CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology constitutes the blueprint for the data collection, measurement and analysis of data. It is the overall operational framework of the research that stipulates what information is to be collected from which source and by what procedures.

Psychological research suggest that human behaviour is formed by psychological factor and this indicates that investor’s behaviour will be affected by personality traits, such as internal/external personality proposed by Schaefer P.S., Williams C C Goodie A.S. and Campbell. Big five personality traits proposed by P.T.Jr. Costa and R.R McCrae and BB&K model proposed by Thomas Bailard, Biehl & Kaiser.

3.2 RESEARCH OBJECTIVES

The research objectives of the study stated in chapter 1 are reproduced below for easy reference

1. To investigate the big five personality traits among the individual investors.

2. To examine the behavioural aspects among the individual investors.
3. To investigate the behavioural biases among the individual investors.

4. To identify the relationship between big five personality traits and the investment biases among the individual investors.

5. To examine the relationship between demographics of individual investors and investment biases among the individual investors.

6. To investigate the relationship between behavioural aspects and investment biases among the individual investors.

7. To explore the relationship between demographics of the individual investors and the behavioural aspects among the individual investors.

The conceptual framework for structural relationship between demographics, personality traits, behavioural aspects and behavioural biases is presented in figure 3.1. The hypotheses depicting the relationships are formulated based on the conceptual model.

![Figure 3.1 Conceptual Framework](image-url)

Based on the proposed model the following hypotheses are formulated:

1. There is a relationship between neuroticism and investment biases.
2. There is a relationship between extraversion and investment biases.
3. There is a relationship between openness and investment biases.
4. There is a relationship between agreeableness and investment biases.
5. There is a relationship between conscientiousness and investment biases.
6. There is a relationship between carefulness and investment biases.
7. There is a relationship between confident and investment biases.
8. There is a relationship between impetuous and investment biases.
9. There is a relationship between anxiety and investment biases.
10. There is a relationship between demographic profile of investor and behavioural aspects.

11. There is a relationship between demographic profile of the investor and the investment biases.

3.3 DESIGN OF THE QUESTIONNAIRE

The structured questionnaire is developed based on the prior research studies, experts’ opinion and pilot study. The structured questionnaire consists of two major parts namely Part-I and Part-II in order to study the objectives. The Part-I deals with socio-economic characteristics of the investors and the Part-II deals with the personality traits, behavioural aspects and behavioural biases of investors. A five point Likert scale is used to measure the big five personality traits, behavioural aspects and behavioural biases of the investors. Questionnaire is given in Appendix I.

3.3.1 Content Validity of the Questionnaire

The structured questionnaire is checked for the content validity before administering same for data collection. The investment experts who are dealing with the capital market have been chosen to check the content validity of the questionnaire. The capital market experts chosen have been involved in all stages of investment management like mutual fund managers, leading stock brokers, and investment analyst and capital market intermediaries. A total of seven experts have been drawn from the above areas to validate the contents of the questionnaire. Based on their assessment, the statements in the questionnaire have been modified for better clarity.

3.3.2 Pilot Study

The questionnaire was pilot tested by simple random sampling. There were 75 respondents. The results of pilot test were evaluated by using
Cronbach’s alpha for the items of each construct and the results show acceptable level of internal consistency.

3.3.3 Design of the Study

The descriptive research design has been employed for the present study. It is chosen for the present study in order to derive the meaningful relationship between the big five personality traits, the behavioural aspects and the behavioural biases of the investors. According to Zikmund 2003, “Research design is the arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the research purpose and solve business research problems” The focus of this study is to analyse big five personality traits, behavioural aspects among individual investors in Indian capital market.

3.3.4 Sampling Procedure

Among the different cities in Tamil Nadu, the Chennai city has been purposively selected for the present study. The investors have been selected by adopting judgmental sampling method. Judgmental sampling procedure is used because, only investors are active in the stock market can answer all the questions. Primary data were gathered using the questionnaire which was distributed to the investors of stock broking firms. The population for the study consists of all clients of Shriram capital, a leading stock broking firm in Chennai. Total number of clients of this brokerage firm is 2540. Out of this there are 825 clients are active. An active client is a person who trades at least two trades per month. Questionnaire is distributed to these 825 clients and 540 respondents filled and returned the questionnaires. 40 filled in questionnaires were found incomplete and same has been discarded. Remaining 500 filled questionnaires are considered for the thesis work.
3.4 A DESCRIPTION ABOUT CHENNAI CITY

Chennai is the capital city of the Indian state of Tamil Nadu located in southern India off the Bay of Bengal Sea. It is the biggest industrial, commercial place and a major cultural, economic and educational hub in South India. The history of the city began in the colonial times, specifically with the arrival of East India Company from United Kingdom and the establishment of fort called as Fort St. George in the year 1644. After the independence of India, Chennai became the capital of Tamil Nadu and an important centre of commercial activities.

According to the provisional results of 2011 census, the city had 4.68 million residents, making it the 6th populous city in India; the urban agglomeration, which comprises the city and its suburbs, was home to approximately 8.9 million, making it the 4th most populous metropolitan area in the country and 31st largest urban area in the world. Chennai's economy has a broad industrial base in the automobile, information technology, hardware manufacturing and healthcare sectors. As of 2012, the city is India's second largest exporter of information technology (IT) and BPO services. A major part of India's automobile industry is based in and around the city thus earning it the nickname "Detroit of India".

Industrialisation in the city dates back to the 16th century, when textile mills manufactured goods which were exported to British during its war with France. According to Forbes magazine, Chennai is one of the fastest growing cities in the world and the only Indian city to be rated in the "Forbes-Top 10 Fastest Growing Cities in the World" It is ranked 4th in hosting the maximum number of Fortune 500 companies of India. It also is home to 24 Indian companies having a net worth of more than US$1 billion. Chennai has a diversified economic base anchored by the automobile, software services, hardware manufacturing, and health care and financial services industries.
According to the Confederation of India Industry (CII), Chennai is estimated to grow to a US$100–billion economy, 2.5 times its present size, by the year 2025.

The city is base to around 30 percent of India's automobile industry and 40 percent of auto components industry. A large number of automotive companies including Renault, Hyundai, Nissan, Caterpillar, Komatsu, FORD, BMW, Mitsubishi, Robert Bosch, and Ashok Leyland have manufacturing plants in Chennai.

Prominent financial institutions, including the Standard Chartered bank, World Bank, Goldman Sachs, RBS, ADB, Citi Bank, and Credit Suisse are some of the prominent financial institutions have back office and development centre operations in the city. Chennai is home to the national level commercial banks Indian Bank and Indian Overseas bank and many state level co–operative banks, finance and insurance companies. Telecom and Electronics manufacturers based in and around Chennai. Chennai has a stock exchange called the Madras Stock Exchange.

The RBI ranked Chennai as fourth largest deposit centre and third largest credit centre nationwide as of June 2012. The city is home to the Zone office of the central bank of India called as Reserve bank of India (RBI), along with its zone training centre and Reserve Bank Staff College, one of the two colleges of the bank. The city also houses the back office of the World Bank, which is one of the largest buildings owned by the bank outside its headquarters in Washington, DC. The Chennai office handles corporate financial, accounting, administrative and IT services of the bank, in addition to several value-added operations of the bank that were earlier handled only in its Washington, DC office, including the bank's analytical work in bond valuation which is estimated to be around US$100 billion.
3.5 SAMPLE SIZE

The sample size for the present study is fixed as 500, the study focuses on individual investors who are the clients of Shriram capital a leading brokerage house in the Chennai city, India. The population for the study consists of all clients of Shriram capital, a leading stock broking firm in Chennai. Total number of clients of this brokerage firm is 2540. Out of this there are 825 clients are active. An active client is a person who trades at least two trades per month. Questionnaire is distributed to these 825 clients and 540 respondents filled and returned the questionnaire. 40 filled in questionnaires were found incomplete and same has been discarded. Remaining 500 filled questionnaires are considered for the thesis work.

3.6 PERIOD OF STUDY

The data and information collected from individual investors of leading stock broking firms located in Chennai pertains to the year 2012-2013.

3.7 DATA COLLECTION

3.7.1 Primary Data

The data and information is collected from the primary source of the investors through pre-tested, structured questionnaire.

3.8 RELIABILITY

The reliability test has been carried out for various components of questionnaire and the results are hereunder presented.

3.8.1. Reliability Test for Big Five Personality Traits

The reliability test has been carried out for big five personality traits of the investors and the results are presented in Table 3.1.
### Table 3.1 Reliability Coefficient for Big Five Personality Traits

<table>
<thead>
<tr>
<th>Big Five Personality Traits</th>
<th>No. of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>3</td>
<td>0.83</td>
</tr>
<tr>
<td>Extraversion</td>
<td>3</td>
<td>0.84</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>3</td>
<td>0.85</td>
</tr>
<tr>
<td>Openness</td>
<td>3</td>
<td>0.82</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>3</td>
<td>0.85</td>
</tr>
</tbody>
</table>

The results show that the Cronbach’s alpha is varying from 0.85 for both agreeableness and conscientiousness to 0.82 for openness personality trait of investors. The results indicate that the measurement for the big five personality traits of the investors is reliable.

#### 3.8.2 Reliability Test for Behavioural Aspects

The reliability test has been carried out for the behavioural aspects of investors and the results are presented in Table 3.2.

### Table 3.2 Reliability Coefficient for Behavioural Aspects

<table>
<thead>
<tr>
<th>Behavioural Aspects</th>
<th>No. of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Careful</td>
<td>3</td>
<td>0.79</td>
</tr>
<tr>
<td>Confident</td>
<td>3</td>
<td>0.80</td>
</tr>
<tr>
<td>Impetuous</td>
<td>3</td>
<td>0.84</td>
</tr>
<tr>
<td>Anxious</td>
<td>3</td>
<td>0.78</td>
</tr>
</tbody>
</table>

The results indicate that the Cronbach’s alpha is varying from 0.84 to 0.78. The results show that the measurement ensures reliability.
3.8.3 Reliability Test for Behavioural Biases

The reliability test has been carried out for the behavioural biases of the investors and the results are presented in Table 3.3.

**Table 3.3 Reliability Coefficient of Behavioural Biases**

<table>
<thead>
<tr>
<th>Behavioural Biases</th>
<th>No. of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservatism</td>
<td>3</td>
<td>0.83</td>
</tr>
<tr>
<td>Recency</td>
<td>3</td>
<td>0.80</td>
</tr>
<tr>
<td>Over confidence</td>
<td>3</td>
<td>0.85</td>
</tr>
</tbody>
</table>

The results reveal that the Cronbach’s alpha is varying from 0.85 to 0.83. The results indicate that the measurement is reliable.

3.9 FRAMEWORK OF ANALYSIS

Based on the type of data and measurement levels, the appropriate statistical techniques have been applied in order to accomplish the objectives of the present study.

In order to understand the economic characteristics of the investors, big five personality traits, behavioural aspects and behavioural biases of investors, the percentage analysis and frequency distribution are worked out. In order to examine the difference in big five personality traits, behavioural aspects and behavioural biases of the investors, the analysis of variance (ANOVA) has been employed. The relationship between the various features of big five personality traits, behavioural aspects and behavioural biases of investors and relationship between big five personality traits and behavioural aspects of investors the correlation analysis has been done.
3.9.1 Descriptive Statistics

Descriptive statistics is the discipline of quantitatively describing the main features of a collection of information or the quantitative description itself.

Descriptive statistics provides simple summaries about the sample and about the observations that have been made. Such summaries may be either quantitative, i.e. summary statistics, or visual, i.e. simple-to-understand graphs. These summaries may either form the basis of the initial description of the data as part of a more extensive statistical analysis, or they may be sufficient in and of themselves for a particular investigation. Descriptive statistics is used to infer details related to gender, age, academic qualifications, occupation, marital status, annual income, annual saving, saving objective, and preference of mode of savings of individual investors.

3.9.2 One Way ANOVA

One way ANOVA is a statistical method that stands for analysis of variance. This is used to do the analysis of variance between and within the groups whenever the groups are more than two. In this thesis ANOVA is used to analyse big five personality traits, behavioural aspects and behavioural biases.

3.9.3 Correlation Coefficient

The correlation coefficient is a statistic that is calculated from sample data and is used to estimate the corresponding population correlation coefficient. In this thesis correlation is used to analyse relationship between big five personality traits, relationship between big five personality traits and
behavioural aspects of individual investors, relationship between behavioural aspects of investors and, relationship between behavioural biases of investors.

3.9.4 Multiple Regression Analysis

Multiple regression analysis is a statistical process for estimating the relationships among variables. The multiple regression analysis has been carried out to examine the influence of big five personality traits on behavioural aspects of the individual investors, influence of behavioural biases on big five personality traits of investors and the influence of big five personality traits on behavioural aspects of investors.

3.9.5 Structural Equation Model

Structural equation modelling (SEM) is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumption. This has been employed to analyse the structural relationship between personality traits and investment biases, the structural relationship between demographics and investment biases, the structural relationship between behavioural aspects and investment biases and the structural relationship between demographics and behavioural aspects.

3.9.6 Measures of Fit used in the SEM

Chi-squared is a fundamental measure of fit used in the calculation of many other fit measures. Conceptually it is a function of the sample size and the difference between the observed covariance matrix and the model covariance matrix.

Root Mean Square Error of Approximation (RMSEA): The RMSEA values <.05 are considered to indicated good fit. An RMSEA of .1 or more is often taken to indicate poor fit.
Standardized Root Mean Residual (SRMR): The SRMR is a popular absolute fit indicator. A good model should have an SRMR smaller than .05.

Comparative Fit Index (CFI) in examining baseline comparisons, the CFI depends in large part on the average size of the correlations in the data. If the average correlation between variables is not high, then the CFI will not be very high. A CFI value of .90 or higher is desirable.

3.10 SUMMARY

Based on the objective of the present study, the researcher has suitably selected the concerned research procedure for the study. As far as research design is concerned, the descriptive method had been employed. With regard to the sampling procedure, random sampling technique had been adopted. The structured questionnaire was constructed and pre-tested. The Likert’s five point scale had been employed in order to measure the investor’s agreement levels about personality traits, behavioural aspects and behavioural biases. The appropriate statistical techniques have been selected for the analysis of data collected from the investors. The data analysis and the inference drawn from the analysis are detailed in chapter 4.