CHAPTER 4

RESEARCH METHODOLOGY

4.0 Introduction

In this chapter, the research methodology used in this study is described and the research propositions relating to the objectives of the study are stated. Methods available for collecting data and the characteristics of the sample group are set out in this chapter. Also, it forms the core of the research and elaborates on the research design, sampling plan, data collection techniques and statistical tools applied.

4.1 Research Design

Research design is a systematic way of collecting information which can be statistically analyzed to find a solution to a problem statement. Kerlinger (1973) states research as: the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena. Leedy & Ormod, (2005) defined research from a more utilitarian point of view: It is a procedure by which we attempt to find systematically, and with the support of demonstrable fact, the answer to a question or the resolution to a problem.

In the present study, the researcher has adopted exploratory research method to identify the problem statement after reviewing the literature on CG, cases of corporate frauds reported and published in the banking sector, a discussion with the subject matter experts, CG guidelines recommended by SEBI and RBI, reviewing the report on CG from the annual reports of public and private sector banks. In addition to this the researcher has reviewed newspaper articles and peer reviewed journals to gather in-depth insight about the subject matter as a result the scope of conducting research in this framework has emerged.

Literature review highlighted the innumerable challenges of enabling good CG practices in the Indian banking sector. While conducting a literature review statistical figures from referred journals and other secondary sources were duly considered by the researcher. Due care was taken to acknowledge the original authors, books, report
and websites. Research design adopted for the study has been both quantitative and qualitative in nature. The study was depended on primary as well as secondary data.

4.1.1 Type and Nature of Study

Conclusive research is carried out to test and validate the formulated hypotheses and specified relationship. The present study was conducted to test and find out the relationship between CG parameters and corporate frauds. It was also quantitative in nature, as numerical data was collected and analyzed using statistical tools.

Conclusive research is more likely to use statistical tests, advanced analytical techniques, and larger sample sizes, compared with exploratory studies. Conclusive research is more likely to use quantitative, rather than qualitative techniques” (Nargundkar, 2008, p.39).

Malhotra and Birks (2000, p.76) divided conclusive research design into further two categories: descriptive research (used to describe some functions or characteristics) and causal research (used to research cause and effect relationships).

The present study is also qualitative in nature, wherein CG disclosure index percentage of public and private sector banks were studied with the help of the report on CG stated in their annual reports. The content analysis method was adopted for studying the annual reports. In the study both secondary as well as primary data were used. Research methodology adopted for the research work in elaborated in detail.

4.2 Questionnaire Design

The questionnaire was designed after which data was collected, edited and then it was codified in a structured, complete and accurate manner. Standard statistical techniques: percentages, disclosure index method, diagrammatic presentation, Spearman’s rank order correlation, Binominal test and Friedman Chi square test were used for data analysis.

The researcher has reviewed Indian fraud survey report (2010); KPMG (Klynveld that’s seven Peat Marwick Goerdeler) had undertaken a survey to provide India Inc. with insights into the degree of fraud awareness, nature of fraud risks, trends in
fraudulent activities, and the corrective measures needed. The survey questionnaire was published as an e-survey in Jan 2010 and was circulated to more than 1000 leading organizations in India. The survey respondents include chairman/MD, CFO and Heads of Internal audit and compliance, fraud risk managers and other senior management personnel across various industry segments. More than 75% of the respondents in the survey believed that fraud in corporate India is on rise and 81% stakeholders in India continue to perceive financial statement fraud as a major area of concern and other reasons are ineffective whistle blowing systems and weak regulatory environment are prevailing in India.

A study conducted by Ernest & Young (2012) on the fraud status and CG in India in its report revealed about the robust steps taken by Indian government to increase the confidence of investors, corporates and public. In the recently concluded parliamentary sessions, two important bills were introduced — the Prevention of bribery of Foreign Public Officials Bill and The Anti-Corruption, Grievance Redressal, and whistle blower Protection Bill. In an another significant development, the government is working on the Lokpal Bill, which aims to create stricter regulations and has given more credibility to its fight against bribery and corruption. This study aims to understand how businesses have coped with increasing fraud and corruption risk last year, what the emerging fraud risks in the industry.

Deloitte (2012), Indian Banking Fraud Survey, in its report stated that Indian banking sector is growing at a rapid pace and with the government giving green signal for the new banking licenses, the environment will become more difficult and challenging. The survey conducted by Deloitte has revealed that, ‘banks have witnessed high number of fraud cases in the last one year and the numbers will rise in coming future’. The survey of the respondents show that 37% believe that lack of oversight by the line managers to the deviation in existing processes in the major reason of fraud. Also, that majority of the frauds are incidents were detected through a formal and informal complaint mechanism. The report shows the upcoming challenging for the banking and how to deal with it in future.
**Global Fraud Report (2012),** Kroll Advisory Solutions in its report showcased the global fraud scenario by conducting survey of more than 830 senior executives and worldwide.

After reviewing the above reports and the study conducted on frauds scenario worldwide, the researcher has drafted the questionnaire.

### 4.2.1 Questionnaire testing

“A prerequisite to design a good survey instrument is deciding what is to be measured” (Fowler, 2002).

The researcher has drawn framework of the questionnaire after the literature review and then following scales were applied for measuring the questions framed in the questionnaire.

**Scales used in the questionnaire**—Likert-type or frequency scales are used for fixed choice response formats and are designed to measure attitudes or opinions (Bowling, 1997; Burns, & Grove, 1997). These ordinal scales measure levels of agreement/disagreement. The researcher has used Likert five point scales to record stakeholders’ opinion.

There were four questions where **rank order scales** were applied wherein stakeholders have ranked the parameters mentioned according to the order of importance.

The instrument was validated by subject and industry experts, who were asked to review the content to determine whether it was in line with the objectives of the research and to eliminate questions which were irrelevant. Suggestions were also taken for simplifying the items that were irrelevant or complicated.

### 4.2.2 Type of Questions

For recording the stakeholder’s opinion the researcher has drafted broader questions:

1. What are the good CG practices adopted by the FI.
2. The Extent to which these institutions are following these CG disclosure practices.
3. Stakeholders’ awareness about CG parameters.
4. Unethical practices which can be a threat to the organizations.

5. Stakeholders’ opinion on CG parameters which affects their investment decision?

6. Can CG be an effective tool in combating corporate frauds?

4.3 Sources of Information

4.3.1 Primary Data: - Primary data was collected from the city of Mumbai. The questionnaires were responded by the bank employees and the stakeholders associated with public and private sector banks.

4.3.2 Secondary Data: - The secondary data was collected from the website of public and private sector banks wherein the report on CG was studied from the annual reports of the selected banks for the financial year 2011-12, 2012-13, 2013-14. The data related to history, growth and development of Indian banking sector and selected banks were collected mainly from the books, magazines relating to the banking sector, published paper by RBI, reports, articles, newspapers, speeches and other journals like monthly review of Economy and RBI & NFCG websites.

4.3.3 Research Technique Used for Data Collection

Research technique for collecting primary data: The researcher has used survey method for collection of primary data. Contact method was used wherein the respondents were contacted personally and through email for filling the responses.

Research technique for collecting secondary data: For collecting secondary data, CG disclosure practices were analyzed from the report on CG from the annual reports of public and private sector banks. So, the researcher has used content analysis for collecting secondary data.
4.3.4 Research Instrument

A research instrument is a survey, questionnaire, test, scale, rating, or tool designed to measure the variable(s), characteristic(s), or information of interest, often a behavioral or psychological characteristic. Research instruments are helpful tools to in conducting research study.

In the present research study questionnaire was designed using dichotomous, scales and ranks for collection of primary data.

4.4 Sampling Design

Sampling can be defined as a means of selecting a subset of units from a target population for the purpose of collecting information. This information is used to draw inferences about the population as a whole. The subset of units that are selected is called a sample. The sample design encompasses all aspects of how to group units on the frame, determine the sample size, allocate the sample to the various classifications of frame units, and finally, select the sample.

4.4.1 Population

Population sampling is a subset of subjects that is representative of the entire population. The sample must have sufficient size to warrant statistical analysis. The population in the present research includes public and private sector banks listed on Bombay Stock Exchange (BSE).

4.4.2 Commercial Banks

A commercial bank is a type of bank that provides services such as accepting deposits, making business loans, and offering basic investment products. It refers to both scheduled and non-scheduled commercial banks, which are regulated under Banking Regulation Act, 1934.

(a) Scheduled banks: All banks which are included in the Second Schedule to the RBI Act, 1934 are Scheduled banks. These banks comprise Scheduled Commercial banks and Scheduled Co-operative banks. Scheduled Commercial banks in India are
categorized into five different groups according to their ownership and / or nature of operation. These bank groups are (i) State Bank of India and its Associates, (ii) Nationalized Banks, (iii) Private Sector banks, (iv) Foreign banks, and (v) Regional Rural banks. In the bank group-wise classification, IDBI Bank Ltd. has been included in Nationalized Banks.

1. State Bank of India and its Associates

2. Nationalized Banks

3. Foreign banks

4. Regional Rural banks

5. Other Scheduled Commercial banks.

(b) Non-Scheduled Commercial Banks

Non-scheduled banks are also subject to the statutory cash reserve requirement. Banks with a reserve capital of less than 5 lakh rupees qualify as non-scheduled banks. But they are not required to keep them with the RBI; they may keep these balances with themselves. They are not entitled to borrow from the RBI for normal banking purposes, though they may approach the RBI for accommodation under abnormal circumstances.

Note: Banks in the groups (1) & (2) above are known as public sector banks whereas, other scheduled commercial banks mentioned at group (5) above are known as private sector banks.

4.4.3 Public and Private Sector Banks Data\textsuperscript{13} - Following are the public and private sector banks selected by the researcher for the study:-

- Public sector banks are -27 (includes State Bank of India (SBI) Associates)

\textsuperscript{13} Report on Trend and Progress of Banking in India for the year ended 2013-2014 June 30, 2014 submitted to the Central Government in terms of Section 36(2) of the Banking Regulation Act, 1949.
Private sector banks were divided into-: Old Private sector banks-13 and new Private sector banks (7).

### TABLE 4.1: PUBLIC AND PRIVATE SECTOR BANKS IN INDIA

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Public Sector Banks</th>
<th>Private Sector Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Allahabad Bank</td>
<td>City Union Bank Ltd.</td>
</tr>
<tr>
<td>2</td>
<td>Andhra Bank</td>
<td>ING Vysya Bank Ltd&lt;sup&gt;14&lt;/sup&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Bank of Baroda</td>
<td>Tamilnad Mercantile Bank Ltd.</td>
</tr>
<tr>
<td>4</td>
<td>Bank of India</td>
<td>The Catholic Syrian Bank Ltd.</td>
</tr>
<tr>
<td>5</td>
<td>Bank of Maharashtra</td>
<td>Dhanlaxmi Bank Ltd.</td>
</tr>
<tr>
<td>6</td>
<td>Canara Bank</td>
<td>The Federal Bank Ltd.</td>
</tr>
<tr>
<td>7</td>
<td>Central Bank of India</td>
<td>The Jammu &amp; Kashmir Bank Ltd.</td>
</tr>
<tr>
<td>8</td>
<td>Corporation Bank</td>
<td>The Karnataka Bank Ltd.</td>
</tr>
<tr>
<td>9</td>
<td>Dena Bank</td>
<td>The Karur Vysya Bank Ltd.</td>
</tr>
<tr>
<td>10</td>
<td>Indian Bank</td>
<td>The Lakshmi Vilas Bank Ltd.</td>
</tr>
<tr>
<td>11</td>
<td>Indian Overseas Bank</td>
<td>Nainital Bank Ltd.</td>
</tr>
<tr>
<td>12</td>
<td>Oriental Bank of Commerce</td>
<td>The Ratnakar Bank Ltd.</td>
</tr>
<tr>
<td>13</td>
<td>Punjab &amp; Sind Bank</td>
<td>The South Indian Bank Ltd.</td>
</tr>
<tr>
<td>14</td>
<td>Punjab National Bank</td>
<td><strong>New Private Sector Banks</strong></td>
</tr>
<tr>
<td>15</td>
<td>Syndicate Bank</td>
<td>Axis Bank Ltd.</td>
</tr>
<tr>
<td>16</td>
<td>UCO Bank</td>
<td>Development Credit Bank Ltd.</td>
</tr>
<tr>
<td>17</td>
<td>Union Bank of India</td>
<td>HDFC Bank Ltd.</td>
</tr>
<tr>
<td>18</td>
<td>United Bank of India</td>
<td>ICICI Bank Ltd.</td>
</tr>
<tr>
<td>19</td>
<td>Vijaya Bank</td>
<td>Indusind Bank Ltd.</td>
</tr>
<tr>
<td></td>
<td><strong>Total of 19 Nationalized Banks</strong></td>
<td>Kotak Mahindra Bank Ltd.</td>
</tr>
<tr>
<td>II</td>
<td>SBI</td>
<td>YES Bank</td>
</tr>
<tr>
<td>III</td>
<td>ASSOCIATES OF SBI</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>State Bank of Bikaner &amp; Jaipur</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>State Bank of Hyderabad</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>State Bank of Mysore</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>State Bank of Patiala</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>State Bank of Travancore</td>
<td><strong>Total Of five Associates [III]</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Of State Bank Group [II + III]</strong></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>IDBI Bank</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>Bhartiya Mahila Bank&lt;sup&gt;15&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Total Of 27 public sector banks</td>
<td>Total Of 20 public sector banks</td>
</tr>
</tbody>
</table>

<sup>14</sup> ING Vysya Bank (merged with Kotak Mahindra Bank in April 2015)

<sup>15</sup> Bharatiya Mahila Bank included in second schedule to RBI Act* 13 March 2015.
Private sector banks are categorized into two old private sector banks which were not nationalized at the time of bank nationalization that took place during 1969 and 1980 are known to be the “old private-sector banks” and the banks, which came in operation after 1991, with the introduction of economic reforms and financial sector reforms are called "new private-sector banks."\(^\text{16}\)

There are currently 27 public sector banks in India out of which 21 are nationalized banks and six are SBI and its associate banks. And 20 private sector banks out of which 13 are old private sector banks and 7 are new private sector banks.

### 4.4.4 Sample Size

The universe of the study consists of 47 Commercial banks operating in India, out of which 27 are public sector banks and 20 Private Sector banks which were listed on BSE. Initially, 300 Questionnaires were delivered to all commercial banks (public & private sector banks total 47) through email and by personally visiting them. The respondent sample size was categorized into two public sector banks which were 27 in number and private sector banks which were 20 in number. The respondents were further divided into bank employees and stakeholders. From public sector banks 105 bank employees and 62 stakeholders have responded, the total representation was 167 questionnaires. From private sector banks 70 bank employees and 40 stakeholders have responded, the total representation was 110 questionnaires. So, the total responses received were 277 in number from both public and private sector banks.

<table>
<thead>
<tr>
<th>Type of Bank</th>
<th>Bank Employees</th>
<th>Stakeholders</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector</td>
<td>105(63%)</td>
<td>62(37%)</td>
<td>167</td>
</tr>
<tr>
<td>Private Sector</td>
<td>70(64%)</td>
<td>40(26%)</td>
<td>110</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>175(63%)</strong></td>
<td><strong>102(37%)</strong></td>
<td><strong>277</strong></td>
</tr>
</tbody>
</table>

*Bank employee: Manager and above & Stakeholder: Customer & Investor of Bank*

4.4.5 Sample Size Determination Technique

The sample size was determined using sample size determination by mean method. The mean method was used because variables in the study were measured using a 5-point measurement scale.

\[
N = \frac{z^2 \cdot \sigma^2}{e^2}
\]

Where, ‘\(z\)’ is the standard score associated with a confidence level (95\% in the current case). Hence standard scores equals to 1.96, ‘\(S\)’ is the variability in the data set, computed as a ratio of range / 6. The range is equal to 5-1 = 4 (the difference between minimum and maximum value in the five point scale). 6 refer to ±3 standard deviation values on the X axis of the standard normal curve, which takes in all the data set in the study.

Hence \(s = \frac{4}{6} = 0.66\)

\(e\) is the tolerable error = 5\% (in the current study).

Sample size \(n = 1.96^2 \times 0.66^2 / 0.05^2 = 260\)

In order to account for sample attrition and missing data, the sample size was kept at 300. Questionnaires were distributed to 300 respondents, however the filled in questionnaires received were 277 hence the sample size was decided in 277.

4.4.6 Sampling Universe

The universe was comprised of bank employees, stakeholders, i.e. Shareholders and customers of the banks.

4.4.7 Sampling Unit

The sampling unit selected was the bank employees and stakeholders both public & private banks. It grouped under the following category bank employees at manager level and above and stakeholder of the banks which includes investors and customers.
4.4.8 Sampling procedure

Statistical sampling techniques are the strategies applied by researchers during the statistical sampling process. This process is done when the researchers aim to draw conclusions for the entire population after conducting a study on a sample taken from the same population.

The probability sampling technique was adopted for data collection purpose. Cluster sampling method was used because the groups were heterogeneous. Clusters were formed by dividing the groups into two; public sector banks and private sector banks. Further clusters were divided into two bank employees and stakeholders. Data was obtained from every sampling unit in each of the randomly selected clusters. Cluster sampling would probably be better as each sample unit appropriately represents the entire population.

4.5 Statistical tools applied

Content analysis is a research technique widely used in social sciences which objectively and quantitatively examines written or oral communication in order to make inferences about values, meanings or understandings being conveyed. A disclosure index has been developed after studying the annual reports of various banks. This technique is called as content analysis. In the first stage of content analysis, the annual report was analyzed and the disclosure index was prepared.

A. Scoring of the Disclosure Index

In the study the researcher has chosen un-weighted disclosure index to determine the CG disclosure level. Similarly, researchers such as Wallace et al. (1994), Ahmed and Nicholls (1994), Hossain (2001 and 2008), had adopted a dichotomous procedure in which a item if disclosed scores one and if not disclosed then zero, this approach is also termed as the un-weighted approach.

In this case if banking institutions which was selected as sample disclosed an item of information in its annual report, then ‘1’ score was awarded and if the item was not disclosed, then ‘0’. Thus, the un-weighted disclosure method measured the disclosure (TD) scores of banking as stated:
Where,

d = 1 if the item \(d_i\) is disclosed

0 = if the item is not disclosed

\(n\) = number of items

The fundamental principle of the un-weighted disclosure index is that all items of information in the index are considered equally important to the average user.

With the help of the list of disclosure issues, the annual reports of the banks were examined. A dichotomous procedure was followed to score each of the disclosure issue.

Each bank was awarded a score of ‘1’ if the bank appears to have disclosed the concerned issue and ‘0’ otherwise. The score of each bank was totaled to find out the net score of the bank.

A CG disclosure index (CGDI) was then computed by using the following formula:

\[
\text{CGDI} = \left( \frac{\text{Total Score of the Individual Company} \times 100}{\text{Maximum Possible Score Obtainable by the Company}} \right)
\]

A Disclosure Index of broad parameters was prepared according to the Clause 49 of the SEBI. Further in order to understand the contents of reporting sub-statements related to each of these dimensions have been collected to understand the efficacy and quality of disclosures. The presence of information pertaining to each statement, a score of “1” is given and absence of information, a score “0” is given. In this study every item has been given equal weight, because each item was given equal importance. Total score for each bank is obtained by adding all the individual responses on sub dimensions (statements) and calculated percentage disclosure.

B. Shapiro-Wilk test: The null hypothesis of this test is that the population is normally distributed. Thus if the p value is less than the chosen alpha level, then the
null hypothesis is rejected and there is evidence that the data tested are not from a normally distributed population. In other words, the data are not normal. On the contrary, if the p value is greater than the chosen alpha level, then the null hypothesis that the data came from a normally distributed population cannot be rejected.

For dataset smaller than 2000 elements, we use the Shapiro-Wilk test; otherwise, the Kolmogorov-Smirnov test is used.

C. **Friedman chi square Test:** Analysis for the Friedman's test is used to compare the distributions of the two or more quantitative variables. Non-parametric test used when data analyzed are not assumed to reflect a normal distribution and when they are measured at either the nominal or ordinal level.

IF $p < 0.05$ then reject the null hypothesis, and accept the alternate (There is a difference). IF $p > 0.05$ then accept the null hypothesis (There is no difference) Chi square statistic does not give any information about the strength of the relationship. Only conveys the existence or nonexistence of the relationships between the variables investigated.

D. **Spearman’s Rho** is a non-parametric test used to measure the strength of association between two variables, where the value $r=1$ means a perfect positive correlation and the value $r=-1$ means a perfect negative correlation. Spearman’s correlation coefficient measures the strength of association between two ranked variables.

$$r_s = 1 - \frac{6 \sum D^2}{N^3 - N}$$

E. **Binomial Test:** The Binomial test is an exact test to compare the observed distribution to the expected distribution when there are only two categories (so only two rows of data were entered). Or it can be said that Binomial test is used where there are two possible outcomes.

Three parameters are involved:

- **Reference proportion (prop):** also known as expected proportion or probability, is the expected, theoretical, or reference proportion of cases that are positive in the
indexed outcome (deaths, cures, winners, losers, complications, etc). This is usually expressed as a number between 0 and 1, so that 0.25 represents 25.

- **Sample size (n):** is the number of cases observed in the current study, and this is abbreviated to \( n \).

- **Numbers positives (k):** is the number of cases found to be positive in the sample observed in the current study, and this is abbreviated to \( k \).

The test result is the Binomial Probability, abbreviated to \( p \). This is the probability of observing \( k \) or more extreme number of positive cases amongst a sample of \( n \) cases, if the true proportion is prop. Where \( k/n \) is less than prop, then it is \( k \) or less case. Where \( k/n \) is greater than prop then it is \( k \) or more cases.

When the sample size \( n \leq 35 \), probability is calculated via the binomial coefficient. When sample size exceeds 35, probability is calculated from \( z \), assuming that the distribution approximated normal.