between any pair of predictor variables does not exceed 0.75. Therefore, there does not seem to be any serious problem of multicollinearity. The next step is to test the significance of the

discriminant function model. If the discriminant function is not significant it should not be used for interpretation. From table 6 it is observed that the Wilks Lambda t=is 0.462 and it is significant. Higher the Wilks Lambda higher the significance of the discriminant function.

Table 6

Wilks' Lambda

Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.462	38.773	24	.037

Source: computed data

The table below gives the standardized coefficients of the discriminant function. Every discriminant coefficient can be interpreted the same way as a regression coefficient. A small value of the discriminant coefficient means that the impact of a unit change in the predictor variables is small in the discriminant function score.

Table 7

Standardized Coefficients for the Discriminant Function

Standardized Canonical Discriminant Function Coefficients	
Predictor Variables	**Function Coefficients**
Adapts slowly when things go wrong financially	-.289
Risk in a financial context means danger	.077
Invested a large sum in a risky investment mainly for the capital appreciation	-.304
Prefer more security to a small return increase	.443
While Taking Major financial decision, more concerned about the possible losses	.199
Prefers an investment where you could choose guaranteed return	-.022
Makes investments from Saving (other than for your home)	-.200
Prefer to invest in well performing investment avenues	.282
Cautious about performance of portfolio	.030
Prefer capital appreciation	-.193
Prefer all low-risk/high-return,	.395
Comfortable in low risk based financial assets	-.301
Adapt easily when things go wrong financially	.235
Risk in a financial context means opportunity	-.065
Invested a large sum in a risky investment mainly for the thrill of seeing whether it went up or down in value	-.482
Prefer less security for a big return	.205
While Taking Major financial decision, more concerned about the possible gains	-.075
Prefer an investment where you could choose specific return	.569

Borrowed money to make an investment (other than for your household purpose)	-.235
Invest in any avenue without considering the risk	-.252
Not bothered about fluctuations in investment value (returns)	.425
Expect short term return	-.047
Prefer all high-risk/high-return,	.362
Always attracted to investing in risky avenues giving higher returns	.314

Source: computed data

The estimated unstandardized discriminant function is given in table 7. The results can be written in the form of the discriminant function as:

$$Y = bX_1 + b(X_2) + b(X_3) + \ldots \ldots b(X_{24})$$

Where, Y = discriminant score for that respondent.

The above equation is used to calculate the discriminant score for each respondent. X_1, X_2, $X_3 \ldots \ldots X_{24}$ are the 24 predictor variables. The b is the coefficients for the discriminant function as shown in table 8

The mean discriminant scores of the risk-averse and risk-taker groups are computed separately and is known as group centroids. The discriminant function helps to classify an investor into a risk-averse/risk-taker category using the group centroids.

Table 8

Group Centroids (Mean Discriminant Scores For Both Groups)

Risk-Averse/Risk-taker Investor	Function1
Risk Averse	-.152
Risk Taker	.237
Unstandardized canonical discriminant functions evaluated at group means	

Source: computed data

The sample size for risk-averse person is 366 and the sample size for risk-taker is 234. As the size of the sample in both groups differs, the cut-off score for classification is computed by using the formula:

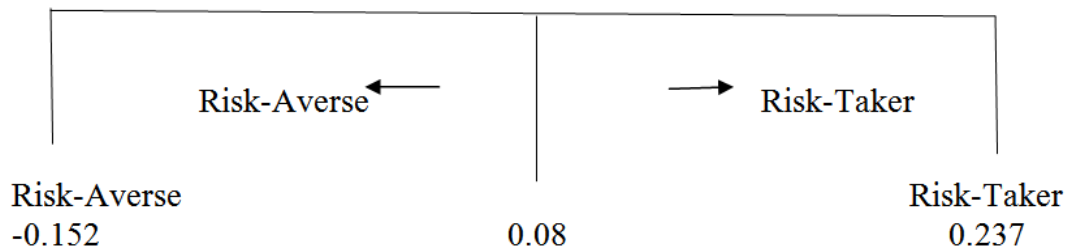$$C = (n_2 Y_1 + n_1 Y_2) / (n_1 + n_2)$$

Where, Y_1 and Y_2 = Mean discriminant score for group 1 and group 2

n_1 and n_2 = Size of groups 1 and 2 respectively.

The calculated cut off score having 366 risk-averse and 234 risk-takers is 0.08. Diagrammatically it is shown as,

Figure 1

Group Centroids (Mean Discriminant Scores for Both Groups)

This shows that any respondent whose discriminant score is greater than 0.08 would be classified as a risk taker, whereas the one with fewer score than 0.08 would be classified as a risk-averse. Based on the above centroid scores and individual respondent's discriminant score, the results of classification of all the respondents are presented in table 5.42, which classifies each respondent into risk averse and risk taker category.

Table 9

Classification of Respondents Based on Discriminant Score

Risk-Averse/Risk-Taker Investor			Predicted Group Membership		Total
			Risk Averse	Risk Taker	
Original	Count	Risk Averse	217	149	366
		Risk Taker	99	135	234

Source: computed data

Table 9 is called as the classification table or confusion matrix. It is observed from table 8 that out of the 366 respondents who are actually risk-averse, 217 are predicted by the model as risk-averse. Similarly, out of 234 respondents who are actually risk-takers, 135 of them are predicted as takers.

The overall classificatory ability of the model is measured by the Hit Ratio. The hit ratio is given as:

Hit ratio = No of Correct Predictions/ Total number of cases

Here, there are (217+135) correct predictions out of 600; therefore, the hit ratio works out to be 352/600 = 58.66 per cent. 58.66 per cent accuracy appears robust, as the same for both the categories are different.

Risk Takers and Risk Averse Investors

The financial theory explains that the risk averse behaviour is apparently related to low risk in association with low return, the consequence risk takers always expects a return above the industry average. The risk taker and risk averse investors purely differ from self's based, on the return they make out of their investment. This study presents a strategic model based on the range of behaviors and their preferences of the average investor after examining four factors such as Conscious Investor behavior, Social and Traditional, Investor Information Seeking and effect of Income associated with the investments. The respondent whose discriminant score is greater than 0.08 is classified as risk taker and the one with less than 0.08 is classified as a risk-averse.

Confusion regarding level of risk weakens the quality of investment decisions. Hence it is necessary on the part of the average investor to clearly spell out the risk taking attitude and the consistent investment goals over a period of time to avoid disappointments.

Knowledge on uncertainty and knowledge on return on investment determines the risk taking attitude of the average investors. Different respondents may even choose the same portfolio of investment,

but ranking the risk of each investment avenues that are different from one another that differentiate risk takers and risk averse. Strong attitude towards risk taking and rational investment decisions always help to achieve one's investment goals.

Risk takers are normally comfortable with market volatility while risk averse requires stability, and expect lower chance of a loss. This can avoid unfamiliar investments options and gather sufficient information before any investment decision. The quality required to the investors, is using knowledge instead of emotions.

Average investors must invest in familiar avenues. Hence it is advisable to act based on the saying that "a known devil is better than an unknown angel"

Frequent switching over from one investment to another and updating the portfolio based on the ground reality that prevails in the investment market are unavoidable strategies to maximize the return.

Aggressive risk taking attitude of the average investors leads to quick capital appreciation.

Socio- economic characteristic influences the average investor's behavior but investment decisions are taken by the average investors, according to the past experience and previous investment outcomes. It is necessary to educate the investors that "history will not repeat" in the case of return on investments.

The outcome of the research reveals that the need for a change in the investors awareness program organized by the Securities and Exchange Board of India. It must focus on the investor's attitude towards profit and loss.

Average investors use the idle fund to build the investment portfolio to provide security for the family; but they lack time and expertise to build an effective portfolio.

Strategy for risk averse must be a well-diversified, efficiently constructed and risk assessed investment.   Risk taker must concentrate on short term, value and growth investing.   Investors should be bewaring of risk, return and liquidity concepts of an investment

Measures should be taken to protect themselves from adverse investment decisions.

Systematic investment plan (SIP) is an ideal method for the risk adverse average investors with a regular flow of fund. It is a very attractive method that helps to accumulate savings and translate them into wealth creators in the long run.

CONCLUSION

Invetment market is more vibrant and highly sensitive with the investment behavior of the individual investors. This study proved that investment behavior influence risk tolerance and investment decision. Proper financial literacy, financial awareness and the diversified portfolios change the risk attitude and risk tolerance of the investors.

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