

Risk Appetite of Investors and Big Five Personality Factors

***Dr. Albin D Robert Lawrence**

****Dr. L.J. Chaarlas**

*Assistant Professor, St. Joseph's Institute of Management (JIM), St. Joseph's College (Autonomous), Trichy – 620 002

**Associate Professor – Head, Department of Commerce, St. Joseph's College (Autonomous), Trichy – 620 002

Abstract: Risk Appetite of an investor has been measured by many researchers with different methods. This study also is an attempt is made to understand the Risk Appetite of the investor. However, in this study 'Risk Appetite' is studied by relating it with the intention, and with the actual, of the investor to take risks. In order to understand the risk appetite the investors were asked to allocate Rs.1,00,000, an imaginary amount between fixed income securities and equities. The risk appetite of the respondents was classified as 'Risk Averse', 'Moderate Risk Takers' and 'Risk Lovers' based on their asset allocation. The authors have also attempted to find out the association between the personality of the investor and their risk appetite.

Keywords: Risk,; Risk Appetite; Risk Averse; Moderate Risk Takers; Risk Lover; Personality.

Introduction

The ability of an individual to define what would happen in the future and to choose among alternatives lies at the heart of modern societies. In the process of choosing among alternatives, the willingness of an individual to bear risk depends upon the macro-economic environment. The willingness to take the risk while investing their hard earned money, i.e. their risk appetite, is likely to change according to the financial distress of the individual and the macro economic uncertainty. The presence of liquid capital markets, enable the savers to diversify their risks. If investors were limited to owning just one stock, the great innovative enterprises like the TATA, Reliance, Birla, Infosys etc., might never have come into being. The capacity to manage risk, and with it the appetite to take risk and make forward looking choices are the key elements of the energy, that drives the economic system forward. [1]

Studies were done to understand and measure the 'risk' and the 'risk appetite' of investors. Some of the studies are presented below:

Kim used the Euler equations of consumption as a price of risk and thus represented the willingness of investors, without any assumption about investor's preference and market efficiency [2]. Kumar and Persand identified changes in the risk appetite of investors and also computed the daily measures of risk appetite and assessed their usefulness in predicting financial crises [3]. Gai and Vause proposed a new method to measure the sentiment of the market, which could be used to measure the risk appetite of the investors [4]. In a study by Bollerslev et al., it was identified that, higher was the risk appetite, when the implied volatilities which was derived from the option prices exceeded the realised volatilities [5]. Tarashev et al compared the risk – neutral and subjective probability densities and found out that the movements in the probability ratio reflected factors other than risk aversion [6]. Froot observed in a study that each investor's demand for a risky asset depended on his wealth, the deviation in the excess returns of the risky assets and the covariance of these excess returns with the excess returns to other risky assets [7]. Cvitanic et al., from their study found out that the possibility of generating more income increases the risk taking appetite of the investor [8]. Barasinska in her study investigates the role of gender in the appetite for risk and found out that on an average, male and female investors respond similarly to the changes in the standard deviation of expected return i.e. risk [9].

There are many more studies, which tries to understand and measure the ‘risk’ and the ‘risk appetite’ of the investors. However the present study is undertaken with a perspective to understand the ‘intention’ of risk taking by an investor. An attempt is made in this study to understand the willingness to take risk, by giving an imaginary amount of Rs.1,00,000 to the investor and thereby understanding the asset allocation of the investor which in turn would reflect the risk appetite of the investor. Therefore, the objectives of the study are:

1. To classify the risk appetite of the investor on the basis of their asset allocation;
2. To understand the association between the risk appetite of the investor and the demographic measures of the investor;
3. To know the influence of experience of the investors in the stock market on their risk appetite;
4. To learn the association between the risk appetite of the investors and their personality.

Research Design and Methodology

Both the Primary Data and Secondary Data were used, in order to undertake the present study. A well structured questionnaire was prepared to elucidate responses from the respondents. KARVY Stock Broking Limited, one of the leading stock broking houses in India was chosen for this study to source the respondents. It has around 58 branches in Tamil Nadu. KARVY had divided Tamil Nadu into 5 zones viz., Chennai, Coimbatore, Madurai, Trichy and Salem. This stratification was taken by the researcher to classify the population. Only those investors who had a 60% frequency of visiting the broking house for trading in a week were chosen to be the respondents. In other words, only those investors were chosen as sample for the study, who visited the stock broking house for trading, for 3 to 5 days in a week. These respondents were identified with the help of Branch Managers. The questionnaires were given to the all the investors who were identified by the Branch Manager as frequent visitors and collected. This gave the researcher a Universe of around 840 retail investors in equity market, to distribute the questionnaires. Totally 597 questionnaires were collected, 78 incomplete questionnaires were rejected, and the researcher was left with 519 completely filled questionnaires to carry out the analysis.

RESULTS OF THE STUDY

Table 1

Asset Allocation & Classification of the respondents on the basis of their Risk Appetite

Option	Asset Allocation	Risk Appetite	No. of Respondents	Per cent	N	Per cent
A	100% Fixed income securities	Risk Averse	18	3.47%	195	37.57%
B	90% Fixed Income Securities & 10% Equities		43	8.29%		
C	80% Fixed Income Securities & 20% Equities		63	12.14%		
D	70% Fixed Income Securities & 30% Equities		71	13.68%		
E	60% Fixed Income Securities & 40% Equities	Moderate Risk Takers	59	11.37%	254	48.94%
F	50% Fixed Income Securities & 50% Equities		95	18.30%		
G	40% Fixed Income Securities & 60% Equities		63	12.14%		
H	30% Fixed Income Securities & 70% Equities		37	7.13%		
I	20% Fixed Income Securities & 80% Equities	Risk Lovers	13	2.50%	70	13.49%
J	10% Fixed Income Securities & 90% Equities		10	1.93%		
K	100% Equities		47	9.06%		
	Total		519	100	519	100%

Source: Primary Data

The above table shows the classification of the respondents based on their asset allocation. The respondents those who have chosen to park their funds in the options A or B or C or D were classified as 'Risk Averse' and those respondents who chose to invest in any one of the options from E to H were classified as 'Moderate Risk Takers' and the rest were classified as 'Risk Lovers'.

Further the researcher has classified the respondents as Risk Averse, Moderate Risk Takers and Risk Lovers as shown in the above table.

Moreover it is understood from the above table that 37.57% of the respondents were classified as Risk Averse, 48.94% of the respondents were Moderate Risk takers and 13.49 % of the respondents were Risk lovers.

Table 2

Kruskal – Wallis Test between Risk Appetite and the Domicile of Respondents

	Region	N	Mean Rank	Statistical Inference
Risk Appetite	Chennai	176	296.15	$\chi^2=26.719$ Df=4 $0.000 < 0.05$ Significant
	Coimbatore	104	253.84	
	Madurai	118	266.75	
	Trichy	61	209.29	
	Salem	60	202.93	
	Total	519		

Source: Primary Data

Testing of Hypothesis:

H_0 : Risk Appetite between the respondents of the five domiciles is significantly not different.

H_1 : Risk Appetite between the respondents of the five domiciles is significantly different.

The computed χ^2 value as reported in the above table is 26.719, and the p value is 0.000, which is lesser than 0.05, the assumed level of significance, therefore the null hypothesis is rejected. Hence, it may be concluded that there is difference between the risk appetites of the respondents in the various regions.

In conclusion, a higher per cent of respondents were 'Moderate Risk takers' in the regions of Chennai, Coimbatore and Madurai. However, in the regions of Trichy and Salem a higher per cent of the respondents were 'Risk Averse'. In comparison to the other regions, a higher per cent of respondents in the region of Chennai were 'Risk Lovers'.

Table 3

Association of the respondents on the basis of their Sex and Risk Appetite

Sex	Particulars	Risk Appetite			Total	Statistical Inference
		Risk Averse	Moderate Risk Taker	Risk Lover		
Male	No. Respondents of	134	192	59	385	$\chi^2=7.034$ Df=2 $0.03 < 0.05$ Significant Cramer's V statistic = 0.116
	Per Cent	34.8	49.9	15.3	100	
Female	No. Respondents of	61	62	11	134	
	Per Cent	45.5	46.3	8.2	100	

Source: Primary Data

The above table shows the classification of the respondents on the basis of their sex and their appetite to take risk. The researcher has classified the respondents as Risk Averse, Moderate Risk Takers and Risk Lovers as shown in Table no.1. It is understood from the above table that 37.6% of the respondents were classified as Risk takers, 48.9% of the respondents were Moderate Risk takers and 13.5 % of the respondents were Risk lovers.

Testing of Hypothesis:

H_0 : There is no significant association between the sex of the respondents and their appetite for risk

H_1 : There is a significant association between the sex of the respondents and their appetite for risk

Based on the χ^2 test it can be inferred that the Null hypothesis can be rejected. In other words, there is enough evidence to conclude that sex of the respondents and their appetite for risk are related. However, based on the Cramer's V statistic of 0.116, it can be inferred that the strength of the relationship is negligible.

In Conclusion, more percent of the male respondents were 'Risk Lovers' in comparison to the female respondents.

Table 4

Kruskal – Wallis Test between Risk Appetite and the Age of the Respondents

	Age in years	N	Mean Rank	Statistical Inference
Risk Appetite	25 and Below	74	214.86	$x^2=17.162$ Df=4 $0.002<0.05$ Significant
	Between 26 and 35	167	263.92	
	Between 36 and 45	128	298.12	
	Between 46 and 55	88	251.70	
	56 and above	62	236.40	
	Total	519		

Source: Primary Data

Testing of Hypothesis:

Ho: Risk Appetite between the respondents of the different age groups is the same

H1: Risk Appetite between the respondents of different age groups is different.

The computed x^2 value as reported in the above table is 17.162, and the p value is 0.002, which is lesser than 0.05, the assumed level of significance, therefore the null hypothesis is rejected. Hence, it may be concluded that there is difference between the risk appetites of the respondents in the various age groups.

Table 5

Kruskal – Wallis Test between the Level of Literacy and Risk Appetite of the respondents

Ranks				
	Level of Literacy	N	Mean Rank	Statistical Inference
Risk Appetite	Less than Graduation	50	268.41	$x^2=11.070$ Df=5 $0.05=0.05$ Significant
	Graduation	233	237.69	
	Post Graduation	120	274.41	
	Professional Degree	72	286.27	
	Diploma	34	298.03	
	No Education	10	246.35	
	Total	519		

Source: Primary Data

Testing of Hypothesis:

H₀ : Risk Appetite between the respondents of different levels of literacy is the same.

H₁: Risk Appetite between the respondents of at least two levels of literacy is different.

The computed χ^2 value as reported in the above table is 11.070, and the p is 0.05, which is equal to 0.05, the assumed level of significance, therefore the null hypothesis is rejected. Hence, it may be concluded that there is difference between the risk appetites of the respondents in the various levels of literacy.

Table 6

Kruskal – Wallis Test between the Marital Status and Risk Appetite of the Respondents

	Marital Status	N	Mean Rank	Statistical Inference
Risk Appetite	Married	369	266.67	$\chi^2=3.340$ Df=2 0.188>0.05
	Unmarried	142	241.05	
	Divorcee	8	288.62	
	Total	519		Not Significant

Source: Primary Data

Testing of Hypothesis:

H_0 : Risk Appetite between the different marital statuses of the respondents is the same.

H_1 : Risk Appetite between at least two marital statuses is different.

The computed χ^2 value as reported in the above table is 3.340, and the p value works out to be 0.188, which is greater than 0.05, the assumed level of significance. Therefore, the null hypothesis is accepted. Hence, it is concluded that risk appetite between the different marital statuses of the respondents is the same.

Table 7

Kruskal – Wallis Test between the Occupation and Risk Appetite of the Respondents

	Occupation	N	Mean Rank	Statistical Inference
Risk Appetite	Professional	58	273.62	$\chi^2=5.292$ Df=7 0.624>.05 Not Significant
	Business	87	263.86	
	Pvt. Emp	244	264.62	
	Govt. Emp	48	244.90	
	Ret. Pensioner	25	255.96	
	Ret. Non Pensioner	36	216.76	
	Farmer	13	241.73	
	Home maker	8	306.00	
	Total	519		

Source: Primary Data

Testing of Hypothesis:

H_0 : Risk Appetite between the respondents of different occupations is the same

H_1 : Risk Appetite between the respondents of at least two occupations is different

The computed χ^2 value as reported in the above table is 5.292, and the p value works out to be 0.624, which is greater than 0.05, the assumed level of significance, therefore, the null hypothesis is accepted. Hence, it is concluded that risk appetite between the respondents of different occupations is the same.

Table 8

Kruskal – Wallis Test between the Annual Income and Risk Appetite of the Respondents

	Annual Income	N	Mean Rank	Statistical Inference
Risk Appetite	Up to Rs.2,00,000	217	242.14	x ² =22.18 Df=5 0.00<0.05 Significant
	Between Rs.2,00,001 and Rs.4,00,000	153	265.78	
	Between Rs.4,00,001 and Rs.6,00,000	84	309.36	
	Between Rs.6,00,001 and Rs.8,00,000	36	283.22	
	Between Rs.8,00,001 and Rs.10,00,000	13	142.54	
	Above Rs.10,00,000	16	230.97	
	Total	519		

Source: Primary Data

Testing of Hypothesis:

H₀ : Risk Appetite between the respondents of different annual income groups is the same

H₁: Risk Appetite between the respondents of at least two annual income groups is different

The computed x² value as reported in the above table is 22.189, and the p value works out to be 0.000, which is lesser than 0.05, the assumed level of significance, therefore, the null hypothesis is rejected. Hence, it is concluded that risk appetite between the respondents of different annual income groups is different.

Table 9

Kruskal – Wallis Test between the Experience and Risk Appetite of the Respondents

	Annual Income	N	Mean Rank	Statistical Inference
Risk Appetite	Less than 1 year	86	199.85	x ² =60.559 Df=6 0.000<0.05 Significant
	Between 1 and 5 years	205	229.84	
	Between 6 and 10 years	126	285.74	
	Between 11 and 15 years	54	358.27	
	Between 16 and 20 years	25	356.14	
	Between 21 and 25 years	13	274.38	
	More than 25 years	10	281.50	
	Total	519		

Source: Primary Data

Testing of Hypothesis:

H₀ : Risk Appetite between the respondents of different experience groups is the same

H₁: Risk Appetite between the respondents of different experience groups is different

The computed x² value as reported in the above table is 60.559, and the p is 0.000, which is lesser than 0.05, the assumed level of significance, therefore, the null hypothesis is rejected. Hence, it is concluded that risk appetite between the respondents of different experience groups is different.

Table 10

Association of their Risk Appetite and the Personality of Investors (Big – Five Personality Factors)

Risk Appetite		Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism	Openness & Agreeableness	Conscientiousness & Agreeableness	Extraversion & Agreeableness	Other Personality Factors	Total	Statistical Inference
Risk Averse	No. of Respondents	25	43	21	78	6	6	7	5	4	195	$\chi^2=19.614$ Df=16 $0.23>0.05$ Not Significant
	Per Cent	12.8%	22.1%	10.8%	40.0%	3.1%	3.1%	3.6%	2.6%	2.1%	100.0%	
Moderate Risk Taker	No. of Respondents	28	61	23	97	10	3	12	10	10	254	
	Per Cent	11.0%	24.0%	9.1%	38.2%	3.9%	1.2%	4.7%	3.9%	3.9%	100.0%	
Risk Lover	No. of Respondents	10	22	3	17	6	3	5	1	3	70	
	Per Cent	14.3%	31.4%	4.3%	24.3%	8.6%	4.3%	7.1%	1.4%	4.3%	100.0%	
Total	No. of Respondents	63	126	47	192	22	12	24	16	17	519	
	Per Cent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Source: Primary Data

The above table shows the classification of the respondents on the basis of their risk appetite and their personality.

From the table it is understood that 195 respondents were Risk Averse, 254 respondents were Moderate Risk takers and 70 respondents were Risk lovers.

Testing of Hypothesis:

H₀ : There is no association between the Risk Appetite and the Personality of the Respondents

H₁: There is association between the Risk Appetite and the Personality of the Respondents

The computed χ^2 value as reported in the above table is 19.614, and the p value is 0.23, which is greater than 0.05, the assumed level of significance, therefore, the null hypothesis is accepted. Hence, it is concluded that there is no association between the Risk Appetite and the Personality of the Respondents

Therefore from the table it is understood that, 'Agreeableness' was the dominant personality factor among 'Risk Averse Investor' and 'Moderate Risk Takers'; whereas 'Conscientiousness' was the dominant personality factor among 'Risk Lovers'.

IV. Conclusion

From the study it is understood that most of the investors are 'Moderate Risk Takers' and the male investors were 'Risk Lovers'. Investors in the age group of between 36 years and 45 years of age have high risk appetite. From the study it is also understood that 'Professional Degree' holders and 'Post Graduates' were 'Risk Lovers' and the graduates were 'Risk Averse'.

'Professionals' and Private employees were 'Risk Lovers'. Moreover respondents in the annual income group of above Rs.2,00,000 and up to Rs.10,00,000 were 'Risk lovers'. 'Agreeableness' was the dominant personality factor among 'Risk Averse Investor' and 'Moderate Risk Takers'; whereas 'Conscientiousness' was the dominant personality factor among 'Risk Lovers'.

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