Chapter III: Research Methodology
3.1 Introduction

This chapter covers the proposed research methodology as an essential part of the study. It includes the objective, hypothesis, research outline, sampling technique, data collection methods, statistical analysis tools and techniques employed to the study. It thoroughly covers the blueprint for conducting the research and the flow of activities to be done in order to achieve the objectives of the research. This also includes the pilot study and other important dimensions of the methodology such as; reliability and validity. These concepts are very much essential for a researcher and hence, a glimpse about the nitty-gritty of the methodology used is provided. It also touches on the aspect of ethical consideration of the study.

3.2 Research Outline

The Oxford Advanced Learners Dictionary defines research as “a careful investigation or inquiry, especially through search for new facts in any branch of knowledge”. As per Rao (1995), “research is an intensive and purposeful search for knowledge and understanding of social and physical phenomena. It is a method for the discovery of true value in a scientific way. It is not merely an accumulation of knowledge, but a critical and scientific analysis of social facts and the formulation of generalizations as a basis for action and foresight”. The research methods include all those methods and techniques that are used for conducting a research or a search.

Research is a scientific process which leads to the solution of a problem. It directs towards the development of new principles of theories or modifies the existing literature. A researcher can go for empirical evidences or observable facts. In this thesis, the extensive literature study was done to get an in-depth insight into the theories, concepts and ideas presented by numerous researchers. It covered studies both on national and international levels. Then, a conceptual framework was developed to establish a relationship among the variables. This study caters to Eastern India and proposes getting the insights on the behavior of investors in the context of the investment decision. The study was conducted in four states of Eastern India, namely; Odisha, West Bengal, Jharkhand and Bihar. These four states are the major components of Eastern India and work in the area of behavioral finance is very little in those regions. Hence, collating the aggregate behavior of the respondents from these four states would represent the overall behavior of Eastern Indian investors. The outline of
the research is represented through the flow of activities mentioned in figure 3.1 and includes all the aspects of research methodology covered in the study.

**Figure 3.1**

*Proposed Methodology Outline*

- **Problem Identification**
- **Research Questions**
- **Literature Review**
- **Research Objectives**
- **Research Hypotheses**

- **Selection of Exploratory Research Technique**

- **Pilot Testing**

- **Selection of Basic Research Method**

- **Survey Using Questionnaire**
- **Sample Size**

- **Sampling Technique**

- **Principal Factor Analysis**
- **Correlation**
- **Multiple Regression**

- **Data Processing and Analysis (Check For Reliability & Validity)**
- **Editing and Coding of Data**
- **Collection of Data**
- **Convenience Sampling**

- **Data Analysis**
- **Recommendations, Suggestions and Conclusion**

**Source:** Authors’ Own
The first phase was identifying the problem through the review of literature and formulating objectives and hypotheses of the research. Then a pilot study was conducted to know the reliability of the instruments used. Based on the findings from the pilot study, there were some revisions in the questionnaire. It was administered to 600 respondents in Eastern India. The final data analysis was done using factor analysis, multiple regression and correlation. After the analysis, the interpretations were drawn and referred back to the objectives and hypotheses. It was followed by a recommendation, suggestion and the conclusion of the study.

3.3 Motivation for the study

Suggestive evidences from the review of literature indicate that investors deviate from rational thinking and take sub-optimal decisions. The magnitude of irrational decisions on the investments has a high influence on the overall portfolio construction. Knowing about these biases would help investors in taking a control on their behavior and action. The dimensions of these biases could help in debiasing the strategies used for taking an investment decision in the capital market. The study in the Indian context is very sparse and Eastern India being one of the important parts of India has not emerged as a vibrant player in the capital market. Hence, knowing about the behavior of investors would assist them in identifying the reasons for the irrational behavior and prevent the pitfalls of poor decisions. Based on the above arguments, the study was conducted and it explored the deep understanding of investment behavior.

3.4 Objectives of the Study

The objective of the study is to gain insights into the impact of behavioral biases on the extent of investment in the capital market. And also to get to know about how the biases identified by the study affect the aggregate investment decision in the capital market. To be more specific, the following two objectives have been framed:

- To gain insights into the impact of behavioral biases on the extent of investment decision.
- To study the impact of overconfidence bias, herd bias and risk tolerance bias on investment decision-making in the capital market.
3.5 Hypotheses of the Study

For the purpose of study, three major hypotheses in relation to the objectives have been framed. On the basis of the reasoning provided in the thesis, these propositions would be checked to validate the expectations of the study.

• H1: Investors with a high overconfidence bias will have a high investment in the capital market.

• H2: Investors with a high herd behavior bias will have a high investment in the capital market.

• H3: Investors with a high level of risk tolerance bias will have a high investment in the capital

3.6 Research Philosophy

Research philosophy deals with the belief and assumption about the research conducted. It is the concept of how the knowledge has been developed and what is the source and nature of that knowledge. It is represented through a “research onion” which is made of many layers and surrounded by various aspects of the research as shown in figure 3.2.

There are four major philosophies of research viz., Pragmatism, Positivism, Realism and Interpretivism. Pragmatism deals with mixed and multiple methods design and used for both quantitative and qualitative research. Positivism deals with highly structured and large sample, quantitative measurement and can be used for qualitative measurement. Realism deals with both quantitative and qualitative measurement. Interpretivism deals with a small sample and in-depth study through qualitative measurement(Saunders, M., Lewis, P. & Thornhill, 2012). This research caters to the positivism approach where the survey method is used and the idea is to gain knowledge through a scientific inquiry.
3.7 Research Design

3.7.1 Research Type

The exploratory research type is employed to the study. The objective of this research is tantamount to gain a preliminary knowledge about a problem and generate new ideas that will help the researcher to explore deeper into the problem (Kotler & Armstrong, 2010). It is also known as formulative studies and hypotheses development is one of the important components under this. For a more detailed investigation, this research is utilized used to
explore the impact of behavioral dimensions on investment decision-making in capital market pertaining to Eastern India.

3.7.2 Research Approach
The present study includes quantitative research approach and involves collecting numerous quantitative data that have a major role in predicting the possible relationship between the variables of the study. This also includes hypotheses building, collection of data and making a statistical interpretation using software packages and verifying the validity and generalizability of the study. It involves a deductive approach which follows moving from the general problem to a specific problem and where, the logic presented before the researcher is validated by the empirical investigation. Quantitative research is also called as empiricist paradigm which involves cause and effect phenomenon and uses data for a critical investigation. Therefore a quantitative investigation was conducted to get diverse insights of investment behavior through a survey method in regards to the capital market.

3.8 Sampling Design
Sampling design is a plan for acquiring a sample from a given population. It refers to the technique of selecting items for the sample and procedure to mention the number of items to be included in the sample, viz. size of the sample and sampling technique. This procedure is done before the collection of data. The researcher selects the best reliable and appropriate sample of the study (Sarangi, 2010b).

3.8.1 Universe
Statistics involve a large number of figures and does not deal with a single figure. All the items under consideration in any field of inquiry constitute a universe or population. The term population refers to any collection of individuals or their attributes or of the results of operation which can be numerically specified. Any complete group of entities that share some common set of characteristics constitutes a universe under sampling design. The items under the universe may be finite or infinite depending upon the preference and requirement of the researcher. The researcher does not consider all the items of a population rather accurately selects a part of the whole universe which is the representation of the universe (Sarangi, 2010b; Zikmund et al., 2013). The universe of the study was Eastern India, basically: Odisha, West Bengal, Jharkhand and Bihar.
3.8.2 Sample

A sample is a subset of the larger universe that represents the entire universe. It is a single element or group of elements subject to selection in the universe. The sample of the study consisted of all the capital market investors belonging to Odisha, WestBengal, Jharkhand and Bihar. The samples were selected through the reference list provided by the brokerage houses like- Kotak Securities Ltd., Karvy Stock Broking, Share Khan, Tata Securities and India Infoline Ltd. etc. Again, references were drawn from the list of investors procured from different broking houses. Samples were also selected from banks that also had desks for selling capital market products. Those included Kotak bank, HDFC bank, ICICI bank and Axis bank. Mutual fund houses like Birla Sunlife Mutual Fund, Bharti AXA Mutual Fund, Franklin Templeton Mutual Fund, ICICI Prudential Mutual Fund also provided a list of investors in the capital market.

The behavior of these samples was captured using the self administered questionnaire on different behavioral dimensions to know its effect on the extent of investment in the capital market. The collective behavior of the sample from the four states would represent the holistic behavior of the entire capital market. Taking this as an assumption behind the study, the responses were taken in order to know the extent of investment decision of the sample based on their behavioral pattern.

3.8.3 Sampling Technique

According to Zikmund et al, (2013) the probability of any member of the population being chosen is unknown in terms of non-probability sampling. The selection of sampling units in this type of sampling is quite arbitrary and researcher heavily relies on personal judgment. However, in numerous studies random sampling technique is often used as it involves an equal chance for each sample to get selected. This study uses non-probability sampling method and the selection of the sample is purely based on the researcher’s own judgment. As the primary objective of this study is to explore the impact of behavioral biases on investment decision-making; selection of the sample involves by nature non-probability sampling. A desired number of sampling units are selected deliberately depending upon the subject of the inquiry so that the vital components of the research are being reflected by the true characteristics of a population (Sarangi, 2010b). Under the study, convenience sampling is used as a sampling technique. It refers to obtaining people based on the convenience of the
researcher. In case of exploratory research, it helps in gaining the first hand information about the sample and used as an inexpensive tool to know the approximation of truth. It is often used in cross-cultural organization studies or consumer behavior due to its simplicity and convenience. However, the major disadvantage of this sampling technique is that it does not represent the entire universe and could involve biases in the data. Notwithstanding the limitations of the technique, it could still provide a useful insight for an exploratory study. Hence, convenience sampling was considered appropriate for the study.

3.8.4 Sample Size

An adequate sample size is a useful characteristic of a survey instrument. But what should be the appropriate sample size? As per the Air University Sampling and Surveying handbook, there are three different formulas for determining the appropriate sample size which is based on different situations. The one which is employed in the study is the third formula which is used in the condition when the researcher is planning to report the results in a diversified ways. The formula is as follows (Sarangi, 2010a):

$$n = \frac{NZ^2 X 0.25}{d^2 X [N − 1] + [Z^2 X 0.25]}$$

where,

- $n$ = Sample Size required
- $N$ = Total population size (either known or estimated)
- $d$ = Precision level (usually 0.05 or 0.10) and
- $Z$ = Number of standard deviation units of the sampling distribution corresponding to the desired confidence level (1.96).

Taking the assumption that only 2% of the Indian population is exposed to the capital market (Massey, 2011). On the basis of the above assumption it is assumed that 2% of the Eastern Indian population belonging to Odisha, West Bengal, Jharkhand and Bihar trades in the capital market. Hence 2% of the population comes to 54,01,319 and by using the formula, sample size comes to 400.
Table 3.1

*Population of Four States of East India (Census Data, 2011)*

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>STATE</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>West Bengal</td>
<td>91,347,736</td>
</tr>
<tr>
<td>2.</td>
<td>Orissa</td>
<td>41,947,358</td>
</tr>
<tr>
<td>3.</td>
<td>Jharkhand</td>
<td>32,966,238</td>
</tr>
<tr>
<td>4.</td>
<td>Bihar</td>
<td>103,804,637</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>27,00,65,969</strong></td>
</tr>
</tbody>
</table>

*Source:* [http://states-of-india.findthebest.in](http://states-of-india.findthebest.in)

Table 3.2

*Response Rate*

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>State</th>
<th>No. Questionnaire of Distributed</th>
<th>Received</th>
<th>Valid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Odisha</td>
<td>150</td>
<td>150</td>
<td>120</td>
</tr>
<tr>
<td>2</td>
<td>West Bengal</td>
<td>150</td>
<td>130</td>
<td>101</td>
</tr>
<tr>
<td>3</td>
<td>Jharkhand</td>
<td>150</td>
<td>125</td>
<td>89</td>
</tr>
<tr>
<td>4</td>
<td>Bihar</td>
<td>150</td>
<td>100</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>600</strong></td>
<td><strong>505</strong></td>
<td><strong>385</strong></td>
</tr>
</tbody>
</table>

*Source:* Authors’ Own

In total, 600 questionnaires were distributed in all the four states with an equal number of 150 questionnaires to the capital market investors. A total of 505 questionnaires were checked at the field level, out of which 120 were rejected due to missing and inappropriate data. Hence, only 385 questionnaires were valid and recommended to carry forward for the analysis. Therefore, the sample size for the final study consists of 385 respondents out of the desired sample size of 400.

3.8.5 Time Frame

The study was divided into two stages; the first stage deals with a pilot study and the second deals with the main study. The entire period of the study was from July, 2014 to July, 2017. The pilot study was conducted from June, 2016 to July, 2016. The results were checked for reliability and validity. After the tabulation, the main study was started in September, 2016 and ended in February, 2017.
3.9 Research Instrument

The study has adopted a self administered questionnaire as a research instrument. Designing and implementing the questionnaire is one of the challenging tasks of conducting research. Getting the response as a representation of human behavior is a difficult task. A questionnaire is designed by the researcher when the secondary data are not required for the study. When there is the feeling by the researcher pertaining to respondents’ attitudes, beliefs, demographics and socioeconomic characteristics, opinions, feelings, past experiences and future expectations, etc. it can be obtained only through a comprehensive discussion. It is a format for capturing the data in a detailed format.

A questionnaire was prepared after the extensive review of literature to supplement the research objective of the study. The questionnaire is the mix of self developed questions and existing questions framed by various researchers. The format and language of the questions were slightly modified as per the requirement of the study. There are two sets of questionnaires in the Annexure. First questionnaire is used for the pilot study and the second is used in the main study to measure the behavior of investors in the capital market.

3.9.1 Annexure – I (Pilot Study Questionnaire)

The entire questionnaire consisted of four pages of the pilot study as recommended by Zikmund et al., (2010c) and it should not be more than six pages. In the entire six parts of the questionnaire, the total item count was 65. Part A consisted of the questions related to the demographic profile of the sample, part two was related to overconfidence bias, part three was related to herd behavior bias, part four was related to risk tolerance bias and part five was related to the extent of investment decision. Five point Likert scale was used, ranging from strongly disagree (1) to strongly agree (5). The five point Likert scale strikes a balance between the choice of offering and respondent’s orientation towards the offering (Johns, 2010). The next four parts of the questionnaire contained items for each construct of the study, which was derived from the extensive study of literatures. The last part which is an open ended question was related to the factors motivating to invest in the capital market.

3.9.1.1 PART 1

The first part of the pilot study questionnaire covers the demographic profile of the sample from Odisha, West Bengal, Jharkhand and Bihar. In total, ten items were included in this section. The questions were framed to obtain the demographic characteristics of the
respondents based on gender, age, educational qualification, marital status, occupation, annual income, years of experience in capital market and place. The ninth question asks about the type of capital market including primary market, secondary market and both. The tenth question was about the type of products invested through the capital market. The products were equity, derivatives, mutual fund, commodity, IPO and currency. The demographic profile is used to categorize the results by segmenting it into various sub-divisions based on the various criteria. From part 2 to part 4, the independent variables have been discussed.

3.9.1.2 PART 2

The second part of the questionnaire deals with the first construct i.e. overconfidence bias. In this part, the respondents were asked to give preference for statements related to overconfidence bias in the scale of 1 to 5, which are: 1- strongly disagree, 2- disagree, 3- neither agree nor disagree, 4- agree and 5-strongly agree. Seventeen items were included under this part and items included were the mix of self developed and existing scale. Three dimensions of overconfidence such as; situational optimism, dispositional optimism and unrealistic optimism were included in Part 2. Table 3.3 gives the overview of the items and their reference. Items 1, 3, 4, 5 and 6 were referred from the scale of Scheier et al., (1994). The scales were modified to fit in the likert scale range. Items 2, 7, 8, 9, 10, 11, 13, 14 and 17 were self developed by the researcher as per the meaning of overconfidence bias. In these questions, an attempt has been made to know the respondents’ perception about their overconfidence behavior and to what extent it affects the investment decisions. Item 12 was referred from Shefrin & Statman (1985), item 15 from Shrauger & Rosenberg (1970) and item 16 from Barber & Odean (1999).

Table 3.3

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overconfidence Bias (OC)</td>
<td>1, 3, 4, 5, 6</td>
<td>(Scheier, Carver, &amp; Bridges, 1994)</td>
</tr>
<tr>
<td></td>
<td>2, 7, 8, 9,10,11, 13, 14, 17</td>
<td>Self Developed</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>(Hersh Shefrin &amp; Statman, 1985)</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>(Shrauger &amp; Rosenberg, 1970)</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>(Barber &amp; Odean, 2001)</td>
</tr>
</tbody>
</table>

Source: Authors’ Own
3.9.1.3 PART 3

The third part of the questionnaire deals with the second construct of the study, i.e. herd behavior bias. In this part, the respondents were asked to give preference for statements related to their herd behavior in terms of following an investment decision on the scale of 1 to 5. The respondents were asked to give their preference in any of these 5 scales which are; 1-strongly disagree, 2-disagree, 3-neither agree nor disagree, 4-agree and 5-strongly agree. Fifteen items were included under this part and consisted of both self developed and existing standardized scale. Three dimensions of herd behavior bias such as- other’s investment choices, trading volume and speed, market wide herding were included in Part 3. Table 3.4 gives the overview of the items and their reference. Items 1, 2, 3, 4, 7, 9, 11, 12, 13, 14 and 15 were self developed as per the meaning of the dimensions. Items 5, 6, 8 and 10 were culled from the scale developed by Waweru et al., (2008). These items have been included to investigate how far the group mentality affects the extent of investment decisions.

Table 3.4

*Summary of Items used in the Herd Behavior Bias (Part 3)*

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herd Behavior Bias (HB)</td>
<td>1, 2, 3, 4, 7, 9, 11, 12, 13, 14, 15</td>
<td>Self Developed</td>
</tr>
<tr>
<td></td>
<td>5, 6, 8, 10</td>
<td>Waweru et al., (2008)</td>
</tr>
</tbody>
</table>

Source: Authors’ Own

3.9.1.4 PART 4

The fourth part of the questionnaire deals with the third construct of the study, i.e. risk tolerance bias. This section deals with the perception of respondents in terms of risk tolerance towards their investment decision. The same 5 point scale format was followed for this construct and range of the scale was the same as for the other constructs. In total, fourteen items were included under this part and the blend of self developed and existing scale have made the selection of items. Three dimensions of risk tolerance bias such as- impulsive risk, calculative risk and speculative risk were integrated in part 4. Table 3.5 gives the overview of the items and their references. Items 1, 2, 3, 4, 5, 6, 8 and 9 have been drawn from the scale developed by Grable & Lytton (2001). Items 7, 10, 11, 12, 13 and 14 were self developed as
per the definition of the construct. The items have been prepared to examine the influence of risk tolerance bias on the investment decision.

Table 3.5

**Summary of Items used in the Risk Tolerance Bias (Part 4)**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Tolerance Bias (RT)</td>
<td>1, 2, 3, 4, 5, 6, 8, 9</td>
<td>(Grable &amp; Lytton, 2001)</td>
</tr>
<tr>
<td></td>
<td>7, 10, 11, 12, 13, 14</td>
<td>Self Developed</td>
</tr>
</tbody>
</table>

**Source:** Authors’ Own

3.9.1.5 PART 5

The fifth part of the questionnaire deals with the fourth construct of the study, i.e. extent of investment in capital market. This construct is the dependent variable of the study. This section deals with the perception of respondents towards their extent of taking an investment decision. The scale and range were the same as for the previous constructs. In total, nine items were included under this part and both the existing and self-developed scales were used. The meaning of investment decision was used in the first three items and it was taken from the scale of Phuoc et al., (2011). Items 4, 5, 6, 7, 8 and 9 were self-developed as per the understanding of the construct. Table 3.6 refers to the reference of items culled from different sources. The entire items have been prepared to understand how the investors take their investment decision.

Table 3.6

**Summary of Items used in the Extent of Investment Decision (Part 5)**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent of Investment Decision (ID)</td>
<td>1, 2, 3</td>
<td>(Phuoc Luong, L. and Thi Thu Ha, 2011)</td>
</tr>
<tr>
<td></td>
<td>4, 5, 6,7,8,9</td>
<td>Self Developed</td>
</tr>
</tbody>
</table>

**Source:** Authors’ Own

3.9.2 Annexure II (Final Questionnaire)

Annexure II deals with the final questionnaire used in the study after some modifications in the pilot study questionnaire. The demographic section added two more items in the final questionnaire. Item 11 asks for the frequency of trading in the capital market and item 12
refers to investment corpus in the capital market. These two items were added to know about the investment pattern from the entire sample.

3.9.2.1 PART 2

There were few changes in the scale of overconfidence bias. For ‘overconfidence bias’, items 3, 8, 10, 11 and 17 were found as outliers from box plots and hence deleted after pilot study. Item 7 was removed as it did not give the desired factor loading which should be above 0.4 (Andy, 2005). Items 15 and 16 were removed as per the expert advice and respondents’ feedback.

Table 3.7

**Summary of Items after Revision in Part 2 (Overconfidence Bias)**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overconfidence Bias (OC)</td>
<td>1, 4, 5, 6</td>
<td>(Scheier et al., 1994)</td>
</tr>
<tr>
<td></td>
<td>3, 7, 8</td>
<td>(Awan, H. M., Bukhari, K., &amp; Ghufran, 2010)</td>
</tr>
<tr>
<td></td>
<td>2, 10, 11</td>
<td>(Merkle, 2013)</td>
</tr>
<tr>
<td></td>
<td>9, 12, 13, 14, 15, 16, 17</td>
<td>Self Developed</td>
</tr>
</tbody>
</table>

Source: Authors’ Own

3.9.2.2 PART 3

For herd behavior bias; items 4, 9, and 11 were removed as they were outliers. As item 10 was a repetition of item 6, so it was deleted after the opinion received from the respondents. Item 12 had the factor loading less than 0.40, hence was removed from the list.

Table 3.8

**Summary of Items after Revision in Part 3 (Herd Behavior Bias)**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herd Behavior Bias (HB)</td>
<td>1, 2, 3, 6, 7, 9, 10, 11,</td>
<td>Self Developed</td>
</tr>
<tr>
<td></td>
<td>4, 5</td>
<td>Waweru et al., (2008)</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>(Awan, Bukhari, &amp; Ghufran, 2010)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>(Lütje &amp; Menkhoff, 2003)</td>
</tr>
</tbody>
</table>

Source: Authors’ Own
3.9.2.3 PART 4

For Risk Tolerance Bias, items 1 and 13 were removed through outliers. Item 2 was removed due to the feedback received from the respondents as it was not able to capture the right kind of response on a Likert scale.

Table 3.9

Summary of Items after revision in Part 4 (Risk Tolerance Bias)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Tolerance Bias (RT)</td>
<td>2, 3, 4, 5, 6, 7, 8, 13</td>
<td>J. E. Grable &amp; Lytton, 2001</td>
</tr>
<tr>
<td></td>
<td>1, 9, 10, 11, 12</td>
<td>Self Developed</td>
</tr>
</tbody>
</table>

Source: Authors’ Own

3.9.2.4 PART 5

Two sets of questions were included in this section. This part has been made to get the overall idea of what is the extent of investment by the investors in the capital market in regards to the investment decision and behavior. In part 1, four items were dropped after the expert opinion during the pilot study analysis. After the revision of the questionnaire, first part (5.1) in the questionnaire uses a 5-point Likert scale that measures the extent of the investment decision from six items. The second part uses the scale at Very Low (1), Relatively Low (2), Neutral (3), Relatively High (4) and Very High (5) that measures the extent of the investment behavior.

Table 3.10

Summary of Items after revision in Part 5 (Extent of Investment Decision)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent of Investment Decision (EID)</td>
<td>5.1 :1, 2, 3, 4, 5, 6</td>
<td>Self Developed</td>
</tr>
<tr>
<td></td>
<td>5.2 :1,2</td>
<td>Self Developed</td>
</tr>
<tr>
<td></td>
<td>5.2: 3</td>
<td>Self Developed</td>
</tr>
</tbody>
</table>

Source: Authors’ Own

3.10 Pilot Study

A pilot study (n=106) was accomplished before initiating the actual survey to validate the authenticity of the research instrument. Though the reliability results have shown the
appropriate results, few changes have been made as per the necessity. The larger number of sample size decreases the error in the sample. Therefore, 106 samples were taken into consideration after the outlier determination

3.11 Reliability Test

Reliability is an indicator of a measure’s internal consistency. It is the key to determine whether different attempts at measuring something converge on the same result. The most commonly applied estimate of multiple item scale reliability is cronbach alpha (α). It ranges from 0 to 1. Generally, cronbach alpha (α) value between 0.80 and 0.95 is considered to have very good reliability. A value between 0.70 and 0.80 is considered to be the good indicator of reliability. And, the value between 0.60 and 0.70 is considered to be a fair reliability (Zikmund et al., 2010b). In this research, the value of cronbach alpha (α) is calculated using Statistical Package for the Social Sciences (SPSS 17.0) software. Total numbers of items in the questionnaire was 65 including 55 testing variables or Likert scale variables and 10 items related to demographic variables for the pilot study. Hence, (n) = 35 for the cronbach alpha (α) test after the dropping of variables. The pilot study had revealed the cronbach alpha (α) score as 0.907 for 106 samples which reflects the very good reliability of the instrument used for the study.

Table 3.11

<table>
<thead>
<tr>
<th>Cronbach’s Alpha (α) - Reliability Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Items (n)</strong></td>
</tr>
</tbody>
</table>

Source: Survey Data

The cronbach alpha (α) was calculated to check the reliability of questions or items. The value resulted in an overall score of 0.907 that represented internal consistency of the items.

3.12 Sources of Data

The study has used primary data through the survey method. These data are collected for the first time and accepted as the original data. These are collected first hand by the researcher as per the purpose of the study. The present study did not require the secondary source of data and hence, keeping in mind the purpose of the study primary data is extensively used. This
data is more reliable in nature as it involves direct involvement of the researcher to explore
the phenomenon in a detailed manner. Hence, survey method was utilized to get the first hand
information from the respondents of the four states in relation to the nature, scope and
objective of the study.

3.13 Questionnaire Administration

The respondents were from Odisha, West Bengal, Jharkhand and Bihar. A survey method
was adopted and self administered questionnaire was used as an instrument. For each state,
150 questionnaires were distributed equally. The approach of sampling was based on non-
probability sampling, which is the convenience sampling. The cover letter from the university
was forwarded to various institutions for administering the questionnaire. It was done
basically through face to face interaction with the respondents. After introducing the
researcher and the institution, purpose of the research was made clear to them along with the
instructions required to follow the survey. Respondents were given the time frame for filling
up the questionnaire and clarification was made in case of any difficulty faced by the
researcher. After filling up the questionnaire due gratitude was paid to the respondents.

3.14 Data Coding

Before the analysis of data and after the data collection, the required step is to do the data
entry and coding. Data was entered into SPPS spreadsheet and in total, 385 responses were
captured in SPSS 17.0. The data coding was in is the variable view section of SPSS as per the
different parameters in the questionnaire.

3.15 Data Analysis Techniques

The study has used quantitative analysis of data based on the hypotheses formulated. It caters
to a large sample size and the results are objective in nature. But, in qualitative data analysis
sample size is small in number and the results are subjective in nature (Zikmund et al.,
2010c). The basic analysis starts with descriptive analysis, frequency tables, factor analysis,
correlation and regression analysis in Chapter 4.
3.15.1 Tools and Techniques

Factor Analysis

To reduce the number of factors from a larger number of measured variables, factors analysis is used. Principal factor analysis is employed in the study. It is used when there is uncertainty about the number of factors existing inside a set of variables.

Correlation

The magnitude of association or relationship between the two variables can be measured by calculating the correlation. It shows strength of the relationship between two variables. A linear correlation shows the relationship between the variable through a straight line.

Multiple Regression

The other technique used in the study is a regression which explains the movements in one variable, the dependent variable as a function of movements in a set of other variables called the independent variable.

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon; \]

where \( \sim iid(0,\sigma^2) \).

\( Y = \) Dependent Variable,  
\( X = \) Independent Variable  
\( \epsilon = \) error term  
\( \alpha \) and \( \beta \) are two constants to be measured.

3.16 Ethical Issues

The study was designed with consideration to the ethical dimensions and a set of standards like; confidentiality, privacy and anonymity. The research was purely authentic and unbiased. Anonymity was maintained at every stage of the research. A cover letter covering the purpose of the study and ethical code of conduct was mentioned on the initial page of the questionnaire. High level of integrity and ethics was followed during the entire study.

3.17 Conclusion

The research methodology is the blueprint of the thesis. The flow of activities was followed to go step by step to conduct the study. All the necessary aspects of the methods and designs were mentioned in this section. Due credit was granted on the process and timeline to avoid
the discrepancy and delay of the research. This chapter is the core of the thesis and reflects all the necessary tools and techniques that were employed for data collection. The next chapter introduces the analysis of data.