CHAPTER IV

RESEARCH METHODOLOGY

This chapter discusses the research methodology adopted in the study. The behavioural finance concepts discussed earlier and the review of previous research studies form the basis for constructing the methodology used in this study. A description of the research design, sampling design, and the tools used for analysis is presented in this chapter.

4.1 RESEARCH DESIGN

In order to analyse the research problem undertaken for the study, descriptive study using primary data is considered appropriate. To define the descriptive type of research, Creswell (1994)\(^1\) stated that the descriptive method of research is to gather information about the present existing condition. The emphasis is on describing rather than on judging or interpreting. The aim of the descriptive research is to verify formulated hypotheses that refer to the present situation in order to elucidate it. The descriptive approach is quick and practical in terms of the financial aspect. Moreover, this method allows a flexible approach, thus, when important new issues and questions arise during the duration of the study, further investigation may be conducted.

4.2 RESEARCH INSTRUMENT

For the purpose of studying the objectives and testing the hypotheses, a questionnaire is used as an instrument to collect the data. The questionnaire has been divided into six parts so as to fulfill the objectives of the study. The first part captures the demographic and trading characteristics of the respondents, followed by their risk
tolerance level, personality factors, social factors and cognitive factors in the subsequent sections. Finally the attitude, perceived behavioural control, subjective norms, and intention are captured separately in the final part of the questionnaire.

The items that capture each part are partly developed by the researcher and partly adopted from standardized questionnaires developed or used by earlier researchers. The risk tolerance levels of respondents are captured using the questionnaire developed by Dow Jones & Company and published in ‘The Wall Street Journal’, 1998 and reprinted in Bodie et al (2006)\textsuperscript{2}. The self-esteem items are constructed using the modified Self-Esteem Scale developed by Rosenberg (1965)\textsuperscript{3}; Emotional Experience is constructed by using the modified Trader’s Personality Scale developed by Steenbarger (2002)\textsuperscript{4}; Self-Efficacy is constructed by using the modified generalized self-efficacy scale by Schwarzer and Jerusalem (1995)\textsuperscript{5}; internal orientation, active involvement and stress management are developed by using the modified ROPELAC Instrument developed by Richards, Ellis and Neill (2002)\textsuperscript{6}. The items that capture other factors like ambitious, media, social interactions, internet, over confidence, herd behaviour, self-attribution, excess sensitivity to rumours, over optimism, familiarity bias, conservatism, availability heuristics, illusion of control, disposition effect, mental accounting, anchoring, attitude towards trading, perceived behavioural control, subjective norms, and intention towards trading are developed based on concepts in behavioural finance and other related disciplines. However, they are subjected to validity and reliability tests. Thus, the items and factors under study are finalised by the researcher.
4.3 VALIDITY TEST

The questionnaire is subjected to face and content validity whose determination is judgmental. There are two schools of thought on the distinctiveness of face and content validity. The first one saw face validity as just an indirect approach to the measurement of content validity (Carmines and Zeller, 1979; Nunnally, 1967) whereas the second one treated them as separate and different tests (DeVellis, 1991; Kerlinger, 1973).

The face and content validity is conducted with 10 experts. The experts are explained about the items that capture risk tolerance level, personality, social, and cognitive factors followed by attitude, perceived behavioural control, subjective norms, and intention. Then, the validity of each item in capturing the adequate information required for the study is questioned. Further, they are requested to offer their feedback on each of the items. Based on their feedback, it is found that all the items developed by the researcher found adequate validity in capturing the trading behaviour. The experts also suggested a 5-point rating scales for all the items that capture personality, social, and cognitive factors. Also, the statements that describe attitude, perceived behavioural control, subjective norms and intention are thoroughly validated by the experts. Finally, a few statements are simplified so as to enable the respondents to understand it better.

4.4 PILOT STUDY

After finalizing the number of items in the research instrument using face and content validity tests, a pilot study is undertaken for the following reasons:

i) To assess the reliability of the items included under personality factors, social factors, cognitive factors, perceived behavioural control, subjective norms, attitude, intention, and risk tolerance.
ii) To know about the influence of the above factors on the trading behaviour.

iii) To ascertain the time taken to complete the questionnaire by the respondents.

To conduct the pilot study, it is decided to select respondents who carry out trading in secondary market. Among these respondents, those who are actively involved in trading are chosen for the study. A question is also asked to them as to what is the impact of personality, social and cognitive factors on attitude towards trading followed by intention towards trading and trading behaviour.

Accordingly, 50 respondents in and around Coimbatore are identified and data is collected. The researcher also had discussions with the respondents in general about the stimulus generated by the questionnaire in furnishing unbiased and unprejudiced response for the items in the questionnaire.

4.4.1 RESULTS OF THE PILOT STUDY

The exact responses of the respondents of pilot study are noted. The discussions with the respondents during the pilot study revealed that the instrument had adequate stimulus value to gather authentic responses from the respondents. The transaction also suggested that the procedures adopted in administering the instruments are practicable. Hence, it is concluded that the instrument used in the study would elicit the necessary data required from the respondents. It has been found that the respondents took between 20–25 minutes in completing the questionnaire.

4.5 RELIABILITY TEST

The data collected from the pilot study is subjected to reliability test using Cronbach Alpha.
Table 4.1

Reliability Coefficients using Cronbach Alpha

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Dimensions</th>
<th>Reliability Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Personality factors</td>
<td>0.82</td>
</tr>
<tr>
<td>2.</td>
<td>Social factors</td>
<td>0.81</td>
</tr>
<tr>
<td>3.</td>
<td>Cognitive factors</td>
<td>0.85</td>
</tr>
<tr>
<td>4.</td>
<td>Risk tolerance</td>
<td>0.83</td>
</tr>
<tr>
<td>5.</td>
<td>Attitude towards trading</td>
<td>0.75</td>
</tr>
<tr>
<td>6.</td>
<td>Perceived behavioural control</td>
<td>0.80</td>
</tr>
<tr>
<td>7.</td>
<td>Subjective norms</td>
<td>0.65</td>
</tr>
<tr>
<td>8.</td>
<td>Intention towards trading</td>
<td>0.72</td>
</tr>
</tbody>
</table>

From the Table 4.1, it is found that the reliability coefficients for the variables chosen for this study are more than 0.60, which is an acceptable value (Malhotra, 2005). So, the items constituting each variable under study have reasonable internal consistency.

4.6 SAMPLING DESIGN

4.6.1 Area of Study

The geographical area of Coimbatore city is chosen for the study. The main reason for choosing Coimbatore City is that the investigator is located here and is familiar with the place.

4.6.2 Sample Size

The frequency of trading in the pilot study is chosen as the factor for calculating sample size. The sample size for the study is decided by the following formula,
\[ N = \frac{Z^2 p(1-p)}{e^2} \]

\[ Z = 2.582 \text{ (Normal curve value for 99\% confidence level)} \]

\[ p = 0.5 \]

\[ e = 0.0651 \]

Hence, \( N = 397 \)

4.6.3 Sampling Technique

Snowball sampling technique is used to choose the respondents. The researcher prepared a list of friends, relatives and colleagues who are active traders in stock market. These members on the list are contacted first and are asked to identify the respondents for the study.

Accordingly, the researcher prepared 500 questionnaires and distributed them to few of the respondents directly. The researcher also distributed the questionnaires to the employees of stock broking services firms to collect data from their customers. The researcher explained thoroughly about the purpose of research and requested the employees to collect the data from those who are actively involved in trading. A thorough follow-up is done in person and over telephone to expedite the process of filling up the questionnaire. Yet, some questionnaires were not returned. Finally, the researcher could collect 455 completely filled questionnaires and they are used for further analysis.

4.7 Period of the Study

The data used for the purpose of analysis in this study are collected for a period of six months from January 2010 to December 2010.
4.8 STATISTICAL TOOLS USED FOR ANALYSIS OF DATA

Correlation, Multiple Regression, Chi-Square, ANOVA, Path Analysis, and Stepwise Logistics Regression are used for analysis of data.

4.8.1 Chi-Square test

The Chi-Square test \( (\chi^2) \) is one of the simplest and most widely used non-parametric tests in statistical analysis. The quantity \( \chi^2 \) describes the magnitude of the discrepancy between theory and observation. It is defined as,

\[
\chi^2 = \sum \frac{(O-E)^2}{E}
\]

where, ‘O’ refers to the observed frequency and ‘E’ refers to the expected frequency.

Chi-Square test is used to test the goodness of fit, to test the independence of attributes and to combine various probabilities obtained from independent experiments to give a test of significance. Thus, in this study, the analysis pertaining to test of association are done using Chi-Square.

4.8.2 Correlation

The most familiar measure of dependence between two quantities is the "Pearson's correlation". It is obtained by dividing the covariance of the two variables by the product of their standard deviations. A correlation is a single number that describes the degree of relationship between two variables. In this study, the direction of relationship between all the dependent variables and their corresponding independent variables is calculated using correlation coefficient. The dependent variables and independent variables are shown in Table 4.2
Table 4.2

Dependent and Independent variables used in the study

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude towards Trading</td>
<td>Personality, Social, Cognitive factors and Risk Tolerance</td>
</tr>
<tr>
<td>Intention towards Trading</td>
<td>Attitude, Perceived Behavioural Control, Subjective Norms</td>
</tr>
<tr>
<td>Trading Behaviour</td>
<td>Intention and Risk Tolerance</td>
</tr>
</tbody>
</table>

### 4.8.3 Multiple Regression Analysis

Regression Analysis is a mathematical measure of the average relationship between two or more variables in terms of the original units of the data. In regression analysis there are two types of variables. The variable whose value is influenced or is to be predicted is called dependent variable and the variable which influences the values or is used for prediction is called independent variable. In this study, effect of relationship between all the dependent variables and their corresponding independent variables is calculated using multiple regression analysis.

### 4.8.4 Path Analysis

In statistics, path analysis is used to describe the directed dependencies among a set of variables. This includes models equivalent to any form of multiple regression analysis, factor analysis, canonical correlation analysis, discriminant analysis, as well as more general families of models in the multivariate analysis of variance and covariance analyses (MANOVA, ANOVA, ANCOVA). Path analysis can be viewed as a special case of structural equation modelling (SEM), one in which only single indicators are employed for each of the variables in the causal model. That is, path analysis is SEM
with a structural model, but no measurement model. Other terms used to refer to path analysis include causal modelling, analysis of covariance structures, and latent variable models. To study the indirect effect of the independent factors on the dependent variables, path analysis is performed.

4.8.5 Stepwise Logistics Regression

Stepwise logistic regression is designed to find the most parsimonious set of predictors that are most effective in predicting the dependent variable. Variables are added to the logistic regression equation one at a time, using the statistical criterion of reducing the -2 Log likelihood error for the included variables. After each variable is entered, each of the included variables is tested to see if the model would be better if the variables are excluded. This does not happen often. The process of adding more variables stop when all of the available variables have been included or when it is not possible to make a statistically significant reduction in -2 Log likelihood using any of the variables which are not yet included. In order to identify the most parsimonious set of independent variables to predict the trading behaviour and attitude towards trading, stepwise logistic regression is used.

4.8.6 ANOVA

The Analysis of Variance (ANOVA) is a powerful and common statistical procedure in the social sciences. It can handle a variety of situations. In statistics, ANOVA is a collection of statistical models, and their associated procedures, in which the observed variance in a particular variable is partitioned into components attributable to different sources of variation. In its simplest form, ANOVA provides a statistical test of whether or not the means of several groups are all equal, and therefore generalizes \( t\)-
test to more than two groups. ANOVAs are helpful because they possess an advantage over a two-sample t-test. To test the significant difference in the demographic factors on the trading behavior ANOVA is used.

To sum up, the methodology is developed to study the objectives and test the hypotheses listed in this study. Further, the methodology discussed in this chapter would pave way for a systematic study. The next chapter discusses the analysis along with the discussion of the results.
References


