Chapter - 4

Research Methodology
RESEARCH METHODOLOGY

The Research Methodology section is inclusive of all those techniques that were adopted in course of the research. The research was conducted mainly to understand the position of a Commercial Bank with respect to Universal Bank in terms of services offered. The research also aims at measuring the risk exposure of commercial banks in course of offering diversified services under ‘one-roof’ and also the perception of Managers and Customers of Commercial Banks on Universal Banking concept. So, the research is both exploratory and descriptive in nature.

4.1. Focus Group Discussion

A Focus group discussion was organised in Tezpur with the practicing Bank Managers of both Public Sector and Private Sector banks. The discussion took place in the month of November, 2006 in the premises of a Commercial Bank of Tezpur. Altogether 5 (five) Bank Managers participated in the discussion which lasted for nearly about 2 (two) hours. The purpose of the discussion was –

- To explore the variety of banking and financial services presently offered by commercial banks in India.
- To group these services offered by banks under different points of a Six-point scale so that it can reflect the progress of a Commercial bank in the direction of Universal banking.

4.2. Delphi Method

In order to group the services offered presently by the commercial banks under different points of a Six-point scale, a Delphi Panel was formed. The Panel comprised of 6 (six) Officers of different commercial banks, who have substantial knowledge in this field and at the same time, were willing to share their expertise with the researcher.

A preliminary grouping of the services offered by commercial banks was done on a Six-point scale. The grouping was done on the basis of the Focus
group discussion. A questionnaire (please refer Annexure-II) was prepared accordingly and in order to eliminate any bias on the part of the monitoring team, each Panel member was given a Code Number. They were requested to regroup the services, if they felt necessary.

At the end of the first round, the responses obtained were analysed and the findings communicated to the members along with the new grouping of services, so as to obtain a Panel-consensus on the grouping of services. The second round sought to obtain clarifications as well as consensus on grouping of the services and especially to clarify some of the member's position pertaining to grouping of one service namely credit card securitisation. However, after completion of the second round, no further rounds were necessary as there was consensus on the groupings made in the second round. This led to the creation of the positioning scale. Please refer Annexure - III.

Moreover, efforts were also made to know from the Panel members their perception on Universal banking. These were taken as inputs to construct the questionnaire (for Bank Managers) that was used to collect data required for the third objective of the study.

4.3. Sources of Data

The study aims to position sample commercial banks on a positioning scale so as to know their relative position with respect to Universal bank in terms of services offered by the banks. For positioning a sample commercial bank, the ICICI Bank – the first Indian universal bank\(^1\) – was taken as a benchmark.

An attempt was also made to examine the risk exposure of sample commercial banks but risk of sample banks were assessed on a stand-alone basis by using the CAMEL Model without making any reference to or compare the CAMEL ratings of sample banks with ICICI Bank. Further, efforts were also made to know the perception of Bank Managers and Customers on Universal banking. Therefore, the study was based on both primary and secondary data.

4.3.1. **Primary Data**: Primary data used in the research were collected from Managers and Customers of commercial banks through survey method by using questionnaires.

4.3.2. **Secondary Data**: Secondary data used in the research were obtained from Annual Reports of commercial banks, various books, journals and web sites. (Please refer Bibliography).

4.4. **Selection of Geographical Area**

The area covered in the research was Guwahati city, where there are a number of commercial banks with several branches offering various banking as well as financial services. Moreover, as Guwahati is one of the most important cities of the country and a commercial hub of North East India, all major commercial banks have got operational presence in the city.

4.5. **Universe of the Study**

The universe of the study includes all the listed Public sector and Private sector banks operating in the state of Assam. Listed commercial banks were chosen for the study because unlike unlisted banks, listed banks do have greater commitment and exposure to investors in respect of mandatory and voluntary reporting (Khan & Ali, 2010).

Thus, the segment-wise number of banks considered for the research was as below-

<table>
<thead>
<tr>
<th>Type of Bank</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Public sector bank</td>
<td>20 (twenty)</td>
</tr>
<tr>
<td>(b) Private sector bank</td>
<td>07 (seven)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27 (twenty seven)</td>
</tr>
</tbody>
</table>

4.6. **Positioning Methodology**

In view of the research objective # 1, i.e., to position a sample commercial bank with respect to Universal bank, the basis of positioning was ‘banking and financial services’ offered by a commercial bank.
The banking and financial services offered at present by each commercial bank were grouped under different points of the 6-point scale *(Please refer Annexure III)*. The positioning was done on the basis of a bank’s composite score. For deriving the composite score of a sample bank, the following steps were adopted –

**Step I : Assigning Weights to the Services under a point of the Positioning Scale and Determining the Score**

All the services under respective points of the scale were assigned equal weights and then weighted average score of a Bank was calculated for each point of the scale. 

Score under a given Point, \( S_p = \sum w \cdot s_i \)

where

- \( w \) = weight assigned to each service \(^2\)
- \( s_i \) = services under a point of the scale
- \( i = 1, 2, ..., n \) (denotes number of services under a point of the scale)
- \( p = 1, 2, 3, 4, 5 \) (five different points on the scale) \(^3\)

**Step II : Calculation of Composite Score of a Bank**

The **composite score** \( (S_1+S_2+S_3+S_4+S_5) \) was then calculated. This composite score was the basis of positioning a bank on the scale and highlights where a sample bank lies with respect to the Universal Bank. The lowest and the highest score that can be obtained are 1 and 5 respectively.

**4.7. C.A.M.E.L Model**

In order to fulfil research objective # 2, i.e., to critically examine the risk exposure of commercial banks in course of their business activities, C.A.M.E.L Model was used.

\(^2\) Equal weights were assigned to all the services under a point of the Positioning Scale

\(^3\) The services under Point 0 are 'accepting deposits and making advances'. These two services are the minimum services that an entity should offer to obtain the status of a commercial bank. Since commercial banks were positioned on the scale, Point 0 was ignored in computing the positioning score.
The C.A.M.E.L.S Model consists of 6 (six) components. However, in this research C.A.M.E.L Model is used. This Model is based on 5 (five) components and under each component, there are different parameters - all expressed in terms of financial/ performance ratios. The risk exposure as well as how financially sound a bank is, can be assessed in terms of composite C.A.M.E.L score of the bank. For obtaining composite C.A.M.E.L score, the following steps were involved –

Step 1 : Calculation of Parameter Ratios under the Components of C.A.M.E.L Model

The C.A.M.E.L Model consists of 5 (five) components namely, Capital Adequacy, Asset Quality, Management, Earnings Quality, and Liquidity. Within each of these components, there are several parameters. These parameters are expressed in terms of financial ratios derived from the Balance Sheet and Profit and Loss Account of a bank.

The following ratios were calculated –

1. Capital Adequacy

Capital adequacy reflects the overall financial condition of a bank and also the ability of the management to meet the need for additional capital.

The parameters under this component were –

- Capital Adequacy Ratio
- Debt-Equity Ratio
- Advances to Assets

2. Asset Quality

The prime motto behind measuring the asset quality is to ascertain the component of non-performing assets as a percentage of the total assets. In addition, the component also ascertains the NPA movement and the amount locked up in investments as a percentage of the total assets. The parameters under this component were –
• Net NPAs to Total Assets
• Net NPAs to Net Advances
• Total Investments to Total Assets

3. Management

It involves a subjective analysis for measuring the efficiency of the management. To measure the efficiency of the management, the parameters used were –
• Total Advances to Total Deposits
• Profit per Employee
• Business per Employee
• Return on Net Worth

4. Earnings Quality

This component gains importance in the light of the argument that much of the bank’s income is earned through non-core activities, treasury operations, and corporate advisory services and so on. The parameters were –
• Operating Profit by Average Working Funds
• Spread (as a percentage of Assets)
• Net Profit/ Average Assets
• Interest Income/ Total Income
• Non-interest Income/ Total Income

5. Liquidity

It refers to the risk stemming from the lack of marketability of an investment that cannot be bought or sold quickly enough to prevent or minimise a loss. The parameters were –
• Liquid Assets/ Total Deposits
• Liquid Assets/ Total Assets
Step II : Determining the Parameter Rating Range

For each financial year, the parameter ranges were determined so that parameters relating to a sample bank could be assigned a score between 1 and 5. Therefore, the number of class intervals required was 5.

In order to obtain the required class intervals, first, the mean value ($\mu$) and standard deviation ($\sigma$) of the population were calculated for each parameter under the CAMEL components. Thereafter, the class interval was determined by taking $\mu \pm 1\sigma$, $\mu \pm 2\sigma$, $\mu \pm 3\sigma$, as below –

<table>
<thead>
<tr>
<th>Score</th>
<th>Class Intervals Where High value of the ratio is considered to be better</th>
<th>Class Intervals Where Low value of the ratio is considered to be better</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$(\mu + 2\sigma)$ to $(\mu + 3\sigma)$</td>
<td>$(\mu - 2\sigma)$ to $(\mu - 3\sigma)$</td>
</tr>
<tr>
<td>2</td>
<td>$(\mu + 1\sigma)$ to $(\mu + 2\sigma)$</td>
<td>$(\mu - 1\sigma)$ to $(\mu - 2\sigma)$</td>
</tr>
<tr>
<td>3</td>
<td>$(\mu - 1\sigma)$ to $(\mu + 1\sigma)$</td>
<td>$(\mu - 1\sigma)$ to $(\mu + 1\sigma)$</td>
</tr>
<tr>
<td>4</td>
<td>$(\mu - 1\sigma)$ to $(\mu - 2\sigma)$</td>
<td>$(\mu + 1\sigma)$ to $(\mu + 2\sigma)$</td>
</tr>
<tr>
<td>5</td>
<td>$(\mu - 2\sigma)$ to $(\mu - 3\sigma)$</td>
<td>$(\mu + 2\sigma)$ to $(\mu + 3\sigma)$</td>
</tr>
</tbody>
</table>

Step III : Determining the Component Score

Referring to Table 4.1, the rating for each of the parameters under a component of the C.A.M.E.L Model was obtained. Thereafter, the scores for each C.A.M.E.L component were determined by taking the average of the parameter scores of that component.

Step IV : Determining Composite C.A.M.E.L Score

For calculating the composite CAMEL score of a bank, weighted average of the rates assigned against all the components were taken into consideration.

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4 The population consists of all the listed public sector and private sector banks in India. The number of such banks in FY 2008-09 was 39 (thirty nine) excluding the Punjab & Sind Bank and the United Bank of India, which have been recently listed. However, the number of banks considered for calculation of Mean and Standard deviation for the FY 2004-05 was 38 (absence of Yes Bank) and for FY 2002-03 and FY 2003-04 was 37 (absence of Yes Bank and IDBI Bank).
weights assigned to the components of the C.A.M.E.L.S Model as suggested by FDIC Deposit Insurance Assessments are as given in the table below –

Table 4.2 : Weights Assigned to CAMEL Components

<table>
<thead>
<tr>
<th>Components</th>
<th>Weights assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Adequacy</td>
<td>25%</td>
</tr>
<tr>
<td>Asset Quality</td>
<td>20%</td>
</tr>
<tr>
<td>Management</td>
<td>25%</td>
</tr>
<tr>
<td>Earnings Quality</td>
<td>10%</td>
</tr>
<tr>
<td>Liquidity</td>
<td>10%</td>
</tr>
<tr>
<td>Sensitivity to Market Risk</td>
<td>10%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: FDIC Deposit Insurance Assessments (www.ddfconsultmg.com)

However, in this research, ‘Sensitivity to Market Risk’ was not taken into account and hence the weight assigned to the sixth component – S (i.e., 10%) was evenly distributed among all the five components – C, A, M, E and L. Thus, the revised weights assigned to the components of C.A.M.E.L are shown in the table below –

Table 4.3 : Revised Weights Assigned to CAMEL Components

<table>
<thead>
<tr>
<th>Components</th>
<th>Weights assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Adequacy</td>
<td>27%</td>
</tr>
<tr>
<td>Asset Quality</td>
<td>22%</td>
</tr>
<tr>
<td>Management</td>
<td>27%</td>
</tr>
<tr>
<td>Earnings Quality</td>
<td>12%</td>
</tr>
<tr>
<td>Liquidity</td>
<td>12%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The weighted average score was calculated as follows –

$$CS_B = C_B \times W_C + A_B \times W_A + M_B \times W_M + E_B \times W_E + L_B \times W_L$$

where,

$CS_B$ is the weighted average CAMEL score of a sample bank
Cₐ, Aₛ, Mₛ, Eₛ, Lₛ are the component score of Capital Adequacy, Asset Quality, Management, Earnings Quality and Liquidity respectively of a sample bank.

Wₐ, Wₐ, Wₐ, Wₑ, Wₐ are the weights assigned to Capital Adequacy, Asset Quality, Management, Earnings Quality and Liquidity respectively.

Step V : Determining the Composite C.A.M.E.L Rating

On obtaining the CAMEL score of a sample bank, it was rated as per the rating ranges and the rating scales given below –

<table>
<thead>
<tr>
<th>Rating Scale</th>
<th>Rating range</th>
<th>Rating Analysis</th>
<th>Rating analysis Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.0-1.4</td>
<td>Strong</td>
<td>Sound in every respect, no supervisory responses required.</td>
</tr>
<tr>
<td>2</td>
<td>1.6-2.4</td>
<td>Satisfactory</td>
<td>Fundamentally sound with modest correctable weakness, supervisory response limited.</td>
</tr>
<tr>
<td>3</td>
<td>2.6-3.4</td>
<td>Fair (watch category)</td>
<td>Combination of weaknesses if not redirected will become severe. Watch category. Requires more than normal supervision.</td>
</tr>
<tr>
<td>4</td>
<td>3.6-4.4</td>
<td>Marginal (some risk of failure)</td>
<td>Immoderate weakness unless properly addressed could impair future viability of the bank. Needs close supervision.</td>
</tr>
<tr>
<td>5</td>
<td>4.6-5.0</td>
<td>Unsatisfactory (high degree of failure evident)</td>
<td>High risk of failure in the near term. Under constant supervision/cease and desist order.</td>
</tr>
</tbody>
</table>

Source: BASEL COMMITTEE ON BANKING SUPERVISION, WORKING PAPERS No. 4 – December 2000

The ratings of the sample banks will highlight their soundness, risk exposure and the quantum of monitoring needed by the Reserve Bank of India to minimise the probability of failures of banks. Moreover, the composite C.A.M.E.L Score was calculated for 07 (seven) Financial Years i.e., from 2002-03, 2003-04, 2004-05, 2005-06, 2006-07, 2007-08 and 2008-09. This is for the purpose of getting a better picture on the degree of risk exposure by analysing the trend. Moreover, data from FY 2002-03 has been taken into consideration because it is believed
that the financial position of Indian banks has improved considerably since 2002 – the year which witnessed benign credit policy amidst strong economic growth (Bhoumik, 2007).

4.8. Sample Survey

In the light of the third objective of the research i.e., to critically examine the existing debate on Universal banking in the context of the samples studied, it was necessary to know the perception of Bank Managers and Customers of banks on Universal Banking concept. Accordingly, a survey was conducted.

4.8.1. Selection of Sample

There are two categories of samples used in this research - managers and customers of commercial banks as well as ICICI Bank.

Category A: Managers of Commercial Banks

Definition of Population

The population in this research were managers (element) of commercial banks (sampling unit) in Guwahati city of Assam (extent) during 2007-08 (time).

Sampling Frame

The sampling frame in this research consists of the list of Banks as obtained from the web site of Reserve Bank of India.

Sampling Technique

The sampling technique adopted in this research was a combination of Stratified Sampling Technique and Judgmental Sampling Technique. First, the banks were categorised into two groups on the basis of ownership of banks – Public & Private sector banks and then the samples were selected on judgmental basis. The criterion for selecting the samples was that the individuals held managerial position in his/her organisation.
Sample Size (of Bank Managers)

The sample size (of bank managers) was **100**. The sample size was chosen based on the general guidelines for sample size that depends on the number of variables involved in the study. The questionnaire for Bank Managers had 11 items. Nunnally, 1978 (as cited in Rye & Smith-Jackson, 2006; Kumar, Kee, & Charles, 2010) suggested a rule of thumb that the number of subjects to item ratio should be at least 10:1. However, Gorsuch (1983) and Hatcher (1994) (as cited in Rye & Smith-Jackson, 2006) recommend 5:1. In this research, the total number of respondents was 100 and the ratio of respondents to items (statements) was approximately **9:1**.

Category B: Customers of Commercial Banks

Definition of Population

The population in this research were customers (*element*) of commercial banks (*sampling unit*) in Guwahati city of Assam (*extent*) during 2007-08 (*time*).

Sampling Frame

There was no definite sampling frame available and as such the sampling frame for this research consists of the customers visiting a commercial bank on a day for any bank transaction.

Sampling Technique

The sampling technique adopted in this research was *Convenient sampling* technique. Here, samples were selected from among the customers visiting a bank for any banking/financial transaction.

Sample Size (of Customers)

The sample size (of bank customers) was **270**. The decision on sample size was based on general guidelines for sample size (which depends on the variables involved) as well as similar studies on attitudes and perception of customers. As
the questionnaire used in this study to know the perception of bank customers on Universal banking has 7 items (statements), the required sample size should be approximately 70 respondents (subjects), i.e., ten times of the total number of items. Moreover, similar studies on customer attitude involved sample sizes between 114 to 1,167 respondents (Laforet & Li, 2005). Therefore, in this study the sample size was as per the existing literature and the ratio of respondents to items (statements) was approximately 39:1.

4.8.2. Research Instruments

The ‘personal-contact’ approach was adopted for the research, i.e., the respondents were approached personally and given a detailed explanation about the survey (including its purpose, the meaning of the items and what is expected of them). The data required for the research was collected through:

- Personally administered questionnaire
- Structured interview

In this research, for the collection of data, emphasis was given on personally administered questionnaire and structured interview because the respondents, especially the Bank managers’ hectic job schedule as well as low awareness of the customers on the range of services offered by banks, on many an occasion, posed a problem in collection of data.

4.8.3. Designing of Questionnaire

There were two sets of questionnaire - one for managers and the other for the customers of commercial banks. After preparation of the draft questionnaire, a pilot survey was conducted involving 10 (ten) bank managers and 10 (ten) customers of commercial banks in Guwahati city.

The final questionnaires were prepared after incorporating the required changes after the pilot survey. The questionnaire for the Managers of commercial banks was prepared to identify different services presently offered by the concerned bank and also their perception on Universal banking concept. All the
questions in the questionnaire were close-ended and Likert scales were used for questions under Part C.

The questionnaire, for collecting data from the Customers, was prepared with a view to know their awareness about the various services offered by a commercial bank as on date and also their (customers') need of various banking and financial services. The questions in the questionnaire were all close-ended with Likert scales introduced against almost all the questions under Part C.

4.8.4. Analysis of Data

The collected data was carefully studied and analysed as follows –

The five point Likert Scale had values from -2 to +2 associated with it. 'Profile analysis' was undertaken, with each item in the questionnaire analysed on an item-by-item basis. Then a summated approach was used for obtaining a final score against each question given in the questionnaire so as to know the perception of the samples (Managers & Customers of the banks).