### CHAPTER-3  
RESEARCH METHODOLOGY

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3.1 Introduction:

Research in common parlance refers to a search for knowledge. Once can also define research as a scientific and systematic search for pertinent information on a specific topic. In fact, research is an art of scientific investigation. Redman and Mory define research as a “systematized effort to gain new knowledge”. Some people consider research as a movement, a movement from the known to the unknown. It is actually a voyage of discovery.

The Advanced Learner’s Dictionary of Current English lays down the meaning of research as “a careful investigation or inquiry especially through search for new facts in any branch of knowledge.”

D. Slesinger and M. Stephenson in the Encyclopedia of Social Sciences define research as “the manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art.” Research is, thus, an original contribution to the existing stock of knowledge making for its advancement. It is the pursuit of truth with the help of study, observation, comparison and experiment. In short, the search for knowledge through objective and systematic method of finding solution to a problem is research. The systematic approach concerning generalization and the formulation of a theory is also research.

In the present-day world in the developed and developing money economies the vital processes of production and consumption are significantly affected by the aggregate money supply consisting of the currency, demand and time deposits with banks. The banking sector is the lifeline of any modern economy. Banks are one of the oldest financial intermediaries in the financial system. Long back the well-known nineteenth century economist David Ricardo had stated that a bank was a dealer or transactor in money. But so is also the money-lender. The development of commercial banks has taken place under different banking systems in different countries. A commercial bank is a dealer in money assets that are largely derived from its deposits. They are the heart of our financial structure, since they have the ability, in co-operation
with the Reserve Bank of India, to add to the money supply of the nation and thus create additional purchasing power. Banks Lending, Investing and related activities facilitate the economic processes of production, distribution and consumption.

3.2 Title Of The Study:

Research has framed following title for this work:

“A STUDY OF PROFITABILITY ANALYSIS OF SELECTED BANK”

3.3 Objectives Of The Study:

Objective is a base for any work. The objectives determine the future and outcome of the research. No work is started without any objectives. The present research work has also some objectives. The overall objectives of the study are to find out the profitability analysis of selected banks. The present research work has been undertaken keeping in view the following objectives.

- To know the banking sector in India.
- To review the profitability trends in various banks.
- To compare the profitability trends between the various banks.

3.4 Scope Of The Study:

The scope of the study is very wide. There are 165 scheduled commercial bank- 26 public sector banks, 21 private sector banks, 36 foreign banks and 82 regional rural banks. However, the researcher has selected ten public sector banks and ten private sector banks. So total twenty banks including public sector banks and private sector banks have been cover for the study.

3.5 Survey Of The Existing Literature:

As banking system plays a pivotal role in the economic development of a nation, it has caught the eyes of many researchers, administrators, departments, committees. For this study researcher had reviewed various typed of Journals, periodicals, books and websites.

- M. C. Vaish discusses fully the nature and importance of commercial banks in the economy. It is also say that the economic development of any economy is reflected in the development of the commercial banking system. He also discussed evolution of commercial banking, balance sheet of commercial bank.
• R. K. Uppal and Rimpi Kaur represent in book “Banking Sector Reforms in India”, it was published by new century publications in New Delhi. This book provides information about meaning and definition of banks.

• O. P. Agarwal while discussing the evolution of commercial banking in India, the period of development after nationalization, the era of economic reforms. Not only this, but the reader could be able to understand the development of regional rural banks, co-operative banks, land development banks and local area banks.

• Bharti V. Pathak has focused development of banking in India, scheduled commercial banks.

• “Banks and Institutional Management” a book published Himalaya publishing house in Mumbai, which is written by Vasant Desai. This book provides recent trend on banking reforms.

• Edward W. Reed, Richard V. Cotter, Edward K. Gill and Richard K. Smith in study, “Commercial Banking” has taken an overview of the commercial banking and profitability of the commercial banking.

• DR. D. M. Mithani published a book “Banking in India”. The study covered early growth of Joint stock Banks in India, Profitability of commercial Banks, Major Banking developments, Features of commercial Banking in India, Action plan, Credit- Deposit ratio of scheduled commercial Bank, Indian Banks overseas, the problem of Banks overdue.

• S. K. Varghese in his study, “Profits and profitability of Indian Commercial Banks in 1970s” has stated that profit and profitability indicators computed from the banks published balance sheets and profit and loss account do not reflect the true financial feature of banks.

• S. G. Shah while discussing the profitability of banks disfavored the attitude of banks that higher profitability can result from increased spread and that innovations have a team spirit and improvement in the management for improving bank profitability.

• Kiran Chopra in her book entitled “Managing profits, Profitability and Productivity in public Sector banking, studied the emerging trends in profit and profitability of some selected public sector banks. She is of the opinion that there is a need to introduce management essentials for the better managements of profits and productivity of public sector banks and recommended proper management of both costs as well as earnings.
• Nayar, Anita concluded that overall profitability of banks has been under constant strains during the study period except 1970-74 and downfall is experienced between 1970 -1974.

• R. K. Uppal and Rosy Chawla studied that analyze the trends and growth in profitability and its prime determinates of major bank groups, impact of determinants on profitability of major bank groups and suggest possible measures to improve the profitability of poor performing banks.

• T. Padamsai studied that productivity and profitability of five big banks increased through the post reforms period in terms of selected ratio of each parameter, the performance of the top five banks is very dismissal as inefficiency has increased during the study period. He suggested that if the government sells its share in the profit making banks, it would be able to bail out the weak banks.

• Prof. Pradeep Datar in study, “Managerial Economics”, has taken meaning of profit, types of profit, and theories of profit and measurement of profit.

• Rao and Chandar have made attempt assess the financial efficiency of cement companies for the period from 1970-71 to 1977-78 which covers 70 percent of entire industry. They found out that the profitability of selected companies had decreased continuously from 1970-71 to 1974-75 owing to causes such as inflationary pressure in the continuous fall in capacity utilization due to drastic power cuts and shortage of coal, oil and wagon. The profitability increased in 1975-76 because of appreciable increase in the sales.


• Durgadas Roy studied that the productivity and profitability of scheduled commercial banks in India and during the time period of 1970-80, profitability and productivity ratios of foreign banks were the highest.

• Prof. R. M. Srivastava and Dr. Divya Nigam published a book on “Management of Indian Financial Institution” published by Himalaya publishing house in Mumbai. This book gives information about profitability of Indian Commercial Banks.

• C. R. Kothari published a book in 2008 touching on the research methodology. The study covers defining the research problem, research design, sampling fundamentals, testing of hypothesis, interpretation and report writing and the computer: Its role in research.

Dharmesh S. Raval has done his Ph. D. Thesis on “Analysis of Profitability in Pharmaceutical Industry”. In this study concept and measurement of profitability, introduction of pharmaceutical industry, research methodology, analysis of profitability and summary, finding and suggestions.

Rasik N. Bavaria has done his Ph. D. thesis “ A Comparative Analysis of Profitability vis-a-vis Liquidity Performance in Cement Industry in India”, research plan, analysis of profitability, analysis of liquidity. The study reveals the comparison of profitability and liquidity.

Chakravarty and Reddy had written an article on the financial performance of the industry for period from 1967 to 1971 by making comparison in 1973. They used ratio analysis as major tool for financial performance and had studied ratio of profitability, proprietary, liquidity and turnover groups.

Karur and Subramaniam published an article on the financial performance of 10 units relating to the period from 1972 to 1979 which mainly observed liquidity, profitability, financial structure and overall performance. For this study, they used ratio analysis.

Banknet India published an article on the profitability in banks. A closer analysis of the different banking groups also shows that the reduction in operating expenses was only experienced by the public sector and foreign banks.

Arthur Middleton Hughes, This article has given how banks use profitability analysis.

R.B.I. Bulletin has given balance sheet of scheduled commercial banks and also found out the financial performance of the scheduled commercial banks in 2011-12.

Banking sector challenges are taken from the magazine named “Professional Banker’ February 2010.

The researcher to collect information about financial performance and profitability ratios of sampled banks from various websites and Google search engine.
3.6 Universe Of The Study:

The population of the study is restricted with reference to the scheduled commercial banks – 26 public sector banks and 21 private sector banks. Researcher has selected ten public sector banks and ten private sector banks in the year 2002-03 to 2011-12.

3.7 Nature Of The Study:

As one of the objectives is to acquire deeper insight into the various pertinent aspect of the problem, thus the study can be turned as exploratory in nature. The researcher has also utilized the facts and information available in various secondary sources to make critical evaluation and thus from this point of view, the nature of the study become analytical.

3.8 Period Of The Study:

As any researcher wish to collect all required data and information about research, here a researcher is interested to take specific period, to analyses the data for meaningful conclusion.

Here, the study is made for ten years from 2002-03 to 2011-12. For the purpose of analysis all the selected banks have been classified into ten public sector banks and ten private sector banks.

3.9 Hypothesis Formulation:

The researcher has formulated the following hypothesis for the study.

- ONE-WAY CLASSIFICATION OF ‘F’ TEST:

- NULL HYPOTHESIS:

There would be no significant difference in average profitability ratios of sampled public sector banks and private sector banks.

- ALTERNATIVE HYPOTHESIS:
There would be significant difference in average profitability ratios of sampled public sector banks and private sector banks.

- **t-Test: Two-Sample Assuming Equal Variances:**
  - **NULL HYPOTHESIS:**
    
    There would be no significant difference in average mean of profitability ratios of sampled public sector and private sector banks.
  
  - **ALTERNATIVE HYPOTHESIS:**
    
    There would be significant difference in average mean of profitability ratios of sampled public sector and private sector banks.

**3.10 Research Design:**

In this research the researcher has taken ten public sector banks and ten private sector banks of India. The selected banks are as under.

- **Public Sector Banks:**
  - Bank of Baroda
  - IDBI Bank Ltd.
  - State Bank of India
  - State Bank of Bikaner & Jaipur
  - Canara Bank
  - State Bank of Travancore
  - Indian Overseas Bank
  - Andhra Bank
  - Vijaya Bank
  - Allahabad Bank

- **Private Sector Banks:**
  - Federal Bank
  - HDFC Bank
  - ICICI Bank
  - Axis Bank
  - IndusInd Bank
  - ING Vysya Bank
  - Karur Vysya Bank
  - Kotak Mahindra Bank
  - Dhanlaxmi Bank
  - City Union Bank

The sample has been selected considering following factors:

1. The data, which are available for the period of study i.e., from 2002-03 to 2011-12.
2. The banks, which are engaged in relationship of profitability ratio of selected banks.
3. The banks should be organized by public sector banks and private sector banks in India.
4. The researcher has used secondary data in the research.
5. The researcher has used ANOVA test under their research. In this research one way ANOVA has been used by the researcher.
6. The researcher has also used t-test analysis.

3.11 Sources Of Data:

Collection of data is very hard work for any types of research. The kind of data collected and the methods used to collect the data is a very important aspect of research. There are two basic means of data collection.

1. Primary Data
2. Secondary Data

The study is based on secondary data, drawn from the annual profit and loss account and balance-sheet figures as found in the downloaded from the various websites. Other information related to the banks has been collected from various books, R. B. I. Bulletin and magazines.

3.12 Financial Tools And Techniques:

The collected data are duly edited, classified and analyzed using all type of relevant statistical techniques and employing the most appropriate parametric and non-parametric test. There are many techniques, which may be, used for analyzing the financial position; these techniques have been classified as follows:

- **Ratio Analysis** :
  Ratios are among the well known and most widely used tools for measuring performance. Ratio can be defined as, “The indicated quotient of two mathematical expression.” Following ratios are used in this study.
  - Gross Profit Margin
  - Operating Margin
  - Net Profit Margin
  - Cash Profit Ratio
- Return on Net Worth Ratio
- Return on Assets Ratio
- Interest Spread Ratio
- Return on Long Term Fund Ratio
- Return on Capital Employed

➢ **Statistical Techniques:**

- **One-way Classification of ‘F’ Test:**
  
  Under the one-way ANOVA, only one factor is considered and then observes that the reason for said factor to be important is that several possible types of samples can occur within that factor. In the present study, in one-way classification the analysis of variance table takes the following form.

### Table - 3.1

**Analysis of Variance Table for One-way Anova**

(There are k samples having in all n items)

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of squares (SS)</th>
<th>Degrees of freedom (d.f.)</th>
<th>Mean Squares (MS)</th>
<th>F-ratio</th>
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<td>Between samples or categories</td>
<td>$n_1(\bar{x}_1 - \bar{x})^2 + \ldots + n_k(\bar{x}_k - \bar{x})^2$</td>
<td>$(k - 1)$</td>
<td>SS between $(k - 1)$</td>
<td>SS between $(k - 1)$</td>
</tr>
<tr>
<td>Within samples or categories</td>
<td>$\sum (x_{1i} - \bar{x}<em>1)^2 + \ldots + \sum (x</em>{ki} - \bar{x}_k)^2$</td>
<td>$(n - k)$</td>
<td>SS within $(n - k)$</td>
<td>MS between MS within</td>
</tr>
<tr>
<td>Total</td>
<td>$\sum (x_{ij} - \bar{x}_1)^2$</td>
<td>$(n - 1)$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Source: Research Methodology book, which was written by C. R. Kothari]

- **t- Test: Two-Sample Assuming Equal Variances:**
  
  t- test is based on t- distribution and is considered an appropriate test for judging the significance of a sample mean or for judging the significance of difference between the means of two samples in case of small sample(s) when population variance is not known (in case two samples are related, we use paired t- test (or what is known as difference test) for judging the significance of the mean of difference between the two related samples. It can also be used for judging the significance of the coefficients of sample and partial correlations. The relevant test statistic, t, is calculated from the
sample data and then compared with its probable value based on t-distribution (to be read from the table that gives probable values of t for different levels of significance for different degrees of freedom) at a specified level of significance for concerning degrees of freedom for accepting or rejecting the null hypothesis. It may be noted that t-test applies only in case of small sample(s) when population variance is unknown.

**Theorem 1:** Let $\bar{x}$ and $\bar{y}$ be the sample means of two sets of data of size $n_x$ and $n_y$ respectively. If $x$ and $y$ are normal, or $n_x$ and $n_y$ are sufficiently large for the Central Limit Theorem to hold, and $x$ and $y$ have the same variance, then the random variable

$$
\frac{(\bar{x} - \bar{y}) - (\mu_x - \mu_y)}{s \sqrt{\frac{1}{n_x} + \frac{1}{n_y}}}
$$

has distribution $T(n_x + n_y - 2)$ where

$$s^2 = \frac{(n_x - 1)s_x^2 + (n_y - 1)s_y^2}{(n_x - 1) + (n_y - 1)}$$

**Observation:** $s$, as defined above, can be viewed as a way to pool $s_x$ and $s_y$, and so $s^2$ is referred to as the pooled variance. Also note that the degrees of freedom of $t$ are the value of the denominator of $s^2$ in the formula given in Theorem 1.

**3.13 Significance Of The Study:**

This study is important for the major aspects.

1. It can give understanding overview and all information about banking sector.

2. It gives comparative study of financial data of scheduled commercial bank.

3. It also gives the information about relationship of profitability ratio of selected banks. It is the method of to find out different types of ratio.

4. It gives comparative analysis of selected public and private sector banks in India.
It is an analytical study in nature so the significance of the study is very high. Further, some observations may be useful to the banker, shareholders, brokers and policy maker and the people who are interested in investment in banks.

3.14 Limitation Of The Study:

- This study is based on secondary data taken from various websites of selected banks and as such its findings depends entirely on the accuracy of such data.
- The present study is based on data taken from the annual reports of the company and all the conclusions and suggestions are given from the statistical analysis of the several ratios calculated.
- The study is carried out for limited number of banks only. But it is difficult to draw conclusions from selected banks.
- The study is carried out for a period of 10 (Ten) years to derive conclusions about the performance of the banks as a whole. But this number of years is not enough for a thorough understanding of business movements and their reactions to the changes of the economy.
- There are different methods to measure the profitability of banks in this connection views of experts differ from one-another.
- The present study is largely based on ratio analysis; such analysis has its own limitations, which also applies to the study.
- The analysis of financial performance of business entity gives diagnostic indicators.

3.15 Further Scope For The Study:

This study is based on profitability ratio of selected public sector and private sector banks during the time period of ten years from the year 2002-03 to 2011-12. New researchers may study as follow:

- For the study of foreign banks working in India (profitability ratio).
- Researcher may be used another ratio for calculating profitability.
- This study will be used for policy maker of individual banks.
- This study will be helpful for the researches that make research for financial performance of private, public, foreign and co-operative banks.
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