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Risk Perception of Employees with Respect to Equity Shares

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Risk perception is the subjective judgment that people make about the characteristics and severity of a risk. Risk perception plays a very important role in equity share investment decision of an investor. The objective of the present paper is to find out the level of risk perception of the employees with respect to the different classes of equity investment. It is found that the risk perception of the employees for the shares of their own company as well as the indirect investment in equity shares is relatively lower than the risk perception for the shares of the companies other than their own companies. It was also found that there is lower degree of correlation among the risk perception for the shares of their own company, shares of other company and indirect investment in equity shares which means that risk perception with respect to one share is not influencing the risk perception for other shares.

Keywords: Equity share, Risk perception, Investment, Oil India Limited [OIL], Indirect investment

INTRODUCTION

In biology, perception is understood as "the mental interpretation of physical sensations produced by stimuli from the outside world." Here "mental interpretation" could be interpreted as a process of constructing an internal model of the environment (Fischhoff [1994]).

Risk perception is the subjective judgment that people make about the characteristics and severity of a risk. Risk perception examines the opinions of people when they are asked to evaluate hazardous or risky activities, substances, and technologies (Slovic [1987]). Perceptions of risk play a prominent role in the decisions people make in the sense that differences in risk perception lie at the heart of disagreements about the best course of action between technical experts and members of the general public, men versus women, and people from different cultures (Slovic [1987]). Both individual and group differences in preference for risky decision alternatives and situational differences in risk preference have been shown to be associated with differences in perceptions of the relative risk of choice options, rather than with differences in attitude toward (perceived) risk, that is, a tendency to approach or to avoid options perceived as riskier (Weber and Milliman [1997], Weber [2001]).

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SIGNIFICANCE OF STUDYING RISK PERCEPTION

Psychologists are interested in finding ways of measuring perception of risk, since it is an important component in any decision-making process. It has been established from earlier studies that risk perception can be managed if one is aware of the various dimensions of risk and the reason for the said level of risk perception (Singh and Bhowal [2008]). Risk perception can be managed, and policy makers should try to manage the risk perception for implementing various policies (Bhowal and Singh [2006]). This can only be possible only if one is aware about his/her level of risk perception.

FACTORS AFFECTING THE PERCEPTION AND INTERPRETATION OF RISK

Three types of factors affect the perception and interpretation of risk: (1) Those related to the individual, (2) those related

to the presentation of the risk, and (3) those related to the characteristics of the risk.

Factors Related to the Individual

A number of factors related to the individual affect his or her perception and interpretation of risk. These are as follows:

Culture

Culture influences a person's values and opinions about risks and benefits. For this reason, it is essential for providers to consider race and ethnicity, religion, and family situation when discussing the risks and benefits of any particular product and idea (Noone [2000]).

Previous Experience

Previous experience with a particular thing or situation has an impact on the person's perception of risk. Marketers or providers should also consider the person's experience with the particular situation or thing (Haam, Grimes, Popkin and Smith [2001]).

Literacy Level

Literacy level and education affect a person's perception and interpretation of risk. Studies have shown that individuals with less formal education are more likely to misunderstand risk information (Grimes and Snively [1999]).

Developmental Stage

Developmental stage also has an important effect on risk perception and interpretation. Early and middle adolescents may not yet have the abstract cognitive skills necessary to evaluate risk effectively (Mann, Harmoni and Power [1989]). By age 15, the reasoning ability of most adolescents for hypothetical situations is fully developed. However, other developmental changes affect risk taking and decision making in real-life situations. Some experts hypothesize that a lag between the developments of the cognitive system coupled with an increased sensitivity to reward of the limbic system may explain part of the high level of risk-taking behavior during adolescence (Steinberg [2004]). For this reason, when counseling an adolescent, providers should keep in mind that an adolescent's developmental stage is a factor in his/her ability to think abstractly, and thus in his/her understanding of risk (Steinberg [2005]).

Certain Innate Tendencies

Finally, certain innate tendencies affect a person's perception and interpretation of risk. Optimism bias describes the phenomenon by which individuals tend to believe they have less risk for an event than the "average person." Optimism bias may lead people to believe that information about a particular risk does not apply to them. Thus, it is critical for providers to communicate to the investor that the risk associated with his/her particular risk factors and to let him/her know that the risk information is also specifically relevant for him/her (Bowling and Ebrahim [2001]).

Factors Related to Risk Presentation

Several factors related to the way risk information is presented, influence the perception and interpretations of that information. Some of these are:

Framing Effects

Framing effects or the influence of the message used to present the information affect risk perception (Edwards, Elwyn and Mulley [2002]). The use of positive framing, such as presenting the chance of survival when discussing a chemotherapy regimen, is more likely to persuade people to take risky options than negative framing, such as presenting the chance of death from the treatment. Thus, negative framing is particularly effective at prompting people to take a screening test to check for a risky gene or health condition, whereas positive framing is more effective at encouraging protective behaviors that have an uncertain but potentially positive effect (Rothman and Salovey [1997]).

Degree of Uncertainty Surrounding the Risk Being Presented

The degree of uncertainty surrounding the risk being presented also affects how it is perceived and interpreted. People tend to be more fearful and concerned about risks for which there is more scientific uncertainty. Similarly, trustworthiness of the information source affects people's perception of risk. People are more likely to discount information about risk if they do not trust its source (Bennett [2006]).

Factors Related to the Characteristics of the Risk

In addition to the way risks are presented, the characteristics of the risks themselves influence risk perception and interpretation as per the Harvard Centre for Risk Statistics [2003]. Individuals worry and are more concerned about risks that:

- they cannot control
- are involuntary
- are associated with particular dread
- are novel
- result from man-made sources
- are more easily recalled

REASONS FOR STUDYING RISK PERCEPTION WITH REGARD TO EQUITY SHARES

While going for investment in shares, people try to make proper tradeoffs between risks and return (Fischer and Jordan [2006]), given that investment in risk-free instruments includes bank deposits, postal deposits, and insurance. Moreover people are generally risk averse (Kahneman and Tversky [1979]). They like to invest in such instrument, which give higher return for same amount of risk, or same return for less amount of risk; that is, they make proper tradeoffs between risks and return while going to invest in particular investment instrument. It is found in the earlier research that the people's level of risk perception affects the investment behavior of people, especially the equity shares investment behavior (Singh [2008]). It is because the return from the equity share is not certain and hence the investment in equity share is considered to be as one of the risky investment. This is why risk perception of the employees of Oil India Limited has been measured from the point of view of equity share investment because investment in equity shares involves taking of risk.

SCOPE OF THE STUDY

The study is empirical in nature. The employees of Oil India Limited (OIL) have been considered as case for this purpose. The study has been focused on the risk perception of the employees of OIL with regard to the equity shares investment. The study was done during April 1, 2007, to March 31, 2008. The employees of OIL may invest in equity shares of OIL, equity shares of other than OIL and indirectly in equity shares. The study covers all three types of equity investment mentioned here. In this study the employees of different departments and officers as well as nonofficers are considered.

OBJECTIVE OF THE STUDY

The objective of this paper is to identify the risk perception of the employees of OIL with respect of equity shares of OIL, shares of companies other than OIL, and indirect investment in equity shares.

HYPOTHESIS OF THE STUDY

The three categories of the equity investment mentioned above are considered to equally risky as all are equity shares. This forms the basis of framing of our null hypothesis which is given as follows:

> There is no significant difference between level of risk perception with respect to equity shares of OIL, equity shares of other than OIL, and indirect investment in equity shares among the employees of OIL.

TABLE 1
Age Profile of the Respondents.

Age	Frequency	Percent
20–30	14	3.70
30–40	107	28.31
40–50	187	49.47
50 and above	70	18.52
Total	378	100

Source: Compiled from the Questionnaire.

METHODOLOGY OF THE STUDY

The present endeavor is conclusive in nature. First, on the basis of secondary data a survey hypothesis was framed. A pilot survey was conducted; and on the feedback of the primary data, the final hypothesis was framed and the questionnaire refined. To carry out the study of the research problem, the following methodology was adopted.

Universe of the Study

All employees working in OIL at the Duliajan Head Office (i.e., executives, nonexecutives) constituted the universe of the study. The size of the universe was 8,480.

Sample and Sample Unit

Here each employee was considered as the unit of the study. Sample selection was based on simple random sampling basis. Considering the time and resources constraints, the sample size was fixed at 424 (i.e., 5% of the population size, or 8,480 employees). Of these, responses from only 400 employees were received. This accounted for a 93.86% response rate out of those who were served the questionnarie (i.e., 424 employees). After scrutiny, responses from only 378 employees were finally selected, as they were complete in all respect.

Profile Analysis of Respondents

Tables 1–5 clearly reveal the profile of the 378 respondents.

TABLE 2
Gender Profile of the Respondents.

Gender	Frequency	Percent
Male	328	86.77
Female	50	13.23
Total	378	100.00

Source: Compiled from the Questionnaire.

TABLE 3
Designation Profile of the Respondents.

Designation	Frequency	Percent
Officer	187	49.47
Non-Officer	191	50.53
Total	378	100.00

Source: Compiled from the Questionnaire.

Data Requirement

For collecting primary data, discussion and interactions with managerial personnel, employees of different departments at different levels were conducted along with questionnaire designed specially for the purpose.

Questionnaire Design

After a pilot survey and discussions with employees as well as the people who are experts in this area of research, a questionnaire was framed. As per the objective, the information needed was about the risk perception of the employees with respect to the equity shares of OIL, other than OIL, and indirect investment in equity shares. The sequences of the questions were as follows:

Question No. 1 was related to the name of the respondents which was made optional as most of the respondents do not want to disclose their name
Question No. 2 was related to age.
Question No.3 was related to sex.
Question No. 5 was related to designation.
Question No. 6 was related to educational qualification.
Question No. 7 was related to annual income.
Question No. 8 was related to their level of risk perception with respect to equity shares of OIL, other than OIL, and indirect investment in equity shares. The respondents are asked to give their opinion on risk perception on a 5-point scale for the entire three categories of equity share investment.

Method of Data Analysis and Interpretation

In the present research work various tools of statistical analysis, using SPSS statistical software, such as ratios, percentages, tables, Cross tables, Kolmogorov-Smirnov test, correlation test were done, as and when required to arrive at logical conclusion on the sample data. These tests are explained below.

The Kolmogorov-Smirnov test is a goodness-of-fit test which tests whether a given distribution is not significantly different from one hypothesized (e.g., on the basis of the assumption of a normal distribution). It is a more powerful alternative to chi-square goodness-of-fit test when its assumptions are met. Whereas the chi-square test of goodness-of-fit tests whether in general the observed distribution is not significantly different from the hypothesized one, the K-S test tests whether this is so even for the most deviant values of the criterion variable. Thus it is a more stringent test (Massey [1951]).

The correlation coefficient is calculated to measure the degree of relationship between two variables. It ranges from -1 to 1. The + or – sign signify the direction of relationships and the values indicates the degree of relationship (Sigel and Castellan [1988]).

TABLE 4
Qualification Profile of the Respondents.

Qualification	Frequency	Percent
up to 10th level	33	8.73
Up to graduate level	251	66.40
Up to PG level	63	16.67
Professional	31	8.20
Total	378	100.00

Source: Compiled from the Questionnaire.

TABLE 5
Income Profile of the Respondents.

Annual Income	Frequency	Percent
Up to Rs. 1 lakh	8	2.12
1 lakh–1.5 lakh	65	17.20
1.5 lakh–2 lakhs	55	14.55
2 lakhs and above	250	66.14
Total	378	100.00

Source: Compiled from the Questionnaire.

FINDINGS OF THE STUDY

In Table 6 the means along with the standard deviation of the risk perceptions of the respondents based on the responses given by the respondents on a five point scale mean are calculated.

TABLE 6
Mean of the Risk Perception of the Respondents.

	Minimum	Maximum	Mean	Std. Deviation
Risk Perception in respect of equity shares of OIL	1	5	3.9603	1.12177
Risk Perception in respect of equity shares of other than OIL	1	5	2.4762	1.04067
Risk Perception in respect of indirect investment in equity shares	1	5	3.3148	0.93494

Source: Compiled from the Questionnaire.

TABLE 7
Mean Interpretation Scale.

Mean values of risk perception scores	Less than 1	1–2	2–3	3–4	4–5
Interpretation of the mean values	Very Risky	Risky	Moderate	Safe	Absolutely Safe

As reported in Table 6, the minimum mean possible was 1 and the maximum mean possible was 5. The interpretations of the mean values were done using Table 7.

Looking at Table 6, it can be concluded that the risk perception of the respondents in respect of equity shares of OIL is found to be of safe shares. This is because the mean of the sample is 3.96 whereas the mean of the sample for risk perception in respect of equity shares of other than OIL is 2.47. It can be concluded that on an average the risk perception in respect of this kind of shares is of moderate investment. The mean score of the indirect investment in equity is 3.31, which is again considered a safe investment as perceived by the employees of OIL. The reasons for the above findings can be described with the help of Table 8, where the risk perceptions in respect of equity investment related to different kinds of equity shares are given.

Table 8 shows the various levels of risk perceptions related to different kind of equity investment. It can be seen that, with respect of the shares of OIL, the total number of responses saying it was very risky and risky is, respectively, 4% and 9.8%. It can be said that 13.8% (4+9.8) of the respondents consider it a risky investment. On the other hand, the percentage of people considering it safe and absolutely safe is 35.4% and 39.20%, respectively, which is 76.6% (35.4+39.2) taken together.

It can be concluded that the majority of the respondents do not consider the equity shares of OIL to be risky. It can also be inferred that people feel less risky for an investment until if it is known to them. In their study, Tourani-Rad and Kirkby [2005] also found that investors prefer to invest in local and known companies and consider it to be lesser risky than other companies' shares.

In the case of shares of companies other than OIL, the percentage of the respondents who have given the responses as somewhat safe and absolutely safe is 20.90% and .80%, respectively. It can be concluded that less than 21% of the people consider it a safe type of investment. The percentages of the respondents who are considering it as very risky and somewhat risky are, respectively, 18.30% and 38.40%. In total, 56.90% (18.3 + 38.4) of the total respondents are considering it too risky a share investment.

In case of the indirect investment in equity shares, 38.4% of the respondents consider it safe and 7.90% think that it is absolutely safe. More than 46% of respondents think that it is a safer investment. However, 33.1% also consider a moderate level of risk with the investment, which is significant. The remainder of respondents (20.6%) considers it to be a risky investment.

To know the relationship between the risk perceptions of these three kinds of share investment the degree of correlation between levels of risk perception with respect to equity shares of OIL, equity shares other than OIL, and indirect investment in equity shares have been the calculated.

To study about the risk perception with respect to the equity shares of OIL, equity shares of the companies other than OIL, and indirect investment into the equity shares, it is necessary to calculate the degree of correlation of risk perceptions for these types of investment in shares. For doing Karl Pearson's correlation, it is necessary that the distribution should be normal. For this purpose One Sample Kolmogorov–Smirnov Test is conducted to test the normality and the result is exhibited in Table 9.

From the asymptrical significance value for two-tailed test, the calculated value in the case of each risk perception measurement is less than .05; that is, at 5% level of significance it can be concluded that the distribution of risk perception measurement is not normal. Here, as revealed by the Kolmogorov-Smirnov test, data relating to risk perception do not follow normal distribution and hence parametric correlation, that is, Karl Pearson correlation is not applicable. Only Spearman Ranks Correlation is applicable. The range of Spearman Rank Correlation is +1 to −1, where + and – indicates direction of relationship. The interpretation of the degrees of correlation was done using Table 10.

The correlation coefficient of "risk perception in respect of equity shares of OIL" and "risk perception in respect of

TABLE 8
Various Levels of Risk Perceptions Related to Different Kind of Equity Investment

	Risk perception in respect of equity shares of OIL		Risk perception in respect of equity shares of other than OIL		Risk perception in respect of indirect investment in equity shares	
	Count	%	Count	%	Count	%
Very risky	15	4.00%	69	18.30%	8	2.10%
somewhat risky	37	9.80%	145	38.40%	70	18.50%
Moderate	44	11.60%	82	21.70%	125	33.10%
somewhat safe	134	35.40%	79	20.90%	145	38.40%
Absolutely safe	148	39.20%	3	0.80%	30	7.90%

Source: Compiled from the Questionnaire

TABLE 9
One-Sample Kolmogorov-Smirnov Test.

		Risk perception in respect of equity shares of OIL	Risk perception in respect of equity shares of other than OIL	Risk perception in respect of indirect investment in equity shares
N		378	378	378
Normal parameters (a,b)	Mean	3.9603	2.4762	3.3148
	Std. Deviation	1.12177	1.04067	0.93494
Most extreme differences	Absolute	0.26	0.243	0.231
	Positive	0.177	0.243	0.169
	Negative	−0.26	−0.145	−0.231
Kolmogorov-Smirnov Z		5.058	4.715	4.494
Asymp. Sig. (2-tailed)		0	0	0

Source: Compiled from the Questionnaire.

equity shares of other than OIL" is 0.271, which is in the range of low degree of correlation. Therefore, it can be said that the risk perception of the respondents relating to the equity shares of OIL is not affecting the risk perception relating to equity share of other than OIL. That is, it can be concluded that if the level of risk perception with respect to the equity shares of OIL is known, the level of risk perception for the shares other than OIL cannot be predicted. It is because most of the investors have invested in the equity shares of OIL when the company has issued them stock options. Once they have invested in OIL, it is not taken as a risky investment as OIL shares are providing a good return to shareholders (www.oilindia.com). As investors have made the decision to buy equity shares of other than OIL based on their own thinking and judgment, there is a low degree of correlation between these two shares.

Similarly, the correlation between level of "risk perception in respect of equity share of OIL" and "risk perception in respect of indirect investment in equity shares" is 0.197, which is a very low level of correlation. The reason for this correlation is that most employees are taxpayers, and to save on their taxes they invest in various kinds of unit linked insurance plan (ULIP), mutual funds, etc., on a regular basis. On the other hand, they have invested in the equity shares of OIL on an "as and when basis" and in most cases only once and twice in their lifetimes. So it is obvious that their level of risk perception will be different for both kinds of investments. If an investor's level of risk perception for investing in equity shares through an indirect mode is given, then his or her level of risk perception for equity shares of OIL cannot be predicted.

The correlation of the "risk perceptions in respect of equity shares of other than OIL" and "risk perceptions in respect of indirect investment into equity shares" is 0.239, which is again a low degree of correlation. The relationship, though low, is statistically significant since calculated significance values in all three cases (from Table 11) are less than 0.05. Given the test, these relationships are also traceable in the population, and the relationship is linear.

CONCLUDING REMARKS

The purpose of this paper was to identify the levels of risk perception of employees of OIL with respect to their investment in shares of OIL, shares of companies other than OIL, and indirect investment in equity shares. It was found that the equity shares of the OIL and indirect investment made in equity shares are considered to be safer investments by OIL employees than equity shares of other than OIL. In their study, Tourani-Rad and Kirkby [2005] found that investors prefer to invest in local and known companies and consider it to be less risky than investing in other companies' shares. In this case, the employees are more familiar with the shares of OIL than any other shares. The risk perception with respect to indirect investment in equity shares is also comparatively lower. It might be because of excessive promotion of the financial product by the marketers of mutual funds and ULIPs.

There is a low degree of correlation between the risk perception with respect to equity shares of OIL, risk perception with respect to equity shares of other than OIL, and risk perception with respect to indirect investment made in equity shares. This means that the risk perception for one kind of investment is not influencing the risk perception of other kinds of investments.

TABLE 10
Spearman's Rank Correlation Interpretation.

Degree of Correlation	Up to 0.20	0.20–0.40	0.40–0.60	0.60–0.80	0.80–1.00
Interpretation values	Very low degree of correlation	Low degree of correlation	Average degree of correlation	High degree of correlation	Very high degree of correlation

TABLE 11
Degree of Correlation Between Risk Perception in Respect of Equity Shares of OIL, Other Than OIL and Indirect Investment in Equity Shares.

		Risk perception in respect of equity shares of OIL	Risk perception in respect of equity shares of other than OIL	Risk perception in respect of indirect investment in equity shares
Risk perception in respect of equity shares of OIL	Correlation Coefficient	1	0.271(**)	0.197(**)
	Sig. (2-tailed)	.	0	0
Risk perception in respect of equity shares of other than OIL	Correlation Coefficient	0.271	1	0.239(**)
	Sig. (2-tailed)	0		0
Risk perception in respect of indirect investment in equity shares	Correlation Coefficient	0.197	0.239	1
	Sig. (2-tailed)	0	0	
Correlation is significant at the 0.01 level (2-tailed).				

Source: Compiled from the Questionnaire.

SCOPE OF FUTURE RESEARCH

For measuring the risk perception of employees, a suitable scale can be developed. Similarly, the relationship between risk perception and investment behavior can be developed.

LIMITATIONS OF THE STUDY

The present study is influenced by a few limitations, including:

- Availability of the respondents at office during the time of data collection.
- Accessibility of the investigator to the respondents.
- The availability of time in the hands of the respondents for sharing information with investigators.
- No response of some parts of questionnaires by some respondents.
- No response, at all, by some respondents.

Sufficient care was taken in these areas to limit this impact on the present study. The present study is also subjected to limitations ingrained in the case study method of research.

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