CHAPTER 3
RESEARCH METHODOLOGY

Based on the literature review it is clear that very few studies have been conducted in regard to investors perception and investment behavior for selecting mutual fund schemes and also to bring out the factors on mutual fund performance for risk return expectations which highlight the research gap and to bridge the same the present study has been conducted keeping in view the following aspects.

1) The schemes of private and public sector mutual funds have not been studied in detail in India.
2) The performance of public sector institutions and private sector in regards to security aspect and risk-reward expectations of the individual small investors.
3) The perception of investors in regards to trust, bonding, culture, reciprocity, communication and relationship marketing aspects of private sector and public sector organizations.
4) To suggest measures to be implemented by mutual fund institutions to provide relationship oriented marketing services to the individual small investors in the mutual fund industry.

Keeping in view the research gap on the above parameters of mutual fund investments in public and private sector schemes following objectives have been framed:

OBJECTIVES

1. To examine the different schemes, launched by the public sector and private sector mutual funds in India.
2. To evaluate the performance of mutual funds of public-sector sponsored and private-sector sponsored mutual funds.
3. To compare the performance of public-sector sponsored and private-sector sponsored mutual funds and to suggest measures to be implemented by the mutual fund companies.
4. To study the investor behavior in mutual fund schemes.
5. To suggest measures to be implemented by the private and public sector mutual fund institutions in India.

HYPOTHESES OF THE STUDY

The study seeks to clarify several prepositions that revolve around the central theme of the study, that is different schemes launched by Public sector and Private sector Mutual Fund organizations and comparing their performance ascertaining that whether Private sector is scoring over the Public sector. Moreover the hypothesis cover to ascertain the perception of the investors in regard to their preference for mutual Fund investment as compared to other avenues of investment available as also to know whether high returns is the most important basis for the selection of an investment as compared to other options. Moreover, the hypotheses cover all the dimensions relating to the perception of the investors in regard to the customer serviced aspect between the Private and Public sector Funds. The following a set of hypotheses are formulated and would be cross-examined and tested.

H1: There is no significant difference with respect to security aspects of Public sector and Private sector mutual funds.

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H2: There is no significant difference with respect to overall performance of Private sector and Public sector mutual funds.

H3: There is no significant difference with regard to mutual funds being the preferred investment option as compared to shares, real estate, gold, fixed deposits, etc.

H4: There is no significant difference in selection of Private sector and Public sector Mutual fund companies with respect to high return or low return.

H5: There is no significant difference with regard to relationship orientation such as trust, bonding, communication, empathy, customer satisfaction of Public sector and Private sector Mutual Funds.

RESEARCH METHODOLOGY
A descriptive research design was adopted for this study. Judgmental sample survey method was used. The sample consisted of investors in the public sector and private mutual fund schemes. The investors were shortlisted from the customers list from public sector and private sector mutual funds. From the public sector customer list was taken from SBI and UTI and for private sector the customer list has been taken from HDFC, Kotak, ICICI and Reliance Growth, on the basis of the ratings -- AAA, AA, A -- provided by the rating agencies.

Judgmental sample
The researcher uses judgmental sampling to select respondents from population members who are good prospects for accurate information. Judgmental sample has been used for the study as it is somewhat different from convenience sampling on the basis of the concept because it requires a judgment or an 'educated guess' as to who should represent the population. Since it is a focus group study therefore judgment sampling has been used rather than probability sampling. The focus group represented in the study are the investors who had invested in the public sector and private sector mutual funds. The investors were shortlisted from the customers list from public sector and private sector mutual funds.

A qualitative piece of research rather than quantifying the data and doing calculations, tries to understand and estimate the peoples ideas and their behavioral patterns. One of the important tools of qualitative research is the questionnaire survey. McQuarrie (2005) defines a questionnaire as any fixed set of questions intended to be completed by respondents.

Conducting a Qualitative Research
Qualitative research, in simple terms can be defined as “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification”, Strauss and Corbin 1990. Thus a qualitative piece of research rather than quantifying the data and doing calculations, it tries to understand and estimate the people’s ideas and their behavioral patterns. One of the important tools of qualitative research employed in this study is the questionnaire survey. Mcquarrie (2005) defines a questionnaire as “any fixed questions intended to be completed by some group of respondents”. They are viewed as a very practical way of reaching a number of respondents large enough to allow an effective analysis of the results. Thus the basic idea behind getting the questionnaires filled up is to get an opportunity to analyze the respondents reply separately. This questionnaire survey is aimed at studying the perception of the investors or investing their funds in the schemes of public sector and private sector mutual funds and also to know what the areas in which are the private sector
funds over score the performance of public sector funds. Keeping these objectives in mind, 28 schemes of private sector and public sector have been analyzed and the mutual fund managers were approached to give a representative data.

**Questionnaire Design:**
The questionnaire was designed by selecting the factors to be analyzed and based on these factors suitable questions were framed. A pilot study was conducted for that purpose and 18 respondents were identified for this purpose. These respondents were from cross section of expected respondents like CA, CS and others. Besides these 3 academicians were also asked to fill the questionnaire. The feedback received on the questions was incorporated at the stage of finalization of the instrument.

Questionnaire allowed to provide information about the decision making process of the investors in mutual funds. The questionnaire has been designed and structured in such a manner that it could be answered in a short span of time. Questionnaires can be both open ended and close ended, Denzin et al, (2000). In this study the questionnaire contained largely fix questions and analyzed on WAS and MEANS scale, in order to know the respondents feelings and attitude towards different factors. Close ended questions provide the researcher a uniformed set of answers and enabled me to provide an effective statistical analysis of the data.

However this requires the questionnaires to be constructed correctly. In order to make sure that the questions were valid and an effective tool to get the desired information, four fund managers were interviewed and their inputs were used before designing the questionnaire. The structure was divided into three parts:

1. To know their personal preferences for investment
2. To know what according to them are significant factors for deciding about the investment and their personal attributes, qualifications, profession and age.
3. And seeking their views regarding the performance and security aspects of the various schemes of public and private sector mutual funds.

**Sample Size**
The sample size was 262 investors: out of which 37 were in the age group of 20-30
28 in the age group of 30-40
62 in the age group of 40-50
135 in the age group of 50-60

**Sample Element**
It comprises of individual/investors and different types of investors selected from the list provided by mutual funds.

**Sample Unit:**
Private sector and public sector organization for mutual funds. This research was carried out in Delhi region.

**Profession wise breakup:**
22 Chartered Accountants
20 ICWA’s
45 Company Secretary’s
175 other professionals

**Income bracket:**
52 investors – 10,000 – 20,000
78 investors – 20,000 – 50,000
Period of study:
The growth schemes which had been floated by the selected funds during the period January 1993 to July 2005, have been considered for the purpose of the study. Daily Net Asset Value (NAV) as declared by the relevant mutual funds from the inception date of a particular scheme to July 2005 have been used for the study.

Scheme selection:
For the purpose of the study all AAA, AA and A rated schemes have been considered due to paucity of data for schemes which are not rated. Also in the equity only rated growth schemes and under debt only medium and long term rated debt schemes have been considered due to limited information and inappropriate data, paucity of time.

Data:
The study examines open ended 28 equity/growth schemes launched by selected private and public sector mutual funds. (See Table 4.1) For selection of the mutual fund schemes the factors like past record of the organization, growth prospects, credit ratings along with return and dividends have been taken. For analyzing the perception of the investors a questionnaire was prepared with 28 questions along with a detailed demographic profile and income, profession of the investors.

Data Analysis
Data was analysed using SPSS. Engstrom (2004) claims that not only the factors such as fund size, fees, trading activity and past returns determine the funds performance but also there are some unexplored areas such as investments strategy play an important role. However not much research has been made on such factors on the emerging markets. Bulk of literature shows that are a number of factors that determine and impact the performance and growth of the mutual funds. One basic issue that has received a lot of attention from the academics is that – is the past performance of the mutual fund a good indicator to evaluate and measure the present performance? Some studies show that there are traces of evidence to show that there is no positive relationship between the past and the current performance. (Balke et. al, 1993; Bogle, 1992; Brown and Goetzman, 1995) several studies such as that of Blake et al (1993), Carhart (1997), Elton et. al (1996) show that there is an inverse relationship between the transaction cost and performance of the funds. (Also known as expense ratio)

SPSS Output has been used. Valid percent numbers have been used for analysis of variance.

ANOVA (Analysis of variance) for null hypothesis is that no single pair of means is significantly different. It uses the F-test statistic and the significance level that appears on the output in this F-test is the probability of support for the null hypothesis. ANOVA allows to test multiple grouping variables at the same time. The overtying of various independent factors permits to investigate ‘interaction effects’. Cross-tabulation table has been used for comparing data using row-and-column ‘rXc’ (r-by-c) as it comprises rows and columns. The interaction of row and column is cross-tabulation cell.

Reliability analysis – Scale (ALPHA)
Reliability coefficients No. of cases- 262 No. of items - 30
ALPHA = 0.994
As ALPHA was found to be more than 0.7, the scale constructed was found to be reliable.
Reliability statistics has been done on the basis of Cronbach’s Alpha for 30 items including the age, income, profession of the investors and their perception and choice for the selection of mutual fund products keeping in view the volatility risk, portfolio selection, size of the fund, past track record, return and risk and future prospects, fund size, large corpus. Alpha component has been find to be .989 and alpha based on standardization is .994 so there is strong relationship between the factors and not having variation or volatility.

Hypotheses has been tested by Z TEST:

\[
Z = \frac{\bar{X}_1 - \bar{X}_2}{\frac{S}{\sqrt{n_1}} - \frac{S}{\sqrt{n_2}}}
\]

\(\bar{X}_1 = \text{Mean Fund in sample 1}\)

\(\bar{X}_2 = \text{Mean Fund in sample 2}\)

\(\frac{S}{\sqrt{n_1}} - \frac{S}{\sqrt{n_2}} = \text{Standard error between two means}\)

Descriptive statistics technique has been used for the correlation between NAV and Return. Pearson Correlation has been the basis for this relationship analysis.

Cross tabs and cross processing summary has been used to find out the public sector and private sector mutual fund performance.

Factor analysis and comparison of communalities have been found to have the common factors for choosing the mutual fund schemes in the private and public sector mutual funds.

The NAV is daily calculated by the private sector and public sector mutual funds mutual fund by using the understated formula

\[
\text{NAV} = \frac{\text{Value of Securities} - \text{Liabilities}}{\text{No. of Units Outstanding}}
\]

Component Matrix

Extraction method principal component analysis
Total Variance explained
Communalities
Factor analysis
Cross tabs- Cross processing summary
Correlation
Closed ended and open ended schemes.
Descriptive statistics.
Summary items statistics- 30 items.
Research Instrument:
The research works reviewed here have been sourced from various journals, internet sites, doctoral thesis, available in reputed libraries in India (Library of ICHSR, Delhi; Ratan Tata Library, Delhi School of Economics). The review provided in previous research works pertaining to investment pattern of household sectors. For the purpose of studying the performance evaluation of the mutual fund in India, data was collected from websites of AMFI and various others finance related sites along with sites of some mutual fund companies.

For studying perceptions of investors, a primary survey was undertaken. Usable questionnaire of respondents were considered for this study. To analyse the statistical techniques like weighted average and mean were applied. Moreover for perception of the investors in the public sector and private sector institutions in the questionnaire specific response has been obtained on the variables trust, bonding, communication, empathy, reciprocity, culture and customer satisfaction. For this purpose we have used cross tabulation where the factors i.e. private sector mutual funds perform better (PBPSMF) and public sector mutual funds are secured than private mutual funds (PSMFSTPSMF) are plotted on the x axis and its variability with respect to various perceptual factors are plotted on the y axis.

For measuring the performance of mutual funds, the most preferred mutual fund by investors in the primary survey was considered. Parameters like coefficient of determination ($R^2$), systematic risk i.e. beta ($\beta$), intercepts ($\alpha$), standard deviation ($\sigma$), average return for the schemes were calculated and widely accepted time tested model given by Sharpe, Treynor, and Jenson were applied for the purpose.

Following tools were used for the analysis purpose:

1. Standard Deviation ($\Sigma$)
2. Co-Efficient Of Determination ($R^2$)
3. BETA ($\beta$)
4. Risk – Adjusted Return
   a. Return per unit of risk
   b. Differential return ($\alpha$)
   c. Return per unit of risk
5. Sharpe Ratio
   $Sp=\frac{(Rp-Rf)}{\sigma_p}$
   Where, $Sp=$ Sharpe’s ratio for fund p,
   $Rp=$ Average return on fund p,
   $\sigma_p =$ standard deviation of return on fund p, and
   $Rf =$ return on risk free asset
6. Treynor Ratio
   $Tp = \frac{(Rp-Rf)}{Bp}$
   Where: $Tp=$ Treynor’s ratio for fund p
   $Bp=$ Sensitivity of fund return to market return
   $Rp=$ Average return on fund p
7. Differential Return
8. Jensen Ratio
   $Rpt-Rf=\alpha+\beta(Rm-Rf )+ei$
   Where
   \begin{align*}
   \alpha &= \text{the intercept} \\
   \beta &= \text{Systematic risk} \\
   Rm &= \text{Market return}
   \end{align*}
Rpt=Fund return for time period t
Rf = Return on risk-free asset

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The comparative analysis of all the schemes has been done by using following method:

**Step 1:** Find the range of the parameter, for which categorization has to be done, which can be calculated as below:

\[ \text{Range} = \text{maximum value} - \text{minimum value} \]

**Step 2:** Divide the range by number of intervals to be made. Since in the above case since 3 categories has to be formed therefore, it has been divided by 3.

**Step 3:** Form the class intervals for various categories

The research has been conducted so as to cover the following parameters:

For the purpose of analyzing the various schemes following parameters have been used:
- Portfolio
- Expenses
- Risk and Volatility
- Risk Adjusted Return
- Returns

For measuring the risk in context of volatility of the fund following measures have been used:
- Funds Volatility (Standard Deviation) i.e. Variation from the average
- Funds Resemblance (Coefficient of Determination, R²) i.e. the extent to which the movement in the fund can be explained by corresponding benchmark index.
- Funds volatility as regards the market index (Beta, β) i.e. is the extent of co-movement of fund with that of benchmark index.

For the purpose of our analysis last three years returns i.e. From April 1, 2002 to May 31 2005 have been taken into consideration so as to have true picture of the average return that a particular scheme fetched. For comparing the returns earned by the schemes, BSE 30 has been taken as the benchmark index. Returns for both benchmark market index i.e. BSE 30 and the schemes have been calculated from the daily index value and net asset value (NAV) respectively. Then the average of the series so developed has been taken. By comparing last three years average returns with the benchmark it has been ascertained as to how much returns were given by a particular scheme in comparison to the return given by the market on the scheme under that same category.

The growth oriented schemes which have been floated by the selected funds during January 1993 to May 2005 have been considered for data analysis. Daily Net Asset Value (NAV) as declared by the relevant mutual funds from the inception date of a particular scheme to May 2005 has been used for the purpose.

The open ended 28 equity/growth schemes launched by selected mutual funds have been studied. These selected schemes have been launched during January 1993 till May 2005. Daily Net Asset Value (NAV) data has been used and the period of the data considered is from the date of inception of the scheme or from the date of availability till May 31 2005.

**LIMITATIONS OF THE STUDY**

1) The study is based on 262 investors of Delhi Region. Study is not exhaustive and has a scope of further research.
2) The present study will relate to urban people only.
3) Influence of certain variables like expert’s views and suggestions of brokers etc. on investor’s behaviour and satisfaction cannot be studied in detail due to time factor.
4) Personal bias involved in respondent’s answers becomes the major hurdle in obtaining the true information.
5) Also the measurement of data is subjected to errors.
6) Lack of time on the part of investors for filling up the questionnaire and unavailability of sufficient data in case of secondary information are the major limitations.