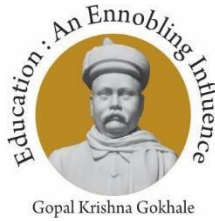


# **EFFICACY OF CONSOLIDATION OF BANKS IN INDIA: AN ANALYTIC STUDY**

A THESIS SUBMITTED IN FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE  
OF  
DOCTOR OF PHILOSOPHY IN  
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GOKHALE INSTITUTE OF POLITICS AND ECONOMICS, PUNE

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## **DECLARATION BY THE CANDIDATE**

I, **DEVIDAS VISHWANATH PALVE**, hereby declare that this thesis entitled, **“EFFICACY OF CONSOLIDATION OF BANKS IN INDIA: AN ANALYTIC STUDY”** is submitted for the award of Degree of Doctor of Philosophy in Economics to the Gokhale Institute of Politics and Economics, Pune 411004.

It is an original contribution and has been completed during my tenure as a research scholar at Gokhale Institute of Politics and Economics, Pune.

This thesis has not been submitted by me elsewhere for the award of any degree or diploma - part or full.

The information gathered by me for the thesis is original, true and factual. Such material as has been obtained from other sources has been duly acknowledged in the thesis.

I hereby request to consider the thesis for the award of the degree of ‘Doctor of Philosophy’.

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# EFFICACY OF CONSOLIDATION OF BANKS IN INDIA: AN ANALYTIC STUDY

## Abstract:

There was an urgent need for banking reforms and various committees suggested the consolidation of banks in India. First, such a committee expressed the merger of Indian banks to make them strong enough for supporting international trade. Since then, mergers/consolidations driven by the Government of India was on the radar. The pace of banking consolidation was languid and mergers were due to pressure from the regulator's side. Many consolidations happened during the period 2000 to 2018 and hence the present study focuses study on the consolidation of banks and analysed the impacts. The term consolidate originates from the Latin *consolidates* which means “to combine into one body”. Many factors like economy, political situation of the state, changing legal, and social environments of the country etc. impacts the consolidations of the bank. There are two typical reasons derived from mergers and acquisitions, i.e., efficiency gain and strategic rationale that would result in benefits in the form of economies of scale and scope.

We have used various parameters viz. financial and non-financial performance of the banks, ratio analysis, analysis based on CAMELS and DEA models.

The consolidation of the banks has benefited the regulators as such the weak banks merged into another bank, but value of shareholders and impact on customers is inversely proportionate.

It is observed that the consolidation of banks has resulted in a positive impact on the performance of the banks in the short period under the study. However, the systemic effect of these developments on the economy and society in long run due to the change in the structure and conduct of the banking sector in India can be questionable and will only be clear in the longer run.

**Keywords:** consolidation, merger, acquisition, financial ratio, CAMELS, DEA etc.

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*“Life is a journey, not a destination.”*

***-Ralph Waldo Emerson.***

*Dreams are Many – To be a Doctor, Army Officer, Scientist and Research Professional but Destiny takes the route as per your persuasion, hard work and passion to continue the learning. A Banker by default but 17 years in the field made me to pursue the research on the topic which is burning, churning and will decide fate of 5 trillion economy dream. The research journey started with the help of many.....*

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**DEVIDAS VISHWANATH PALVE**

Dated:



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## **LIST OF ABBREVIATIONS/ACRONYMS**

AT&T	: American Telephone and Telegraph Company
ATM	: Automated Teller Machine
BA	: Bank of America
BMB	: Bhartiya Mahila Bank
BOB	: Bank of Baroda
CAMELS	: Capital Adequacy, Asset Quality, Management, Earnings, Liquidity and Sensitivity
CAPM	: Capital Asset Pricing Model
CAR	: Capital Adequacy Ratio
CD	: Cash to deposit
CD	: Credit to Deposit
CEO	: Chief Executive Officer
CMIE	: Centre for Monitoring Indian Economy
CRAR	: Capital to Risk Weighted Assets Ratio
CRM	: Customer Relationship Management
DEA	: Data Envelopment Analysis
DMU	: Diminishing Marginal Utility
EAT	: Earning After Tax
EBIT	: Earnings Before Interest and Taxes
EPS	: Earning per Share
FA	: Fixed Assets
FB	: Federal Bank

FDI	: Foreign Direct Investment
FDIC	: Federal Deposit Insurance Corporation
FI	: Financial Institution
GAAP	: Generally Accepted Accounting Principles
GE	: General Electronics
GPM	: Gross Profit Margin
HDFC	: Housing Development Finance Corporation
IBA	: Indian Banks' Association
IBR	: International Business Report
ICICI	: Industrial Credit and Investment Corporation of India
ICT	: Information and Communication Technologies
IDBI	: Industrial and Development Bank of India
JV	: Joint ventures
KLM	: Koninklijke Luchtvaart Maatschappij (a Royal Dutch Airlines)
L&T	: Larsen and Tubro Company
LAB	: Local Area Banks
LBOs	: Leveraged Buyouts
M&A	: Mergers and Acquisitions
MBOs	: Management Buyouts
NPAs	: Non-Performing Assets
NPL	: Non-Performing Loan
NPM	: Net Profit Margin
OBC	: Oriental Bank of Commerce
OCC	: Office of the Comptroller of the Currency

OD	: Overdraft
ONGC	: Oil and Natural Gas Corporation
OP	: Operating Profit
PE	: Private Equity
PNB	: Punjab National Bank
PSU	: Public Sector Undertakings
ROA	: Return on Assets
ROCE	: Return on Capital Employed
ROE	: Return on Equity
S&P	: Standard and Poor's
SBBJ	: State Bank of Bikaner & Jaipur
SBH	: State Bank of Hyderabad
SBI	: State Bank of India
SBM	: State Bank of Mysore
SBP	: State Bank of Pakistan
SBP	: State Bank of Patiala
SBT	: State Bank of Travancore
SEBI	: Securities and Exchange Board of India
SFA	: Stochastic Frontier Analysis
SME	: Small and Medium Enterprise
TFA	: Thick Frontier Approach
TQM	: Total Quality Management
UAE	: United Arab Emirates
UK	: United Kingdom

US : United States  
USA : United States of America  
WCT : Works Contract Tax



# CHAPTER - 1

## INTRODUCTION

### 1.1 PREAMBLE:

*“It is not by augmenting the capital of the country, but by rendering a greater part of that capital active and productive than would otherwise be so, that the most judicious operations of banking can increase the industry of the country.”*

- **Adam Smith.**

*"The greatest task facing banks during M&As lies in properly understanding who constitutes the core customers and treating them as an asset."*

- **Fred Reichheld.**

*“The Banking sector handling 80% of the flow of money in the economy needed severe reforms to make it internationally reputable, accelerate the pace of reforms, and develop it into a constructive usher of an efficient, vibrant and competitive economy by adequately supporting countries’ financial needs.”*

- **Narsimham Committee- I(1991).**

There was an urgent need for banking reforms and various committees suggested the consolidation of banks in India. First, such a committee expressed the merger of Indian banks to make them strong enough for supporting international trade. Since then, mergers/consolidations driven by the Government of India was on the radar. The pace of banking consolidation was languid and mergers were due to pressure from the regulator's side. The present study focuses on the consolidation of banks between 2000-2018.

### 1.2 BACKGROUND:

When this study was proposed in the year 2016, there were several views on bank mergers. SBI and its associates were merged and were struggling for stabilization. Besides, NPAs of nationalized banks were growing to new heights. Experts suggested that the Government needs to take immediate banking reforms including bank consolidation. Many economists suggested mergers of banks and reducing

the number of Government-owned banks in India. Another point of view was that for developing the Indian economy, banks should have a global presence for healthy infrastructural development.

Having this in mind, we came across the question of whether this consideration is as per economic theory and whether this applies to the Indian scenario. We proposed to test the consolidation of the banking industry during rapid growth, i.e., since 2000. During our study in 2018, the Govt. has declared the amalgamated entity as Bank of Baroda, merging two banks in it viz. Dena Bank and Vijaya Bank. When this study was at the concluding stage, the Govt. further announced mergers of nationalized banks. The highlights and expectations of the Govt announcement of the amalgamations of the banks are as below:

- Big banks with enhanced capacity to expand credit and bigger risk appetite has a national presence and global outreach.
- The Government is trying to create big next-generation banks.
- There is no cutback in staff strength post amalgamation of BOB, Vijaya and Dena Bank. The available staff strength is well managed and well placed in different departments.
- Best practices in each bank have been reproduced in other banks.
- Non-official directors to play the role of independent directors.
- Government intends not to give just investment but also good governance in the banks.
- There is no government interference in the commercial decisions of banks.
- Gross NPA level has come down heavily.
- Government monitoring large loans to avert frauds.
- Sanctioning and monitoring of loans are separated.
- Government taking steps to attain a target of \$5 trillion economies.

The topic of study is of national importance. Our study will be as follows:

#### **A. Indian Banking: An Overview:**

The banking sector is the mainstay of any country's monetized economy. The stage of development of this sector is a reflection of the advancement of the economy.

The Indian banking industry is mainly governed by the Banking Regulation Act of India, 1949. Since then, it has undergone many remarkable reforms. In 1969, the first phase of reforms began with the nationalization of 14 banks. During this time priority sectors were identified and given the necessary banking support. The second phase took place in 1980 with the nationalization of six more banks. Further, the introduction of the private sector was a breakthrough in the banking industry in the early 1990s and eight new banks entered the market with a new wave of professionalism. During this time, the concept of debit and credit cards, e-transfer of funds, and ATMs were introduced in India.

At this modern age; banking as of now is playing very vital role in the development of the economy.

**a. Recent announcement by the Government of India regarding bank consolidation:**

To protect the public interest, the problematic bank which was the small size and weak banks have been amalgamated/consolidated into Govt. owned banks. Hence the Govt. has selected consolidation as a strategy to restructure and reorganize the banking sector. Though this looks like a voluntary merger but it is at the instruction of the Govt and hence may be termed a forced merger.

Following is the list of recent mergers:

- The Consolidation of SBI Associates with State Bank of India (SBI).

In 2016-17, the Government of India approved the proposal for the consolidation of the SBI which included the following banks:

- (i) State Bank of Bikaner & Jaipur (SBBJ)
- (ii) State Bank of Hyderabad (SBH)
- (iii) State Bank of Mysore (SBM)
- (iv) State Bank of Patiala (SBP)
- (v) State Bank of Travancore (SBT)

- The consolidation of Bhartiya Mahila Bank (BMB) with SBI.

This merger between the banks came into effect on April 1, 2017.

-The Amalgamation/consolidation of Dena Bank and Vijaya Bank under the umbrella of Bank of Baroda (BOB).

This amalgamation came into effect on April 1, 2019.

-Amalgamation/consolidation of various public sector banks which came into effect from April 1, 2020.

### **Consolidation: A Global Phenomenon:**

For corporate re-organization, strengthening, and restructuring of the industries, M&As have played a major significant role. Similarly, the banking industry has also experienced consolidation of the banks which resulted in a big size of banks and financial institutions. The driving force for such mergers is intense competition in the industry, focusing on economies of scale, cost-efficiency, and profitability. 'Too big to fail' is another such factor behind the merger of banks. In many developed nations, weak banks were forcefully merged to evade financial distress from bad loans and capital funds erosions.

Berger *et al.* (1999) examined studies related to merger-related gains in banking. They have suggested the following approaches:

1. To evaluate the long-term performance resulting from mergers. Performances will be assessed from the financial information such as return on assets, operating costs, and efficiency ratios. The reason behind this analysis was that improved performance is expected post-merger if the change in accounting-based performance is significantly more prominent than the changes in the performance of sizable contemporary banks.
2. Analysis of merger gains in the performance of the bidder's stock price and target firms during the merger announcement. If the bidder's combined stock value and target banks increase after the merger announcement, the merger is assumed to affect stock value.

### **1.3 CONCEPT:**

Consolidation refers to the association of smaller firms into a larger entity through mergers and acquisitions (M&As). This section deals with the definition of merger and acquisition, and different types of mergers and consolidations. Further, in this

section, we discuss the need for M&A and its current trend in the finance sector. Lastly, the objectives and outline of the study are listed.

### ***1.3.1 Definitions:***

#### **MERGERS AND ACQUISITIONS:**

In general, mergers and acquisitions are often used interchangeably. Furthermore, a layman views them as the same. However, there are specific points to determine whether a particular activity is a merger or an acquisition. Two institutions with different corporate personalities, cultures, and value systems are brought together (Sudarsanam, 2003). A merger is when two corporations combine and share their resources to achieve a common objective and combine to form a third entity. The newly formed institution will have a joint owner (Sudarsanam, 1997).

An acquisition is an activity where a company takes control of ownership of another firm, a legal subsidiary, or specific properties of another firm. It may also involve purchasing another firm's properties or stock (Donald M. DePamphilis, 2010).

The takeover is a broader term and is often used to describe activities similar to acquisition. However, it could be either pleasant or may be against the targeted companies' will (Gaughan 2007).

#### **CONSOLIDATION:**

The term consolidate originates from the Latin *consolidates* which means "to combine into one body".

Consolidation of a bank is the process by which one banking company takes over or merges with another. This convergence leads to a potential expansion for the consolidating banking institution.

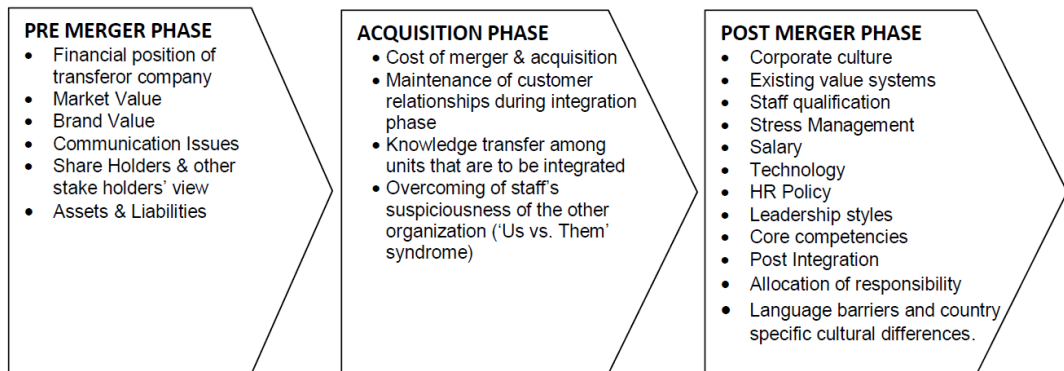
To consolidate is to combine the assets, liabilities, and other financial items of two or more entities into one. Henceforth, mergers and consolidation are used with the same meaning.

Sometimes, mergers, acquisitions, takeovers, consolidation, and amalgamation are used interchangeably.

## PHASES OF MERGERS & ACQUISITIONS:

A merger can be in the following stages:

**Figure 1: Various Phases of Mergers & Acquisitions**



### 1.3.2 TYPES OF MERGERS & ACQUISITIONS:

Mergers are typically classified as the following:

- a. Horizontal
- b. Vertical
- c. Conglomerate
- d. Financial Acquisitions

They differ in their effects on corporate performances and characteristics.

#### a) HORIZONTAL MERGERS:

When mergers of corporations in similar or related products occur, they are termed horizontal mergers. Horizontal mergers gain market share due to the elimination of a competitor and concentration in the industry (Milford Green, 1990). Horizontal mergers are governed by strict laws and rules to ensure fair competition, limit concentration and misuse of power by monopolies.

Additionally, horizontal mergers are used to protect the control of existing firms. The efficiency and economies of scale of the acquiring entity were enhanced due to horizontal mergers (Lipczynski and Wilson, 2004).

Lufthansa with Swiss International, and Air France with KLM are international examples of horizontal mergers in the airline market. (Lucey et al., 2008).

Horizontal mergers have been the most basic and prevalent form of mergers in India. Like the studies of Das (2000) and Beena, P. L. (2004), numerous other studies have shown that post-1991 or post-liberalization more than half of mergers

have been of the horizontal type (Mehta, 2006). Many big horizontal mergers such as Birla – L&T cement merger have been seen in recent times. The aviation industry has also witnessed several such mergers: the consolidation of Kingfisher– Air Deccan airline and Jet Airways' merger – with Air Sahara. The Tata Cellular – Birla AT&T telecommunications and Vodafone with Idea were horizontal mergers in the telecommunication sector.

#### **b) VERTICAL MERGERS:**

It is the coming together of firms at different levels of the same service. Their primary objective is to ensure a continuous source of supply (Babu G.R., 2005).

In this type of merger, the manufacturer and distributor form a partnership. The main advantage here is that they make it difficult for competing companies to survive. The distributor need not give different prices to the supplier as they are now a part of the same firm. We suggest that such increased synergies make the business profitable and decrease rivalry.

Some of the examples of vertical mergers as provided by (Geddes, 2006) are:

- Acquisition of automobile dealers by manufacturers like Ford and Vauxhall and Ford's acquisition of Hertz.
- The merger of Flag Telecom by Reliance Communications.

#### **c) CONGLOMERATE MERGERS:**

It usually occurs between two firms that are unrelated by value chain or peer competition. Conglomerates are formed with the notion that one central organization would have the knowledge and capability to allocate financial capital and run the businesses better than the independent functionary of the unit (Bruner, RF et al., 2004).

The primary purpose of a conglomerate is diversification of risk because profitable players balance out the poorly performing subsidiaries of the group (Coyle, B, 2000).

Conglomerate mergers can also be mergers between two non-competitors that do not have a buyer-seller relationship. While a few companies like General Electric (GE) have been successful, most others have failed ( Gaughan, P.A. 2007).

#### **d) FINANCIAL ACQUISITIONS:**

They are not common and driven by the corporate logic of transactions. They are either management buyouts (MBOs) or leveraged buyouts (LBOs) (H. Ross Geddes, 2006).

#### **1.4. MOTIVES FOR MERGERS/CONSOLIDATION:**

Many factors like economy, political situation of the state, changing legal, and social environments of the country etc. impacts the mergers (Kaushal, VK 1995). There are two typical reasons derived from mergers and acquisitions, i.e., efficiency gain and strategic rationale as mentioned by Neary. (2004). Efficiency gain means that a merger would result in benefits in the form of economies of scale and scope.

The financial system of scale and scope is achieved by incorporating both the firms' volumes and efficiencies together. Further, the strategic justification is derived from the point that M&A changes the combined entity's structure which positively impacts a firm's profits.

#### **1.5 TRENDS IN BANK MERGERS/CONSOLIDATION:**

It is common knowledge that banking is going through a process of restructuring, mainly driven by pervasive trends such as deregulation, disintermediation, technological progress, innovation, and severe competition. The banking sector is an essential area in which M&As show financial gains. Consolidation of operation is an efficient approach for reasonable cost benefits.

M&A in banks is contemplated with the following intentions:

- a. Development.
- b. Upgrade and incorporate new technology.
- c. A loss-making bank merged with a healthy bank for revival.
- d. Merger of one healthy bank with another healthy bank which becomes financially more robust to meet competitive pressures.
- e. Growth in profits.
- f. Increase in market share.



Banks allocate resources and control core procedures by effectively managing their staff, services, expenditures, sources, and uses of funds while maximizing assets and total revenue.

M&A is not new to the Indian banking sector. Between 1961 and 2004, 71 mergers were formalized among various public and private banks in India. Financial sector reforms commenced in 1993-94 through which financial institutions, especially banks, underwent the transformational process on a large scale. They evinced interest in enlarging their operations and widening their network operations by imbibing ICT principles and techniques.

### **1.6 IMPACT OF MERGERS/CONSOLIDATION:**

Several studies (like Berger et al., (1999); Krishanmurti et al., (2008); Dealogic, (2010)); have evaluated two essential issues concerning bank mergers:

1. Impact of consolidation on operating performance and bank efficiency.
2. Assessment of the impact of mergers on the market value of bidder banks.

It was assumed that consolidation improves the operating performance of merged banks. Earlier, Cornett et al. (1992) and Spindt et al. (1992) provided evidence for an improvement in post-merger operational performance. However, the studies of Berger et al. (1992), Piloff et al. (1996), and Berger et al. (1997) do not find conclusive evidence in post-merger operating performance. Berger and Humphrey (1994) show that most studies of pre-and post-merger financial ratios reported no impact on operating cost and profit ratios.

Financial ratios could be misleading performance indicators because they do not control product mix or input prices. Instead, they may confuse scale and scope efficiency gains. Most US-based studies found potential for cost efficiency benefits from bank mergers (Berger and Humphrey, 1994).

Some studies have explored the possible advantages and scale economies of mergers. Landerman (2000) evaluates the benefits of bank and nonbank mergers for potential diversification. Simulated mergers between US banks and non-banks show less probability of bankruptcy due to mergers of insurance businesses and brokerage firms. Wheelock et al. (2004) found a positive correlation of management rating, size, competitive position, banks' geographical location, and a

negative correlation of market concentration in case of banks merger in USA. Gains from mergers are expected from cost savings owing to economies of scale and scope. Berger and Humphrey (1994) concluded that in USA, small banks have the scale of economies and efficiency gains.

Based on the literature, Berger et al. (1994); Landerman (2000); and Wheelock and Wilson (2004); concluded that there are fewer synergies of products and have impacts on stock price performance after the merger announcement. A merger is supposed to create value if the bidder's combined value and target bank improve on the merger announcement.

Pilloff et al. (1996) correctly reported the positive relationship between merger activity and profits in either performance or stockholder capital. Nevertheless, many studies (Baradwaj et al., 1990, Cornett and Tehranian, 1992, Hannan and Wolkan, 1989, Hawawani and Swary, 1990, Neely, 1987) reported a positive reaction in the stock prices of target banks and adverse reaction in the stock prices of bidding banks to merger announcements.

A study on the impact of forced bank mergers on the shareholders' wealth of Malaysian banks shows that unlike the findings on voluntary mergers and acquisitions, the forced merger scheme destroys economic value in aggregate and the acquiring banks tend to gain at the expense of the target banks (Chong et al., 2006). A study of mergers of Malaysian banks illustrates that forced mergers have destroyed the wealth of acquired banks (Chong et al., 2006).

Whenever a merger is supported by equity, it may be inferred as the overvaluation of the issuer. Therefore, the adverse announcement of returns to the bidding bank could be partly attributable to a negative indication not related to the value conceived by the merger (Houston et al., 2001). Returns to bidder banks' shareholders are better in bank mergers financed with cash than mergers financed with stock (Houston et al., 1997). The other shortcoming of abnormal returns is that shareholders and stock market analysts anticipate mergers if a consolidation wave is going on. The financial media and analysts emphasize prospective contenders for mergers. In such instances, event study analysis of abnormal returns may not capture positive gains associated with mergers.

In sum, international evidence does not provide strong evidence of merger benefits in the banking industry. However, academic findings usually conflict with

consultant studies that typically forecast considerable cost savings from mergers. A study by Berger et al. (1994) suggested various reasons for failure to cost gain from mergers like experience scale economies, limited potential for scope and product mix economies.

Academic studies encourage the examination of critical concerns relating to mergers in Indian banking. Do mergers in Indian banking enhance the operational performance and efficiency of banks? However, banks were monitored by the Reserve Bank of India. Most of the weaker banks are merged with big banks to avoid financial distress and protect depositors' interests. Hence, the rationale behind mergers may not be an increase in both the banks' operating performance and efficiency but to prevent financial distress of weak financial institutes. The literature also suggested abnormal returns of bidder and target banks on merger announcements by examining the stock price data. To sum up, there are many ways to assess the financial performance of bank consolidation such as the CAMELS model, DE Approach (DEA), and financial ratio analysis.

### **1.7 AIMS AND OBJECTIVES:**

- To compare trends in pre-and post-consolidation resulting in the financial performance of the selected banks based on the financial ratio analysis.
- To evaluate the impact of the consolidation of banks on their financial performance with the help of the CAMEL model.
- To assess the change in X efficiencies of consolidated banks based on the DEA model.
- To provide indicative recommendations taken in to account while designing banking consolidations.

### **1.8 SCOPE OF THE STUDY:**

The world is in a state of flux owing to globalization and technological changes, and consequently, firms face intense competition. To meet the challenges and discover the opportunities, firms are going in for strategic alternatives such as M&As, consolidation, strategic alliances, joint ventures, etc. M&A is the most popular strategy among firms that seek to establish a competitive advantage over

their rivals. There are reasons for them choosing M&As. The latter is the standard not only in developed countries but also in developing countries. In India's pre-liberalization period, the phenomenon was recorded and an upsurge in the wake of liberalization measures resulted in decreasing the government controls, regulations, and restrictions on the corporate houses which witnessed the freedom to expand, diversify and modernize the operations by resorting to mergers, takeovers, etc. With growing competition and the economy heading towards globalization, M&A is expected to take place on a much larger scale than in the earlier period. They have played a significant role in achieving a competitive advantage in the dynamic market environment. While financial and communication services were leading in the M&A, there were many deals in the banking industry.

Also, with the distress in the weak bank, the regulator has to merge/amalgamate them into strong banks to save the stakeholders' interest. After Liberalization, most of the economic activities surged during the recent period i.e., 2000. Hence our study is limited to the period 2000 to 2018. The Banks selected for the study includes the consolidations between private-to-private banks, private to public sector banks, few cooperative banks, and public sector banks, so as to get uniform samples for the study.

### **1.9 SIGNIFICANCE OF THE STUDY:**

In recent times, economic liberalization has created a sense of urgency among financial institutions resulting in examining the effect of corporate restructuring and changing initiatives on organizational performances. As a result, many studies on M&A/consolidation have been undertaken worldwide. As against this global scenario, in India, the existing literature on the M&A among merged banks reveals a lack of empirical research concerning the impact on the banking companies both on a long-term and short-term basis by using event study methodology. Furthermore, the study focuses on banks' financial performance by applying different models thereby analyses the merged/consolidated banks in India. It has not been done extensively before, which will throw light on Bank's consolidation and show further paths.

### **1.10 OUTLINE OF THE STUDY:**

The study aims at analyzing the efficiency of the consolidation of banks on various parameters. It is divided into four sections.

Section I, under Chapters 1 & 2 introduce the concept of consolidation and reviews it in the national and global context. Section II, under Chapter 3 describes the research methodology adopted along with a list of the banks under study and various analytical tools. Section III, under Chapter 4 gives an overview of the profiles of banks and analyses the financial parameters of the merged entity. Chapter 5 is on CAMEL model analysis of the selected banks and Chapter 6 reviews the banks' performances based on the DEA Model. In section IV, the Last part of the study (Chapter 7) concludes the research with a discussion and conclusion.

The next chapter reviews the literature on consolidation globally in general and India in particular.

## **CHAPTER - 2**

### **REVIEW OF LITERATURE**

*"The reader who has got as far as the preface and is put off by that has paid money for the book and wants to know how he is to be compensated. My last refuge now is to remind him that he knows of various ways of using a book without precisely reading it."*

**Arthur Schopenhauer**

The literature review covers both the global and domestic scenarios. The first section provides the literature on evaluating the post-merger performance of selected commercial bank mergers. The second section reviews the post-merger efficiency evaluation of commercial banks. The last section provides a review of the marketing implications of commercial bank mergers concerning India.

#### **2.1 INTRODUCTION:**

Worldwide, one of the most remarkable developments affecting the banking industry over the past two decades has been an unprecedented extent of merger and acquisition (M&A). A similar trend toward bank consolidation was observed in India after the post-reform period, i.e., the 1990s.

As for the consolidation process, the two banking firms are complex and it requires a great deal of time and effort from both sides. The business, legal aspects, operational, organizational, accounting, and tax issues need to be addressed if the merger and acquisition (M&A) are successfully processed.

Secondly, M&A strategies are essential to derive the maximum benefit out of a merger or acquisition deal. It is challenging to decide on M &A strategies, especially for those going to make the deal for the first time. The M&A procedure can be viewed as having three broad phases:

- Strategy phase
- Negotiation and investigation phase
- Finalization and integration phase

Many empirical studies have been dedicated to studying the impact of bank consolidation on bank performance in the USA and EU. Still, limited evidence is

available for the Indian subcontinent. This section discusses the studies related to bank consolidation.

## **2.2 LITERATURE RELATED TO MERGERS & ACQUISITION/ CONSOLIDATION WITH SPECIAL REFERENCE TO BANKING:**

M&A is one of the major debated topics from the perspective of finance or strategy. M&A, as a method for faster growth and enhanced market share, among other factors, has been researched extensively across the globe over the past two decades. One interesting question that engages the attention of any researcher is "Does M&A Pay"? To evaluate their success, financial economists have utilized several measures. Studies of post-merger performance generally follow either of the two approaches.

- i) Change in the price of the firm at the time of the announcement.
- ii) Accounting-based studies look at the change over time (usually one to five years) in revenues, operating cash flows, margins, or productivity.

Both approaches have their strengths and limitations. In the former method, the analysis assumes that the acquisition is unanticipated by investors and efficient market hypothesis (EMH) holds good. The aggregate returns to the acquisition belittle its real impact to the extent that it is partially anticipated. Researchers control this by extending the event window chosen for measuring the returns over several days before the acquisition announcement. The empirical data finds that the announcement returns do convey information about the acquisition's subsequent success. Kaplan and Weisbach (1992) in their study on the success of acquisitions during the period 1971 to 1982, found that the combined acquisition announcement returns significantly positively related to the success of the acquisitions.

This method, widely known as event studies, has used market-based measures to capture gains from synergy which will impact the valuation of the combined firm. According to these studies, the value created by mergers and acquisitions is reflected in the stock prices (Singh and Montgomery, 1987). But there are commentaries on whether announcement returns are meaningful. The fact is there are noises in the announcement returns and the information which the acquisition announcement itself may not wholly reflect the value of the acquisition. It is a

practical question as to whether the noise and other information are big enough to mask the consolidation itself (Kaplan, 2006). The empirical research suggests that the target firm's shareholders enjoy returns that are significantly and substantially positive. Still, when it comes to acquiring firms, the conclusion is that in the aggregate, abnormal (or market-adjusted) returns to shareholders from M&A activity are virtually zero (Bruner,2004). Asquith et al. (1983) reported that the results are consistent with the size; the larger the size, the more the gain. The practical implication of the latter is lost in the noise due to smaller deals which account for a significant portion of M&A.

On the other hand, accounting-based studies use information from financial statements and compare the pre-merger and post-merger performance of firms to evaluate whether the M&A resulted in changes in reported costs or profits (Ravenscraft and Scherer, 1987; Healey et al.; Pawaskar, 2001). Geoffery Meeks (1977) investigated the merger gains for a sample of transactions (233 observations) in the UK between 1964 and 1971. His findings indicate a drop in return on assets (ROA) for acquirers following the transaction with performance touching the lowest point in five years. For nearly two-thirds of acquirers, the performance was below the industry standard and the mergers in his sample suffered "a mild decrease in profitability" (Robert F. Bruner). Ravenscraft and Scherer (1987) studied more than 400 acquisitions between the years 1950 and 1977. Their finding is that profitability is 1 to 2 percent significantly lesser for acquirers than for controlled firms. Healey et al. (1992) studied the post-acquisition accounting data for the 50 largest US mergers during the 1980s. They found that the announcement returns based on the merging firms' stock price changes are significantly associated with an enhancement in post-merger operating performance, indicating that expected gains drive the share prices at the announcement. They also found significant increases in asset productivity for these firms following the acquisition. Sharma and Ho (2002) examined the impact of M&A on Australian firms' operating performance by employing a sample size of 36 Australian M&As occurring between 1986 and 1991. Results indicated that corporate acquisitions did not result in significant improvements in post-acquisition operating performance.



While Andrade, Mitchell, and Stafford (2001) found improvements in accounting performance post-merger, Kaplan et al. (1992) and Makismovic et al. (2001) discovered mixed results and Ravenscraft and Scherer (1987) found negative results (US samples). To sum up, unlike announcement results, there is no clear-cut evidence that acquisitions lead to accounting-based or productivity-based improvements. (Steven N Kaplan, 2002). Many theories elucidate the plausible reasons for the poor performance of merged entities – executives' desire to head a vast empire leading to ego-based decision making and consequent increase in the amount paid as purchase price, low productivity, poor quality, voluntary turnover, and related costs and untapped potential (Buono, 2003).

### **2.3.1 GLOBAL CONTEXT:**

A correct business combination is a vital part of doing business in a free-market economy and is deeply embedded in the world's business strategy. Such combinations include many restructuring forms, corporate mergers, and acquisitions, within both intra-national and international boundaries. In the USA, intense M&A activity was observed in the early 1990s. After the 1990 recession, it rebounded sharply. During this period, these mergers were driven by strategic considerations and used less debt than in the 1980s. The economic environment, which was favourable with exciting stock markets and relatively minimal interest rates facilitated the revival of M&A in the USA. Thomson Financials' data reveal that the global M&A jumped by 30% from 2000 to 2006 to hit a \$3.7 trillion record from \$3.4 trillion US dollars. The USA, which accounted for over 40% of global M&A, was the most targeted country for acquisitions. The UK was one of the most targeted European countries for acquisitions, accounting for more than \$300 billion in cross-border and domestic transactions.

Data from a deal tracking firm 'Dealogic' shows that Europe had overtaken the USA as the most targeted region, accounting for more than \$1trillion of the total deal value. Demographics mainly triggered such a rise in consolidation and economic changes leading to the overall corporate restructuring activity in Europe. During 2006 crucial factors for the global surge in M&A was the cash surplus of private equity corporations (PEs) and public companies. Similarly, in 2007, again a record year for global M&A volumes, touched a figure of over \$4.4 trillion

(Thomson Financials) and \$4.7 trillion (Dealogic). M&A volumes in Europe were higher than in the USA: \$1.78 trillion vs \$1.57 trillion. They are attributed to the lag in the European region being affected by the credit markets.

### **2.3.2 GLOBAL FINANCIAL CRISIS:**

The global financial crisis pushed many nations into a severe recession and affected their business outlook. The worldwide economy plunged into recession in the latter half of 2008. This recession deepened in early 2009, as global trade contracted sharply, investment slashed and consumer demand faded. This nine-month period coincided with the steepest decline in the global economy in the post-war era which observed banking crises in many mature economies including the USA. Credit squeeze, substantial home price corrections, and extraordinary collapse in fixed investments were some of them. The recession slowed down due to massive financial incentive measures taken by the governments and world financial bodies. However, the recovery was sluggish and patchy (The Great Thornton International Business Report/ IBR, 2009).

Mike Hughes (global leader of mergers and acquisitions for Grant Thornton International) attributed the large-scale reduction in transaction volumes to the tight lending policies displaying confidence that these turbulent times could also provide attractive prospects to cash-rich/well-capitalized industries to register enhancement in their development by acquiring ailing but fundamentally sound competitors. Further, he suggested that a year after the recession will likely be a buyer's market offering opportunities to make strategic M&A at attractive assessments (Mergers and acquisitions release, 2009-Thornton). M&A gained traction globally in the last quarter of 2009, witnessing a growth of 46% to \$739.6 billion. (*Business Standard*, 20th March 2010). It was a resurgence of M&A.

According to Dealogic (2010), some critical factors for the heightened M&A activity were:

- The surplus of cash by private equity (PE) firms and public companies,
- Interest rates that dropped to their historic lows, and
- Keeness of banks to finance M&A deals.

During the post-1991 period, the Indian economy experienced a major structural transformation after the economic reforms which unleashed liberalization,

privatization, and globalization, and brought a change in the traditional Indian business mindset. This process creates an opportunity in terms of inorganic growth both within and internationally. In this backdrop, M&A presented a practicable alternative for the businesses aspiring to multiply and gain sustainable competitive advantage by realizing the profits of scale and scope economies and fast-changing technologies for effectively facing intensifying domestic and international competition. Many corporate sectors embarked upon restructuring activities like M&As, joint ventures, and divestitures. Some of the leading industry sectors influenced were drugs, cement, steel, telecom, media and entertainment, and banking. Significant changes occurred after 2002 in the corporate restructuring of Indian companies which created ventures into the developed markets through acquisitions and joint ventures (JVs). During this period, India also emerged as an attractive target for foreign direct investment (FDI) as the incoming acquisitions also gained momentum. These M&A activities in India were brought under the Companies Act, SEBI, and Competition Commission Act of India, 2002.

In 2009, M&A investments in India almost halved both in volume and value due to the global financial slowdown. According to Grant Thornton's report, the total value of M&A and PE deals announced in 2009 reached \$21.20 billion against \$41.54 billion in 2008. Total deals were nearly halved in 2009 (488 deals) compared with 2008 (766 deals). Also, the volume of domestic M&A fell to 142 from 172 in 2008. Outbound M&A decreased to 64 while inbound M&A reached 61. In terms of the value of deals, inbound deals dipped by nearly 75% to \$3.11 billion compared with \$12.55 billion in 2008. Some of the biggest deals were the Government of Russia's acquisition of a strategic stake in Sistema Shyam Telecom (\$676 million) and Daichi's acquisition of Ranbaxy Technologies (\$4.5 billion) was the largest inbound deal in 2008 and 2009 respectively. The value of outbound deals dropped to \$1.12 billion (\$13.19 billion) in 2009.

On the other hand, the top two outbound deals -Tata-Jaguar Land Rover and ONGC-Imperial accounted for almost 40% of the outbound deals in the year 2008. Top M&A deals occurred in the oil and gas sector, followed by telecom, pharmaceuticals, healthcare, and biotech, while in 2008 they were stretched across various sectors. Some of the cash-rich Indian companies such as Infosys

Technologies made new acquisitions both in India and internationally following a sharp decline in target firms' valuations.

According to the global M&A intelligence service, Merger market's report the overall improvement in both economic and business environment has resulted in a remarkable (166.5%) hike in the M&A deals (both inbound and outbound were nearly equal in volume terms at around \$25 billion) in the year 2010 as against 2009. The Telecom sector got the lion's share with 16 transactions of \$19.6 billion, while Bharti's acquisition of Zain Africa for \$10.7 billion contributed to the M&A pie in 2010 in a major way.

### **2.3.3 OTHER EMPIRICAL STUDIES ON POST-MERGER PERFORMANCE:**

The event, accounting, clinical studies, and executive surveys are widely used. Many academics have studied the post-merger performances of acquiring companies. However, no definite conclusion or consensus has been reached regarding the same.

From most of the studies conducted to date, it seems that mergers do not improve the acquirers' financial performance. Event and accounting studies suggested that these gains are either small or non-existent (Kumar et al., 2009). However, studies show that post-merger performance mostly depends on the industry and should be generalized with caution (Mantravadi & Reddy, 2007).

### **2.3.4 EVENT STUDIES:**

They measure the atypical returns to the shareholders during the time of the merger announcement. This abnormal return is fundamentally the difference between the raw returns, change in share prices, and benchmark indexes such as CAPM or S&P 500, etc. (Krishanmurti et al., 2008). Performances of the stocks of acquiring companies have been below expectations. Moreover, these stock returns tend to fluctuate over the time studied. Data from studies of one-year returns post-merger by Jensen (1986) showed that returns averaged -5.5%. More extensive time frame studies by Magenheim & Mueller (1987) concluded that 3-year post-merger studies showed a negative 16% return (Peck, Temple, 2002).

It may also be noted that acquiring companies' share returns tend to be reasonably positive before the merger announcement. However, on the announcement the returns are varied. In general, on the announcement of the merger, the acquiring company's shares drop and this may remain for a few years together (Mussati, 1995).

Studies on short-term performance suggest that almost always, the target shareholders are in the winner's position. From studies on the performance of acquiring and target shareholders, it has been observed that for three days traversing from one day before one day post the announcement, the share performance of the target companies inclines to show positive returns consistently across decades as compared with the acquiring companies (Andrade et al., 2001). Outcome results may also differ by the qualities of the acquiring firms and financing mode of transaction. Loughran et al. (1997) showed that cash-financed mergers perform better than stock-financed ones. And the value of the acquirers outperforms the glamour (termed as important and high valued) ones (Rau and Vermaelen et al. 1998).

### **2.3.5 ACCOUNTING STUDIES:**

They involve studying financial statements and ratios to compare the acquiring company's pre-merger and post-merger financial performance. It is also used to study acquirers' performance versus non-acquirers (Gaughan et al., 2007). Various financial ratios such as ROE, ROA, EPS, and liquidity are also studied.

There are several studies regarding the hypothesis that if a merger helps enhance the acquiring firm's operating performance, it is unclear. Still, most of the results conclude that mergers may not benefit from improving the acquiring company's operating performance. An investigation into the impact of mergers on UK companies showed that in the long run profitability reduces drastically below the pre-merger levels, sometimes to the extent of 50% (Meeks et al., 1977). Similarly, a study by Ravenscraft et al. (1987) of US companies also pointed to the same result, wherein the profitability post-merger declined or at best showed marginal improvements. Their cross-sectional study of UK companies concluded that acquisitions harm company performance and lead to an additional and permanent reduction in profitability (Dickerson et al. 1997). Similarly, research conducted on

Indian companies from 1999-to 2002 showed no real signs of the acquiring company's better post-merger operating performance. (Kumar et al., 2009).

### **2.3.6 EXECUTIVE SURVEYS:**

This method is a primary source of information collection whereby the managers were asked about the merger's success or otherwise. Standardized questionnaires were given managers were asked to respond to them, and views are generalized from these interviews (Bruner, 2004). Often the views of the management and top executives were not given anticipated importance. However, the practitioners' views are equally important to supplement the extensive sample scientific studies (Bruner, 2001).

In a study of 50 executives regarding the success of mergers, on average respondents said that 37% of deals produced value for the buyers and 21% achieved the buyer's strategic goals (Bruner, 2001).

Alternatively, a study conducted by Ingham et al. (1992) said that 77% of the 146 CEOs believed that there was an increase in the short-term profitability after the merger and 68% said that the profitability increased in the long term.

This study suggested that one's frame of reference has a significant impact on the responses. Due to better knowledge, executive opinions are more positive in mergers where the particular executive is involved (Bruner, 2001).

### **2.3.7 CLINICAL STUDIES:**

A single case or a small sample is studied in-depth and insights are derived from field interviews with top executives and knowledgeable observers. This is an inductive type of research whereby researchers often induce new insights (Bruner, 2004). The purpose of such studies is to fill in the gaps left by the earlier studies of the stock returns and accounting performances (Jensen, 1986).

Research studies over the years have uncovered the truths about the success or failures of mergers. ATT and NCR study revealed that the failure was a result of the main factors:

1. Inconsistent top executive objectives along with boosting shareholders' profits,
2. Managerial overconfidence.

Similarly, M&A of automobile firms such as Renault with Volvo failed due to disbelief in merger synergies and complete control of Renault (Bruner, 2001). These are examples of how empirical studies often help to unmask the truths behind the failure of mergers.

### **2.3.8 GLOBAL EVIDENCE: TO EVALUATE THE IMPACT OF M&A IN THE BANKING SECTOR:**

The empirical studies employed the accounting data to evaluate the cost efficiencies and analyze the benefits of the consolidation/merger. Berger et al. (1992) evaluated the M&A during the 1980s involving banks with a minimum asset size of \$ 1 billion. They observed using a frontier methodology that bank mergers led to no significant gains in X-efficiency. They also analyzed the return on assets (ROA) and total costs to assets and reached similar conclusions. Akhavein, Berger, and Humphrey (1997) analyzed profitability changes using the same data set based on ROA and ROE rates, and no significant difference was found in these ratios following consolidation. A study by Srinivasan et al. (1992) examined bank mergers from 1982 to 1986. It revealed that non-interest expenses were not reduced in the post-merger scenario.

In this context, the work done by Rhoades et al. (1994) is noteworthy. Their findings of the functional performance studies (19 bank mergers) were generally consistent with the existing performance of the banks before the merger. No improvement in profitability following bank mergers was found. The findings were vital both within and across the studies and over time. The study also pointed out that on-balance evidence from event studies (taking a sample of 21 bank mergers) did not support the hypothesis that the financial market expected mergers to improve bank performance. This may be due to gains in efficiency or other factors. According to this research, the effects of bank mergers can be better assessed from operating performance methodology than the event study. Therefore, findings of these studies indicate that merger/consolidation of banks not necessarily gains in efficiency or general operational performance.

The only major study of the European market in this regard is by Cybo-Ottone and Murgia (1996). They analyzed 26 mergers of European financial services firms

(not just banks) from 1988 to 1995 in thirteen European banking markets. The results were similar to those obtained in respect of American banks. Average abnormal returns of targets were positive and statistically significant, and those of acquirers were mostly zero. Cybo-Ottone and Murgia (2000) analyzed 54 mergers and acquisitions covering 13 European banking markets from 1988 to 1997. They found a significant increase in bidder and target banks' share value when the deals were announced. Houston et al. (2001) in their study of 64 significant bank acquisitions for the period 1985-1996 found negative and significant cumulative abnormal returns to bidder banks in a 4-day window around the announcement date. The abnormal returns to target banking firms were also significant and sizeable (20.80%). Another study by Pilloff (1996) combined both approaches to investigate a sample of 48 mergers of public banks that merged between 1982 and 1991. This study was an improvement over similar studies carried out by Cornett and Tehranian (1992). The results by Pilloff were in line with the bulk of the merger literature. On average, Pilloff did not find any significant change in performance induced by mergers, suggesting that managers could not create benefits from such deals. He also observed that the overall mean change in shareholder value is relatively small.

#### **2.4.1 INDIAN CONTEXT:**

In the area of M&As, studies in India are relatively few and they are mostly case-based analyses. Pawaskar (2001) observed no substantial differences in the merging firms' financial characteristics when pre-and post-merger performance was compared. Kaur, S (2002) analyzed the impact of mergers in India, taking a sample of 20 firms, and found that ROCE and Asset turnover ratios declined in the post-merger period. However, the decline was not statistically significant. Beena (2004) studied the performance of 84 domestic acquiring firms and 31 foreign-owned acquiring firms in India's manufacturing sector between 1995 and 2000, and could not find any significant difference in acquiring companies selected financial ratios. Mantravadi and Reddy et al. (2007) explored the impact of mergers on the operating performance, taking a sample of public and traded companies in India covering the period from 1991 to 2003. Their findings show minor variations in terms of impact on operating performance following mergers in different time



intervals. Rajkumar (2009) observed that on average M&As induced changes in industry-adjusted profitability; asset efficiency and statistically insignificant solvency position.

#### **2.4.2 INDIAN CONTEXT: STUDIES TO EVALUATE THE EFFECT OF M&AS IN THE BANKING SECTOR:**

Khanna (1999) studied the impact of financial reforms on India's financial sector and observed that the banking industry reforms had failed to achieve their primary goal of making this sector more efficient. The Verma Committee (2000), which went in-depth into the problems of weak banks, identified the problems and suggested a strategic plan of financial, organizational, and operational restructuring for them, recommending, among other things, recapitalization. Singh (2001) tried to assess the impact of reforms on the commercial banks' operational performance and efficiency using ratio analysis. His findings suggested that total income as a percentage of working funds and total assets and spread as a percentage of total advances/total deposits improved in the post-reform period compared with the pre-reform period. Bhide et al. (2002) observed a commendable improvement in the public sector banking system's profitability as indicated by operating and net profits.

G-10 report (2001) on bank mergers is more contextual here.

"Mergers and Acquisitions do not significantly improve cost and profit efficiency, and on average, do not generate significant shareholder value. This report suggested exploiting scale economies in retail banking up to a certain size. Economics of scope are harder to find; there is no clear-cut evidence of their existence" (T.T. Ram Mohan).

Mohan et al. (2005) published in their research paper in *Economic and Political Weekly*: Mergers may not always result in improvements in cost efficiency; Not least mergers do not, overall, enhance shareholder value: the target firm benefits but not the acquiring firm, resulting in a zero or negative-sum game. Size is not a hindrance to Indian banks while competing with foreign banks in India; even big mergers will not enable public sector banks (PSBs) to compete in the international marketplace in the foreseeable future. Besides, there is no apparent correlation between the sizes of PSBs and their performance. Often mergers result in gains

were not related to enhanced size but because of diversification benefits. As PSBs have diversified portfolios, additional gains from the merger might not be significant.

Singh et al. (2008) analyzed five mergers (all private sector banks) in the Indian banking sector to describe the returns to shareholders following merger announcements employing the event study methodology. They observed that the bank merger's announcements in the Indian banking industry had a positive and significant shareholder capital effect both for bidder and target banks. To summarise, most studies failed to observe a positive association between merger activity and gains in either operating performance or stockholder capital across a wide variety of methodologies samples.

Most studies in the Indian banking industry evaluating the post-merger performance have employed the case method. Further, some studies using event study methodology have chosen small samples which may not permit broad generalization of conclusions. A few researchers have also adopted the Data Envelopment Analysis (DEA), and Stochastic Frontier Analysis (SFA) approaches. While the DEA approach has been explored in greater detail in the subsequent pages, there have not been many studies encompassing a comprehensive analysis of the Indian banking industry's post-merger performance spread over a significant portion of the post-reform period (1994-2009). The present study is an effort to cover this gap. It attempts a broader analysis of bank mergers in Indian banking employing different parameters that reflect the Indian banks' profitability and productivity.

### **2.5.1 CONCLUSIVE PIECES OF EVIDENCE RELATED TO THE STUDY:**

To comprehend the topic from a proper perspective, further review of the literature may be divided into two categories. The first category discusses the various case studies in bank mergers and their findings in the context of their marketing/customer implications. The second category examines academicians' research on service quality perceptions of consumers of banking services.

### **2.5.2 CASE STUDIES:**

During the Bank of America (BA) merger with Security Pacific, BA was well aware that competitors would belligerently pursue security Pacific's wholesale banking clients. It focused on client retention as the foremost objective during the integration stage completed rapidly. To this end, client-focused tactics were developed with three key objectives: maintaining service quality, control, and compliance standards; retaining business, and quickly amplifying cost savings (Foster, 1993). During Byron Bank's merger with Chemical Financial Corporation, the importance attached to customer retention was mentioned by Byron Bank President and CEO Pat Gill: During that time, executives will "do everything to avoid a disruption in the relationships with our customers" (Mark Sanchez, 2010). Bank of Madura's merger with ICICI Bank in 2001 is a good example of a successful merger in an altogether diverse community benefiting many consumers. ICICI Bank branches have expanded from seven in 2000-01 to around 270 in 2005-06, the maximum number of ICICI branches in any state accessing the southern markets (Ravi Kumar, 2007). According to Reichheld, three causative factors prompt people to choose a financial institution (FI): people & service, product & pricing; and location & convenience. A regular, systematic review of each of these will enhance customer retention prospects. (Morrall, 1996). A successful bank should address these basic expectations in service delivery to build long-lasting customer relationships.

### **2.5.3 EMPIRICAL RESEARCH:**

Practitioner literature regarding bank mergers also contains a few recommendations, some of which are based on case analyses. Therefore, the need arises for broad-based empirical research into customer perceptions of commercial banks in the wake of mergers. But this type of research did not appear in the academic literature in the Indian context.

### **2.5.4 ACADEMIC RESEARCH:**

Quality has been described as superiority or excellence, or as the consumer's overall impression of the company's relative inferiority or superiority and its services. (Zeithaml et al., 1990; Taylor et al., 1994). Quality is wanted by all

organizations, especially in the service sector and particularly in the banking sector (C. Spathis et al., 2002). Empirical evidence has indicated that service quality can be seen as one of the main determinants of customer satisfaction, affecting purchase intentions (Cronin and Taylor, 1992; Bloemer et al.; 1998). Accurate measurement of service quality is a subject of enthusiastic interest to researchers and bankers alike. It will enable them to formulate methods and techniques to achieve a competitive advantage and build customer relationships. (Zahoric and Rust, 1992). Perceived service quality is a type of attitude, a buyer's judgment of the service rendered decides overall excellence or superiority. It results from assessing consumers' expectations with their perceptions of the service delivered by the suppliers (Kagnis and Voukelatos, 1997). Expectations could be created from various sources which may broadly be categorized as personal or organizational. While the former refers to the individual needs and wishes (Edvardsson et al., 1994), the latter focuses on the promises by staff, advertising, other implicit service promises (such as price, image, and reputation, service encounters, and verbal and non-verbal conduct), evidence of service and distribution channels (Zeithmal and Britner, 1996).

There are numerous reasons for the banks to merge their operations. One of the reasons often cited in the literature is the realization of synergies: financial, operational, and managerial (Porter, 1985, 1998). The second reason is the increased earnings and market share. Merged banks may be in a higher position to compete globally. They may provide more products to their consumers at competitive prices because of economies of magnitude and scope. They may access information and proprietary technologies, achieve greater diversification, earnings stability, and tax benefits and even satisfy management's goals (Hubris) (Hawawani et al., 1990). M&A may also result in reduced operating expenses (Standard and Poors, 1997).

From the customers' viewpoint, bank mergers can result in customers receiving more services such as more loan limits, a greater number of branches, and more Automated Teller Machines (ATMs) (Turillo and Sullivan, 1987). *The American Economic Review* (Focarelli D. et al., 2003) has reported evidence that though consolidation generates adverse price changes, these are temporary. In the long term, efficiency gains lead to the market power effect, leading to more customer-

friendly bank services pricing. The merged bank can better serve the end-user by providing under one roof a variety of services such as conventional banking, merchant banking, mutual funds, and insurance products leading to innovation and the emergence of new products, including bank assurance (universal banking). Consumers complained vocally after service levels dropped with Wells Fargo's acquisition of Norwest in 2000 and during a series of M&A undertaken by Fleet Bank. (Knut Meyer, 2004). According to a survey done by Ethos Consultancy, customers in the UAE are happier with their banks' services than during the boom period. Customer retention is crucial in any post-merger acquisition. Still, in the current troubled banking environment, banks need to defend high-value customers' deposit balances at all costs where every dollar or euro counts.

In traditional bank mergers and acquisitions, customer attrition of 5-10% is usual, mostly driven by customers' dissatisfaction with the acquiring firm and branch consolidation or changes in services. However, this loss is usually compensated by cost reduction (K. Unnikrishnan, 2006). Today, after a merger, customer attrition can be anywhere from 10 to 20% owing to customer uneasiness about the solvency of the merging "troubled" banks and their deposits' security. High-value customers are likely to leave as they seek low-risk, top-quality institutions to place their significant assets. They can and will leave at the slightest hint of instability and stronger banks aggressively attract them.

A study of US bank mergers by Stephen Rhoades (economist at US Federal Reserve Board) suggested that service to customers did not improve due to mergers. Other US studies show that mergers led to increased fees, branch closures, and low-level customer service. (Canadian Community Reinvestment Coalition, 2006). Apart from the above, M&A has an impact on customer retention. According to Reichheld, there are few manageable measures that prompt customers to leave. They are mainly:

- a perception of exorbitant fees for services
- inadequate employee service
- low deposit interest rates payments
- service gaps

Customer retention can be improved with greater customer attention by the bank (Morrall, 1996).

### **2.5.5 INDIAN EVIDENCE:**

Singh et al. (1996) in their study of 36 banks, suggested that giving proper representation to the marketing function in their organizational structure, adopting a unified approach to marketing activities and provision of trained marketing workforce help make the marketing function useful in the management of banks.

Prabhakaran et al. (2003) studied the Indian banking sector's service attributes and concluded that a quality service is a winning approach in a highly competitive environment.

Uppal (2008) examines the customer experience of Indian banks' e-banking services in the context of banks moving towards e-banking from traditional banking. He concludes that a majority of the customers of e-banks are satisfied with different e-channels and their services. Still, a lack of knowledge about these facilities is impeding the spread of e-services. Singhal et al. (2008) identified the significant factors that contribute to customer perception of internet banking. They used an 18-point questionnaire out of which seven items were related to convenience and flexibility, and the remaining were related to transaction benefits. Their study revealed that utility requests, protection, and fund transfers prominently figured among the significant factors influencing customer perception. For researchers interested in researching the effect on parameters resulting from mergers and acquisitions, this empirical research would offer an essential benchmark for further studies. A cumulative result of such a study could be a working model for bank M&As with the theoretical and statistical appeals. To summarise, this study's central theme is to examine the relationship between various indicators and model characteristics in the consolidation of the Indian banking sector. It follows rationally from the gaps reported in the academic and practitioner literature reviews. It is expected to be an essential first step in filling the demonstrated research needs.

## CHAPTER - 3

### STUDY METHODOLOGY

*"The method of science is logical and rational; the method of the humanities is one of imagination, sympathetic understanding, indwelling" – Andrew Louth.*

In the previous chapter, we highlighted the reviews, literature search, and their finding in the Indian and global context of banks and other industry consolidations. It also provides a glimpse of various types of mergers and their relevance. In this section, we will visit the methods and materials used in the current research.

#### **3.1 INTRODUCTION:**

To investigate the financial data both parametric and non-parametric approaches are frequently used to assess bank efficiency. Parametric approaches, namely, Stochastic Frontier Analysis (SFA) or Thick Frontier Approach (TFA) are used. Among all parametric methods, SFA is commonly referred to as the econometric approach to measuring the efficiency of Decision-making units (DMU) (Aigner, Lovell and Schmid, 1977 Battese, and Corra, 1977). SFA uses an available form of revenue, expense, and production relationship among inputs, outputs, and environmental factors and allows for random error.

Further, this approach adds the problem of disintegration of the error term into noise and inefficiency. Contrary to the parametric approach, non-parametric methods require few assumptions about the estimated frontier and do not assume a specific functional form to represent the cost and production functions. In a non-parametric approach, Data Envelopment Analysis (DEA) is used extensively to estimate the efficiency of DMUs. Rhodes (1998) suggested that there has been a united agreement among the experts that about half of any efficiency gains should be realized within three years after the merger. Therefore, each bank's efficiency in the merger is obtained for the acquiring and targeting of banks during the three years before the merger and merging banks during the available years after the merger. Hence, most of the data analysis in this research is carried out within three years of the merger. The next section describes the methods and rationale of the methods employed in the study.

## **3.2 MATERIALS AND METHODS IN THE STUDY:**

### ***3.2.1 Study duration:***

The study period of 2000-2018 has been selected to focus on public sector/Govt Undertaking and private sector bank consolidation in India while providing adequate data to compare/evaluate the pre-and post-merger bank performance/financial performance of the acquiring banks.

The period chosen is based on the data availability of three-year pre-and post-merger/consolidation of the acquiring banks.

Comparing efficiencies of pre-merger and post-merger (broadly consolidation) of the acquiring banks, the present study uses three years of data before and after the merger/consolidation year for hypotheses testing.

### ***3.2.2 Exclusion criteria:***

To clean data, overlapping mergers during the period (-3 and +3 years including the merger/consolidation year) were excluded from the sample data.

The resulting list was prepared after excluding the following:

- a. merging banks with incomplete data and
- b. mergers where the target banks were Local Area Banks (LABs).

First, the available data were inconclusive, and second, the banks concerned were essentially local and did not have wider implications. These are excluded; as the incomplete data with inconsistent data may lead to different results and the LABs are little impact as it were the local banks.

### ***3.2.3 Study sample:***

After applying exclusion and inclusion criteria, a sample of public and private bank mergers is arrived at for analysis. Only those banks are selected where the data are available for the pre-and post-merger periods for acquiring banks and the combined banking unit. The data of every bank included in the sample for the entire window period (-3, +3) years is taken from various sources, namely, a database of CMIE. Prowess. A list of the banks is shown in the table:



**Table 1: List of Merged /Consolidated Banks with Duration**

Sr. No.	Merger banks	Merged with	Merger year	Study duration	Nature of merger
1	Times Bank	HDFC	2000	1998-2003	Voluntary
2	Nedungadi Bank	PNB	2003	2001-2006	Forced
3	Global Trust Bank	OBC	2004	2002-2007	Forced
4	Ganesh Bank of Kurundwad	Federal Bank	2006	2004-2009	Forced
5	United Western Bank	IDBI	2006	2005-2009	Forced
6	Bharat Overseas Bank	Indian Overseas Bank	2007	2005-2010	Forced
7	Sangali Bank	ICICI	2007	2005-2010	Voluntary
8	Centurion Bank of Punjab	HDFC	2008	2006-2011	Voluntary
9	State Bank of Saurashtra	SBI	2008	2006-2011	Voluntary
10	Bank of Rajasthan	ICICI	2010	2008-2013	Voluntary
11	State Bank of Indore	SBI	2010	2008-2013	Voluntary
12	ING Vysya	Kotak Mahindra Bank	2015	2013-2017	Voluntary
13	SBI associates (SBBJ, SBP, SBH, SBM, and SBT)	SBI	2016	2014-2018	Voluntary

**3.2.4 Data collection method and data sources:**

The current study primarily relies on secondary data available in the public domain on banks' websites or otherwise. Data are obtained from the following database sources:

1. Centre for Monitoring Indian Economy (CMIE).
2. Indian Banks' Association (IBA), Mumbai.
3. The Reserve Bank of India.
4. Banks' financial results, annual reports, statements, etc.
5. Books, journals, business magazines, and newspapers.

### 3.3 RATIONALE FOR THE METHODOLOGY:

Previously different financial economists employed many metrics to evaluate merger and acquisition outcomes. The most common method involves measuring the change in the company's value during the acquisition announcement. In addition to the stock price-based studies, accounting-based (operating performance-based) studies were also used to assess the change over time (usually one to five years) in different variables such as earnings, cash flow, margins, or productivity. These studies had one implicit assumption that the acquisition would be significant enough to drive the changes compared with other factors on an average (Kaplan et al., 2006). The primary objective of all post-merger studies is to address the central question, of whether the acquirer banks have shown any improvement in their performance after the merger or not?

Several studies have examined the effects of bank mergers on banks' operating efficiency and profitability. Some studies suggest that mergers may not improve cost efficiency or profitability as expected (John et al., 1990). Typical study methods employed in these accounting-based studies were to compare combined firms' performance with control groups which are broad of two types. Firstly, it could either be before-and-after comparisons of the merger banks. Secondly, comparisons with an entity that has not experienced any merger are similar in size and industrial infrastructure. Both the methods have their strengths and weaknesses.

The first methodological approach, often called a "change model" has been adopted in the present study for two reasons.

1. A matched sample of non-acquiring banks may not exhibit a similar level of characteristics to the acquiring banks.
2. Each bank responds to changes in the economy differently depending upon its inherent banking capabilities.

There are several biases and challenges involved with the practical implementation of control group-based impact evaluations. Some of these are listed below:

- a. **Sample selection bias:** If controls will not be entirely comparable with the cases, i.e., it fails to satisfy the criterion of being similar to the treatment group in all respects.

- b. **Mis-specification of underlying relationships:** Where comparisons of target and control group may obscure the causal processes at work. For example, there may be concealed relationships between the selected independent and dependent variables or "structural breaks" (variations over time in the structure of treatment response of the target group) (Mosley, 1998).

Kene, E. et al. (1999) have suggested that determining control groups is the most straightforward means of assessing the counterfactual, but ascertaining a "counterfactual" is not straightforward. According to them, the task manager and analyst usually have some priorities regarding the counterfactual. However, the counterfactual from the applicant's point of view may differ from that of the analyst.

A study by Carmine et al. (2009) on "Mergers and innovation in big pharma" expressed the opinion that a clear identification of causality would always be deterred by the fact that econometricians cannot observe most information that the merging firms employ in their decision.

Observation by Chen et al. (2009) on "Foreign Ownership and Firm Performance: Emerging - Market Acquisitions in the United States" describe that a bank is "selected" into the control arm if it is sufficiently similar to acquired US banking firms based on the major determinants of the acquisition decision. Therefore, it follows that the critical elements of acquisition decisions, which are not often made explicit, will significantly influence the practical implementation of control group-based impact evaluation.

### **3.4 STATISTICAL METHODS AND SOFTWARE USED:**

All the data were entered double in Microsoft excel 2013 and checked twice to avoid any data entry error. SPSS version 20 and R studio (version 4.0.2) analytical software was used for data analysis. Continuous data are summarised and presented as Mean and 95% SD. Descriptive statistics and Paired T-tests are conducted in SPSS software. Data is analyzed and presented in various forms like charts, bars, and diagrams.

Financial performance and CAMEL analysis are carried out in R.' rDEA' package (Galina et al. 2015) of R have been used for the DEA analysis.

**A summary of the models of analysis is given below:**

<b>Two-way study: Productivity and Efficiency Measurement</b>	
Ratio Based models	Productivity Measurement Ratio - Financial and Non-financial Ratio's  Efficiency measurement ratios – based on CAMELS
Non-parametric models	DEA Analysis

This chapter discussed the sampling methods including the structure of the study and data sources. The next chapter enumerates the profiles and financial ratio analysis of the banks.

## CHAPTER- 4

# OVERVIEW OF THE FINANCIAL & NON-FINANCIAL INDICATORS OF THE SELECTED BANKS

*"Banks have never made money in the history of banking, losing the equivalent of all their past profits periodically – while bankers strike it rich." – Nassim Taleb.*

### 4.1 INTRODUCTION:

This section throws light on the overall performance of the merged banks after executing the process of the merger. It attempts to overview the financial and non-financial profiles of the selected banks covered in the study.

The following chapter speaks about the profile of the merged and merging banks in the duration divided into a pre-and post-merger era. In the first section, the merger effect has been observed with the change in the number of branches and employees in both principal and merging banks. The second section throws light on the few financial indicators like deposits, interest earned, and its transition during the merging process. While in the third section, the same indicators are used to derive the banking segment-specific ratios like cash deposit ratio, Net interest income to total asset ratio, etc. The last section is concluded with a summary of the all analysis done in the previous three sections.

The following table depicts the list of the banks covered for the pre- and post-merger analysis as mentioned above.

**Table 2: List of Banks covered for the pre- and post-merger analysis.**

<b>Principal Bank</b>	<b>Merging bank</b>	<b>Year of Merger</b>	<b>Number of years required for completion of the procedures</b>
HDFC Bank	Times Bank	2000	01 year
Punjab National Bank	Nedungadi bank	2003	01 year and 6 months
Oriental Bank of Commerce	Global Trust Bank	2004	01 year
Federal Bank	Ganesh Bank of Kurundwad	2006	01 year
IDBI Bank	United Western Bank	2006	01 year and 6 months
Indian Overseas Bank	Bharat Overseas Bank	2007	01 year
ICICI Bank	Sangali Bank	2007	01 year
ICICI Bank	Bank of Rajasthan	2010	01 year and 6 months
Kotak Bank	Vysya Bank	2015	01 year and 6 months
SBI	SBI Associates	2016	01 year and 6 months

The universal sequence of the sub heading is followed for every bank while analyzing the data. The following sequence can be found in the section, for a better understanding

1. Historical check helping to understand the culture of the principal and merging bank.
2. Overview of the number of branches and employees in pre-merger and post-merger era.
3. Understanding the financial health of both banks with a few major financial elements of the Income statement and balance sheet.
4. Banking segment-specific financial ratios are calculated at the end of this chapter for all banks taken together.

As mentioned earlier, the following chapter describes the financial and non-financial performance of selected banks in detail.

## 4.2 MERGER (CONSOLIDATION) OF TIMES BANK WITH HDFC BANK:

### 4.2.1 Brief Introduction of Times Bank and HDFC Bank:

**Times Bank** was incorporated on 6<sup>th</sup> July, 1994 & the Certificate of Commencement of Business was obtained on 22<sup>nd</sup> August 1994. The Bank was promoted by Bennett, Coleman, and Company limited & its subsidiaries. The first branch was opened on 8<sup>th</sup> June 1994 at Dr D N Road, Mumbai. It has started the Convenience Bank & has introduced innovative deposit products like 'Times Convenience Deposit' & 'Times Dual Deposit' facilities. The 'Sunday Holidays and Home Banking service at the customer's doorstep are some bank's unique services. The Bank started offering cash management services to its corporate customers. They encompass a comprehensive range of electronic funds transfer, cheque collections, receivables, dividend & interest warrant payments, and payroll administration to corporate. It is the first one in India to implement a straight-through-processing and integrated enterprise-wide portfolio risk management system.

**HDFC Bank** was incorporated in August 1994. It was promoted by Housing Development Finance Corporation Limited. It was among the first companies to receive an 'in principle' approval from the Reserve Bank of India to set up a private sector bank. The Bank started operations as a scheduled commercial bank in January 1995 under the RBI's liberalization policies. The Bank is a publicly held banking company engaged in providing a wide range of banking and financial services, including commercial banking.

The Times Bank is merged in HDFC Bank on 26-02-2000.

### 4.2.2 Branch Outlets and Human Capital of Times Bank and HDFC Bank:

**Table 3: Number of Branches of Times Bank and HDFC Bank**

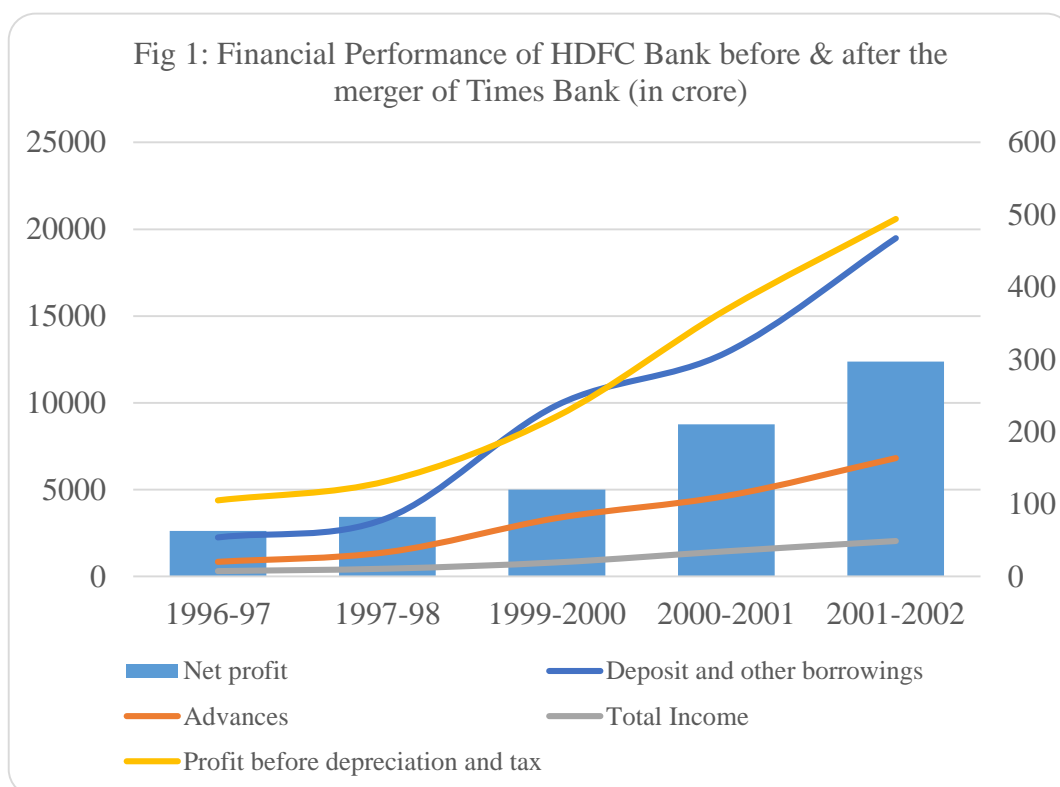
Year	Times Bank	Year	HDFC Bank	Year	HDFC Bank
	Pre-merger		Pre-merger		Post-merger
1998	35	1998	43	2000	131
1999	35	1999	61	2001	171
Dec-99	35	2000	111	2002	231

**Table 4: Number of Employees of Times Bank and HDFC Bank**

Year	Times Bank	Year	HDFC Bank	Year	HDFC Bank
	Pre-merger		Pre-merger		Post-merger
1998	4822	1998	861	2000	2534
1999	5446	1999	827	2001	3742
Dec-99	5446	2000	1250	2002	4791

It is observed that the number of employees has been decreased in the principal bank post-merger, this can be the result of the implementation of the VRS scheme and efficient work reallocation. On the other hand, no change is observed in the number of branches of merging banks while the increase is seen in the case of the principal banks.

#### 4.2.3 FINANCIAL PERFORMANCE OF HDFC BANK :



The improvement in the advances, deposits, and net profits is observed. It can be concluded that merging has shown a positive impact on the financial indicators, here we also acknowledge the impact of the other factors influencing the stated indicators.



### 4.3 MERGER (CONSOLIDATION) OF NEDUNGADI BANK WITH PUNJAB NATIONAL BANK:

#### 4.3.1 Brief Introduction of The Nedungadi Bank and Punjab National Bank:

**Nedungadi Bank** was established in 1899 at Calicut in Kerala. It was the first private sector commercial bank to be set up in South India. It was incorporated in 1914. In 1964 it acquired the Cochin National Bank in Trichur, and then the year after selected assets and liabilities of the Coimbatore National Bank. It had 174 branches, including branches at major metropolitan cities.

**Punjab National Bank** is a state-owned commercial bank based in New Delhi. It is one of the Big Four Banks of India. It is recognized as the Bank offering the highest levels of customer satisfaction in Delhi and Chennai. All its branches offer Core Centralized Banking Solution (CBS) and a variety of financial products catering to different market segments. It has an international presence in nine countries. In 1940, the Bank absorbed Bhagwan Dass Bank, a scheduled bank located in Delhi circle. In 1951, it acquired the 39 branches of Bharat Bank and in 1961 acquired Universal Bank of India. Punjab National Bank was nationalized in July 1969 along with 13 other banks.

The Nedungadi Bank is merged with PNB on 31.01.2003.

#### 4.3.2 Branch Outlets and Human Capital of Nedungadi Bank and Punjab National Bank:

**Table 5: Number of branches of Nedungadi Bank and Punjab National Bank: pre & post-merger**

Year	Nedungadi Bank	Year	Punjab National Bank	Year	Punjab National Bank
	Pre-merger		Pre-merger		Post-merger
2001	172	2001	3879	2004	4100
2002	173	2002	3932	2005	4117
2003	179	2003	4115	2006	4142

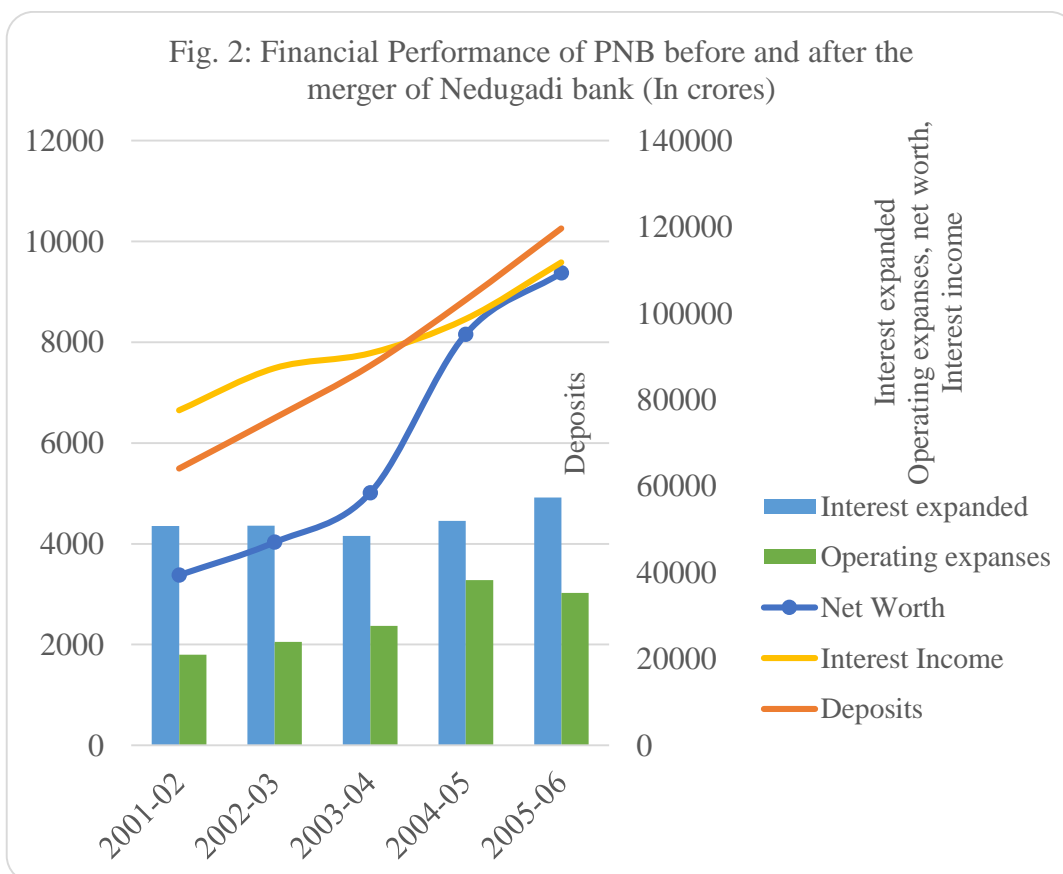
**Table No 6: Number of employees of Nedungadi Bank and Punjab National Bank: pre & post-merger**

(Rs in crores)

Year	Nedungadi Bank	Year	Punjab National Bank	Year	Punjab National Bank
	Pre-merger		Pre-merger		Post-merger
2001	1782	2001	58309	2004	58839
2002	1761	2002	57859	2005	58329
2003	1620	2003	58981	2006	58047

It is observed that the branches of the merged entity have remained stagnant and human capital decreased. A minimal increase is seen in the number of branches but human capital is significantly reducing due to effective implementation of schemes like VRS or due to retirements.

#### 4.3.3 FINANCIAL PERFORMANCE OF PUNJAB NATIONAL BANK:



It is observed that during the merging process, operating expenses are increased, on the other hand increase is noticed on the income-based indicators.

#### **4.4. MERGER (CONSOLIDATION) OF GLOBAL TRUST BANK AND ORIENTAL BANK OF COMMERCE:**

##### ***4.4.1 Brief Introduction of Global Trust Bank and Oriental Bank of Commerce:***

**Global Trust Bank** was incorporated on 29th October and the Certificate of Commencement of Business was obtained on 10th November, 1994. It was promoted by Ramesh Gilli, Jayanta Madhab, Sridhar Subasri, and their friends and relatives. In the early nineties, liberalization and deregulation were setting the tone for creating new private sector banks in India. The RBI opened the banking industry doors to new players and “New Generation Banks”. The GTB provided various services such as overdrafts, term loans, letters of credit, cash credit, bank guarantees, and bill inland discounting. Global Trust Bank had also launched in partnership with Visa, the Proton International Debit Card. But during the stress, it had fallen to its lowest depth with the government issuing a 3-month moratorium. During this period the RBI considered various options including the amalgamation of GTB with another bank to provide the necessary capital infusion. Customers were permitted to withdraw only up to Rs 10,000 from the ATM. This came as a hard blow to the million-odd customers who faced the possibility of losing their money.

**Oriental Bank of Commerce** made a beginning under its Founding Father Late Rai Bahadur Lala Sohan Lal and its first Chairman. Within four years of coming into existence, the Bank had to face partition. Branches in the newly formed Pakistan had to be closed and the Registered Office had to be shifted from Lahore to Amritsar. The Bank has witnessed many ups and downs since its establishment. The period of 1970-76 is the most challenging phase in its history. At one time profit plummeted to Rs 175 crores which prompted its owner, the Thapar House, to sell or close it. The employees and leaders of the Bank came forward to rescue it. The owners had to change their decision to sell it and they decided to improve its position with the active cooperation and support of the employees. It was nationalized on 15 April, 1980. At that time bank was having 19<sup>th</sup> position among the 20 nationalized banks.

The Global Trust Bank is merged with Oriental Bank of Commerce on 13.08.2004.

**4.4.2 BRANCH OUTLETS AND HUMAN CAPITAL OF GLOBAL TRUST BANK AND ORIENTAL BANK OF COMMERCE:**

**Table 7: Number of branches of Global Trust Bank and Oriental Bank of Commerce before and after the merger**

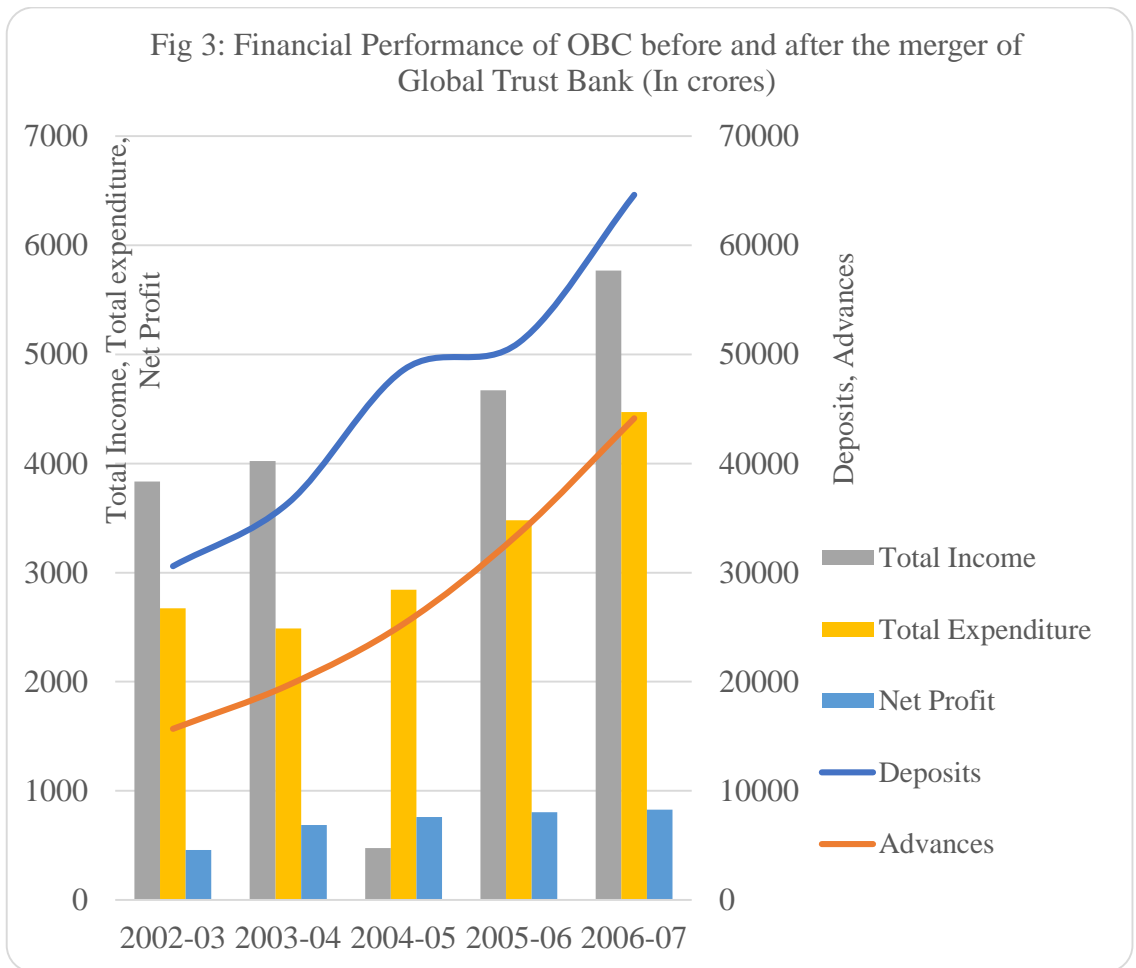
Year	Global Trust Bank	Year	Oriental Bank of Commerce	Year	Oriental Bank of Commerce
	Pre-merger		Pre-merger		Post-merger
2002	82	2002	1005	2005	1166
2003	103	2003	1028	2006	1148
2004	NA	2004	1051	2007	1273

**Table 8: Number of employees of Global Trust Bank and Oriental Bank of Commerce before and after the merger**

Year	Global Trust Bank	Year	Oriental Bank of Commerce	Year	Oriental Bank of Commerce
	Pre-merger		Pre-merger		Post-merger
2002	1147	2002	13589	2005	14563
2003	1368	2003	13507	2006	14962
2004	NA	2004	13588	2007	14730

As per the above tables, the increase in branches and number of employees is observed after the merger.

#### 4.4.3 FINANCIAL PERFORMANCE OF ORIENTAL BANK OF COMMERCE:



Though, no significant change is observed during the process of the merger, post-merger, under the umbrella of the new management expansion in the business is observed

#### 4.5 MERGER (CONSOLIDATION) OF GANESH BANK OF KURUNDWAD WITH FEDERAL BANK:

##### 4.5.1 Brief Introduction of Ganesh Bank of Kurundwad and Federal Bank:

**Ganesh Bank of Kurundwad** was founded in 1920 and has the Reserve Bank of India's license. It is a private company incorporated on 26 January, 1949, classified as Indian non-government company registered with the Registrar of

Companies, Pune. Its authorized share capital is Rs. 100,000,000 and its paid-up capital is Rs. 18,221,000. It has around 32 branches situated principally in the Districts of Kolhapur and Sangli of Maharashtra and the Belgaum District of Karnataka. It has around 1,75,000 depositors in the rural areas of these three districts. The Government of India had, on January 24, 2006, sanctioned the Scheme of Amalgamation of Ganesh Bank with Federal Bank. After a court battle, the scheme of amalgamation is implemented.

**Federal Bank**, earlier known as Travancore Federal Bank, was incorporated in 1931. It gradually transformed into a full-fledged bank under the able leadership of its founder, K P Hormis. The name Federal Bank Limited was officially announced in the year 1947 with its headquarters on the banks of the river Periyar. The 14 founders included Pattamukkil Varattisseril Oommen Varghese, his brothers Oommen Chacko, Oommen Kurian, and Oommen George Kavumbhagam Mundapallil Lukose. Oommen Varghese was the Chairman and Oommen Chacko the Manager. It has 1,150 branches spread across 24 states and 1,272 ATMs across 108 metro centers, 224 urban centers, 384 semi-urban locations, and 87 rural areas. Today it is the largest traditional private sector bank in India.

The Ganesh Bank of Kurundwad is merged with Federal Bank on 06.04.2006.

#### ***4.5.2 Branch Outlets and Human Capital of Ganesh Bank and Federal Bank:***

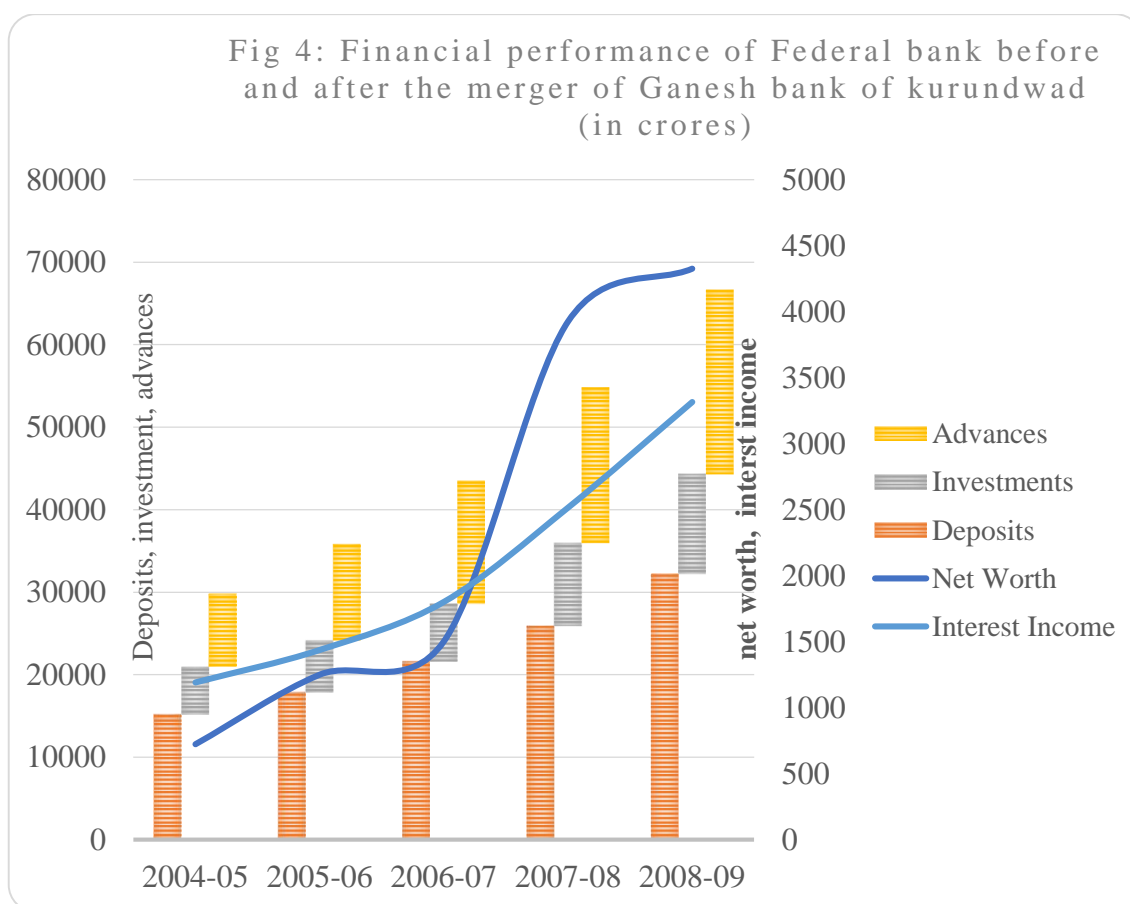
**Table 9: Number of Branches of Ganesh Bank and Federal Bank before and after the merger**

<b>Ganesh Bank</b>		<b>Year</b>	<b>Federal Bank</b>		<b>Year</b>	<b>Federal Bank</b>
<b>Year</b>	<b>Pre-merger</b>		<b>Pre-merger</b>	<b>Year</b>		<b>Post-merger</b>
2004	230	2004	455	2007		552
2005	230	2005	471	2008		602
2006	229	2006	482	2009		611

**Table 10: Number of employees of Ganesh Bank and Federal Bank before and after the merger**

Year	Ganesh Bank of Kurundwad	Year	Federal Bank	Year	Federal Bank
	Pre-merger		Pre-merger		Post-merger
2004	3213	2004	6363	2007	6029
2005	3158	2005	6474	2008	6945
2006	3062	2006	6366	2009	7570

#### 4.5.3 FINANCIAL PERFORMANCE OF FEDERAL BANK:



Based on the above Figure and Tables it can be deduced that the business of the Federal Bank increased after the merger.

## **4.6 MERGER (CONSOLIDATION) OF UNITED WESTERN BANK WITH IDBI BANK:**

### ***4.6.1 Brief Introduction of United Western Bank and IDBI Bank:***

**United Western Bank:** Annasaheb Chirmule founded United Western Bank in 1936. It commenced operations in 1937, became a scheduled bank in 1951, and merged with Union Bank of Kolhapur in 1956. The Satara Swadeshi Commercial Bank merged with United Western Bank in 1961. The United Western Bank focuses on retail, SME and agricultural segments. It has 230 branches, 12 extension counters and 60 ATMs. It tied up with New India Assurance Company for non-life insurance products and Western Union Money Transfer for speedy remittance to overseas Indians. It has implemented the RTGS system, cash management solutions and inter-branch reconciliation software. It offers two and four-wheeler finance, housing finance, commercial vehicle finance, corporate finance, export finance, finance for education, and finance to small and medium enterprises (SMEs). It offers a one-stop-shop for all banking needs of customers. Its financial products basket includes fixed deposits such as Dhanadhara, Dhana chakra and Dhanakhsaya, Yasho Dhana deposit, Students' Plus deposit, cumulative deposit, annuity scheme and senior citizens' deposit scheme.

**IDBI Bank** is a financial services company headquartered in Mumbai. RBI has categorized it as a public sector bank. It was established in 1964 by an act of Parliament to provide credit and other facilities to develop the fledgling Indian industry. It provided financial assistance in both currencies, i.e., rupee and foreign currencies, for green-field projects, expansion, modernization and diversification purposes. In the wake of financial sector reforms unveiled by the government in 1992, IDBI also provided indirect financial assistance by refinancing loans extended by state-level financial institutions and banks, and rediscounting bills of exchange arising out of the sale of indigenous machinery on deferred payment. The committee formed by the RBI under S.H. Khan's chairmanship recommended the IDBI to diversify its activity as development finances and banking activities by getting away from the conventional distinction between commercial banking and developmental banking system in India.

The United Western Bank is merged with IDBI Bank on 03.10.2006.



#### 4.6.2 Branch Outlets and Human Capital of United Western Bank and IDBI

Bank:

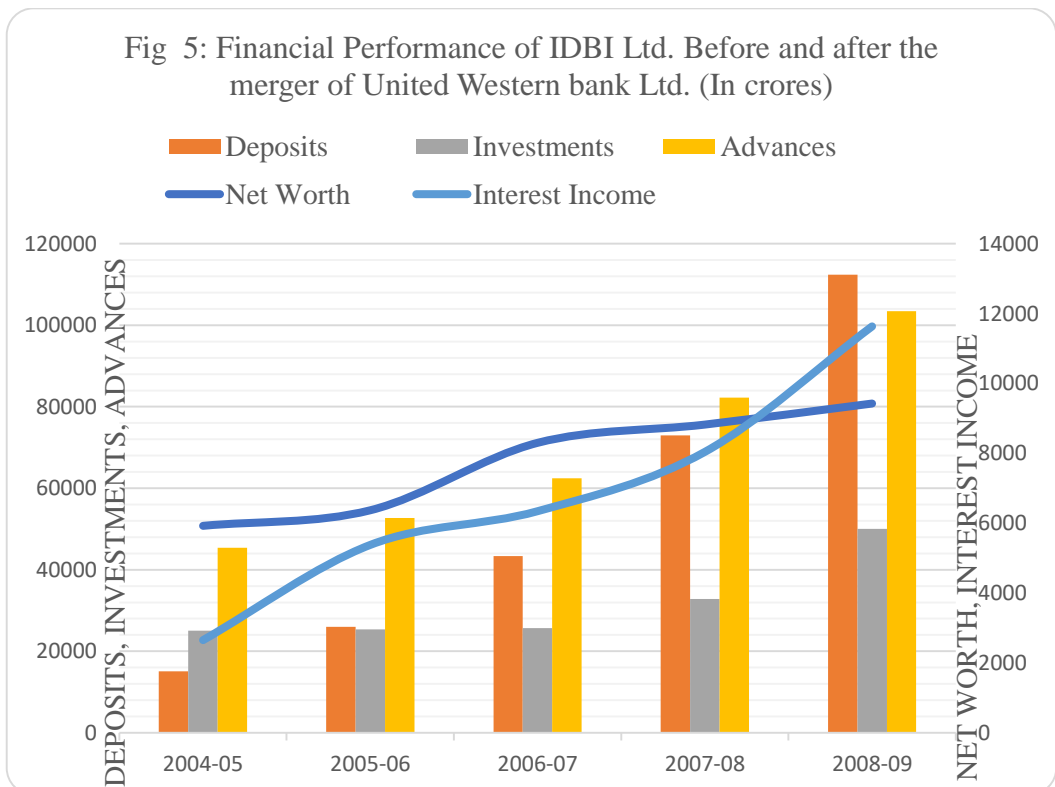
**Table 11: Number of Branches of United Western Bank and IDBI Bank**

Year	United Western Bank	Year	IDBI Bank	Year	IDBI Bank
	Pre-merger		Pre-merger		Post-merger
2004	237	2004	NA	2007	442
2005	237	2005	37	2008	500
2006	237	2006	173	2009	510

**Table 12: Number of employees of United Western Bank and IDBI Bank**

Year	United Western Bank	Year	IDBI Bank	Year	IDBI Bank
	Pre-merger		Pre-merger		Post-merger
2004	3213	2004	NA	2007	7482
2005	3158	2005	4530	2008	8253
2006	3062	2006	4582	2009	10201

#### 4.6.3 Financial Performance of IDBI Bank



The business of the IDBI Bank has increased over the period after the merger. As suggested above, this may be owing to the merger although other factors may also be at work.

#### **4.7 MERGER (CONSOLIDATION) OF BHARAT OVERSEAS BANK WITH INDIAN OVERSEAS BANK:**

##### ***4.7.1 Brief Introduction of Bharat Overseas Bank and Indian Overseas Bank***

**Bharat Overseas Bank** was a private bank based in Chennai. It was established in 1973 to take over the Bangkok branch of the Indian Overseas Bank. One of the few private banks that the Reserve Bank of India permitted to have a branch outside India, it was India's only bank in Thailand. Seven banks owned it, i.e., Indian Overseas Bank (30%), Bank of Rajasthan (16%), Vysya Bank (14.66%), Karur Vysya Bank (10%), Federal Bank (19.67%), South Indian Bank (10%), and Karnataka Bank (8.67%). Its main products include BOBL, Flexi Savings Account –savings account with an automatic sweep in and sweep out facility, Shubha Labh – a credit scheme for wholesale and retail traders and international business services such as short-term financial service to exporters, security in cross-border transactions and advisory services among others.

**Indian Overseas Bank (IOB)** is in Chennai. In 1937 Thiru.M. Ct. M. Chidambaram Chettyar established it to encourage overseas banking and foreign exchange operations in India. IOB started simultaneously at three branches, one each in Karaikudi, Chennai and Yangon. From the beginning, IOB specialized in foreign exchange and overseas banking. Due to World War II IOB, lost its branches in Rangoon, Penang and Singapore. It has 3,300 domestic branches and has an ISO-certified in-house Information Technology Department which has developed the software that 3257 branches use to provide online banking to its customers. It has achieved 100% networking status and has a network of about 2400 ATMs all over India. IOB's International VISA Debit Card is accepted at all ATMs belonging to the Cash Tree and NFS networks. It offers internet and mobile banking. It is one of the banks that the Government of India has approved for online payment of taxes.

Bharat Overseas Bank is merged with Indian Overseas Bank on 12.03.2007.

**4.7.2 Branch Outlets and Human Capital of United Western Bank and IDBI**

**Bank:**

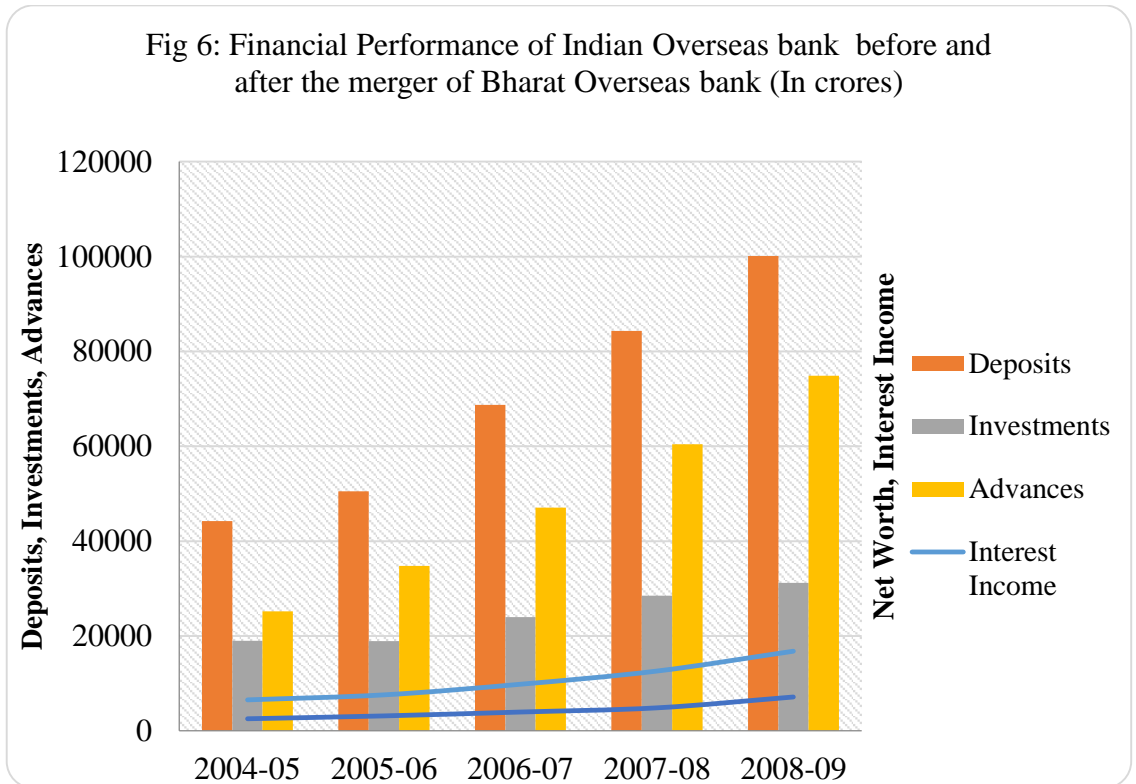
**Table 13: Number of Branches of Bharat Overseas Bank and Indian Overseas Bank**

Year	Bharat Overseas	Year	Indian Overseas	Year	Indian Overseas
	Bank		Bank.		Bank
	Pre-merger		Pre-merger		Post-merger
2004	84	2004	1544	2007	1777
2005	91	2005	1583	2008	1880
2006	103	2006	1601	2009	1927

**Table 14: Number of employees of Bharat Overseas Bank and Indian Overseas Bank**

Year	Bharat Overseas	Year	Indian Overseas	Year	Indian Overseas
	Bank		Bank		Bank
	Pre-merger		Pre-merger		Post-merger
2004	984	2004	24382	2007	23861
2005	1075	2005	24366	2008	24947
2006	1098	2006	24178	2009	25512

### 4.7.3 Financial Performance of Indian Overseas Bank:



Less significant change is observed post-merger in the business of the principal bank.

### 4.11 MERGER (CONSOLIDATION) OF THE SANGALI BANK AND BANK OF RAJASTHAN WITH ICICI BANK:

#### 4.11.1 Brief Introduction of Sangali Bank, Bank of Rajasthan, and ICICI Bank:

**Sangali Bank** was set up on 29 October, 1948 in Sangali. It was classified as a non-government company and is registered with the Registrar of Companies, Pune. Its authorized share capital is Rs. 1,000,000,000. It is involved in monetary intermediation. This group includes the obtaining of funds in the form of deposits.

**Bank of Rajasthan** was set up at Udaipur in 1943 with an initial capital of Rs.10.00 lacs. Seth Govind Ram Seksaria was the founder- chairman, and Dwarka Prasad Gupta was the first General Manager. It was classified as the Scheduled

Bank in 1948. It also established a rural bank named Mewar Anchlik Gramin Bank in Udaipur District in Rajasthan on 26 January, 1983.

Its central office is in Jaipur, although its registered office is in Udaipur. It has 463 branches in 24 states with 294 branches in Rajasthan alone.

**ICICI Bank** is an Indian multinational banking and financial services company with its registered office in Vadodara, Gujarat and corporate office in Mumbai. It offers a wide range of banking and financial services for corporate and retail customers through various delivery channels and specialized subsidiaries in the areas of investment banking, life, non-life insurance, venture capital and asset management. It has a network of 5,275 branches and 15,589 ATMs across India and 17 other countries.

ICICI Bank is one of the *Big Four banks* of India. It has subsidiaries in the United Kingdom and Canada; branches in the United States, Singapore, Bahrain, Hong Kong, Qatar, Oman, Dubai International Finance Centre, China and South Africa; and representative offices in United Arab Emirates, Bangladesh, Malaysia and Indonesia. Its UK subsidiary has established branches in Belgium and Germany.

ICICI Bank was established by the Industrial Credit and Investment Corporation of India (ICICI), an Indian financial institution, as a wholly-owned subsidiary in 1994 in Vadodara. The parent company was formed in 1955 as a joint-venture of the World Bank, India's public-sector banks and public-sector insurance companies to provide project financing to the Indian industry. The bank was founded as the Industrial Credit and Investment Corporation of India Bank before changing its name to ICICI Bank. The parent company was later merged with the bank. ICICI Bank launched internet banking operations in 1998.

ICICI's shareholding in ICICI Bank was reduced to 46 percent, through a public offering of shares in India in 1998, followed by an equity offering in the form of American depositary receipts on the NYSE in the year 2000. ICICI Bank acquired the *Bank of Madura Limited* in an all-stock deal in 2001 and sold additional stakes to institutional investors during 2001–02.

In the 1990s, ICICI transformed its business from a development financial institution offering only project finance to a diversified financial services group, offering a wide variety of products and services, both directly and through many subsidiaries and affiliates like ICICI Bank. In 1999, ICICI became the first Indian company and the first bank or a financial institution from non-Japan Asia to be listed on the NYSE.

In October 2001, the Board of Directors of ICICI and ICICI Bank approved the merger of ICICI and two of its wholly-owned retail finance subsidiaries, ICICI Personal Financial Services Limited and ICICI Capital Services Limited, with ICICI Bank. The Reserve Bank approved the merger in April 2002.

Following the 2008 financial crisis, customers rushed to ICICI ATMs and branches in some locations due to rumours of an adverse financial position of ICICI Bank. The Reserve Bank of India issued a clarification on the financial strength of ICICI Bank to dispel the rumours.

In March 2020, its board approved Rs 1,000 crore in Yes Bank. This investment resulted in ICICI Bank holding over a five percent shareholding in Yes Bank.

Sangli Bank and Bank of Rajasthan are merged with ICICI Bank on 19.04.2007 and 23.05.2010 respectively.

**4.11.2 Branch Outlets and Human Capital of Sangali Bank, Bank of Rajasthan and ICICI Bank:**

**Table 15: Number of branches of Sangali Bank and ICICI Bank**

Year	Sangali Bank	Year	ICICI Bank	Year	ICICI Bank
	Pre-merger		Pre-merger		Post-merger
2005	192	2005	515	2008	1269
2006	194	2006	569	2009	1430
2007	195	2007	713	2010	1717

**Table 16: Number of employees of Sangali Bank and ICICI Bank**

Year	Sangali Bank	Year	ICICI Bank	Year	ICICI Bank
	Pre-merger		Pre-merger		Post-merger
2005	1923	2005	18029	2008	40686
2006	1843	2006	25384	2009	34596
2007	1770	2007	33321	2010	35256

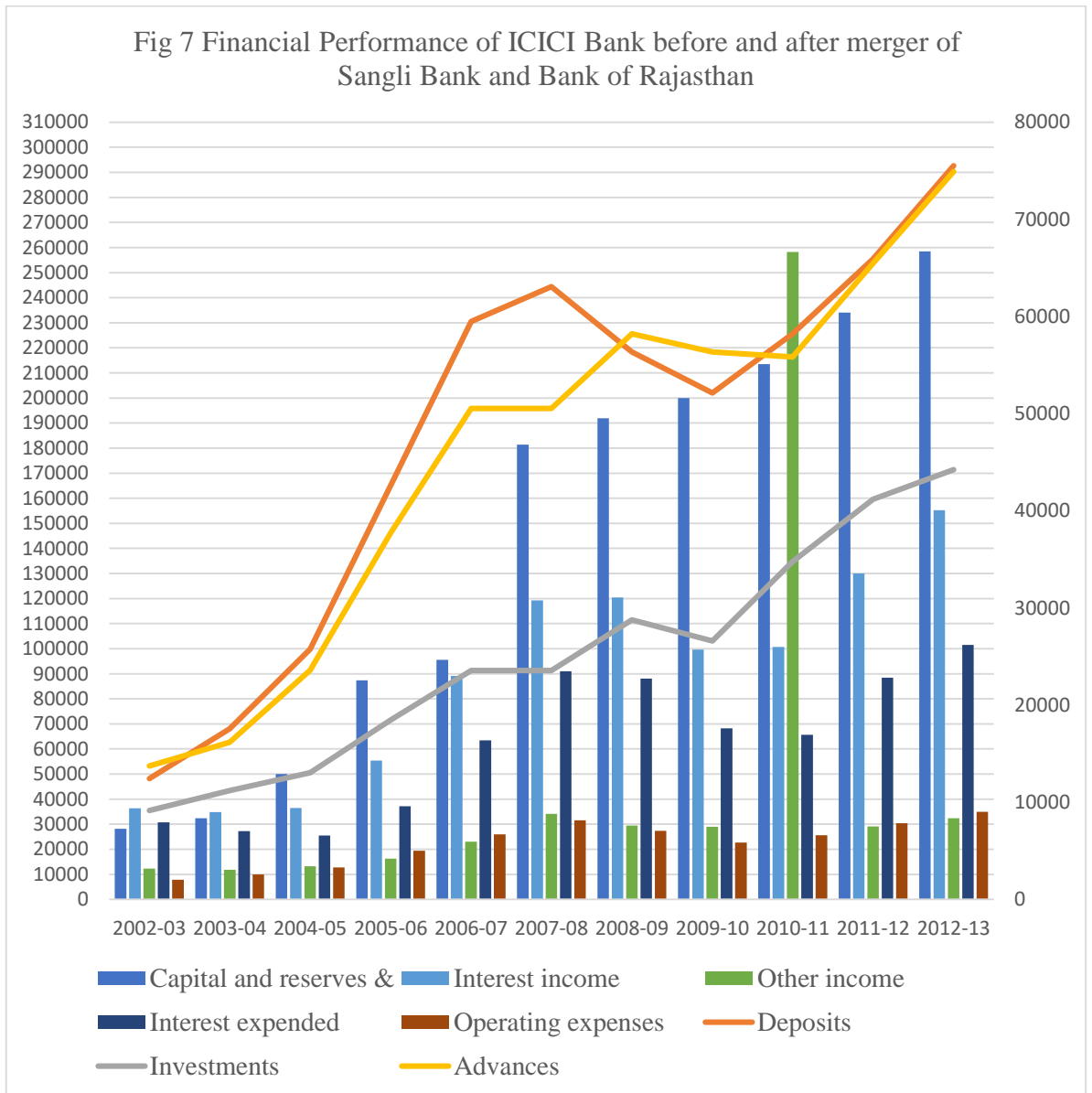
**Table 17: Number of Branches of Bank of Rajasthan and ICICI**

Year	Bank of Rajasthan	Year	ICICI	Year	ICICI
	Pre-merger		Pre-merger		Post-merger
2008	439	2008	1262	2011	2529
2009	463	2009	1419	2012	2752
2010	463	2010	1707	2013	3100

**Table 18: Number of employees of Bank of Rajasthan and ICICI**

Year	Bank of Rajasthan	Year	ICICI	Year	ICICI
	Pre-merger		Pre-merger		Post-merger
2008	4310	2008	46632	2011	60132
2009	4075	2009	37839	2012	71925
2010	3983	2010	50094	2013	89775

**4.11.3 Financial Performance of ICICI Bank:**



All parameters in terms of business have increased over the period and ICICI Bank has a positive impact after the merger. We suggest that this may be the result of the merger although some other factors may have also played a role.



## **4.12. MERGER (CONSOLIDATION) OF ING VYSYA BANK WITH KOTAK MAHINDRA BANK:**

### ***4.12.1 Brief Introduction of ING Vysya Bank and Kotak Mahindra Bank:***

**ING Vysya Bank** was a privately owned Indian multinational bank based in Bangalore with retail, wholesale and private banking platforms established from purchase of an equity stake in Vysya Bank by the Dutch ING Group in 2002. This merger was the first between an Indian bank and a foreign bank. Before it Vysya Bank had a seven-year-old strategic alliance and shareholding arrangement with erstwhile Belgian Bank Banque Bruxelles Lambert which was also acquired by ING Group in 1998.

As of March 2013, ING Vysya was the seventh-largest private sector bank in India with assets totalling ₹548.36 billion (US\$7.7 billion) and operating a pan-India network of over 1,000 outlets including 527 branches, which serviced over two million customers. ING Group, the highest-ranking institutional shareholder, held 44% equity stake in ING Vysya Bank, followed by Aberdeen Asset Management, private equity firms such as Chrys Capital, Morgan Stanley Citi group, respectively.

ING Vysya had been ranked the "Safest Banker" by the *New Indian Express* and among "Top 5 Most Trusted Private Sector Banks" by the *Economic Times*.

On 20 November, 2014, in an all-stock amalgamation, ING Vysya Bank decided to merge with Kotak Mahindra Bank, creating the fourth largest private sector bank in India. On 1 April, 2015 the RBI approved the merger. On 15 May, 2016 the merger process was completed.

**Kotak Mahindra Bank:** In 1985 Uday Kotak founded what later became an Indian financial services conglomerate. In February 2003 Kotak Mahindra Finance Ltd. (KMFL), the group's flagship company, received a banking license from the RBI. With this, KMFL became the first non-banking finance company in India to be converted into a bank: Kotak Mahindra Bank Limited.

In a study by Brand Finance Banking 500 published in February 2014 by *Banker* magazine (from *The Financial Times*), KMBL was ranked 245th among

the world's top 500 banks with a brand valuation of around half a billion dollars (\$481 million) and a brand rating of AA+.

ING Vysya Bank is merged with Kotak Mahindra Bank on 20.11.2014.

**4.12.2 Branch Outlets and Human Capital of ING Vysya and Kotak Mahindra Bank:**

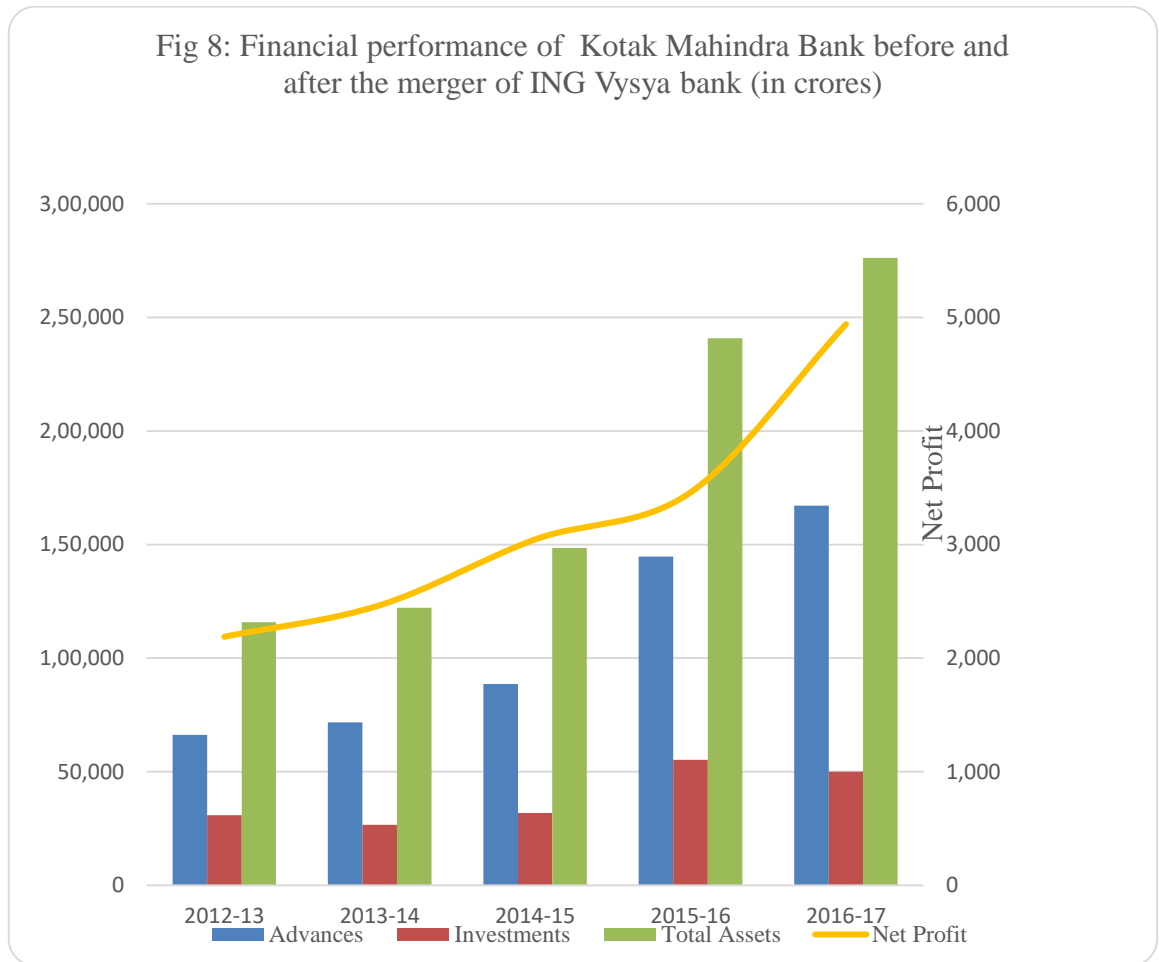
**Table 19: Number of Branches of ING Vysya and Kotak Mahindra Bank**

Year	ING Vysya	Year	Kotak Mahindra Bank	Year	Kotak Mahindra Bank Ltd
	Pre-merger		Pre-merger		Post-merger
2013	606	2013	437	2016	1333
2014	620	2014	605	2017	1369
2015	654	2015	684	2018	1388

**Table 20: Number of Employees of ING Vysya and Kotak Mahindra Bank**

Year	ING Vysya	Year	Kotak Mahindra Bank	Year	Kotak Mahindra Bank
	Pre-merger		Pre-merger		Post-merger
2013	11346	2013	14504	2016	31410
2014	11568	2014	16534	2017	44000
2015	11300	2015	20003	2018	50000

#### 4.12.3 Financial Performance of Kotak Mahindra Bank:



It is seen that the business of the Kotak Mahindra has been expanded twice after acquisition of the ING Vyas also by acknowledging the other factors who played an important role in the expansion other than merger.

#### 4.13 Merger (Consolidation) of SBI Associates with SBI:

##### 4.13.1 Introduction of SBI Associates and SBI:

**SBI** is an Indian multinational public sector banking and financial services statutory body headquartered in Mumbai. It is the 43rd largest bank globally and ranked 236th in the *Fortune Global 500* list of the world's biggest corporations of 2019. A nationalized bank, it is the largest in India with a 23% market share by assets and a 25% share of the total loans and deposits market.

The bank descends from the Bank of Calcutta founded in 1806 via the Imperial Bank of India, making it the oldest commercial bank in the Indian subcontinent.

The Bank of Madras merged into the other two presidency banks in British India, the Bank of Calcutta and the Bank of Bombay, to form the Imperial Bank of India which became the State Bank of India in 1955. The Government of India took control of the Imperial Bank of India in 1955, with RBI taking a 60% stake, renaming it the State Bank of India.

According to the provisions of the State Bank of India Act of 1955, the RBI acquired a controlling interest in the Imperial Bank of India. On 1 July, 1955, the latter became the State Bank of India. In 2008, the Government of India acquired the RBI's stake in SBI to remove any conflict of interest because the RBI is the country's banking regulatory authority.

The first step towards unification occurred on 13 August, 2008 when State Bank of Saurashtra (SBS) merged with SBI, reducing associate state banks from seven to six. On 19 June 2009, the SBI board approved the absorption of State Bank of Indore, in which SBI held the stake of 98.3%. (Individuals who held the shares before its takeover by the government held the balance of 1.7%).

As of 2014–15, the Bank had 191 overseas offices spread over 36 countries with the most extensive foreign markets presence among Indian banks.

The plans for making SBI a single very large bank by merging the associate banks started in 2008, and in September the same year, SBS merged with SBI. Next year, State Bank of Indore (SBN) also merged.

Following the merger process, the merger of five remaining associate banks (viz., State Bank of Bikaner and Jaipur, State Bank of Hyderabad, State Bank of Mysore, State Bank of Patiala and State Bank of Travancore); and the Bhartiya Mahila Bank) with the SBI was given approval in-principle by the Union Cabinet on 15 June, 2016. It came a month after the SBI had on 17 May, 2016, cleared a proposal to merge its five associate banks and Bhartiya Mahila Bank with itself.

On 15 February, 2017, the Union Cabinet approved the merger of five associate banks with SBI. An analyst foresaw an initial negative impact due to different pension liability provisions and accounting policies for bad loans. The merger went into effect from 1 April, 2017.

**State Bank of Bikaner & Jaipur (SBBJ)** is a partner bank of SBI. Starting in 2012, SBBJ had 1,037 banks primarily in Rajasthan. Its branches outside were in major commercial centres of India. It was established in 1963 when two banks, State Bank of Bikaner (created in 1944) and State Bank of Jaipur (in 1943) were consolidated. Both these banks were subsidiaries of the SBI under the State Bank of India (Subsidiary Bank) Act, 1959.

On April 25, 1966, SBBJ assumed control of Govind Bank, Mathura. In 1984 it supported and built Ganganagar Kshetriya Gramin Bank as a Regional Rural Bank. From that point, as SBBJ opened the Bikaner Kshetriya Gramin Bank, the second Regional Rural Bank was supported by it. The third Regional Rural Bank, supported by SBBJ was Marudar Gramin Bank, which financially serviced Pali, Jalore and Sirohi regions. On June 12, 2006, SBBJ blended each of the three provincial banks that it supported under the name of MGB Gramin Bank with the head office in Pali.

**State Bank of Hyderabad** was a partner bank of SBI. It started as the national bank of the Nizam state under the name, Hyderabad State Bank. On August 8, 1941, under the Hyderabad State Bank Act, it was formally recognized. It used the Osmania Sicca, the Hyderabad state's coin, which was in the present-day Telangana district of erstwhile Andhra Pradesh, Hyderabad-Karnataka of Karnataka and Marathwada of Maharashtra. At the time, it was usual for various regal states to have their particular monetary coinage. The bank opened its first location at Gunfoundry, Hyderabad on April 5, 1942. The Imperial Bank of India, which had made an entry into Hyderabad in 1868, seconded its move in Secunderabad in 1906. The principal secretary of Hyderabad State Bank was Muhammad Saleh Akbar Hydari.

After the partition, on September 17, 1948 the Indian Army executed Operation Polo which brought about the accession of Hyderabad to India. By 1950, the Bank had 50 branches in parts of the then Hyderabad State. In 1953, it began directing government and treasury business as an operator for the RBI.

In 1956 the RBI assumed control over it as its first subsidiary and renamed it State Bank of Hyderabad. That same year saw the break-up of Hyderabad State. Aurangabad, Beed, Parbhani, Nanded and Osmanabad consolidated with Maharashtra. Gulbarga, Bidar, Raichur and parts of Osmanabad were incorporated

in Karnataka. The remaining regions formed Telangana, a part of Andhra Pradesh. After the trifurcation, Hyderabad State Bank Banks kept on directing government transactions in their new states. The Subsidiary Banks Act was passed in 1959, and so on October 1, 1959 alternate banks of the princely states became subsidiaries of SBI.

**State Bank of Mysore** is a nationalised bank with the home office at Bangalore. It was one of the five partner banks of SBI.

State Bank of Mysore was created in the year 1913 as the Bank of Mysore Ltd. with the support of then Maharaja Krishna Raja Wadiyar IV of Mysore. In 1953, Mysore Bank was delegated as an executor of RBI to facilitate government business and treasury operations. In March 1960, it turned into a subsidiary of the SBI under the State Bank of India (Subsidiary Banks) Act 1959. When the bank was an associate under State Bank Group, the SBI had 92.33 percent of shares.

This bank had 976 branches and 10627 workforces. It had provincial locations in Bengaluru, Mysore, Mangalore, Mandya, Hassan, Shimoga, Davangere, Bellary, Tumkur, Kolar, Chennai, Coimbatore, Hyderabad, Mumbai and New Delhi. Its turnover in 2013-2014 was around \$19 billion, reporting a profit of about US\$ 46 million. It had a record of continuous profits since 1913.

**State Bank of Patiala** was a partner bank of SBI. Initially named Patiala State Bank, it was established on November 17, 1917 by Maharaja Bhupinder Singh of Patiala.

After India's freedom, the bank was made an entirely owned subsidiary of the government of Punjab. On April 1, 1960, SBP became an associate bank of the State Bank Group. It had 1035 administration outlets, including 1010 branches, in most urban areas of India before amalgamation with the SBI. The more significant part of the extensions was located in the Indian states of Punjab, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jammu & Kashmir, Delhi and Gujarat.

**State Bank of Travancore** (SBT) was another subsidiary of the State Bank Group primarily based in Kerala where it had 777 locations and 75 percent of the aggregate system. It had over 1036 branches spread over 16 Indian states. It had arrangements to open around 200 extensions to take its spread to 1200. It opened a Platinum Point Personal Service office at Banjara Hills, Hyderabad. It had also

opened 21 Specialized Gold Point Branches to cater to 14 areas in Kerala and one in Kanyakumari in Tamil Nadu to encourage quick and simple dispensing of Gold Loans customers. RSETIs have been set up at Wayanad, Pathanamthitta, Alappuzha and Kottayam for giving vocational courses to the rural youth with a concentration in the BPL class. The array of courses covered beautician, electrical, ornaments, basic bookkeeping, computer equipment servicing, aluminium tool-making, kitchen skills, mushroom farming, painting and so on.

**State Bank of Saurashtra** was established in 1902. It mainly catered to the governments' needs of princely states and acted as depositories for local savings. After the establishment of the Saurashtra state in 1948, there was an amalgamation of these banks. The Bhavnagar Darbar Bank became the State Bank of Saurashtra Ltd. under the Saurashtra State Bank (Amalgamation) Ordinance, 1950 and the four Darbar Banks - Rajkot State Bank, Porbandar State Bank, Palitana Darbar Bank and Vadia State Bank - were merged with it with effect from 1 July, 1950 as its branches. At the close of 1950, it had only nine branches and deposits of Rs.7 crores. In the year 1960, with the formation of a separate Gujarat State, the State Bank of Saurashtra principal operations were in Saurashtra which became a part of Gujarat. The SBI took over the State Bank of Saurashtra and other central state-owned banks under the State Bank of India (Subsidiary Banks) Act, 1959. The number of branches increased to 24 with aggregate deposits of Rs.14.39 crores, total advances of Rs.7.93 crores, and an investment portfolio of Rs.8.04 crores. The paid-up capital and reserves were Rs.1.51 crores. It had 866 employees. The first chairman of State Bank of Saurashtra was Jagubhai S. Parikh.

State Bank of Indore is merged with SBI on 26.08.2010 and on 1st April 2017, 5 of its associate banks and one other bank are merged with SBI.

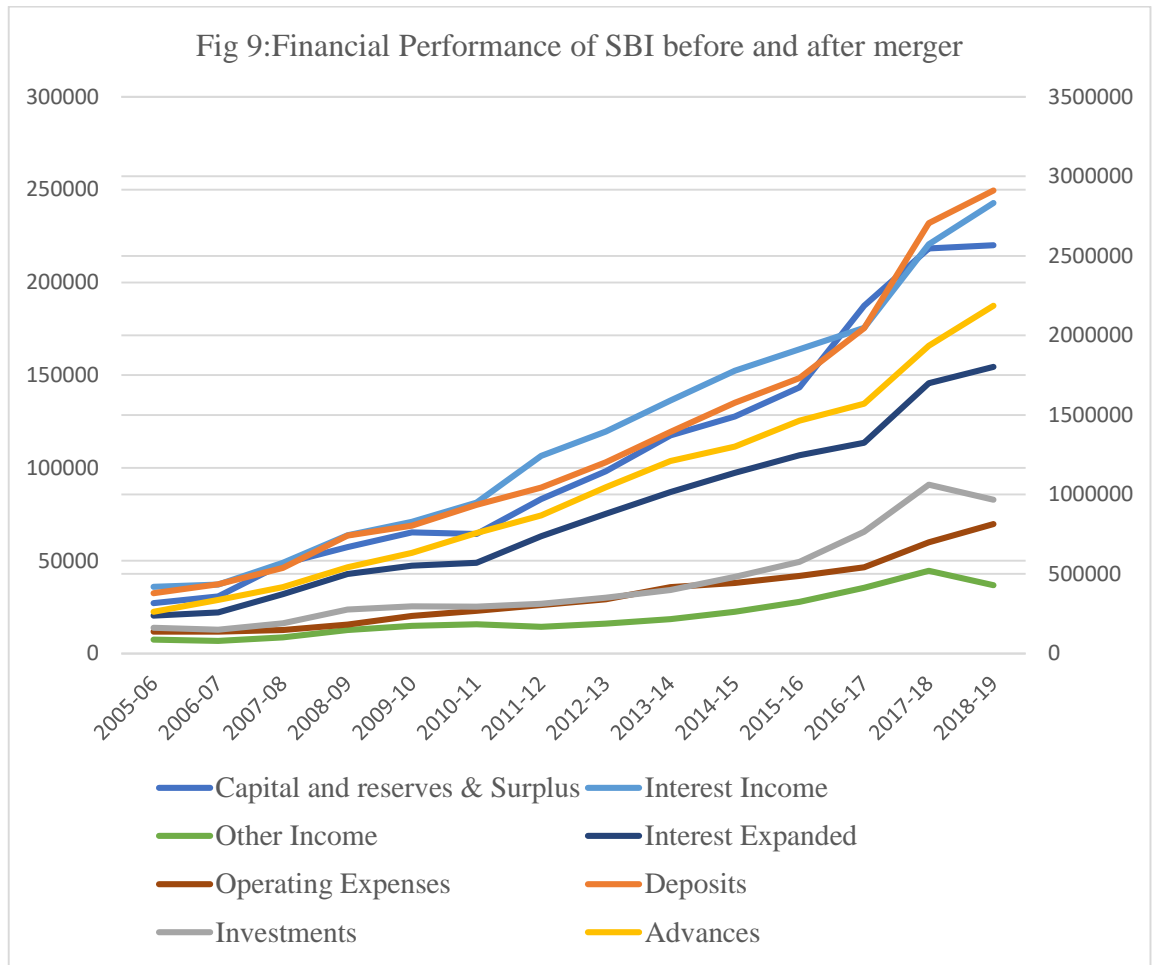
#### 4.13.2 Branch Outlets of SBI and Its Associates:

**Table 21: Number of Branches of SBI & its Associates**

<b>Year</b>	<b>SBBJ</b>	<b>SBH</b>	<b>SBI</b>	<b>SBI(Indore)</b>	<b>SBM</b>	<b>SBP</b>	<b>SBS</b>	<b>SBT</b>	<b>Total</b>
2006	867	991	9529	455	672	795	441	722	<b>14472</b>
2007	894	1027	9764	468	682	824	477	739	<b>14875</b>
2008	917	1069	10789	488	708	872	486	747	<b>16076</b>
2009	938	1108	12175	507	741	936	-	777	<b>17182</b>
2010	966	1266	13388	510	752	984	-	807	<b>18673</b>
2011	1010	1398	14582	-	772	1109	-	855	<b>19726</b>
2012	1049	1568	15237	-	804	1161	-	942	<b>20761</b>
2013	1142	1659	15943	-	850	1236	-	1078	<b>21908</b>
2014	1261	1811	16995	-	1021	1319	-	1195	<b>23602</b>
2015	1389	1954	17453	-	1096	1410	-	1228	<b>24530</b>
2016	1445	2073	17937	-	1118	1438	-	1247	<b>25258</b>
2017	1445	2071	18331	-	1157	1442	-	1256	<b>25702</b>
2018	-	-	23868	-	-	-	-	-	<b>23868</b>
2019	-	-	23467	-	-	-	-	-	<b>23467</b>
2020	-	-	23561	-	-	-	-	-	<b>23561</b>



### 4.13.3 Financial Performance of State Bank of India before and after of merger.



The financial performance of the SBI is shown over the period above. Though the branch outlets have come down, the business level increased after merger over the period. However operating expenses has increased over the period. It may be attributed to merger cost. We suggest that this may be the result of the merger although some other factors may have also played a role.

### 4.14 FINANCIAL RATIOS ANALYSIS ACROSS THE BANKS:

In this section bank-specific financial ratios are calculated for understanding the pre-merger and post-merger effect on the principal banks. The following ratios are calculated for better understanding of the financial health of the principal banks.

1. Cash-Deposit Ratio
2. Net Interest Margin Ratio

3. Ratio of Operating Profits to Total assets
4. Return on Assets
5. Return on Equity and Capital Adequacy Ratio.

**4.14.1 Cash - Deposit Ratio:**

**Table 22: Cash Deposit Ratio of Various Banks**

Acquiring bank	Study duration	Pre-merger: mean (SD)	Post-merger: mean (SD)	t- value; df	P- value
Federal Bank	2004-2009	5.28(1.31)	7.22(1.71)	0.265; 9	0.79
IDBI	2004-2009	13.6(2.9)	9.76(2.46)		
Indian Overseas Bank	2005-2010	7.4(1.76)	7.89(2.58)		
ICICI	2005-2010	6.6(1.37)	11.2(2.58)		
HDFC	2006-2011	8.6(3.4)	10.5(1.52)		
SBI	2008-2013	8.23(1.17)	6.92(1.54)		
Kotak Mahindra Bank	2013-2018	4.86(0.48)	4.79(0.18)		
SBI	2014-2019	6.98(0.77)	5.96(0.36)		
PNB	2000-2006	7.67(0.49)	8.16(0.98)		
OBC	2002-2007	7.33(0.99)	8.32(1.33)		

There is improvements in Cash Deposit ratio of all banks except IDBI and SBI.

**4.14.2 Ratio of net interest income to total assets (Net Interest Margin):**

**Table 23: Ratio of Net Interest Income to Total Assets of Various Banks**

Acquiring bank	Study duration	Pre-merger: mean (SD)	Post-merger: mean (SD)	t- value; df	P-value
Federal Bank	2004-2009	3.16	3.28	0.267; 9	0.797
IDBI	2004-2009	0.30(0.12)	0.69(0.12)		
Indian Overseas Bank	2005-2010	3.72	2.58		
ICICI	2005-2010	2.03	2.10		
HDFC	2006-2011	4.32	4.35		
SBI	2008-2013	2.49	3.10		
Kotak Mahindra Bank	2013-2018	4.33	4.20		
SBI	2014-2019	2.80	2.45		
PNB	2000-2006	3.84	3.93		
OBC	2002-2007	3.64	3.88		

NIM of all banks is improved except IOB and SBI.

**4.14.3 Ratio of operating profits to total assets:**

**Table 24: Ratio of Operating Profits to Total Assets of Various Banks**

Acquiring bank	Study duration	Pre-merger: mean (SD)	Post-merger: mean (SD)	t-value; df	P-value
Federal Bank	2004-2009	2.47	2.99	0.49;9	0.63
IDBI	2004-2009	0.78	0.99		
Indian Overseas Bank	2005-2010	2.57	1.97		
ICICI	2005-2010	1.95	2.35		
HDFC	2006-2011	3.21	3.18		
SBI	2008-2013	1.99	2.28		
Kotak Mahindra Bank	2013-2018	3.00	2.88		
SBI	2014-2019	1.99	1.83		
PNB	2000-2006	2.91	3.31		
OBC	2002-2007	3.09	3.51		

Operating profits to total assets ratio is decreased in case of merging of weak banks.

**4.14.4 Return on Assets:**

**Table 25: Ratio of Return on Assets of Various Banks**

<b>Acquiring bank</b>	<b>Study duration</b>	<b>Pre-merger: mean (SD)</b>	<b>Post-merger: mean (SD)</b>	<b>t-value; df</b>	<b>P-value</b>
Federal Bank	2004-2009	0.83	1.40	-0.94;9	0.37
IDBI	2004-2009	0.71	0.65		
Indian Overseas Bank	2005-2010	1.32	1.00		
ICICI	2005-2010	1.33	1.08		
HDFC	2006-2011	1.34	1.46		
SBI	2008-2013	0.98	0.85		
Kotak Mahindra Bank	2013-2018	1.86	1.55		
SBI	2014-2019	0.60	0.08		
PNB	2000-2006	0.98	1.08		
OBC	2002-2007	1.30	1.70		

Return on assets is decreased in case of merging of weaks banks which shows negative impact of consolidation.

**4.14.5 Return on equity:**

**Table 26: Ratio of Return on Equity of Various Banks**

Acquiring bank	Study duration	Pre-merger: mean (SD)	Post-merger: mean (SD)	t-value; df	P-value
Federal Bank	2004-2009	16.32	15.66	-2.43	0.04*
IDBI	2004-2009	6.47	8.84		
Indian Overseas Bank	2005-2010	27.78	19.62		
ICICI	2005-2010	15.45	9.13		
HDFC	2006-2011	18.31	16.74		
SBI	2008-2013	16.20	14.59		
Kotak Mahindra Bank	2013-2018	14.51	12.25		
SBI	2014-2019	9.32	8.16		
PNB	2000-2006	23.14	24.52		
OBC	2002-2007	20.23	24.51		

\*Result is significant at  $p < .05$

ROE of all Banks decreased (except IDBI) which suggest the negative impact of consolidation.

#### 4.14.6 Capital adequacy ratio:

**Table 27: Capital Adequacy Ratio of Various Banks**

Acquiring bank	Study duration	Pre-merger: mean (SD)	Post-merger: Mean (SD)	t-value; df	P-value
Federal Bank	2004-2009	12.51	18.70	1.229	0.258
IDBI	2004-2009	15.15	12.42		
Indian Overseas Bank	2005-2010	13.50	13.30		
ICICI	2005-2010	12.27	16.30		
HDFC	2006-2011	12.70	16.45		
SBI	2008-2013	13.77	12.92		
Kotak Mahindra Bank	2013-2018	17.11	17.35		
SBI	2014-2019	12.52	12.81		
PNB	2000-2006	12.02	13.10		
OBC	2002-2007	14.04	14.47		

Capital Adequacy ratio of all Banks except, IDBI, IOB and SBI (2008-13) is improved which is positively related to the consolidation of the Banks.

#### 4.15 DISCUSSION:

It is seen that Federal Bank's cash deposit ratio has increased year after year except for 2007. Net Interest margin has shown up-down over the year and thus doesn't attribute to the effect of consolidation. The ratio of the operating profits to the total assets for 2004 and 2005 was almost the same, which is decreased in 2006 and then improvement is observed after consolidation. Return on assets and capital

adequacy of the Bank has substantially increased and thus we can conclude that consolidation was fruitful attempt in case of the Federal Bank.

Analysis of the IDBI Bank's financial ratios shows that cash deposit ratio decreased over the years. The NIM has improved but not as per the industry's outlook. The operating profit to total assets ratio remained stable except for the year 2008. The ratio of assets' return has decreasing trends, and the same is reversed in case of return on equity. The capital adequacy ratio has shown decreasing trends which is negatively attributed to consolidation/merger.

The financial ratio analysis of Indian Overseas Bank doesn't show the merger effect, and as such variations/ups-downs may be attributed for the period.

Though the HDFC Bank's financial ratios have shown improved trends, Centurion Bank of Punjab doesn't attribute to the improved effects, and the existing strength of the Bank has thus resulted in improved performance.

Generally, the ICICI Bank's financial ratio has shown the increasing trends except the ratio of return on equity which has decreased substantially over the period and negatively impacted consolidation/merger of the Bank.

The two crucial ratios of return on assets and return on equity have adversely affected merger/consolidation in case of Kotak Mahindra Bank

The financial ratio studies of SBI over the period 2008 to 2019 show the mixed impact. There is no positive effect of consolidation of the SBI and Associates over the period. The negative performance over the period for a particular year may have resulted from economic conditions.

The cash deposit ratio across the Bank period has shown different mean (SD) pre-merger and post-merger. Their t Value: df and P-Value remained as 0.265:7 and 0.79 respectively.

Similarly, another ratio and their mean (SD) pre-merger/post-merger and T-value/P-value across the Bank over the period is analyzed. It is reflected that the banks' consolidation during the study period has relatively a positive impact.

Thus, it can be deduced that consolidation positively impacts the Bank's overall position.



## **CHAPTER - 5**

### **CAMELS MODEL ANALYSIS OF THE BANKS SELECTED IN THE STUDY**

#### **5.1 INTRODUCTION:**

In the 1970's the regulators for banking in USA namely Federal Reserve, OCC and FIDC felt the need for banking regulations and as a part of it, they proposed and developed the rating-based model which is called CAMEL model of bank's rating. The model is based on the "Uniform Financial Institutions Rating System" which gives a clear and trustworthy picture of banks. The rating-based model consists of 5 elements namely under the acronym, i.e., C-A-M-E-L:

C – Capital adequacy

A – Asset quality

M – Management soundness

E – Earnings capacity

L – Liquidity

The banks are supposed to be graded in a score of 1 through 5 for each CAMEL element, and the final rating represents the composite total of all the components. CAMEL scale measures a bank's overall situation. In the year 1996, the rating-based CAMEL model was improved and revised. The sensitivity of the banks to market risk was included and hence grading system was revised and 'S' for assessing "sensitivity to market risk", is devised and the risk-based rating model made CAMELS in vogue today.

Padmanabhan Committee recommended that the banks in India should be gauged on the CAMELS model and foreign banks' branches operating in India should be gauged on the CALCS model which means Capital adequacy, Asset quality, Liquidity, Compliance, and Systems & Control.

Banks are rated on a 1-100 scale in ascending order of their performance under the CAMELS Model. The scores are then assigned proportionate weights and given the rating from A to D comprising of A- Good, B-Satisfactory, C-Unsatisfactory, and D-Poor. Further, these ratings are finetuned and now given the as +A, -A, likewise to D by adding plus and minus.

The rating information is strictly confidential and the access is restricted only to the top management of the bank which receives a CAMEL's downgrade ratings. In case of downgraded rating and weak positions, banks need increased supervision and required improvements in their functioning of the banks. Those banks that fails in the process, are resolved under a formal resolution process to protect the customers.

**Prsently following Ratios used for constructing the banking stability map and indicator:**

- a. **Soundness:** CRAR , Tier-I Capital to Tier-II Capital , Leverage Ratio as Total Assets to Capital and Reserves
- b. **Asset-Quality:** Net NPAs to Total Advances, Gross NPAs to Total Advances, Sub-Standard Advances to Gross NPAs , Restructured Standard Advances to Standard Advances.
- c. **Profitability:** Return on Assets , Net Interest Margin , Growth in Profit.
- d. **Liquidity:** Liquid Assets to Total Assets #, Customer Deposits to Total Assets, Customer Deposits to Total Assets, Deposits maturing within 1-year to Total Deposits.
- e. **Efficiency:** Cost to Income, Business (Credit + Deposits) to Staff Expenses, Staff Expenses to Total Expenses.

**2 CAMELS MODEL THEORY:**

CAMELS is essentially a ratio-based model for assessing a bank's performance. Various ratios forming this model are described below:

**CAPITAL ADEQUACY - C:**

An adequate amount of capital of a financial institution forms a strong base for depositors in determining the involvement of the risk involved while dealing with such an institution. Institutions with the adequate capital convey the message that they can absorb the unanticipated shock and may be in position to honour its commitments. A sound capital base reinforces the confidence of depositors. The capital adequacy ratio of banks measures financial strength and shock-absorbing capacity. It considers financial risk like credit risk, interest risk and foreign exchange risk etc; by assigning the risk weightage to banks assets. The CAR is the

most commonly used indicator of capital adequacy. Basel Committee and BIS i.e. Bank for International Settlements has stipulated a minimum 8% CAR worldwide. CAR helps banks to protect the customers/depositors from the financial risk and also ensures the stability and efficiency of banks all over the world.

The following ratios are the indicators and calculators of capital adequacy:

1. Capital Adequacy Ratio
2. Debt to Equity Ratio
3. Total Advance to Total Assets
4. Government Securities to total Investment

### **Capital Adequacy Ratio (CAR):**

CAR is a ratio of the capital to risk-weighted assets. As per RBI guidelines, the minimum requirement is 9% in India as compared with 8% recommended by the Basel Committee.

Total capital includes two stages: Tier-I and Tier-II. First, tier-I capital includes paid-up equity capital, free reserves and intangible assets. Second, tier-II capital consists of long-term unsecured loans, loss reserves, hybrid debt capital instruments, etc. The higher the CAR, the stronger the bank, as it ensures high safety net against bankruptcy.

$$\text{CAR} = \text{Capital/Total Risk-Weighted Asset}$$

### **Debt-Equity Ratio (DER):**

DER indicates the degree of leverage of a bank. It explains the composition of the equity and debts used for funding the activity. Its proportion of the total external debt to the net worth of the bank, where external liabilities are total borrowings, deposits and other liabilities & net worth is the equity capital and reserve and surplus.

A higher ratio indicates the low protection for the creditors and depositors in the banking system.

$$\text{DER} = \text{Borrowings/ (Share Capital + reserves)}$$

**Total Advance to Total Asset Ratio:**

The ratio suggests bank's effectiveness in advances which leads to better profitability.

$$\text{Total Advance to Total Asset Ratio} = \text{Total Advances/Total Asset}$$

**Government Securities to Total Investments:**

The percentage of investment in government securities to total investment is a significant indicator, which shows a particular bank's risk-taking ability. This ratio indicates a bank's strategy as being high-profit high risk or low-profit low risk. It also provides a view of the availability of alternative investment opportunities. Government securities are generally considered as the safest debt instrument which, as a result, carry the lowest return. Because government securities are risk-free, the higher the government security to investment ratio, the lower the risk involved in a bank's investments.

$$\text{Govt Securities to Total Investments Ratio} = \text{Govt Securities/Total Investment}$$

**ASSET QUALITY – A:**

The quality of the asset denotes the healthiness of the bank. It is asset quality is measured by the NPA level and provisions.

**Non-Performing Assets (NPA):**

According to the RBI guidelines, advances are classified into performing and non-performing advances (NPAs) based on their performance ie earning in the account. An asset (including a leased asset), is considered non-performing when it stops to generate revenue for the bank. NPAs are further divided into Substandard assets, Doubtful-I, Dboutful-II, Doubtful-III and Loss assets based on the period of NPA and value of the securities attached to the assets.

An NPA is a loan if:

1. Interest and/or installment of principal amount remains overdue for more than 90 days regarding mortgage;
2. The account remains "out-of-order" due to an overdraft (OD);

3. Overdue bill for more than 90 days when bills are purchased, and;
4. A loan for short-duration crops will be considered as an NPA if the installments of principal or interest remain overdue for two crop periods;
5. A loan for long-duration crops will be considered an NPA if the installments of principal or interest thereon remain overdue for one crop period.

A bank classifies a loan as an NPA if the interest levied during any quarter is not fully repaid within the next 90 days from the end of the appropriate quarter. This is one of the keys to the stability of the banking sector. Indian banks have done significant NPA control work, considering the external issues and overall challenging financial atmosphere during the study period.

To evaluate the assets' quality, the following ratios are required:

**Gross NPA Ratio:**

This ratio denotes the banks total NPA's and can be calculated as under:

$$\text{Gross NPA Ratio} = \text{Gross NPA} / \text{Total Loans}$$

**Net NPA Ratio:**

The Net NPA's are Gross NPA minus provisions which is calculated as:

$$\text{Net NPA Ratio} = \text{Net NPA} / \text{Total Loan}$$

The higher the net NPA ratio, the greater the credit risk and thus weak the bank.

**MANAGEMENT – M:**

Strong management is one of the critical factors for a bank's performance.

Evaluation of management of banking firms requires the following:

- Capital adequacy
- Quality of an asset
- Profitability
- Liquidity
- Ratings of risk sensitivity

Qualitative nature of management, mere visual assessment of the banks' financial accounts cannot be judged. Several indicators jointly assess the efficiency measures as an indicator of management reliability. The following ratios are used to evaluate management efficiency:

**Total Advances to Total Deposits:**

It usually calculates a bank's management's proficiency and ability in converting accessible deposits with it into more gainful advances. It is also called as Credit to Deposit (CD) ratio. The higher the CD ratio, the greater the credit utilisation.

$$\text{Total Advances to Total Deposits Ratio} = \text{Total Advances/Total Deposits}$$

**Revenue per employee:**

Business per employee measures a particular bank's efficiency in utilizing its employees. Generally, it denotes the productivity of the employees and better the revenue generations shows the ability of the bank to get the work done from the employee.

$$\text{Revenue per employee} = \text{Total Income/No. of Employees}$$

**Profit per Employee:**

It is calculated by profit after-tax earned by a Bank to the total employees. A higher ratio shows the efficiency of the management.

$$\text{Profit per Employee} = \text{Profit after Tax/ No. of Employees}$$

**EARNINGS & PROFITABILITY (E):**

Earning and profitability is the primary source of the capital base in the banks. It depends upon the interest rate and effective operation management. Return on Assets (ROA) is one of the indicators to measure earnings.

The operations of the banks are supported by higher earnings and profits. It also helps banks to identify and provide the losses, meet future expansion and help to build the base capital.

Though the most widely used indicator is the return on assets (ROA), other indicators like Interest income/Total income and Other income/Total income are also used.

**Dividend Pay-out Ratio:**

This ratio indicates the percentage of profit shared with the shareholders. The higher the ratio, the greater a bank's goodwill in the share market.

$$\text{Dividend Pay-out Ratio} = \text{Dividend/Net profit}$$

**Return on Asset (ROA):**

It is the ratio of net profit to the total asset of the firm. It indicates the efficiency of banks in using their assets in making profits. A high ratio indicates the greater income-generating capacity of the assets and better efficiency of management.

$$\text{Return on Asset (ROA)} = \text{Net Profit/Total Asset}$$

**Interest Income to Total Income:**

Banks generate income through interest earned from lending and it is the primary source of income. This ratio is calculated as:

$$\text{Interest Income to Total Income} = \text{Interest Income/Total Income}$$

**Other Income to Total Income:**

Other income is another source of income from cross-selling of products and services, bank guarantees, and other fee-based income, etc. This denoted the bank's ability to garner more income from its fee-based services.

$$\text{Other Income to Total Income} = \text{Other Income/Total Income}$$

**LIQUIDITY (L):**

The term 'liquidity' is used in various ways, all relating to the availability of cash or convertibility into cash.

The liquidity of banks depends on the following:

- The institution's short-term need for cash

- Cash in hand
- Available lines of credit
- Liquidity of the institution's assets
- The institution's reputation in the marketplace

The ratios suggested to measure liquidity under the CAMEL Model are as follows:

**Liquid Asset to Total Asset:**

Liquidity means the ability to meet financial obligations whenever required. A bank finances investments in relatively liquid assets, but it funds its loans with mostly short-term liabilities. Thus, one of the bank's primary responsibilities is to ensure its liquidity under all acceptable conditions. Liquid assets comprise cash in hand, balance/deposits in the RBI, balance in the other financial institutions (both in India and abroad), and money at call and short notice. Total assets include the revaluations of all the assets. The percentage of liquid asset to total asset suggests the overall liquidity position of the concerned bank.

<b>Liquid Asset to Total Asset = Liquid Asset/Total Asset</b>
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**Government Securities to Total Asset:**

Government securities are considered as the most liquid and secured investments. This ratio calculates government securities as a proportion of total bank assets.

<b>Government Securities to Total Asset = Government Securities/Total Asset</b>
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**Liquid Asset to Demand Deposit:**

This ratio denotes the bank's position to meet the obligation of the demand deposit.

<b>Liquid Asset to Demand Deposit = Liquid Asset/demand Deposit</b>
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**Liquid Assets to Total Deposits:**

It denotes the ability of the banks to meet the total deposit demand whenever required and can be calculated as under:

<b>Liquid Assets to Total Deposits = Liquid Asset/Total Deposit</b>
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### **SENSITIVITY TO MARKET RISK (S):**

The risk that arises due to adverse market conditions are called market risk. The market conditions impact the interest rates, foreign exchange, commodity fluctuations, price variations, etc. Though all these are important, but banks focus on interest rate risk (IRR). Sensitivity analysis measures the bank's exposure to market risk.

### **Interest Rate Risk:**

Interest rate risk is the risk arising out of the interest rate fluctuations in the market.

### **5.3 RECENT STUDIES IN CAMELS MODEL:**

The literature review relating to the CAMEL approach is summarised here:

Zaman et al. (2011) studied CAMELS rating system among national banks of Pakistan. This study assessed the use of CAMELS as a supervisory and regulatory rating function employed by the State Bank of Pakistan (SBP). This study concludes that banks suffer from bankruptcy due to failure of both internal rating systems and credit rating agencies

Chaudhry (2012) studied selected public and private banks of India by using the CAMEL model. He selected SBI, BOB and PNB amongst the Public sector banks and HDFC, AXIS and ICICI from private sector banks and concluded that PNB and HDFC were better as their earnings are better in their respective groups.

Makkar (2013) made a comparative analysis of the financial performance of Indian commercial banks. The study concluded that the IDBI was the best performing bank, followed by Kotak Mahindra Bank and ICICI Bank amongst the 37 banks selected for the study during the period 2006 to 2011.

Gupta et al. (2014) conducted an empirical study of the financial performance of ICICI bank, which shows the improvement of the financials of the banks. Meghani et al. (2015), in their study on BOB and PNB based on CAMEL model concluded that; factors such as adequacy ratio, assets quality, management, earnings, liquidity and bank size were significant in explaining bank failures. Krupa (2016) evaluated the financial performance of the only scheduled Urban Co-operative Bank, Surat using a CAMEL model and concluded that quality of the overall asset was also excellent, management efficiency was satisfactory and earning capacity of the Bank was acceptable, but the overall state of liquidity was not satisfactory.

#### **5.4 ANALYSIS:**

For the present study purposes, data analysis under CAMELS model applied to the Banks under study before and after merger. A CAMELS model ratio analysis is given under (SBI appeared twice due to merger/consolidation in two different periods):

**Table 28: Bank-wise data based on CAMELS Model**

Parameter	BANK NAME	FB		ICICI		IDBI		IOB		KOTAK		SBI_2008		SBI_2016		HDFC		PNB		OBC	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
C-Capital Adequacy	CAR	12.51	18.70	12.27	16.30	15.15	12.42	13.50	13.30	17.11	17.35	13.77	12.92	12.52	12.81	12.70	16.45	12.02	13.10	14.04	14.47
	DE Ratio	0.37	0.33	2.19	1.70	7.95	4.93	0.39	1.32	0.77	1.35	1.35	1.68	1.79	1.72	1.77	1.69	1.85	1.81	0.37	1.29
	Tot Adv/Tot Ass	0.54	0.58	0.56	0.54	0.57	0.61	0.55	0.60	0.63	0.60	0.58	0.64	0.64	0.57	0.67	0.78	0.69	0.67	0.52	0.59
	GSec/Invest	0.88	0.77	0.74	0.66	0.61	0.72	0.85	0.89	0.80	0.74	0.79	0.82	0.84	0.82	0.91	1.06	0.94	0.91	0.81	0.87
A-Asset Quality	Net NPA / Net Adv	1.58	0.32	1.13	1.92	1.37	1.11	0.82	1.48	1.10	0.88	1.76	1.85	2.83	4.15	2.02	2.37	2.09	2.03	0.78	1.45
	Net NPA/Tot Ass	0.84	0.18	0.57	0.79	0.78	0.68	0.41	0.81	0.68	0.53	0.87	1.01	1.49	2.01	1.00	1.17	1.04	1.00	0.39	0.79
M-Management	Tot Adv/TotDep	0.62	0.70	0.88	0.94	2.52	1.16	0.64	0.72	0.86	0.91	0.76	0.84	0.85	0.74	0.87	1.02	0.90	0.88	0.61	0.71
	PPE	2.46	5.58	10.00	10.00	9.65	8.57	3.31	4.22	10.00	10.33	4.31	5.20	5.19	1.00	4.96	5.80	5.13	4.98	3.14	4.14
	BPE	398.50	649.66	937.33	975.66	1533.92	1742.22	363.81	661.40	830.00	689.67	549.33	815.65	1236.25	1723.67	631.73	739.12	653.70	634.09	345.62	648.17
	Total Invest/Tot al Ass	0.32	0.30	0.28	0.29	0.29	0.26	0.32	0.27	0.24	0.30	0.27	0.23	0.23	0.28	0.31	0.36	0.32	0.31	0.30	0.26
E-Earnings	Interest income / Tot income	0.89	0.86	0.75	0.78	0.81	0.86	0.88	0.87	0.84	0.85	0.83	0.86	0.87	0.84	0.95	1.12	0.99	0.96	0.84	0.85
	Other income / Tot income	0.14	0.13	0.24	0.21	0.19	0.13	0.11	0.12	0.15	0.14	0.16	0.13	0.13	0.16	0.18	0.22	0.19	0.18	0.10	0.12
	ROA_Net Profit/Tot Ass	0.95	1.40	1.33	1.07	0.73	0.65	1.32	1.00	1.55	1.86	0.98	0.85	0.59	0.08	1.13	1.32	1.17	1.13	1.25	0.98

Parameter	BANK NAME	FB		ICICI		IDBI		IOB		KOTAK		SBI_2008		SBI_2016		HDFC		PNB		OBC	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
	<b>Tot Exp/Tot Income</b>	0.22	0.16	0.25	0.18	0.13	0.10	0.24	0.19	0.27	0.25	0.22	0.22	0.22	0.23	0.25	0.30	0.26	0.25	0.23	0.19
	<b>Tot Income /Tot Ass</b>	0.08	0.09	0.07	0.09	0.05	0.07	0.08	0.08	0.09	0.11	0.08	0.08	0.08	0.07	0.09	0.11	0.10	0.09	0.08	0.08
	<b>Op profit/Tot Ass</b>	2.46	2.99	1.95	2.35	0.69	0.98	2.56	1.96	2.87	2.99	1.99	2.27	1.99	1.83	2.29	2.68	2.37	2.30	2.43	1.92
	<b>ROE</b>	17.97	15.65	15.45	9.13	7.15	8.84	27.78	19.61	12.24	14.51	16.20	14.59	9.32	1.16	18.63	21.80	19.28	18.70	26.39	19.22
	<b>ROA_Net Profit/Tot Ass</b>	0.95	1.40	1.33	1.07	0.73	0.65	1.32	1.00	1.55	1.86	0.98	0.85	0.59	0.08	1.13	1.32	1.17	1.13	1.25	0.98
	<b>Net interest income / Tot Ass</b>	3.17	3.27	2.02	2.09	0.34	0.69	3.72	2.58	4.19	4.33	2.48	3.09	2.79	2.45	2.85	3.34	2.95	2.86	3.53	2.53
<b>L-Liquidity</b>	<b>CD ratio</b>	5.66	7.22	6.63	11.22	13.02	9.76	7.45	7.89	4.78	4.85	8.23	6.92	6.97	5.96	9.46	11.07	9.79	9.50	7.08	7.73
	<b>GSec / Tot Ass</b>	0.28	0.23	0.20	0.18	0.18	0.19	0.27	0.23	0.19	0.22	0.21	0.18	0.18	0.22	0.24	0.28	0.25	0.24	0.26	0.23
	<b>Tot investments / Total dep</b>	0.36	0.36	0.44	0.50	1.31	0.49	0.38	0.33	0.33	0.46	0.36	0.30	0.31	0.36	0.41	0.48	0.43	0.42	0.36	0.32
	<b>Liquid assets/ Tot</b>	0.08	0.08	0.04	0.07	0.05	0.05	0.07	0.07	0.03	0.03	0.07	0.06	0.06	0.05	0.08	0.09	0.08	0.07	0.07	0.07

**Overall, CAMELS analysis:**

**Table 29: CAMELS Analysis of all banks (overall)**

Study Parameter	Total N	Pre-Merger			Post –Merger		
		Mean	Standard Deviation	Sum	Mean	Standard Deviation	Sum
Capital adequacy ratio	9	13.83	1.76	124.45	14.83	2.56	133.46
DE ratio	9	2.11	2.66	18.98	1.86	1.43	16.77
Total advances /Total assets	9	0.58	0.03	5.25	0.59	0.03	5.35
Govt securities/ Investments	9	0.79	0.08	7.12	0.78	0.07	6.99
Net NPA / Net advances ratio	9	1.51	0.66	13.62	1.67	1.23	15.06
Total Investments/Total Assets	9	0.28	0.03	2.54	0.27	0.02	2.49
Net NPA/Total Assets	9	0.81	0.34	7.29	0.86	0.56	7.75
Total expenditure/Total Income	9	0.22	0.04	2	0.19	0.05	1.73
Total advances/ Total deposits	9	1.02	0.66	9.18	0.86	0.16	7.74
Total income /Total assets	9	0.08	0.01	0.72	0.09	0.01	0.8
Profit per employee	9	6.42	3.35	57.76	6.42	3.39	57.76
Business per employee	9	835.59	438.58	7520.33	1036.84	488.76	9331.62

Study Parameter	Total N	Pre-Merger			Post –Merger		
		Mean	Standard Deviation	Sum	Mean	Standard Deviation	Sum
Operating profits /Total assets ratio	9	2.07	0.7	18.67	2.2	0.7	19.8
Return on equity	9	15.16	6.77	136.45	11.92	6.05	107.35
Net profit/Total assets	9	1.06	0.37	9.57	0.98	0.56	8.89
Interest income / Total income	9	0.84	0.04	7.54	0.85	0.03	7.65
Other income / Total income	9	0.16	0.04	1.46	0.15	0.03	1.35
Net interest income /Total assets ratio	9	2.68	1.26	24.1	2.66	1.12	23.85
Cash /deposit ratio	9	7.54	2.67	67.84	7.69	2.18	69.22
Government securities/ Total assets	9	0.22	0.04	1.98	0.21	0.02	1.89
Total investments / Total deposits	9	0.5	0.36	4.51	0.4	0.08	3.62
Liquid assets/ Total assets	9	0.06	0.01	0.54	0.06	0.01	0.54

**Table 30: Paired Samples Test**

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-capital adequacy ratio – post-capital adequacy ratio	-1.00	3.05	1.15	-3.82	1.82	-0.86	6	0.42
Pair 2	Pre-DE-ratio – post-DE ratio	0.24	1.30	0.49	-0.96	1.45	0.049	6	0.64
Pair 3	Pre total advances/Total assets - Post total Advances/Total assets	-0.01	0.05	0.01	-0.05	0.03	-0.60	6	0.57
Pair 4	Pre Govt securities/ Investments - Post govt securities/ Investments	0.01	0.07	0.02	-0.05	0.08	0.53	6	0.61
Pair 5	Pre net NPA / Net advances ratio - Post Net NPA / Net advances ratio	-0.16	0.85	0.32	-0.94	0.62	-0.49	6	0.63
Pair 6	Pre total Investments/Total assets - Post total Investments/Total assets	0.00	0.05	0.02	-0.04	0.05	0.26	6	0.80
Pair 7	Pre net NPA/Total assets - Post net NPA/Total assets	-0.05	0.39	0.15	-0.42	0.32	-0.34	6	0.74
Pair 8	Pre total expenditure/Total income - Post total Expenditure/Total income	0.03	0.03	0.01	0.01	0.05	2.7	6	<b>0.03</b>

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 9	Pre-Total advances/Total deposits - Post total Advances/Total deposits	0.16	0.53	0.20	-0.33	0.65	0.79	6	0.45
Pair 10	Pre total income/Total assets - Post total income /Total assets	-0.01	0.01	0.01	-0.02	-0.01	-2.55	6	<b>0.04</b>
Pair 11	Pre profit per employee - Post profit per employee	0.01	2.24	0.85	-2.07	2.07	0.01	6	0.99
Pair 12	Pre business per employee - Post business per employee	-201.25	200.48	75.77	-386.67	-15.84	-2.65	6	<b>0.03</b>
Pair 13	Pre operating profits / Total assets ratio - post operating profits / Total assets ratio	-0.12	0.38	0.15	-0.48	0.23	-0.84	6	0.42
Pair 14	Pre return on equity - Post return on equity	3.23	4.39	1.66	-0.84	7.29	1.94	6	0.10
Pair 15	Pre net profit/Total assets - Post net Profit/Total assets	0.07	0.34	0.13	-0.24	0.39	0.57	6	0.58
Pair 16	Pre interest income/Total income - Post interest income/Total income	-0.01	0.03	0.01	-0.04	0.01	-1.39	6	0.21
Pair 17	Pre other income/Total income - Post other income/total income	0.014	0.03	0.01	-0.01	0.04	1.39	6	0.21



		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 18	Pre net interest income / Total assets ratio - Post net interest income/Total assets ratio	0.03	0.56	0.21	-0.49	0.55	0.13	6	0.89
Pair 19	Pre cash/Deposit ratio - Post cash/Deposit ratio	-0.15	2.48	0.94	-2.45	2.14	-0.16	6	0.87
Pair 20	Pre government securities/ Total assets - Post government securities/ Total assets	0.01	0.94	0.01	-0.02	0.04	0.71	6	0.50
Pair 21	Pre total investments/ Total deposits - Post total investments/Total deposits	0.09	0.32	0.12	-0.20	0.40	0.79	6	0.45
Pair 22	Pre liquid assets/Total assets - Post liquid assets/Total assets	0.01	0.01	0.01	-0.01	0.01	0.07	6	0.94

### 5. 5 RESULT AND DISCUSSION:

1. Capital Adequacy Ratio (CAR) of the public sector banks remains low compared with the private sector/new generation banks. CAR (post-merger) has increasing trends except that of SBI.
2. DE Ratio of all banks has improved over the period after the merger except for SBI.
3. Total Advances to Total Assets Ratio of all the banks has improved.
4. Net NPA to Net Advances Ratio and Net NPA to Total Advances Ratio has improved after the banks' merger/consolidation.

5. Total expenditure to total income ratio also improved in all banks after merger/consolidation.
6. Operating Profits to Total Assets Ratio increased in all banks except SBI and Kotak Mahindra Bank, suggesting that these banks may have the merger/consolidation expenditure load.
7. Liquidity ratio has shown the degrading trends.
8. There is a significant difference in paired samples test analysis which suggest the improvement of the performances of the banks after consolidation/merger.

### **5.6 CONCLUSION:**

Based on the individual banks and across the banks over the period, the CAMELS Analysis reflects that the banks' consolidation/mergers had a positive impact.

The CAMELS model reflects the key aspects like capital, asset quality, earnings, and liquidity etc on which analysts keep watch. It also offers the flexibility of selecting the most appropriate ratios that regulatory authority, feel is most applicable to its financial environment for off-site analysis purposes. This model offers an operational framework within which to choose the appropriate ratios and specify the standards against which to evaluate an individual bank's performance and the performance of the industry.

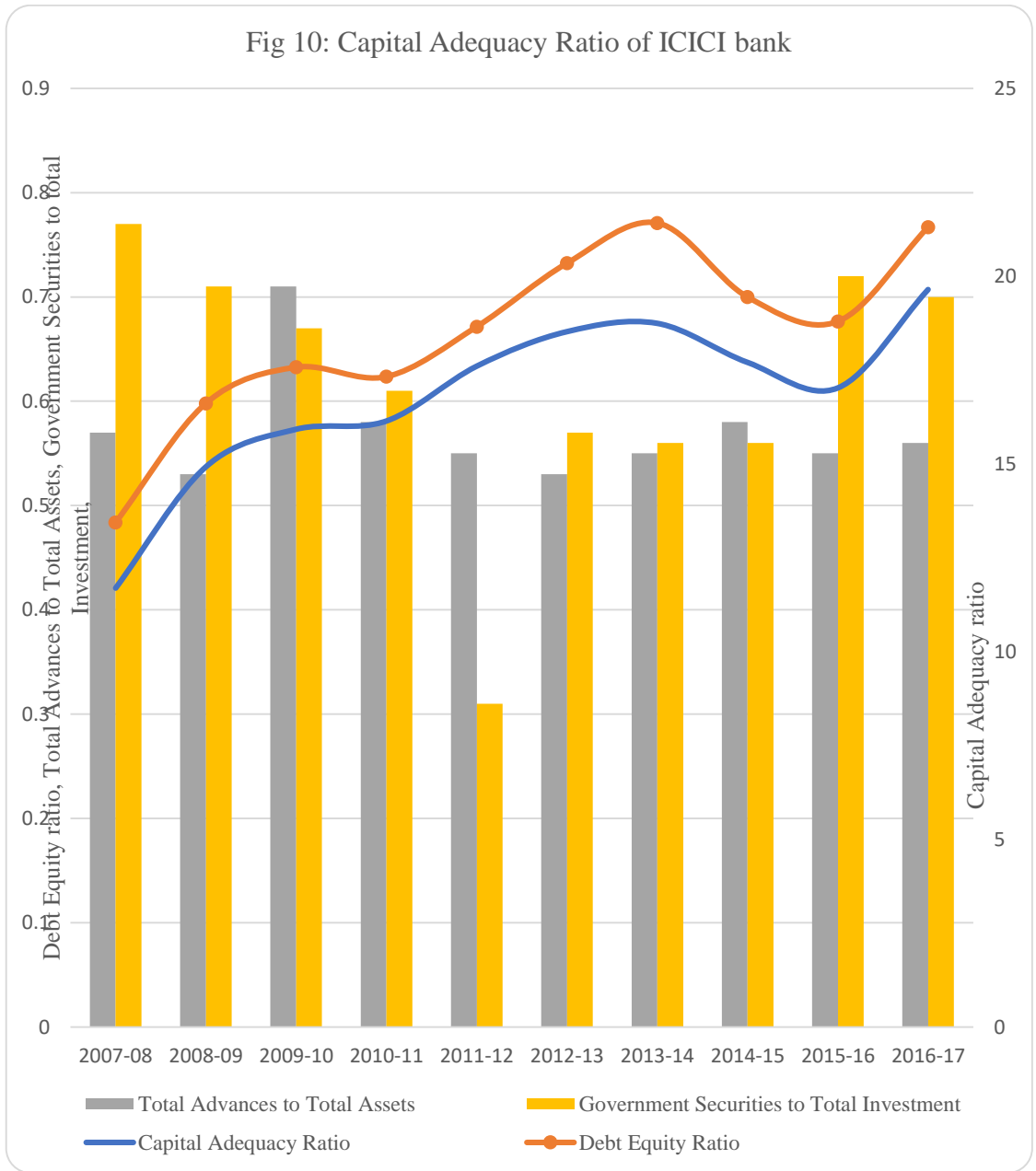
Changing financial scenarios has allowed banks to expand their global presence through expansion, strategic alliances, etc. Banks have adopted retail banking for low-cost deposits and high returns in retail advances. Banks have also focused on various untapped areas to boost their income. The financial sector reforms have brought the Indian financial system closer to global market standards. The process of strengthening the current banking system has to be viewed as a continuous one. With India increasingly getting integrated with the global financial world, Indian banking still has a long way to catch up with its contemporaries abroad.

### **5.7: ILLUSTRATIVE STUDIES OF ICICI BANK:**

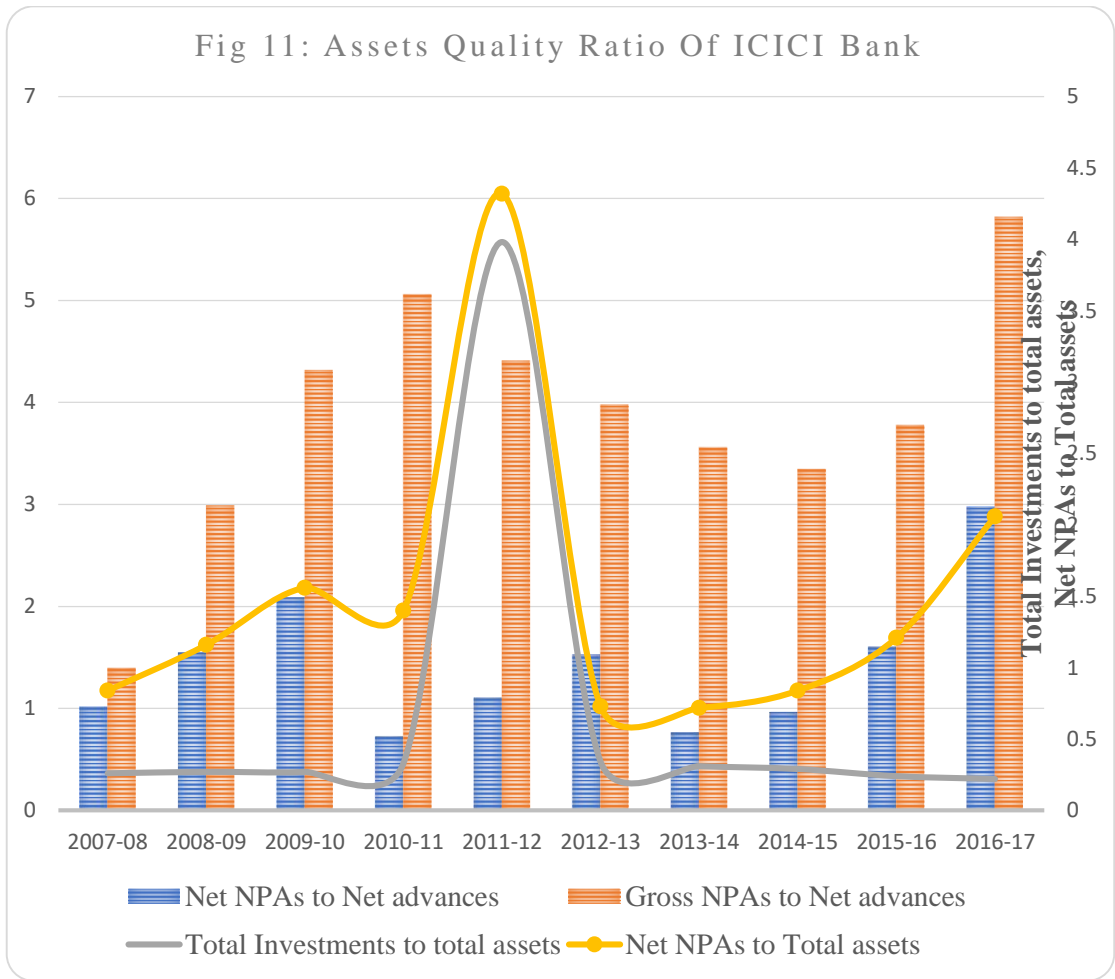
We give herewith the CAMELS Model analysis of the ICICI Bank over the period as an illustrative study. ICICI Bank is considered due to the two bank mergers over

the period, and as a private sector bank, mergers/consolidation happened due to market forces.

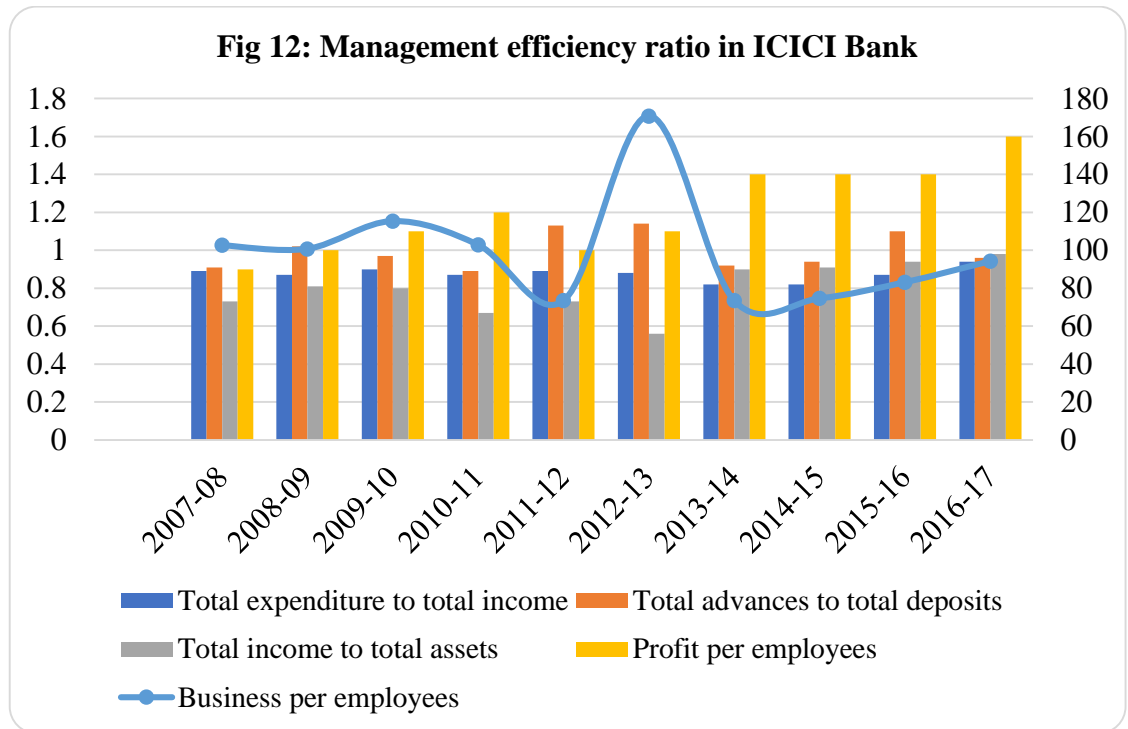
**5.7.1 Pre- and Post-merger analysis of Capital Adequacy ratios in ICICI Bank:**



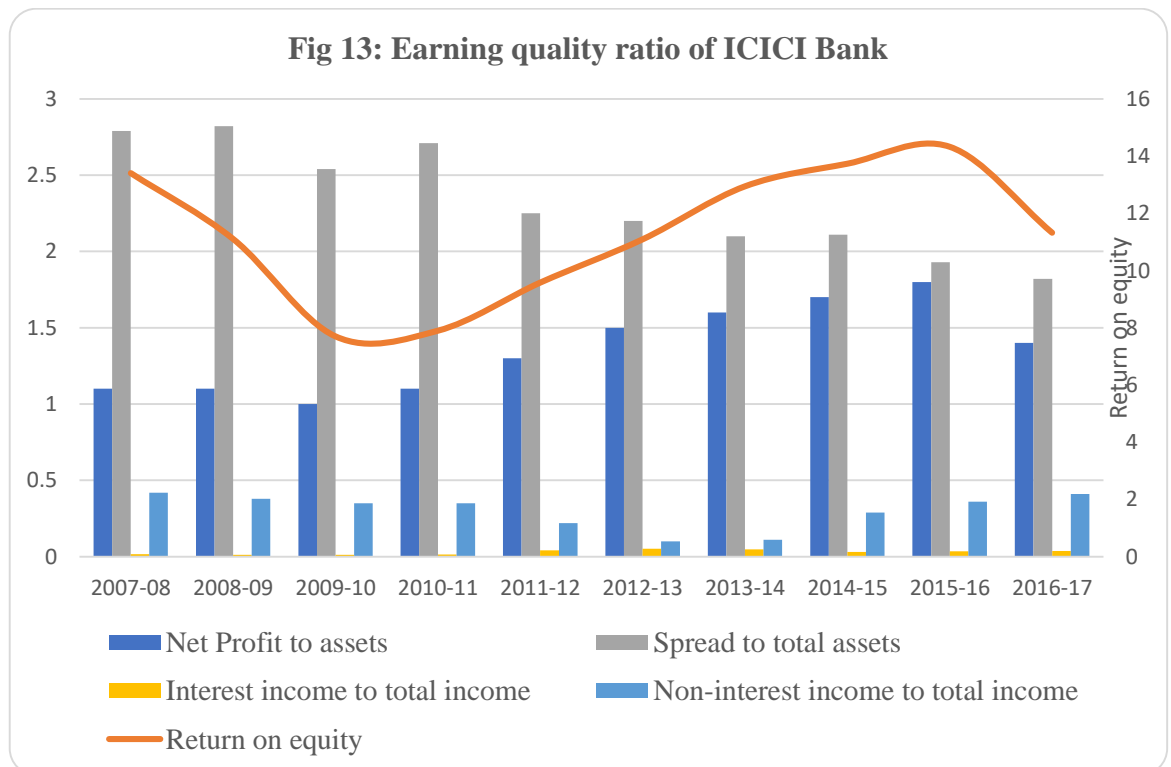
**5.7.2 Pre- and Post-merger analysis of Assets Quality Ratio of ICICI Bank:**



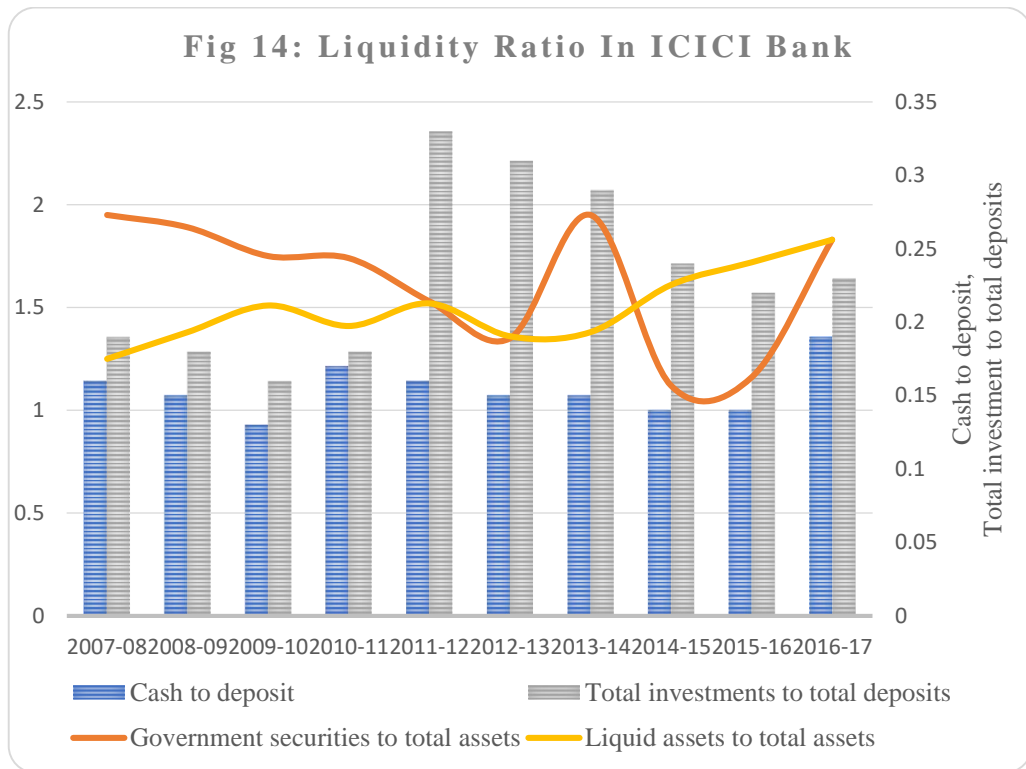
**5.7.3 Pre- and Post-merger analysis of management efficiency ratios in ICICI Bank:**



**5.7.4 Pre- and Post-merger analysis of earning quality ratios of ICICI Bank:**



**5.7.5 Pre- and Post-merger analysis of liquidity ratios in ICICI Bank:**



**5.7.6 Study Results and Interpretation:**

The data analysis focused on the pre- and post-merger performance of ICICI Bank through the CAMELS approach. Radical changes in the banking institutions in recent years and the banking sector worldwide have enhanced their supervision quality and practices and evaluated the banks' function through CAMELS rating and existing procedures and techniques. ICICI Bank is ranked according to the rating obtained by them on the five parameters from the above analysis. It was concluded though there has been an improvement in the capital adequacy and asset quality of the acquiring banks post-merger, efficiency of management and earnings quality failed to reflect the ability of the Bank to efficiently apply the assets in generating increased income for the Bank. Even the liquidity ratio does not indicate any change in the post-merger period, suggesting that the banks can fulfill their obligations to improve the post-merger performance of the ICICI Bank in India.

1. In CAR ratio, the overall post-merger performance showed an increasing trend compared with the pre-merger performance.

2. DER has shown an increasing trend over post-merger period.
3. Ratio of Total advances to total assets increased after merger, as also same trend is seen in Govt Sec to Total Investment ratio.
4. Furthermore, the net NPAs to net advances and the overall post-merger performance recorded 4.66 percent compared with the pre-merger performance of 10.29 percent.
5. The post-merger performance of total advances to total deposits increased from 0.89 to 0.96 percent from 2010-11 to 2016-17 respectively.
6. Profit per employee post-merger performance increased from 1.2 million to 1.6 million from 2010-11 to 2016-17.

## **CHAPTER – 6**

# **DATA ENVELOPMENT ANALYSIS (DEA): A NON-PARAMETRIC APPROACH**

### **6.1 INTRODUCTION:**

According to the Coase Theory (1937), mergers increase stock value. Bradley et al. and Desai et al. (1983, 1988) argue that mergers create synergies. According to them, the definition of the word 'synergies' includes economies of scale, more effective management, improved production methods, and the combination of resources of complementary nature. In particular, various motivating aspects have been recognized as per the studies of Hawawini and Swary, (1990) for the financial services firms engage in M&As. Some of these are:

- Access to information and proprietary know-how
- Achieve economies of scale and scope
- Enhance market power
- Achieve diversification
- Achieve certain tax-related benefits
- Satisfy management's goals (example: Hubris)

From a strategic perspective, one of the significant reasons for M&A activity in the financial services industry is capturing substantial economies of scale and scope, both domestically and internationally (Walter Ingo and Smith Roy C, 1990). A review of the banks' M&A's efficiency literature indicates substantial scope for improving banking organizations' efficiency. X-inefficiencies range from 20-25% of the banking industry's costs (Berger and Humphrey, 1997). This review also suggests that cost efficiency in the banking sector could be improved through M&As, following managerial efficiency, consolidation, information processing, and eliminating repetition in the operating branches and other management degrees. Further, there is a possibility for risk diversification through M&As, primarily geographic diversification (such as Centurion Bank of Punjab and HDFC merger). Increased diversification would allow banking firms to take on additional



credit risks and earn higher returns for equal equity and overall risk. (Akhavein et al., 1997; Demsetz and Strahan, 1997).

Fare et al. (1992, 1994) developed a DEA-based Malmquist productivity index which measures the productivity change over time. This index is a useful tool for measuring the productivity changes of DMUs (Decision-making units) over time and has been used in this study to pursue the changes in average bank productivity post-merger.

## **6.2 DEA ANALYSIS:**

### **DEFINITION AND THEORY**

A non-parametric mathematical program for frontier estimation is called as Data Envelopment Analysis (DEA).

There are two approaches popularly used to assess the efficiency of any unit. The methods are broadly classified into two categories: non-parametric such as Data Envelopment Analysis (DEA) and parametric methods such as Stochastic Frontier Analysis (SFA). The most crucial problem for the decision-maker is to choose the appropriate technique for the given situation as different model produces different results (Farsi et al., 2005). Any deviation from the frontier causes inefficiency and random error in the econometric approach. As the entire stochastic term is considered as inefficiency, the frontier remains deterministic. On the other hand, in the SFA models, the residuals are decomposed into two parts. One part represents statistical noise and the second part represents inefficiency. Knox (1993) discussed the measurement of productive efficiency. Greene (1980, 2004) applied SFA in panel data in the healthcare system. There are certain advantages and disadvantages of both approaches. The objective of this paper is to measure the efficiency and, in this study, we use DEA as a representative of the non-parametric methods. DEA is a mathematical programming approach for the measurement of efficiency relative of the various Decision-Making Units (DMUs) under study.

DEA model is used to evaluate the relative efficiency of a group or units of DMUs in their use of multiple inputs to produce multiple outputs where the form of production is neither known nor specified as in the case of the parametric approach (Shammari and Salimi, 1998). As a consequence, the DEA efficiency score for a

specific DMU is not defined by an absolute standard, but it is defined relative to the other DMUs in the specific data set under consideration. Farrell (1957) is known as the pioneer to develop DEA to solve the problem, which requires careful measurement but also has a limitation of combining the measurements of multiple units to measure the overall performance. Later on, Charnes et al. (1978) generalised Farrell's framework and popularised the concept.

The two most frequently applied models used in DEA are the CCR model – after Charnes et al. (1978) and the BCC model – after Banker et al. (1984). The basic difference between these two models is the Returns to Scale (RTS). The BCC model measures the effect of Variable Returns to Scale (VRS), and the CCR model restricts DMUs to operate with Constant Returns to Scale (CRS). There are various models available in DEA literature. Malmquist Productivity Index calculates the efficiency of the panel data where the efficiency of a DMU can be compared over two different time periods  $\alpha$  and  $\beta$  where  $\beta > \alpha$ . It computes the efficiency of the banks on a linear frontier scale ranging from 0 to 1. The most efficient banks are assigned a score equal to 1; whereas the relatively inefficient banks are assigned the efficiency score of zero. There are two components of the DEA, i.e., technical efficiency (TE) and allocative efficiency (AE).

Technical efficiency indicates a firm's ability to maximize output from a given set of inputs. In contrast, allocative efficiency shows a firm's ability to use these inputs in optimal proportions, given their respective prices where the production cost is minimal. Technical efficiency implies there should be no waste in utilizing inputs to produce a specific quantity of output. A financial institution is considered technically efficient when it cannot increase or decrease any input use without compromising in the quantities of inputs. The overall cost efficiency can be expressed as a product of technical and allocative efficiency measures. Therefore, the allocative efficiency of the DMU<sub>q</sub> can be calculated as a ratio of overall cost efficiency (CE<sub>q</sub>) to input-oriented technical efficiency (TE<sub>q</sub>). These three measures (technical, allocative, and overall cost efficiency) can take values ranging from zero to one. A value of one in the case of TE, AE, and CE indicates full efficiency. If production unit is technically fully efficient (TE<sub>q</sub> = 1) and displays allocative efficiency (AE<sub>q</sub> = 1). It is also overall cost-efficient (CE<sub>q</sub> = 1). This production unit uses a minimum number of inputs for producing given outputs,

while the proportion of inputs will guarantee the minimum possible costs. The production unit, which is technically efficient ( $TEq = 1$ ) but does not demonstrate allocative efficiency ( $AEq < 1$ ), is not also overall cost-efficient ( $CEq < 1$ ).

This production unit uses a minimum number of inputs for producing the given outputs, but the proportion of inputs will not guarantee the minimum possible costs. The production unit, which reaches allocative efficiency ( $AEq = 1$ ) but does not reach technical efficiency ( $TEq < 1$ ) cannot be marked as overall cost-efficient ( $CEq < 1$ ). The proportion of inputs will guarantee the minimum possible costs. Still, this combination of inputs is not minimal for producing given outputs if the production unit fails to demonstrate any of these three types of efficiency ( $TEq < 1$ ;  $AEq < 1$ ;  $CEq < 1$ ). Then the value of overall cost efficiency can be interpreted as potentially cost-saving. That can be achieved if the production unit uses the inputs in optimal combination. Potential costs saving can be calculated by subtracting the value of overall cost efficiency from the number one. To calculate banks' cost-efficiency, a CRS cost efficiency DEA model (by Coelli and et al., 2005) has been used and the results have been obtained.

Cost minimization DEA  $\min_{\lambda, x_i^*} w_i'x_i^*$

$$St - w_i + Q\lambda \geq 0$$

$$x_i^* - X\lambda \geq 0$$

$$\Pi\lambda \geq 1$$

$$\lambda \geq 0$$

The vector of input values/prices faced by the i-th firm and  $x_i^*$  is the cost-minimizing vector of input quantities, given the input prices  $w_i$  and the output levels  $y_i$ . That is, the input quantities ( $x_i^*$ ) are the decision variables in this LP.

The cost efficiency (CE) is calculated as:

$$CE = w_i'x_i^* / w_i'x_i$$

### ***Selection and specification of input variables:***

A review of the literature suggests the important role played by the choice of variables while determining a bank's efficiency level. For the present study, deposits, net fixed assets, and employees have been taken as input variables, and advances, interest income, and other income were taken as output variables. The

unit price of each input variable was also calculated. The unit price of deposit was calculated by dividing total interest expenses by deposits of the bank, whereas the unit price of the net fixed asset was calculated by dividing operating expenses by net fixed assets of the bank. The unit price of labour was calculated by dividing the amount of compensation of employees by the number of employees of the respective bank.

### **6.3 STUDIES ON DEA:**

Berger et al. (1993) in their study about the efficiency of financial institutions reviewed past research on the topic and proposed future research on this vital topic. According to the study, if the financial institutions (FIs) become efficient, we might expect enhanced profitability, more significant amounts of intermediated funds, better pricing and improved service quality. This apart, improved proficiency of FIs could result in better safety and soundness if some of the efficiency savings are employed in supplementing the capital base necessary to absorb risk by providing the much-needed buffer.

While scale and scope efficiencies have been widely studied, primarily in the context of USA financial institutions, relatively little attention has been paid to measuring a much more important source of efficiency differences, i.e., X-inefficiencies (deviations from the efficient border). Differences in managerial capability to control costs or maximize profits appears to be higher than the cost effects of the option of the scale of production differences which have been projected around 15% of banking costs.

Stephen A. Rhoades (1993) studied the efficiency effects of horizontal (in-market) bank mergers and conducted tests to determine whether banks involved in horizontal mergers achieve efficiency improvements relative to other firms. The analysis covered 898 M&As of the banks between 1981 and 1986. Different expense ratios measured efficiency. The results based on OLS and logit regression analysis indicated that during 1981-1986, horizontal bank mergers did not result in any efficiency gain. Further, the findings are based on the mergers believed to be most likely to result in efficiency gains. On horizontal mergers, the firms exhibit considerable deposit overlap and the acquirers are, on an average, more effective than the targets.

Allen & Roy (1996) anticipated a global cost function for international banks to test both input and output inefficiencies. Their findings for the period 1988-1992 indicated that for banks in 15 countries, the input related X-inefficiencies far overshadow the output inefficiencies measured by economies of scale and scope. Another finding was that while large banks in countries, where there was no functional integration of commercial banking, had input inefficiency as high as ~ 28% of total costs as well as substantial levels of scale diseconomies, other firms had X-inefficiency levels in the area of 15% of total costs.

Allen N Berger (1998) contends that an analysis of profit efficiency is better than the analysis of cost efficiency to assess the outcome of M&As of banks. It includes the effects of profit changes in output which typically happen after mergers. Further, the study adds that profit efficiency is a more general concept that includes cost X-efficiency effects of the merger and any profits and cost effects of output changes.

Prager and Hannan et al. (1998) studied USA bank mergers' price effects that substantially increased local market concentration. They used the deposit interest rates of banking firms to their customers as their price measure. They found that during 1991-94, deposit rates offered by participants in substantial horizontal mergers and their local market rivals dropped by a higher percentage than those offered by banks not operating in markets where such mergers took place. The results are evidence to establish that these mergers led to enhanced market power. Bank mergers may empower banks to gain new business prospects that surface following changes in the regulatory and technological environment. Berger et al. (1999) highlighted the outcomes of M&As which may result in changes in efficiency, market power, scale and scope markets and services available to small customers.

Rhoades.S. A (1998) examined the efficiency effects of M&A banks, employing a sample of nine mergers. The selected sample of mergers for the study entailed those mergers that seemed comparatively likely to result in efficiency gains. They involved relatively bigger banks, generally with substantial market overlap, and most of them occurred during the early 1990s when efficiency was getting higher attention in banking. All nine mergers resulted in a significant reduction in costs as expected before the merger. While four of the nine bank consolidations

successfully resulted in enhancements in cost efficiency, the remaining five did not. Though not possible, it was to segregate the particular factors most likely to produce efficiency gains. Generally, it was found that the most substantial volume of cost reductions was staff retrenchments (over half of total cost reduction on an average) and data processing systems and operations. A majority of the mergers demonstrated an improvement in return on assets (ROA) relative to the respective peer groups.

Allen N. Berger et al. (1999) developed a framework for evaluating the causes, consequences and future implications of the financial services industry's consolidation. They reviewed the existing literature in the background of this framework and made invaluable suggestions for future research. Their study indicated increases in market power from some types of consolidation and also improvements in profit efficiency and risk diversification. But it showed slight or no improvement in cost efficiency on an average and on the availability of services to small customers. Their study also discussed possible improvements in payments system efficiency and potential costs imposed on the financial system from an increased risk.

Another study by Jose, M.P (2001) analysed the cost and profit efficiencies of a sample of 14 EU countries, Japan and the USA. The results showed that from the beginning of the 1990s rising competition led to gains in the USA and European countries' profit efficiency but not in the Japanese banking system. They also emphasized that the disparities of profitability among countries would be significantly reduced if inefficiencies were separated and that efficiency gain is a critical profitability source.

Berger and Mester (2003) explored the effects of technological change, deregulation, and dynamic changes in competition on the performance of the banking institutions in the USA. The most remarkable dimension of their results is that during the period between 1991 and 1997, cost productivity declined while profit productivity improved significantly, particularly for banks involved in mergers. The data results were consistent with the hypothesis that banks made efforts to maximize profits by increasing revenues and reducing costs. They appeared to provide additional quality customer services that raised costs and simultaneously supplemented profits more than the corresponding cost increases.

The results indicate that approaches that leave out revenues in assessing performance could be misleading.

DEA approach has been commonly utilized in estimating the efficiencies in sectors like banking, education and healthcare. The DEA methodology has increasingly been the favoured method to investigate the impact of M&As on bank efficiency, especially when the sample size is small.

Al-Sharkas, Hassan & Lawrence (2008) using the Stochastic Frontier Approach (SFA) investigated the effect of bank mergers' cost and profit efficiency on the US banking sector. The empirical findings suggest that the cost and profit efficiencies of banks have improved post-merger. Further, the evidence suggests that merged banks have smaller costs than non-merged banks because of their access to the most efficient technology available (technical efficiency) and cost-minimizing input mix (allocative efficiency). Another notable study finding was that mergers might allow the banking industry to take advantage of the opportunities created by the improved technology. Avkiran et al. (1999) used Data Envelopment Analysis (DEA) to measure operating efficiencies, profit performance, employee productivity and median relative efficiency for Australian trading banks between 1986 and 1995. According to his study, efficiencies increased during the post-deregulation period. However, the acquiring bank did not always sustain its pre-merger efficiency. Hence, there is a necessity for decision-makers to be cautious in promoting mergers as a means of creating efficiency gains.

Milind & Sathye (2001) investigated the X-efficiency of Australian banks using DEA to compute the efficiency scores. Banks in the sample have a smaller overall efficiency level than those in the EU and USA. Another finding was that the Australian banks' inadequacy could be attributed to technical inefficiency rather than incorrect combinations (allocative inefficiency). The study has significant consequences for government policy regarding deregulation and mergers in as much as it helps banking firms plan strategies by clearly identifying most of the sources of inefficiency.

Aloke Ghosh (2001) using a sample of sizeable M&As between 1981 and 1995 found no evidence of operating performance increasing following acquisitions. The firms in question are matched on performance and size as a benchmark. Isik et al. (2002) studied the impact of the Turkish banking industry's technical, scale

and allocative efficiencies over the 1988-1996 period. The results suggest that different characteristics of banks significantly impact their efficiency and the cost and profit efficiencies of Turkish banks intensified over time. Another important finding was that the leading cause of Turkish banking inefficiency was technical inefficiency rather than allocative inefficiency, attributable mainly to scale diseconomies.

Liu and Tripe (2002) used a small sample of seven to fourteen banks and explored the efficiency of six banks of New Zealand which merged during the period between 1989 and 1998. They found the acquiring banks to be generally more prominent than the targets. While the results suggested that four banks experienced efficiency gains post-merger, they could not conclude possible merger benefits.

Sufian (2004), using a sample of 10 banks, investigated the impact of the merger program on the domestically incorporated Malaysian commercial banks. This study implied that these banks' inefficiency was attributable to scale, suggesting that they were operating at sub-optimal levels.

Sufian et al. (2009) explored the impact of M&As on the Malaysian banking sector's technical efficiency during the period 1997-2003. Based on the empirical findings, the authors concluded that the merger program of the Malaysian domestic commercial banks was propelled by economic reasons. They also found enhancements in technical efficiency during the post-merger period.

Most of the studies relate to bank consolidation in US, Europe and Australia, and have found no convincing evidence on the upsurge in efficiency gains resulting from bank mergers (Rhoades, 1993; De Young,1997). Other studies show improvements in bank mergers' technical efficiency (Al-Sharkas et al., 2008; Sufian et al.; 2009). Although a few studies have found improvements in profit efficiency after bank mergers, no such improvements have been observed in cost efficiency in the same studies (Berger and Mester, 2003; Berger et al., 1999). Another noteworthy conclusion of a study was that bank efficiencies (in Australia) increased in the post-deregulation period. The acquirer firm did not always retain its pre-merger efficiency (Avkiran,1999).

Another study explored the effects of bank mergers on the US banking industry's cost and profit efficiency. It observed that both these efficiencies improved post-



mergers (Al-Sharkas et al.,2008). In another study of efficiency among European banks, the scale economies were found to be 5-7% , while the X-inefficiencies were higher, ranging between 20-25%. Banks, irrespective of size, could generate more significant cost savings by bringing down managerial and other inefficiencies. The study also indicated that technical progress has also had a similar influence (cost reductions were around 3%) on European banking markets from 1989 to 1997 (Altunbas et al., 2001). A noteworthy outcome of the literature review was that the acquiring banks were generally more prominent than the targets (Liu and Tripe, 2002).

Finally, a study to analyse the cost and profit efficiency of a sample of banks drawn from US, Europe and Japan observed that growing competition had resulted in increases in profit efficiency in the USA and European countries but not in Japan. The result could imply that bank efficiency improvement is not uniform across the globe but might vary from country to country (Jose, 2001). Variation in efficiency across different ownership classes has also been observed in a cost and profit efficiency study of Indian banks during the post-reform period (Ray et al.,2010).

The report about "Bank Mergers and the Public Interest" (2006) published by Public Interest Advocacy Centre, a Canadian law firm, delineates briefly the rules and bank policies that govern large bank mergers in the Canadian banking environment. It looks at the motives for turning down two large mergers in 1998 and whether the reasons presented for the same had altered by 2002. It also investigates briefly the bank merger experiences in other jurisdictions, surveys financial services environment from a client's perspective and then evaluates how mergers might affect public interest issues of choice, access and price. The report does not find any convincing evidence that large bank mergers will enhance consumer choice and access to banking services. This study did not find any evidence that banking services' cost will be reduced following a bank merger. Canada's major banks' dominance makes a successful new entry of foreign banks or other domestic entities difficult. The proposal that physical branches can be substituted by e-banking does not meet Canadians' varied banking needs and small businesses. The reliance on e-banking also highlights age and income divides. There is also the uncertainty that increased use of ATMs following a bank merger will reduce banking costs.

***Indian context:***

Despite substantial research regarding the banking industry's efficiency in the US, Europe and Asia-Pacific region, similar studies in the Indian context are few, especially in commercial bank mergers. This result could be partially attributed to the non-availability of data sources and the small sample of banks that have undergone mergers.

Bhattacharyya, Lovell & Sahay (1997) investigated 70 Indian commercial banks' productive efficiency between 1986 and 1991 using DEA and technical efficiency scores. Their finding showed that public sector banks were the most efficient compared with foreign-owned and privately-owned Indian banks. It also pointed out that foreign banks were the least efficient at the beginning of the sample period and became as efficient as public sector banks by the end of it, possibly via efficient adjustment to an increasingly competitive atmosphere.

Gunjan M Saneev (2008) explored Indian public sector banks' efficiency for 2003-2007 using Data Envelopment Analysis (DEA) approach. His findings show that the efficiency of these banks had not increased over the study period. Prakash Singh (2009) examined the impact of mergers in Indian banking using the DEA approach. He analysed the profit efficiency and cost-efficiency of the acquiring bank to see whether any gains occur from consolidation. He concluded that the M&A does not seem to impact the cost and profit efficiency adversely.

Ray and Das (2010) used a non-parametric DEA methodology to evaluate the cost and profit efficiency gains of the Indian banking industry during the post-reform period (1997-2003). Their study indicates that the state-owned banks are more efficient than their private sector counterparts. Moreover, lower efficiencies were correlated with small banks (with assets up to INR 50 billion), signifying scale diseconomies. They also found a considerable difference in efficiency across various ownership categories of banks.

In sum, the literature review indicates that bank consolidation can improve the firm's performance through improved profitability by enhancing efficiency levels post-merger. There is, however, inconsistent evidence about increased efficiency levels post-merger in the banking sector across the globe.

## 6.4 ANALYSIS AND DISCUSSION: DEA

This analysis has been done on the basis of secondary sources, mainly from the official dictionary and the Centre for Monitoring Indian Economic (CMIE) database, namely, PROWESS. The data was also collected from published annual reports of the selected banks accessed from related websites, magazines and journals on finance.

The tables below show the descriptive statistics about the inputs (deposits, net fixed assets, and labour), outputs (advances, interest income, and other income) and the price of all the input variables considered for the data analysis.

**Table 31: Descriptive Statistics of Inputs and outputs**

Bank	Statistics	Studied variables					
		Deposits	Net fixed assets	Labour	Advances	Interest income	Other income
ICICI	Mean	2852035	175211	5798.00	2643937	327057	1148.11
	SD	3371436	2021.88	639536	3274437	416058	1488.71
PNB	Mean	77012.99	81423	59790.00	43440.74	687321	156631
	SD	35138.97	153.97	294759	2676221	263657	71234
OBC	Mean	4790150	35358	1423930	2959930	434015	622.70
	SD	2531455	37826	59336	2018549	204957	25322
FB	Mean	1897854	19527	671350	1243536	174113	40522
	SD	978617	5530	58152	801015	1086.70	216.74
IOB	Mean	8605913	93936	2510710	6116120	790459	1088.79
	SD	4782031	65537	118022	410624	46572	40632

**Table 32: Descriptive statistics of the price of inputs**

Bank	Statistics	Studied variables		
		Price of deposit	Price of NFA	Price of labour
ICICI	Mean	0.084	0.038	0.025
	SD	0.035	0.016	0.011
PNB	Mean	0.059	0.027	0.027
	SD	0.014	0.008	0.010
OBC	Mean	0.064	0.037	0.030
	SD	0.013	0.010	0.010
FB	Mean	0.063	0.045	0.032
	SD	0.015	0.018	0.010
IOB	Mean	0.058	0.010	0.045
	SD	0.009	0.004	0.015

**Table 33: Technical, allocative and cost efficiency of merged banks**

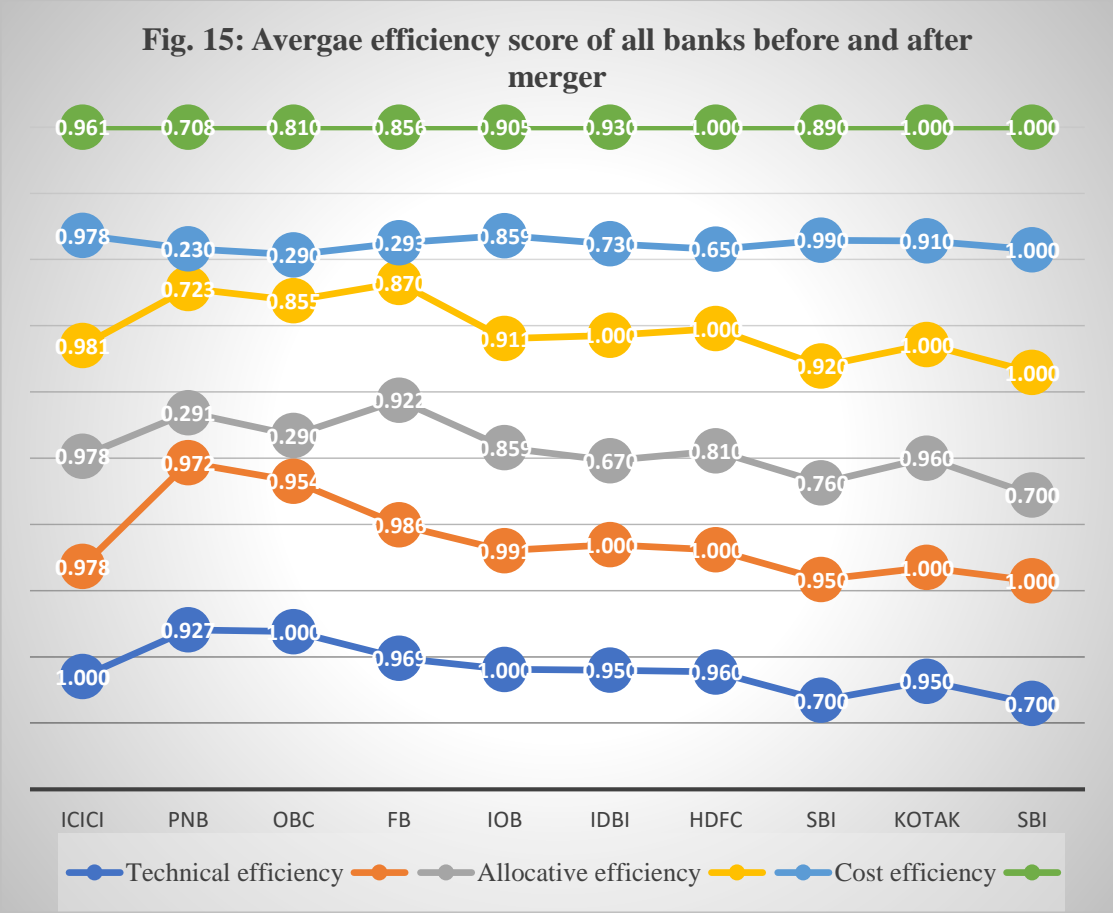
ICICI	<b>YEAR</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
	TE	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00
	AE	1.00	1.00	1.00	1.00	0.89	0.90	1.00	1.00	1.00	1.00
	CE	1.00	1.00	1.00	1.00	0.89	0.81	1.00	1.00	1.00	1.00
PNB	<b>YEAR</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
	TE	1.00	0.79	0.91	0.93	1.00	0.99	0.99	0.86	0.99	1.00
	AE	1.00	0.77	0.93	0.85	0.89	0.96	0.85	0.51	0.59	0.69
	CE	1.00	0.61	0.85	0.79	0.89	0.96	0.85	0.44	0.59	0.69
OBC	<b>YEAR</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
	TE	1.00	1.00	1.00	1.00	1.00	0.82	1.00	1.00	1.00	0.95
	AE	0.68	0.77	1.00	1.00	0.99	0.99	0.85	0.66	0.81	0.96
	CE	0.68	0.77	1.00	1.00	0.99	0.89	0.85	0.66	0.81	0.91
FB	<b>YEAR</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
	TE	1.00	1.00	1.00	1.00	0.85	0.93	1.00	1.00	1.00	1.00
	AE	0.70	0.95	0.99	1.00	0.96	0.97	0.86	0.70	0.80	1.00
	CE	0.70	0.95	0.99	1.00	0.81	0.91	0.87	0.70	0.80	1.00
IOB	<b>YEAR</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
	TE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
	AE	0.55	0.75	1.00	1.00	1.00	1.00	1.00	0.67	0.87	1.00
	CE	0.55	0.75	1.00	1.00	1.00	1.00	1.00	0.65	0.87	1.00

IDBI	<b>YEAR</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
	TE	1.00	1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00
	AE	0.57	0.78	1.00	0.67	0.87	1.00	1.00	1.00	1.00	1.00
	CE	0.53	0.77	1.00	0.65	0.87	1.00	1.00	1.00	1.00	1.00
HDFC	<b>YEAR</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
	TE	0.95	0.99	1.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00
	AE	0.95	0.99	1.00	0.81	0.86	1.00	1.00	1.00	1.00	1.00
	CE	0.93	1.00	1.00	0.65	0.87	1.00	1.00	1.00	1.00	1.00
KOTAK BANK	<b>YEAR</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
	TE	1.00	0.82	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
	AE	0.99	0.99	0.85	0.66	0.81	0.96	1.00	1.00	1.00	1.00
	CE	0.99	0.89	0.85	0.66	0.81	0.91	1.00	1.00	1.00	1.00
SBI	<b>YEAR</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
	TE	0.70	0.95	0.99	1.00	0.96	0.97	0.86	0.70	1.00	1.00
	AE	0.70	0.95	0.99	1.00	0.81	0.91	0.87	0.70	1.00	1.00
	CE	0.99	0.89	0.85	0.66	0.81	0.91	1.00	1.00	1.00	1.00

The above table describes the year-wise technical, allocative and cost efficiency scores recorded by the selected Indian banks. Most banks were found to be technically efficient throughout the study period. Banks have recorded technical efficiency scores ranging from 51.20% to 100% (i.e., 0.512 to 1.00). Among the selected merged banks, IOB and ICICI attained nearly 100% technical efficiency scores throughout the period. The allocative efficiency scores of selected merged commercial banks ranged from 47.60% to 100% (i.e., 0.476 to 1.000). To be fully cost-efficient, every bank has to achieve full technical and allocative efficiency. The cost-efficiency scores of merged banks ranged from 35.30% to 100% (i.e., 0.353 to 1.000). It indicates that the banks have failed to achieve full cost efficiency throughout the period.

**Table 34: Average efficiency scores: before & after the merger**

Name of the bank	Technical efficiency		Allocative efficiency		Cost efficiency	
	Before the merger	After the merger	Before the merger	After the merger	Before the merger	After the merger
ICICI	1.000	0.978	0.978	0.981	0.978	0.961
PNB	0.927	0.972	0.291	0.723	0.230	0.708
OBC	1.000	0.954	0.290	0.855	0.290	0.810
FB	0.969	0.986	0.922	0.870	0.293	0.856
IOB	1.000	0.991	0.859	0.911	0.859	0.905
IDBI	0.950	1.000	0.670	1.000	0.730	0.930
HDFC	0.960	1.000	0.810	1.000	0.650	1.000
SBI (2008)	0.700	0.950	0.760	0.920	0.990	0.890
KOTAK	0.950	1.000	0.960	1.000	0.910	1.000
SBI (2016)	0.700	1.000	0.700	1.000	1.000	1.000



The above table & graph depicts the average efficiency scores of selected merged commercial banks before and after the merger. It describes that after the merger, most banks have witnessed a gain in technical efficiency scores. It indicates that banks have improved their technical efficiencies after the merger. On the other hand, all the merged banks' allocative efficiency has decreased except for Indian Overseas Bank. It indicates that banks fail to obtain allocative efficiency from the merger with others. A negative relationship was recorded between the changes in technology and banks' allocative efficiency after the merger. Any deficiencies in technical or allocative efficiency led to an adverse effect on cost efficiency. The cost-efficiency of banks has decreased after mergers. From the above table, it is evident that the cost-efficiency of merged banks has been impacted by consolidation.



**Table 35: Paired T-test to study the differences**

Variables		Mean	SD	SE mean	T value	df	P value
Cost efficiency	before – after	0.0553	0.053	0.017	3.12	8	0.014

To analyze the merger's impact on the cost efficiency of overall selected commercial banks in India, paired sample t-test has been used, and the results of the same have been shown in the above table. Results suggest that consolidation has a significant impact ( $p\text{-value} < 0.05$ ) on selected merged commercial banks' cost efficiency.

The table below shows the descriptive statistics about the inputs (deposits, net fixed assets, and labour), outputs (advances, interest income, and other income) and the price of all the input variables considered for the data analysis.

**Table 36: Merger Status of Banks**

Name of the bank	Studied parameters	Merger status of banks			
		Pre		Post	
		Mean	Standard Deviation	Mean	Standard Deviation
FEDERAL BANK	in_fixed_assets	179.65	8.18	233.24	47.34
	in_deposits	16535.81	1899.19	26565.33	5336.83
	in_tot_employee	6716.44	218.97	6942.55	298.92
	out_advances	10279.53	2060.42	18731.88	3749.37
	out_int_income	1313.78	173.59	2544.09	757.36
	out_total_income	1528.24	177.11	2948.45	864.19

Name of the bank	Studied parameters	Merger status of banks			
		Pre		Post	
		Mean	Standard Deviation	Mean	Standard Deviation
ICICI BANK	in_fixed_assets	3707.73	455.42	4668.66	67.43
	in_deposits	221598.49	21393.26	257905.22	33570.44
	in_tot_employee	44854.92	6318.07	70452.53	9669.13
	out_advances	208377.51	23813.36	253447.66	36942.56
	out_int_income	29195.94	3025.39	33197.43	7057.11
	out_total_income	37159.98	3472.27	40696.22	7905.46
IDBI BANK	in_fixed_assets	1492.89	1113.94	2862.35	120.14
	in_deposits	28152.53	14248.07	117688.69	47555.53
	in_tot_employee	5565.16	1787.92	10620.95	2036.81
	out_advances	53541.15	8556.86	107953.01	28265.55
	out_int_income	4793.95	1913.55	11615.77	3610.73
	out_total_income	5772.21	2184.99	13402.42	3983.87
INDIAN OVERSEAS BANK	in_fixed_assets	473.57	32.22	1322.66	661.74
	in_deposits	54503.65	12723.95	98412.06	13316.56
	in_tot_employee	24865.81	866.94	25624.90	933.76
	out_advances	35673.89	10956.41	71428.75	9768.61
	out_int_income	4729.79	981.36	9208.64	1308.33
	out_total_income	5305.71	797.13	10467.37	1466.85
KOTAK MAHINDRA BANK LTD	in_fixed_assets	1538.79	12.25	926.02	402.86
	in_deposits	162904.05	27413.76	61653.80	12123.68
	in_tot_employee	36498.98	3136.51	17013.64	2780.68

Name of the bank	Studied parameters	Merger status of banks			
		Pre		Post	
		Mean	Standard Deviation	Mean	Standard Deviation
	out_advances	141488.45	25952.15	55885.77	9185.64
	out_int_income	17943.87	1695.47	8843.15	841.27
	out_total_income	21324.40	2405.57	10372.76	1285.02
STATE BANK OF INDIA_1	in_fixed_assets	3874.74	520.69	5745.25	1146.12
	in_deposits	694531.09	139567.35	1060106.58	135157.12
	in_tot_employee	222026.04	11372.72	239168.35	881.97
	out_advances	530395.18	108082.83	889971.63	145744.50
	out_int_income	61244.22	11239.88	102523.64	19441.14
	out_total_income	73362.17	14413.46	117927.93	19404.82
STATE BANK OF INDIA_2	in_fixed_assets	9240.19	1196.04	40702.91	1959.82
	in_deposits	1567308.06	168357.48	2554160.23	452916.83
	in_tot_employee	234780.18	9321.46	257377.18	30242.24
	out_advances	1324518.51	128695.79	1897278.49	309119.27
	out_int_income	150915.39	13883.17	212962.07	34301.99
	out_total_income	173906.78	18493.03	251907.57	36183.27

**Table 37: The Efficiency of merged banks**

	Efficiency	1.1	1.2	2.1	2.2	3.1	3.2	4.1	4.2	5.1	5.2	6.1	6.2	7.1	7.2	8.1	8.2
<b>1.1</b>	0.9546	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>1.2</b>	<b>1.0000</b>	0.728	1	0	0	0	0	0	0	0	0	0	0	0	2.2062	0	0
<b>2.1</b>	0.6834	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>2.2</b>	<b>0.8470</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3.1</b>	1.0000	0	0	0	0	1	0	0	0	0	0	0	0	0	0.9407	0	0
<b>3.2</b>	0.9658	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>4.1</b>	1.0000	0	0	0.017	0	0	1.085	1	0	0	0.214	0.0678	0	0	0	0	0
<b>4.2</b>	1.0000	0	0	0	0	0	0	0	1	0	0	0	0	0	6.9584	0	0
<b>5.1</b>	0.7705	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>5.2</b>	0.7606	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>6.1</b>	0.9906	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>6.2</b>	<b>1.0000</b>	0	0	0.06	0.127	0	2.8803	0	0	0.232	0.5298	0.9121	1	0	0	0.1761	0
<b>7.1</b>	1.0000	0.051	0	0	0	0	0	0	0	0	0	0.0255	0	1	0	0	0
<b>7.2</b>	0.9539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>8.1</b>	0.9415	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>8.2</b>	<b>1.0000</b>	0	0	0.006	0.014	0	0.0386	0	0	0.0261	0.0341	0.0597	0	0	0	0.6066	1

## 6.5 CONCLUSION:

As shown in the above tables, there are potential technical efficiency gains in most analyzed merger cases. Efficiency scores indicate that the potential gains range from a factor of 0.68 to 1 under the DEA approach. Interestingly, market participants voluntarily initiated mergers showing the highest potential gain under the DEA approach. Results also reveal that the banks would not be able to take advantage of any technical inefficiencies. However, some rare exceptions to this approach as technical inefficiencies are an essential source of their overall merger gains. Thus, these findings indicate that the mergers involving the distressed banks provided no scope for gains from technical inefficiency.

In contrast, the two market-driven mergers between healthy banks offered more technical efficiency gains. According to these results, the driver of the distressed merger targets' financial weakness was not the under-production of the output, i.e., technical inefficiency. The operational background of these mergers and details provided in the earlier part of this section may provide a further clue to explain this. We, further, fail to find scale-related potential gains among the mergers studied. Results of an investigation into the returns to scale profile of the merging banks carried out one year before the merger using DEA revealed that most of the banks operated under decreasing returns to scale, thereby making any scale-related gains unlikely.

However, a caveat is in order at this stage to the effect that these findings may be specific to the variables chosen. In other words, the banks would not be able to capitalize on any technical inefficiencies from their mergers if there are no technical inefficiencies attached to the chosen variables' use. This potentially provides another explanation for the preponderance of harmony gains in the overall efficiency gains. The variables do not reflect the costs and expenditures and profitability of the banks. A further analysis that accounts for the banks' profitability and the levels of their non-performing assets (NPAs) would provide more information on the potential for merger gains.

Besides, post-merger, under DEA analysis, the merged entities show a slightly higher level of efficiencies with a few exceptions such as OBC and SBI indicating potentially, that the dominant partner may effectively transplant its more successful operations profile onto its weaker partner.

## CHAPTER – 7

### CONCLUSION

#### 7.1 INTRODUCTION:

The Narasimham Committee recommended a three-tier banking structure having eight to ten nationalized banks that can be called “Anchor Banks”. It will help banks be well equipped to support the exponentially growing international trade by improving the international trade along with the expansion of the domestic business. On the other hand, this recommendation is strongly criticized by the union of RBI employees.

Committee also suggests the merger of two equivalent banks in terms of size, business & technology base. The concept of the “Narrow Banking” is proposed for the banks having the higher NPA like 20% or more for assisting their rehabilitation.

There were few observations are noted after the study was proposed & during its pilot run. SBI and its associates were merged and were struggling for stabilization. Besides, NPAs of nationalized banks were growing to new heights; Experts suggested that the Government should take immediate banking reforms such as banking consolidation. Many economists suggested mergers of banks and reducing the number of government-owned banks. It is suggested that banks should have a global presence for healthy infrastructure development by becoming the globally competent.

We have attempted to investigate the proposal of the mergers/consolidation to derive the economical and non-economic benefits is based on the well-established economic theory or it's formulated to the solve the problems faced by the Indian Economy only. We tested the consolidation of the banking industry during rapid growth since 2000. During the course of the study, the Government of India announced the amalgamation of three banks, namely Bank of Baroda, Dena Bank and Vijaya Bank. More mergers were declared by the Government of India within timeline of the study. We have attempted to include the same as much as possible based on the availability of the data required as per our financial model.

The following features are observed regarding the recent amalgamation/consolidation:

- Big banks with enhanced capacity to expand credit and bigger risk appetite with a national presence and global outreach.
- The Government is trying to create big next-generation banks.
- No retrenchment has taken place post-merger of Bank of Baroda, Dena Bank and Vijaya Bank and their staff has been redeployed.
- Best practices in each bank have been reproduced in other banks.
- Non-official directors to play a role equivalent to that of independent directors.
- Good governance of the bank has made a key feature by the Government
- No government interference in the commercial decisions of banks.
- Gross NPA level has come down heavily.
- Government monitors large loans to avert frauds.
- Sanctioning and monitoring of loans are separated.
- Government is taking steps to attain a target of \$5 trillion economy.

## **7.2 DISCUSSION:**

In the competitive world, M&As have emerged as the most preferred long-term corporate restructuring strategy. Banking consolidation results in an increase of the operative and non-operative efficiency with the multiplier effect.

In developing economies likewise, as in India, the banking sector has an immense role in infrastructure development and economic growth. Due to decentralization and deregulation of the economic activities along with developments and innovation of technology; the globalized banking world has changed dramatically. For making banking more efficient and viable, the banking sector has focused on the strategy of consolidation, merger, and corporate restructuring. Size matters, more particularly in the Banking sector, and hence for expanded bank size, consolidation is the best strategy. This strategy helps Indian Banks to be in the league of the Global financial market. Further, for improvement in productivity, higher market share, increased profitability, strong capital base, branch expansion, and more geographic presence, consolidation is the widely used the best strategy. Our study was around the consolidation effects. The objectives were as under:

- To compare trends in pre-consolidation and post-consolidation financial performance of the selected banks based on the financial ratio analysis.

- To evaluate the impact of consolidation on the banks' financial performance with the help of the CAMEL model.
- To assess the change in X efficiencies of consolidated banks based on the DEA model.
- To provide indicative recommendations taken in to account while designing banking consolidations.

This study tries to understand the impact of consolidation on the financial performance of the Indian Banking sector. Accordingly, a comparison between financial ratios of pre- and post-merger/Consolidations of the banks are examined and indicators such as advances, deposits, net worth, net profit, etc., at each bank level are studied. Financial ratios like CD Ratio, NIM, operating profits, return on assets, return on equity, capital adequacy ratio, etc., across the banks over the period are studied and analyzed.

Another parameter, i.e., the performance of the bank after consolidation was analysed based on the CAMELS model. Accordingly, we selected the CAMELS ratio each bank-wise as well as across the banks over the period.

Further, the DEA model is used for the analysis of the effect of consolidation of the banks.

Accordingly, the results of the study are summarised as per financial ratio analysis, CAMELS Model analysis, and DEA Model analysis as under:

### **7.3 RESULTS:**

They are summarised as under:

#### ***7.3.1 Results based on Financial Ratio Analysis:***

Ratio Analysis is essential for the company to analyze its financial position, liquidity, profitability, risk, solvency, efficiency, operational effectiveness, and proper utilization of funds which also indicates the trends or comparison of financial results that can be helpful for decision-making for investment by shareholders of the company.

1. On analysis of the Federal's financial ratio, the Bank shows that the Cash Deposit ratio has increased year after year except for the year 2007. Net



interest margin has shown up-down over the year and thus doesn't contribute to the effect of consolidation. The ratio of the operating profits to the total assets for the years 2004 and 2005 was almost the same, which decreased in 2006 and then increased year after year, showing improvement after consolidation. The Bank's return on assets and capital adequacy has increased and thus positively perceived consolidation.

2. In the case of the analysis of the IDBI Bank's financial ratio, the cash deposit ratio decreased over the year. The NIM has improved but not as per the industry's outlook. The operating profit to total assets ratio remained stable except for the year 2008. The ratio of assets' return has decreasing trends and the same is reversed in the case of return on equity. The capital adequacy ratio of the Bank has shown decreasing trends which negative attributes to consolidation/merger.
3. Financial Ratio Analysis of the Indian Overseas Bank doesn't show the merger effect, and as such variation/up-downs may be evident in the period.
4. Though the HDFC Bank's financial ratios have shown improved trends, Centurion Bank of Punjab doesn't have improved effects, and the existing strength of the Bank has thus resulted in improved performance.
5. In general, the ICICI Bank's financial ratio has shown increasing trends except for the ratio of return on equity which has decreased over the period and negatively impacted the consolidation/merger of the Bank.
6. Kotak Mahindra Bank relatively impacted merger/consolidation positively with the ING Vysya Bank. The two crucial ratios of the return on assets and return on equity have adversely affected merger/consolidation.
7. The financial ratio studies of SBI over the period 2008 to 2019 show a mixed impact. There is no positive effect of the consolidation of the SBI and Associates over the period. The negative performance over the period for a particular year may have resulted from economic conditions.
8. Cash deposit ratio across the Bank during the period has shown different mean (SD) pre-mergers and post-mergers. Their t Value: DF and P-Value remained at 0.265:7 and 0.79 respectively.
9. Similarly, another ratio and their mean (SD) pre-merger/post-merger and T-value/P-value across the Bank over the period is analyzed. It is reflected that

the banks' consolidation during the period has resulted in a positive impact on the financial performance of the Bank.

Thus, it can be deduced from the above studies that the consolidation of banks has a positive impact on the Bank's overall position.

### ***7.3.2 Results based on CAMELS Model Analysis:***

The performance of banks after consolidation was analyzed based on the CAMELS model. Accordingly, we selected the CAMELS ratio bank-wise as well as across banks over the period. The results are summarised as under:

1. Capital adequacy ratio (CAR) of the public sector banks remains low compared with the private sector/new generation banks. The CAR of the banks post-merger has increasing trends except that of SBI.
2. DEA Ratio of all banks has improved over the period after the merger except for SBI.
3. Total advances to total assets ratio of all the banks has improved.
4. Net NPA to net advances ratio and Net NPA to total advances ratio has improved after the banks' merger/consolidation.
5. Total expenditure to total income ratio improved in all banks after merger/consolidation.
6. Operating profits to total assets ratio increased in all banks except SBI and Kotak Mahindra Bank, suggesting that these banks may have the merger/consolidation expenditure load.
7. Liquidity ratio has shown degrading trends over the period.
8. There is a significant difference in paired samples test analysis which suggest the improvement of the performances of the banks after consolidation/merger.

CAMELS Model analysis suggests the overall improvement in the performance of the banks.

### ***7.3.3 Results based on DEA Model Analysis:***

1. There are potential technical efficiency gains in most analyzed merger cases. Efficiency scores indicate that the potential gains range from a factor of 0.68 to 1 under the DEA approach.

2. Interestingly, voluntarily initiated and market-forced mergers showed the highest potential gain under the DEA approach. The results also reveal that banks would not be able to take advantage of any technical inefficiencies. Thus, mergers involving distressed banks provided no scope for gains from technical inefficiency.
3. In contrast, market-driven mergers between healthy banks offered technical efficiency gains.

#### ***7.3.4 Results based on Overall Analysis:***

Overall analysis of the banks cut over the period has reflected positive impacts as depicted in following table

**Table 38: Overall analysis of all banks**

Bank	Financial Ratio's							CAMELS									DEA			
	Cash/ Deposit	NIM	Op Profit	ROA	ROE	CAR	AVG	DE	Tot adv/ Tot assets	Net NPA/ Net adv	Tot exp/ Tot Inc	PPE	BPE	Net Profit/ Tot Ass	Credit/ Deposit	AVG	TE	AE	CE	AVG
ICICI	+	+	+	-	-	+	+	+	-	-	+	+	+	-	+	+	-	+	-	-
PNB	+	+	+	+	+	+	+	+	-	+	+	-	-	-	-	-	+	+	+	+
OBC	+	+	+	+	+	+	+	-	+	-	+	+	+	-	+	-	-	+	-	-
FB	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
IOB	+	-	-	-	-	-	-	-	+	-	+	+	+	-	+	+	-	+	+	+
IDBI	+	+	+	-	+	-	+	-	+	+	+	-	+	-	-	-	+	+	+	+
HDFC	+	+	-	+	-	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+
SBI (2008)	-	-	+	-	-	-	-	-	+	-	+	+	+	-	+	+	+	+	-	-
KOTAK	-	+	-	-	-	+	-	-	-	+	+	+	-	+	-	+	+	+	+	+
SBI (2016)	-	+	-	-	-	+	+	+	-	-	-	-	+	-	-	-	+	+	-	-
AVG IMPACT	+	+	+	-	-	+	+	+	+	-	+	+	+	-	+	+	+	+	+	+

**The consolidation of the banks has benefited the regulators as such the weak banks merged into another bank, but value of share holders and impact on customer's is inversely proportionate.**

It is observed that the consolidation of banks has resulted in a positive impact on the performance of the banks in the short period under the study. However, the systemic effect of these developments on the economy and society in long run due to the change in the structure and conduct of the banking sector in India can be questionable and will only be clear in the longer run.

#### **7.4 CHALLENGES:**

1. Volatile market conditions- Being competitive, the banking business depends on the market conditions and at present, there is severe volatility in market conditions that affect banking.
2. New generation private banks, fintech companies, and other public sector banks have posed stiff competition.
3. The newly merged entity has to evolve new ways to eliminate the issues related to customer handling, IT processes, and cultural differences as the merged banks have different cultures.
4. Optimising the human capital by considering the qualitative and quantitative aspects.

#### **7.5 RECOMMENDATIONS:**

While planning for the consolidations of the bank following major points be taken into account by regulator:

- a. Operational efficiencies of the Bank
- b. Bank stability.
- c. Shareholder's value creation.
- d. Customer orientation

Apart from the above; Based on present study, the following recommendations are made.

- Consolidated bank needs to boost their capital adequacy ratio to maintain their account holder's confidence and encourage their financial stability and efficiency.
- The bank should give due importance to the management of its assets since their quality is an important parameter to assess the degree of its financial strength.
- Since the quality of the earnings is one of the important determinants of regular and consistent income, the bank should improve the condition of its core banking activities, i.e., lending activities.
- The bank should improve its managerial efficiency to make crucial decisions depending on the risk perception.
- The bank should give utmost importance to its liquidity position and improve it since as is crucial that measures its ability to meet its financial obligations.
- NPAs of the Bank should be under control, Effective recovery measures and quality credit culture must be adopted.
- The latest banking technology and effective employee management will help banks to reduce their expenses; hence the banks should curtail the cost but not at the stake of customer service and quality of banking.
- A bank should focus on harmonizing employees' perceptions and adopting positioning employees' culture across it.
- Uniform IT platform shall be given due weightage.
- Bank Should act as a financial conglomerate with an umbrella of all financial services.
- Public sector banks must be given independence on corporate governance with minimum interference of the owner, i.e., GOI.
- Regulatory control should be effective by the Regulator, i.e., RBI.

## **7.6 CONCLUSION:**

Merger/consolidation has played a vital role in the banking sector. Various problems related to small and medium-size banks like scarcity of resources, old age technology which is now outdated, mismanagement, lack of innovations and weak financial conditions, etc have a huge threat to these banks. Consolidation facilitates the viability of the banks through the big size with a global presence. Consolidation is the safest way to overcome the problem of weak bank failure and emerge as a strong bank. Though the merger/consolidation culture in India is at a nascent stage and the consultants in this field are acquiring the skills for successful mergers, recent experiments have emerged with the best results. After M&As the merged entities continuously grow vis-à-vis earlier years at least for a short period. However, these advantages diminish due to several environmental factors such as maintenance and NPA in the long term.

The impact of the M& A/consolidation can be analyzed for most of the stakeholders of the banks as below:

### **a. Banks:**

During the period 2000-2018, there is the highest number of M&As/Consolidation of the Banks in India as compared to other industries. Though these consolidations are between small and weak banks with large public sector banks, recently peer public sector banks also amalgamated. The present study examined the 'efficacy of consolidation on selected banks' in India'. An analysis of deposits, advances, businesses and the number of employees, etc suggests that there is a significant improvement. Therefore, mergers/consolidations can help commercial banks to achieve better performance. Analysis of the financial performance of consolidated banks did not indicate improvements in capital adequacy of public sector banks but the results indicate significant improvements in assets quality, management efficiency, earnings, and liquidity of the selected banks. But that may be policy matters for public sector banks. However, overall, the consolidation of banks is a useful tool for improved financial performance.

### **b. Employees:**

The curtail in the number of employees has been observed for enhancing operational efficiency. On the other hand, strongly opposed by the bank employee

union due to fear of job loss. The banking sector is going through continuous evolution in terms of the way of conducting business and newly coming financial instruments. Therefore, it's suggested that bank employees are required to be trained continuously to cope with the speed of the changes happening in the banking sector. There is relentless technological upgradations, Banks to focus on new edge employee's.

**c. Shareholders:**

A merger/consolidation is not a preferable tool to raise the shareholders' wealth in the short term. The government and RBI to devise the strategy for liberal policies to increase the number of consolidations among the banks.

**d. Customers:**

The consolidation of banks, helps banks to expand their operations, serve a larger customer base, bring new customers into their fold, and increase profitability, liquidity, and efficiency. Innovation in customer service and customer centricity will always prevail and the bank needs to evolve these strategies.

Lastly, consolidation is a useful strategy. However, Consolidation is not only the solution for the overall growth and financial illness of the banking industry.

**7.6 WAY FORWARD:**

Impact of consolidation of banks in relation to geographical effect and societal changes gives further research scope.



## BIBLIOGRAPHY

- Aigner, D.J., Lovell, C.A.K., Schmidt, P. (1977) Formulation and estimation of stochastic frontier production functions. *Journal of Econometrics.*, Vol. 6; 21–37.
- Akhavein, J.D., Berger, A.N., Humphrey, D.B. (1997). The effects of Megamergers on Efficiency and Prices-Evidence from a Bank Profit Function, *Review of Industrial Organization*. Vol. 12:95-139.
- Allen, L., Roy, A. (1996). Operational efficiency in banking: An international comparison. *Journal of Banking & Finance*. Vol. 20:655-672.
- Al-Sharkas, A, Hassan, M.K., Lawrence, S (2008). The impact of mergers & acquisitions on the Efficiency of the USA Banking industry: Further evidence. *Journal of Business Finance & Accounting*, Vol. 35,50-70
- Altunbas, Y., Gardener, E.P.M., Molyneux, P., Moore, B. (2001). Efficiency in European banking, *European Economic Review*, Vol. 45,10:931-1955.
- Aly, H.Y.R., Pasurka, G.C. Rangan, N. (1990). Technical, Scale and Allocative efficiencies in U.S. Banking: An Empirical investigation. *Review of Economics and Statistics*, Vol. 72, 211-18.
- Amel, D., Barnes, C., Panetta, F., Salleo, C. (2004). Consolidation and efficiency in the financial sector: A review of the international evidence. *Journal of Banking and Finance*. Vol. 28, 10:2493-2519.
- Amihud, Y., Miller, G.P. (1998). *Bank Mergers & Acquisitions*, Kluwer Academic Publishers, Boston.
- Anand, M., Singh, J. (2008) Impact of Merger Announcements on Shareholders' Wealth: Evidence from Indian Private Sector Banks, *Vikalpa*. Vol 33,1:35-54.
- Andrade, G., Mitchell, M., Stafford, E. (2001). New evidence and perspectives on mergers. *Journal of Economic Perspectives*, Vol. 15:103-120.
- Anita, Makkar. (2013). Analysis of the financial performance of Indian Commercial Banks: A comparative study of ROA performance of public sector banks in India. *IUP Journal of Bank Management*. Vol. 11; 3:22-35.

- *Annual Report 2012-13*. SBI. 23 May 2014.
- Aruna, S., Wall, L. D. (1992). Are there cost savings from bank mergers? *Federal Reserve Bank of Atlanta, Economic Review*. Vol.77,2:17-28.
- Asquith, P., Bruner, F., Mullins, D (1983). The gains to bidding firms from the merger. *Journal of Financial Economics*. Vol.11,1:121-139
- Ataullah, A., Cockerill, T., H. Le (2004). Financial Liberalization and Banking Efficiency- A Comparative Analysis of India and Pakistan. *Applied Economics*. Vol. 36,1915-24.
- Ataullah, A., Le, H. (2006), Economic Reforms and Bank Efficiency in Developing Countries: The Case of Indian Banking Industry. *Applied Financial Economics*. Vol.16, 9:653-63.
- Avkiran, N. (1999). Quality Customer Service demands human contact. *International Journal of Bank Marketing*. Vol.17, 2:61-74.
- Avkiran, NK. (1999). The evidence on efficiency gains - The role of mergers and the benefits to the public. *Journal of Banking and Finance*. Vol. 23; 7:991-1013.
- Babu, G.R., (2005), *Financial Services in India*. Concept Publishing Company, New Delhi.
- Baltas, G., (2005). Exploring Consumer Differences in Food Demand: A Stochastic Frontier Approach. *British Food Journal*, 107(9): 685-692.
- *Bank Mergers Report (2009)*. A review of customer perceptions of bank mergers.
- Banker, R.D., Charnes, A., Cooper, W.W. (1984). Some models for estimating technical and scale efficiencies in data envelopment analysis (DEA). *Management of Science*. Vol. 30; 9:1078-1092.
- Banking Awards 2013". *Indiainfoline.com*. 26 August 2014. Retrieved 10 October 2014.
- Baradwaj, B, Fraser, D., and Furtado, E. (1990). Hostile Bank Takeover Offers Analysis and Implications, *Journal of Banking and Finance*, 14(6): 1229-1242.
- Barbara, C., Philip, M. (2003). A Comparative Study of Efficiency in European Banking. *Applied Economics*, Vol. 35, No. 17:1865-1876.

- Barr, R.S., Killio, K.A., Thomas, F.S., Sheri, Z. (2002). Evaluating the productive efficiency and performance of US Commercial Banks. *Managerial Finance*. Vol .24, 7:5-16.
- Beena, P. L. (2004). *Towards understanding the merger wave in the Indian corporate sector: A comparative perspective*. Working paper 355, Centre for Development Studies, Trivandrum. 1-44.
- Berger A.N. (1998). *The efficiency effects of bank mergers and acquisitions: A preliminary look at the 1990s Data in Bank Mergers and Acquisitions*. Kluwer Academic Publishers, Amsterdam.
- Berger A.N., Rebecca S. Demsetz, Philip E Strahan (1999). The Consolidation of Financial Services Industries: Causes, Consequences, and Implications for the future. *Journal of Banking & Finance*. Vol. 23; 135-194.
- Berger, A.N. (1998). The efficiency effects of bank mergers and acquisitions: A preliminary look at the 1990s data (Conference paper, NYU Conference on Mergers and Financial Institutions).
- Berger, A.N. and Humphrey, D.B. (1997). The efficiency of financial institutions: International survey and directions for future research. *European Journal of Operational Research*, Vol. 98,172-212.
- Berger, A.N., Hancock, D, Humphrey. D.B. (1993). Bank efficiency is derived from the profit function. *Journal of Banking and Finance*. Vol. 17; 2-3:317-347.
- Berger, A.N., Humphrey, D. B. (1994). Bank scale economics, mergers, concentration, and efficiency: The USA experience. Working papers 94-25, Wharton School Centre for Financial Institutions, University of Pennsylvania.
- Berger, A.N., Humphrey, D.B. (1991). The dominance of inefficiencies over scale and product mix economies in banking. *Journal of Monetary Economics*, Vol. 28:117-148.
- Berger, A.N., Humphrey, D.B. (1997). The efficiency of Financial Institutions. *European Journal of Operational Research*. Vol. 98, 2:175-212.

- Berger, A.N., Humphrey, DB. (1992). Megamergers in banking and the use of cost-efficiency as an anti-trust defense. *Antitrust Bulletin*. 37:541-600.
- Berger, A.N., Hunter, W.C., Timme, S.G. (1993). The efficiency of financial institutions: A review and preview of research past, present, and future. *Journal of Banking and Finance*. Vol.17:221-249.
- Berger, A.N., Mester, L.J. (2003). Explaining the dramatic changes in the performance of US banks: Technological change, deregulation, and dynamic changes in competition," *Journal of Financial Intermediation*. Vol. 12;1: 57-95.
- Berger, AN., Demsetz, R.S., Strahan, P.E. (1999). Consolidation of the financial services industry: Causes, consequences, and implications for the future. *Journal of Banking and Finance*. Vol.23; 2-4:135-194.
- Bharadwaj, S.G., Varadarajan, P.R., Fahy, J. (1993). A Sustainable competitive advantage in service industries, *Journal of Marketing, Chicago*. Vol. 57; 4:83 – 100.
- Bhatnagar. R.G. (2001). In Merger Lies the Salvation. *Treasury Management*, 2; 4:59-61.
- Bhattacharyya, A., Lovell, C.A.K., Sahay, P. (1997). The impact of liberalization on the productive efficiency of Indian commercial banks. *European Journal of Operational Research*. Vol. 98: 332-345.
- Bhide, M. G., Prasad, A., Ghosh, S. (2002). Banking Sector Reforms: A Critical Overview. *Economic and Political Weekly*. Vol 37; 5:399-08.
- Bhide, M.G., Prasad, A., Ghosh, S. (2002). Banking sector reforms: A critical overview. *Economic and Political Weekly*. Vol. 37; 5:399-08.
- Bloemer, J.M.M. and Kasper, J.D.P. (1995), The complex relationship between consumer satisfaction and brand loyalty, *Journal of Economic Psychology*, Vol. 16, 311-29.
- Bradley, M., Desai, A., Kim, E.H. (1983). The rationale behind interfirm tender offers: Information or synergy? *Journal of Financial Economics*. Vol.11:183-206.
- Bradley, M., Desai, A., Kim, E.H. (1988). Synergistic gains from corporate acquisitions and their division between stockholders of target and acquiring firms. *Journal of Financial Economics*. Vol.21: 13-40.

- "Brand Mahatma lags behind Sachin, Aamir: Study". *India Today*. 28 January 2011. Retrieved 10 October 2014.
- Bristow, D.N., Schneider, K.C., Schuler, D. K. (2002). The brand dependence scale: Measuring consumer's use of the brand name to differentiate among product alternatives. *Journal of Product and Brand Management*. Vol. 11; 2:343-356.
- Bruner R.F. (2004). *Does M&A pay?* Chapter 3 Applied Mergers & Acquisitions.
- Bruner, R.F., (2004), *Applied Mergers & Acquisitions*, John Wiley & Sons, Inc., New Jersey.
- Buono, AF. (2003). Seamless post-merger integration strategies: A cause for concern. *Journal of Organizational Change Management*. Vol.16; 1:90-98.
- *Business Standard* (21 June 2010). "Approvals for State Bank of Indore merger by July: SBI".
- Carmine, O. (2009). Mergers and innovation in big pharma. *International Journal of Industrial Organization*. Vol.27; 70–79.
- Caves, D.W., Christensen, L.R., Diewert, W.E. (1982). Economic Theory of Index Numbers and the Measurement of Input, Output, and Productivity. *Econometrica*. Vol.50; 6:1414-1939.
- Chander, G.S.S., Rajendran, Anantharaman, C.R.N. (2002). Relationship between service quality and customer satisfaction: A factor-specific approach. *Journal of Services Marketing*. Vol.16; 4:363-379.
- Chang, K., Lin, C., Cao, Y. (2011) Evaluating branch efficiency of a Taiwanese bank using data envelopment analysis with an undesirable factor. *African Journal of Business Management*. Vol. 5; 8:3220-3228.
- Charnes, A., Cooper, W.W., Rhodes, E. (1978). Measuring the efficiency of decision-making units. *European Journal of Operations Research*. Vol. 2; 6:429-444.
- Chen, W., Anusha, C., Dominguez, K.M.E. (2009). *Foreign Ownership and Firm Performance: Emerging-Market Acquisitions in the United States*. National Bureau of Economic Research, Working Paper No. 14786, 1050.

- Chong, Beng-Soon, Ming-Hua Liu and Kok-Huai Tan. (2006) The Wealth Effect of Forced Bank Mergers and Cronyism, *Journal of Banking and Finance*. Vol. 30: 3215-3233.
- Choudhry, S. (2012). Performance Appraisal of Indian Banking Sector: A Comparative Study of Selected Public and Private Sector Banks. *International Journal of Research in Commerce & Management*. Vol 3; 6:155-164.
- Chu, SF., Lim, G.H. (1998). Share performance and profit efficiency of banks in an oligopolistic market- evidence from Singapore. *Journal of Multinational Financial Management*. Vol.8; 155-168.
- Clow, K.E., Kurtz, D.L. (2008). *Services Marketing, Operation, Management, and Strategy*. Atomic Dog Publishing, USA.
- Clow, K.E., Vorhies, D.W. (1993). Building competitive advantage for service firms- Measurement of consumer expectations of service quality. *Journal of Services Marketing*. Vol. 7; 1:22-32.
- Coelli, T. (1996). *A guide to DEAP Version 2.1, A Data Envelopment Analysis (Computer) Program*. CEPA Working Paper 96/08.
- Coelli, T., Prasada Rao, D.S., Battese, GE. (1998). *An Introduction to Efficiency and Productivity Analysis*, Kluwer Academic Publishers, Boston.
- Coelli, T.J., Rao, D.S.P., O'Donnell, C.J., Battese, G.E. (2005). *An Introduction to Efficiency and Productivity Analysis*, 2nd Edition. Springer.
- Greene, W. H. (2008). "The Econometric Approach to Efficiency Analysis" in Fried, H. O., Knox Lovell, C. A., and Schmidt, P. (Editors), *The Measurement of Productive Efficiency*. Oxford University Press, New York, and Oxford.
- Coksun, A. and Frohlich, C. J. (1992), Service: The Competitive Edge in Banking. *Journal of Services Marketing*. Vol .6;1:15-22.
- Cooper, Schindler, (2006), *Business Research Methodology*, 9<sup>th</sup> ed., Tata McGraw Hill.
- Cooper, WW., Lawrence, MS., Tone, K. (2006). *Introduction to Data Envelopment Analysis and its uses*. Springer Publisher.

- Cornett, M.M., Tehranian, H. (1992). Changes in Corporate performance associated with bank acquisitions. *Journal of Financial Economics*. Vol. 31; 2:211-234.
- Cornett, MM., McNutt, J.J. Tehranian, H. (2006). Performance changes around mergers: revenue enhancements versus cost reductions. *Journal of Money, Credit, and Banking*. Vol.38; 4:1013-1050.
- Coyle, B., (2000), *Mergers and Acquisitions*, Fitzroy Dearborn Publishers, USA.
- Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A re-examination and extension. *Journal of Marketing*, Vol. 56(3), 55–68.
- Curry, A., Penman, S. (2004). The Relative importance of technology in enhancing customer relationships in banking –A Scottish perspective. *Managing Service Quality*. Vol. 14; 4:331-341.
- Cybo-Ottone, A., Murgia, M. (1996). *Mergers and Acquisitions in the European Banking Market*, Working Paper. University of Pavia, Italy.
- Cybo-Ottone, A., Murgia, M. (2000). Mergers and Shareholder Wealth in European Banking. *Journal of Banking & Finance*. Vol. 24; 6:831-859.
- Das, T. K., Teng, B. (2000). A resource-based theory of strategic alliances. *Journal of Management*, 26, 31-61.
- De Young, R. (1997). Bank Mergers, X-efficiency and the Market for Corporate Control. *Managerial Finance*. Vol. 23; 1:32-47.
- Demsetz, RS., Strahan, P.E. (1997). Diversification, Size, and Risk at Bank Holding Companies. *Journal of Money, Credit, and Banking*. Vol.29; 300-313.
- DePamphilis, D. M. (2010). *Mergers, acquisitions, and other restructuring activities: An integrated approach to process, tools, cases, and solutions* (5th ed.). San Diego, CA: Academic Press of Elsevier.
- Dickerson, A.P., Gibson, H.D., Tsakalotos, E., (1997), The Impact of Acquisitions on Company Performance: Evidence from a Large Panel of UK Firms, *Oxford Economic Papers*. Vol. 49(1997), 344-361.
- *Economic Times* (26 August 2010). “State Bank of Indore branches to become SBI units from Aug 26: SBI”. The Times of India.

- Edvardsson, B., Thomasson, B. and Ovretveit, J. (1994), *Quality of Service*, Barie Dale, London.
- Elyasiani, E, Mehdian, S. (1990). Efficiency in the commercial banking industry: A production frontier approach. *Applied Economics*. Vol. 224; 53;9-551.
- Evanoff, D.D. and Israilevich, P.R. (1991), Productive efficiency in banking, Federal Reserve Bank of Chicago. *Economic Perspectives* 1991; 11-32.
- Fare, R., Groskopf, S., Lindgeren, B., Roos, P. (1992). Productivity change in Swedish pharmacies 1980-1989. A non-parametric Malmquist approach. *Journal of Productivity Analysis*. Vol. 3: 85-102.
- Fare, R., Grosskopf, S., Lindgren, B., Roos, P. (1994). Productivity Developments in Swedish Hospitals: A Malmquist output index approach. *Data Envelopment Analysis: Theory. Methodology and Applications*. Kluwer Academic Publishers.
- Fare, R., Grosskopf, S., Lovell, CAK. (1994). *Production Frontiers*, Cambridge University Press.
- Farrel, M.J. (1957). The measurement of productive efficiency. *Journal of the Royal Statistical Society Series A: General*. Vol.120; 3:253-281.
- Ferrier, G.D., Lovell, C.A.K. (1990). Measuring Cost efficiency in banking: Econometric and Linear programming evidence. *Journal of Econometrics*. Vol. 46; 285-301.
- Fischer, A, Arnold, S.J. (1994). Sex, gender identity, general role attitudes, and consumer behaviour. *Psychology and Marketing*. Vol. 11;2: 163-182.
- Focarelli, D., Panetta, F. (2003). Are mergers beneficial to consumers? Evidence from the Market for Bank Deposits, *The American Economic Review*. Vol. 93; 4:1152-1172.
- "Fortune 'Global 500' 2013: State Bank of India". CNN. Retrieved 10 October 2014.
- Foster, C. (1993). Marketing to existing clients as new business. *Bank Marketing*, Vol. 25, 5:12-13.



- Frei, F.X., Harker, P.T., Hunter, L.W. (1995). *Performance in consumer financial services organizations: Framework and results from the pilot study*. Working paper No. 95-03.
- Frohlich, C., Kavan, C.B. (2000). An examination of bank merger activity: A strategic framework content analysis. *Academy of Accounting and Financial Studies Proceedings*.
- Fukuyama, H. (1993). Technical and scale efficiency of Japanese commercial banks: A non-parametric approach. *Applied Economics*. Vol. 25:1101-1112.
- Galina, B. & Jaak, S., (2015), *Robust non-parametric estimation of cost efficiency with an application to the banking industry*, Working Paper 0217, New Economic School, University of Leuven.
- Gaughan, P. A., (2007), *Mergers, Acquisitions, and Corporate Restructuring*. 4th ed., John Wiley & Sons, Inc., New Jersey.
- Geddes, H.R., (2006), *An Introduction to Corporate Finance. Transactions and Techniques*, 2nd ed., John Wiley & Sons, Ltd, West Sussex.
- Ghosh, A. (2001). Does operating performance really improve following corporate acquisitions? *Journal of Corporate Finance*., Vol. 7: 151-178.
- Gliem, J.A., Gliem, R.R. (2003). Calculating, Interpreting, and Reporting Cronbach's Alpha Reliability Coefficient for Likert-type Scales, paper in *Midwest Research- to- Practice Conference*, The Ohio State University, Columbus (23/08/2004).
- Green, M.B., (1990), *Mergers and Acquisitions: Geographical and Spatial Perspectives*, Routledge, London.
- Grigorian, D.A., Manole, V. (2002). *Determinants of commercial bank performance in transition: an application of data envelopment analysis*., IMF Working Paper, No. 02/146.
- Gul, M., Koc, B., Dagistan, E., Goskel, M., Parlakay, O. (2009). Determination of technical efficiency in cotton-growing farms in Turkey: A case study of Cukurova region. *African Journal of Agricultural Research*. Vol. 4; 10:944 – 949.

- Gupta, S (2014). An empirical study of the financial performance of ICICI bank: A comparative analysis". *IITM Journal of Business Studies*. Vol. 4; 12:3.
- Hallowell, R. (1996). The relationships of customer satisfaction, customer loyalty, and profitability: an empirical study. *International Journal of Service Industry Management*. Vol.7; 4:27-42.
- Hannan, T. and Wolken, J. (1989). Returns to Bidders and Targets in Acquisition Process: Evidence from the Banking Industry, *Journal of Financial Services Research*. Vol.8:145-156.
- Hawawani G, Swary, I. (1990) *Merger and Acquisitions in the US Banking Industry, Evidence from the Capital Markets*, Amsterdam: North-Holland.
- Hazlina, A., Zarehan, S., Muzlifah, I. (2010). Productivity of Malaysian Banks after Mergers and Acquisitions. *European Journal of Economics, Finance and Administrative Sciences*. Vol 24:111-122.
- Healey, P.M., Palepu, K.G., Rubeck, R.S. (1992). Does corporate performance improve after mergers? *Journal of Financial Economics*. Vol. 31:135-175.
- Hearly, P.M., Palepu, K.G., Ruback, R.S. (1992). Does Corporate Performance Improve After Merger? *Journal of Financial Economics*. Vol. 31:135-175.
- Herremans, I.M., John, K.R., Raj, A. (2000). Linking Advertising and Brand Value. *Business Horizons*.
- Hitt, M.A., Harrison, J.S., Ireland. R. (2001). *Mergers and acquisitions: guide to creating value for stakeholders*. Oxford University Press, Oxford.
- Hossain, M., Leo, S. (2009). Customer perception on service quality in retail banking in the Middle East: The case of Qatar. *International Journal of Islamic and Middle Eastern Finance and Management*. Vol 2, 4:338-350.
- Houston, J.F., James, C. M. and Ryngaert, MD. (2001). Where merger do gains come from? Bank mergers from the perspective of Insiders and Outsiders. *J. Financial Economics*. Vol.60; 2-3:285-331.

- Hughes, J.P., Mester, L.J. (1993). A quality and risk-adjusted cost function for banks: Evidence on the “too-big-to-fail” doctrine. *Journal of Productivity Analysis*. Vol. 4: 293-315.
- Huzaifa Husain (2000). M & A: Unlocking Value. *Chartered Financial Analyst*. Vol. 4; 65-66.
- "India's top 10 brands". Business.rediff.com. Retrieved 26 Oct 2010.
- “Indian Banks' Association". Iba.org.in. 23 April 2005.
- Ingham, H., Kran, I. and Lovestam, A. (1992). Mergers and profitability: a managerial success story? *Journal of Management Studies*. Vol. 29, 195–208.
- Isik, I. and Hassan, M.K. (2002). Technical, scale, and allocative efficiencies of the Turkish banking industry. *Journal of Banking & Finance*. Vol. 26: 719-766.
- Jackson, P.M., Fethi, M.D. (2000). Evaluating the technical efficiency of Turkish commercial banks: An Application of DEA and Tobit Analysis. *International DEA Symposium*, University of Queensland, Australia.
- Jaffry, S., Ghulam, Y., Pascoe, S, Cox, J. (2005). Regulatory changes and productivity of the banking sector in the Indian sub-continent. *The Pakistan Development Review*. Vol. 44;4: 1021-1047.
- Javalgi, R., Edward, T., Rao, S.R., Consumer behaviour in the US pleasure travel marketplace: An analysis of senior and non-senior travellers. *Journal of Travel Research*., Vol. 31 (1992), 14-20.
- Jensen, M.C., (1986), Agency Costs of Free Cash Flow, Corporate Finance and Takeovers, *The American Economic Review*., Vol. 76(2), 323-329.
- John, H.B. and Graham, S.L. (1990). *Consolidation in USA banking: Implications for efficiency and risk*, *Bank Mergers and Acquisitions*, Kluwer Academic Publishers, Netherlands.
- Jonathan, Golin, Philippe, Delhaise, (2013) *The Bank Credit Analysis Handbook: A Guide for Analysts, Bankers, and Investors*. John Wiley & Sons, 2013.
- Jose, M.P. (2001). Cost and Profit Efficiencies in banking: An international comparison of Europe, Japan, and the USA. *Applied Economics Letters*. Vol.8; 6: 383-387.

- Kangis, P., Passa, V. (1997). "Awareness of service charges and its influence on customer expectations and perceptions of quality in banking". *Journal of Services Marketing*. Vol. 11; 2:105 – 117.
- Kaplan, S., Weisbach, M. (1992). The Success of Acquisitions: Evidence from Divestitures. *Journal of Finance*. Vol.47; 1:107-138.
- Kaplan, S.N. (2006). Mergers and Acquisitions: A Financial Economics Perspective, prepared for the Antitrust Modernization Commission. *Economist's Roundtable on Merger Enforcement*.
- Kaplan, S.N., Hietala, P. and David T.R., (2002), What is the Price of Hubris? Using Takeover Battles to Infer Overpayments and Synergies, *Financial Management*, National Bureau of Economic Research., Vol.32;3.
- Kaur, S., (2002), Ph.D. Thesis Abstract, *A study of corporate takeovers in India*, submitted to the University of Delhi, pp. 1-11.
- Kaushal, Bhatt (2012). *Performance Evaluation of Commercial Banks Through Camel Approach- A Comparative study of selected Public, Private and Foreign banks working in India*.
- Kaushal, V.K., (1995), *Corporate Takeovers in India*, Sarup & Sons, New Delhi.
- Kene, E., Rudqvist, A., Subba Rao, K. (1999). *Impact Evaluation: A Note on Concepts and Methods*. *World Bank Poverty Reduction and Economic Management Network*. Washington, D.C. World Bank.
- Kennett, P.A., Moschis, G.P., Bellenger, D.N. (1995). Marketing financial services to mature consumers. *Journal of Services Marketing*. Vol. 9; 2:62-72.
- Khanna, S. (1999). Financial sector reforms and Industrial Sector in India, *Economic and Political Weekly*. Vol. 34; 3&4:161-168.
- King, D. R., Dalton, D. R., Daily, C. M., Govin, J.G. (2004). A meta-analysis of post-acquisition performance: Indications of unidentified moderators. *Strategic Management Journal*. Vol. 25; 2:187-200.
- Kirjavinen, T., Loikkanen, H.A. (1998). Efficiency differences of Finnish senior secondary schools: An application of DEA and Tobit analysis. *Economics of Education Review*. Vol. 17:377-394.

- Kishore, M. (2015). *A comparative study on the financial performance of public sector banks in India: An analysis of CAMEL model*. Jawaharlal Nehru Technological University, Hyderabad.
- Kneale, Klaus (6 May 2009). "World's Most Reputable Companies: The Rankings". *Forbes*. Retrieved 20 August 2010.
- Krishanmurti, C., Vishwanath, S.R., (2008), *Mergers, Acquisitions, and Corporate Restructuring*, Response Books, New Delhi.
- Krupa, R. (2016). CAMEL model analysis of scheduled urban co-operative bank in Surat city - A case study of Surat People's Co-operative Bank. *Journal of Business and Management (IOSR-JBM)*. 48-54.
- Kumar, R. (2009). Post-merger corporate performance: An Indian Perspective. *Management Research News*. Vol .32;.2:145-157.
- Landerman, E. S. (2000). The potential diversification and failure reduction benefits of bank expansion into non-banking activities. *Working Papers in Applied Economic Theory* 2000-01. Federal Reserve Bank of San Francisco.
- Laroche, M., Rosenblatt, J.A., Manning, T. (1986). Services and factors considered important in selecting a Bank: An investigation across Diverse Demographic Segments. *International Journal of Bank Marketing*. Vol.4; 1:35-55.
- Lee, M.C., Hwan, I.S. (2005). Relationships among Service Quality, Customer Satisfaction, and Profitability in the Taiwanese Banking Industry, *International Journal of Management*. Vol. 22; 4:635-647.
- Lee, Y.H., Lee, C. (2009). Efficiency in the Malaysian Water Industry: A DEA and Regression Analysis, A paper presented in the European Association of Environmental and Resource Economists, Amsterdam.
- Leeladhar, V. (2006), Indian banks and global challenges (inaugural address by V. Leeladhar, Dy. Governor, Reserve Bank of India at the Joint Seminar on Indian banks and the Global challenges organised by IMC and IBA in Mumbai).
- Lee-Mortimer, A. (1992). Banking on New ideas. *The TQM Magazine*. Vol.4; 5.

- Leibenstein, H. (1978). On the basic proposition of X-efficiency theory. *American Economic Review*. Vol. 68; 2:328-332.
- Lévesque, T., McDougall, G.H.G. (1996). Determinants of customer satisfaction in retail banking. *International Journal of Bank Marketing*. Vol.14; 7:12-20.
- Lewis, B.R. (1991). Service Quality: An International Comparison of Bank Customers' Expectations and Perceptions. *Journal of Marketing Management*., Vol.,7:47-62.
- Lindbergh, J., Nahum, R.A., Sandgren, S. (2008). Population ageing: opportunities and challenges for retail banking. *International Journal of Bank Marketing*. Vol.26; 1:6-24.
- Lipczynski, J., Wilson J., (2004), *The Economics of Business Strategy*, Pearson Education Limited, England.
- Liu, B., Tripe, D.W. (2002). New Zealand bank mergers and efficiency gains. *Journal of Asia-Pacific Business*. Vol. 4; 4:61-81.
- Loughran, Tim, and Jay Ritter, 1997, The operating performance of firms conducting seasoned equity offerings. *The Journal of Finance*. Vol. 52, 1823–1850.
- Lundahl, N., Vegholm, F., Silver, L. (2009). Technical and functional determinants of customer satisfaction in the bank – SME relationship. *Managing Service Quality*. Vol.19; 5:581-594.
- Maddala, G.S. (1983). *Limited dependent and quantitative variables in Econometrics*. Cambridge University Press.
- Magenheim E. B., Mueller D. C. (1988). On measuring the effects of acquisitions on acquiring firm shareholders. In Coffee J. Lowenstein L. Rose-Ackerman S. (Eds.), *Knights, raiders, and targets: The impact of hostile takeovers*. New York: Oxford University Press.
- Maksimovic, V., Phillips, G.M (2001). The Market for Corporate Assets: Who Engages in Mergers and Asset Sales, and are there Any Gains?" *Journal of Finance*. Vol. 56; 6:2019-2065.
- Mantravadi, P., Reddy, A.V. (2007). Mergers and Operating Performance: The Indian Experience. *The Icfai Journal of Mergers & Acquisitions*. Vol.4; 4:52-66.

- Marion, D. (2003). Successful Mergers: Getting the people's issues right. *The Economist*, London. 2003.
- Mark Sanchez, (2010). *Business Review*, West Michigan, April 16, 2010.
- Maudos, J., Pastor, J.M, Serrano, L. (1999). Total factor productivity measurement and human capital in OECD countries. *Economics Letters*. Vol.54; 1:93-100.
- McAllister, P.H., McManus, D. (1993). Resolving the Scale Efficiency puzzle in Banking. *Journal of Banking and Finance*. Vol.17:389-405.
- Meeks, G. (1997). *Disappointing Marriage: A study of the gains from the merger*. Cambridge University Press.
- Megginson, W.L., Smart, S.B., Lucey, B.M., (2008). *Introduction to Corporate Finance*, Cengage Learning EMEA, London.
- Mehta, P.S., (2006), *A Functional Competition Policy for India*, Academic Foundation, New Delhi
- Mester, L.J. (1987). Efficient production of financial services: scale and scope economies. *Business review of Federal Reserve Bank of Philadelphia*. Vol.104; 1:389-405.
- Mester, L.J. (1996). A study of bank efficiency taking into account risk preferences. *Journal of Banking and Finance*. Vol 21, 221-250.
- Minjoon, J., Cai, S. (2001). Key determinants of internet banking service quality: A content analysis. *International Journal of Bank Marketing*. Vol.16; 7:276-291.
- Mohan, T.T. Ram (2005). Bank Consolidation: Issues and Evidence. *Economic and Political Weekly*. 19/03, 2005.
- Morrall, K. (1996). Managing a merger without losing customers. *Bank Marketing*, Vol. 28;3:18-23.
- Mosley, P. (1998). *The use of control groups in impact assessments for microfinance*. Working paper N/19, Enterprise, and Cooperative Development Department, Social Finance Unit: International Labour Office, Geneva.
- Mussati, G., (1995), *Mergers, Markets, and Public Policy*. *Studies in Industrial Organisation*, Kluwer Academic Publishers, The Netherlands.

- Narasimham, M. (1991), *Committee report on Financial System*, Reserve Bank of India (Chairman: M. Narasimham).
- Neary, P., (2004), *Cross Border Mergers as Instruments of Comparative Advantage*, University College Dublin and CEPR.
- Neely W. (1987) Banking Acquisitions: Acquirer and Target Shareholder Returns, *Financial Management*. Vol. 16:66-73.
- Noulas, AG. (2001). Deregulation and Operating Efficiency: The case of Greek Banks. *Managerial Finance*. Vol.27; 8:35-47.
- Parasuraman, A., Berry, LL., Zeithaml, V.A. (1988). SERVQUAL-A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*. Vol. 64, 1, 12-40.
- Park, B., Simar, L. and V. Zelenyuk (2015). Categorical data in local maximum likelihood: theory and applications to productivity analysis. *Journal of Productivity Analysis*. 43:2, 199-214.
- Parmeter, C.F., Kumbhakar, S.C., (2014). "Efficiency Analysis: A Primer on Recent Advances." *Foundations and Trends in Econometrics*, 7(3-4), 191-385.
- Pawaskar, V. (2001). Effects of mergers on corporate performance in India. *Vikalpa*, Vol.26; 1:19-32.
- Pilloff, S.J. (1996). Performance Changes and Shareholder Wealth Creation Associated with Mergers of Publicly Traded Banking Institutions. *Journal of Money, Credit, and Banking*. Vol. 28; 3:294-310.
- Polachek, S. W. Yoon, B. J. (1987). A two-tiered earnings frontier estimation of employer and employee information in the labour market. *Review of Economics and Statistics*, Vol. 69(2), 296-302.
- Porter, M. E. *The Competitive Advantage: Creating and Sustaining Superior Performance*. NY: Free Press, 1985.
- Porter, M. E. *The Competitive Advantage: Creating and Sustaining Superior Performance*. NY: Free Press, 1998 (reprint with new introduction).
- Prabhakaran, Satya.S. (2003). An insight into service attributes in the banking sector. *Journal of Services Research*. Vol.3; 1:157-169.



- Prager, R.A., Hannan, T.H. (1998). Do substantial horizontal mergers generate significant price effects? Evidence from the banking industry. *The Journal of Industrial Economics*. Vol.46: 433-454.
- R Core Team (2013). *A language and environment for statistical computing*. Foundation for Statistical Computing, Vienna, Austria. URL <http://www.R-project.org/>.
- Rachita, G. (2011). Evaluation of technical, pure technical and scale efficiencies of Indian banks: An analysis from a cross-sectional perspective. Presentation in the 13th Annual Conference on Money and Finance in the Indian Economy at Indira Gandhi Institute of Development Research, Mumbai.
- Radam, A., Baharom, AH., Dayang-Affizzah, AM., Ismail, F. (2009). Effect of Mergers on Efficiency and Productivity: Some Evidence for Banks in Malaysia. *The IUP Journal of Bank Management*. Vol. 8; 1:31-46.
- Rau, P. Raghavendra and Theo Vermaelen (1998). “Glamour, Value, and the Post-Acquisition Performance of Acquiring Firms.” *Journal of Financial Economics*. Vol. 49, 2:223-53.
- Ravenscraft, D., Scherer, F.M. (1987). *Merger, Sell-offs, and Economic Efficiency*. Brookings Institute, Washington DC.
- Ravi Kumar, P.H. (2007). How do Bank mergers affect various entities? “Bank Mergers: The Indian Scenario”; ICFAI University Press.
- Ray, S.C., Das, A. (2010), Distribution of cost and profit efficiency: Evidence from Indian banking. *European Journal of Operational Research*. Vol.201; 1:297-307.
- Resti, A. (1997). Evaluating the cost-efficiency of the Italian banking system: What can be learned from the joint application of parametric and non-parametric techniques. *Journal of Banking and Finance*. Vol.21; 2:221-250.
- Rhoades, S.A. (1994). A Summary of Merger performance studies in Banking, 1980-93. Event Study Methodologies. *The Federal Reserve Board: Staff studies summary*; 1993-1994.

- Rhoades, S.A. (1998). The efficiency effects of bank mergers: An overview of case studies of nine mergers. *Journal of Banking and Finance*. Vol. 22., 3:273-291.
- Rhoades, SA. (1993). The Efficiency Effects of Horizontal Bank Mergers. *Journal of Banking and Finance*. Vol.17; 2-3:411-422.
- Rust, Roland, and Zahorik, Anthony (1993), Customer Satisfaction, Customer Retention, and Market Share. *Journal of Retailing*, 69 (Summer), 145–56.
- Saneev, G.M. (2008). The efficiency of Indian Public Sector Banks: An Application of DEA Approach. *The IUP Journal of Applied Finance*. Vol.15; 11:52-64.
- Sathye, M. (2001). X-efficiency in Australian banking: An empirical investigation. *Journal of Banking and Finance*. Vol.25:613-630.
- "SBI accounts for one-fifth of country's loans". Livemint.com. 25 January 2009.
- "SBI and HDFC Bank win top honours at D&B – Polaris Financial Technology.
- "SBI wins IDRBT Banking Technology Awards-2013". Indiainfoline.com. 2 August 2014. Retrieved 10 October 2014.
- " SBI wins National Award for implementation of P M E G P ". Business Standard. 5 April 2014. Retrieved 10 October 2014.
- "State Bank of India and HDFC Bank Limited win top honours at the Dun & Bradstreet – Polaris Financial Technology Banking Awards 2013". Dun & Bradstreet. 22 August 2013.
- Schneider, B., Parkington, J.J., Buxton, VM. (1980). Employee and Customer Perceptions of Service in Banks. *Administrative Science Quarterly*. Vol. 25; 2:252-267.
- Sealey, C., Lindley, J. (1977). Inputs, Outputs and a Theory of Production and Cost at Depository Financial Institutions. *Journal of Finance*. Vol.32; 1251-66.
- Sharma, D., Ho, J. (2002). The impact of acquisitions on operating performance: some Australian evidence. *Journal of Business Finance and Accounting*. Vol.29: 155-200.

- Sigala, M. (2008). Service quality and customer relationship management: interrelationships and implications. *Managing Service Quality*. Vol. 18; 5.
- Sing, S. (2001). *An appraisal of the Banking Sector Reforms in India*. Ph.D. thesis, Guru Jambheshwar University, Hissar.
- Singh, J.D. (1996). Bank Marketing in India: The State of the Art. *International Journal of Bank Marketing*. Vol. 3; 2:48-63.
- Singh, P. (2009). Mergers in Indian Banking: Impact study using DEA Analysis. *South Asian Journal of Management*. Vol. 16:7-27.
- Singh, H, Montgomery, C.A. (1987). Corporate acquisition: Strategies and economic performance, Strategic. *Management Journal*. Vol. 8; 4:377-386.
- Singhal, D., Padmanabhan, V. (2008). A Study on customer perception towards internet banking: Identifying major contributing factors. *The Journal of Nepalese Business Studies*. Vol. 5; 1:101- 111.
- Spathis, C., Petridou, E., Glaveli. N. (2004). Managing service quality in banks: customers' gender effects. *Managing Service Quality*. Vol. 14; 90-102.
- Spindt P.A. and Tarhan V. (1992). *Are there Synergies in Bank Mergers?* Tulane University Working Paper.
- Spindt, PA., Tarhan, V. (1993). *The impact of mergers on bank operating performance*. Working paper, Tulane University, New Orleans, LA.
- Srinivasan, A, Wall, LD. (1992). *Cost savings associated with bank mergers*. Federal Reserve Bank of Atlanta., Working paper, Vol. 92;2.
- Srinivasan, A. (1992). Are there cost savings from bank mergers? *Economic Review, Federal Reserve Bank of Atlanta*. 17-28.
- Stafford, M.R. (1996). Demographic discriminators of service quality in the banking industry. *The Journal of Services Marketing*. Vol.10; 4:6-22.
- Statistical Tables Relating to Banks in India, Reserve Bank of India ([www.rbi.org.in](http://www.rbi.org.in))
- Stephen A. Ross, Randolph W. Westerfield, Jeffrey Jaffe (2004). *Corporate Finance*; Tata McGraw-Hill Edition.
- Sturm, J.E., Williams, B. (2004). Foreign banks entry, deregulation, and bank efficiency lessons from the Australian experience. *Journal of Banking and Finance*. Vol.28; 7:1775-1799.

- Sudarsanam, S. (2003). *Creating Value from Mergers and Acquisitions*. Prentice-Hall, Harlow.
- Sufian, F. (2004). The efficiency effects of bank mergers and acquisitions in a developing economy: Evidence from Malaysia. *Journal of Applied Econometrics and Quantitative Studies*. Vol.1; 4:53-74.
- Sufian, F., Habibullah, S. (2009). Do mergers and acquisitions lead to higher technical and scale efficiency? Counter-Evidence from Malaysia. *African Journal of Business Management*. Vol.3; 8:340-349.
- Sufian, F., Zulhibri, M., Mazid, A. (2007) The performance of mergers and acquisitions in the Singapore banking sector: An application of two-stage banking models, *Labuan Bulletin of International Business and Finance.*, Vol. 5:67-96.
- Sundarsanam, P.S. *Mergers, and Acquisitions*. Prentice-Hall of India, New Delhi,1997.
- Thanassoulis, E. (2001). *Introduction to the Theory and Application of Data Envelopment Analysis, A Foundation Text with Integrated Software*. Kluwer Publishers, Boston, USA.
- "The top five banks in India". Thebanker.com. 10 April 2014. Retrieved 11, April 2014.
- Timothy, W.K., Scott, S.M (2003). *Bank Management* (5th Ed); Publishers: Thomson- South-Western.
- Tobin, J. (1958). Estimation of relationships for limited dependent variables. *Econometrica.*, Vol., 1:24-36.
- Turillo, M.J. Jr. and Sullivan, M.P. (1987), Managing the retail customer in bank mergers and acquisitions, *Journal of Retail Banking*. Vol. 9 No. 4,37-46.
- Unnikrishnan, K. (2006). Consolidation in Indian Banking., University News, Association of Indian Universities, Vol. 58; 34:3-27.
- Uppal, R.K. (2008). Customer Perception of e-Banking Services of Indian Banks: Some Survey Evidence. *The ICAI Journal of Bank Management*. Vol .7; 1:63-78.

- Urban, D.J., Michael D.P. (2000). Perceptions of banking services in the wake of bank mergers: An empirical study. *Journal of Services Marketing*. Vol. 14; 2:118 – 131.
- Vasudevan, A. (2004). Bank M&A: Stability and synergy. *The Hindu Business Line* (11/11,2004).
- Venkatesan, Rajkumar and Ingmar Leliveld (2009), *Customer Co-creation in Business Markets*, working paper, University of Virginia, Charlottesville, VA.
- Verma, M.S. (2000). *Verma Committee Report on the problems of weak banks based on specific criteria to suggest a plan of restructuring*. Reserve Bank of India, Mumbai.
- Walter, I., Roy, C.S. (1990). *Investment banking in Europe: Restructuring for the 1990s*. Basil Blackwell, Oxford.
- Wang, Y., Lo, HP. and Hui, YV. (2003). The antecedents of service quality and product quality and their influence on bank reputation: evidence from the banking industry in China. *Managing Service Quality*. Vol.13; 1:72-83
- Webster, A.L. (1997). The impact of Technological Change on Bank Performance. *Journal of Economics and Finance*. Vol 21; 3:41-47.
- Weston, J.F. Mitchell, M.L., Mulherin, J.H. (2009), *Takeovers, Restructuring, and Corporate Governance*, Pearson Education.
- Weston, JF, Chung, KS., Hoag, SE. (2000), *Mergers, Restructuring and Corporate Control*, Prentice-Hall of India, New Delhi.
- Wheelock, David C, Wilson, Paul W. (2004) Consolidation in US Banking: Which Banks Engage in Mergers? *Review of Financial Economics*. Vol. 13; (1-2): 7-39.
- Yavas, U., Benkenstein, M. and Stuhldreier, U. (2004). Relationships between service quality and behavioral outcomes. *The International Journal of Bank Marketing*. Vol.22; 2:144-157.
- Yavas, U., Bilgin, Z., Shamwell, D.J. (1997). Service quality in the banking sector in an emerging economy: A consumer survey. *International Journal of Bank Marketing*. Vol. 15; 6:217-223.

- Yeh, Q. (1996). The application of data envelopment analysis in conjunction with financial ratios for bank performance evaluation. *Journal of Operational Research Society*. Vol. 47:980-988.
- Zahoric, A. J. and Rust, R. T. (1992), “Modelling the impact of service quality on profitability: a review” in Swartz, T. A., Bowen D. E. and Brown, L. L. (Eds.), *Advances in Service Marketing and Management*, Vol. 1, JAI Press, Greenwich, CT.
- Zeithaml, V. A. and Bitner, J. M. (1996), *Services Marketing*, McGraw-Hill, New York, NY.
- Zeithaml, V.A., Bitner, M.J. (1996). *Services Marketing*. McGraw-Hill, New York, NY.
- Zineldin, M. (1996). Bank Strategic Positioning and some determinants of bank selection. *International Journal of Bank Marketing*. Vol.4; 6:12-22.