IMPACT OF CONSOLIDATION ON PROFITABILITY AND EFFICIENCY OF COMMERCIAL BANKS IN INDIA

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DECLARATION

I declare that the thesis entitled "**Impact of Consolidation on Profitability and Efficiency of Commercial Banks in India**" submitted by me for the award of the degree of Doctor of Philosophy of Jawaharlal Nehru University is my own work. The thesis has not been submitted for any other degree of this University or any other university.

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All errors are mine.

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LIST OF ACRONYMS

2SLS	Two-stage least square
3SLS	Three-stage least square
ABN	ABN Amro
Abu-DB	Abu-dhabi Commercial Bank
ADB	Asian Development Bank
AE	Allocative Efficiency
AEB	American Express
Allaha B	Allahabad Bank
Andh B	Andhra Bank
AP_C	Average Productivity in Constant Returns to Scale
AP_V	Average Productivity in Variable Returns to Scale
ATMs	Automatic Teller Machines
Axis	Axis bank
BA	Bank of America
Bar B	Barclays Bank
BB&K	Bank of Bahrain & Kuwait
BC	Bank of Cylon
BCC	Banker, Charnes and Cooper model
BCoB	Bareilly Corporation Bank
BhOB	Bharat Overseas Bank
BNPP	BNP Paribas
BoB	Bank of Baroda
BOI	Bank of India
BoM	Bank of Madura
BoM	Bank of Maharashtra
BoP	Bank of Punjab
BoR	Bank of Rajasthan
BR Act	Banking Regulation Act
BSB	Benares State Bank
BSE	Bombay Stock Exchange
BT	Bank of Tokyo
CAR	Capital Adequacy Ratio
CBI	Central Bank of India
CCB	China trust Commercial Bank
CCR	Charnes, Cooper and Rhodes model
CD	Consolidation Dummy
CE	Cost Efficiency
City B	City bank
Cor B	Corporation Bank
CR	Credit Risk
CRAR	Capital to Risk Weighted Assets Ratio
CRS	Constant Returns to Scale
CRSTE	Constant Return to Scale Technical Efficiency
CSB	Catholic Syrian Bank
CUB	City Union Bank

CWBA	Common Wealth Bank of America
Dena B	Dena Bank
DB	Dhanalakshmi Bank
DBS	DBS Bank
DCB	Development credit Bank
DEA	Data Envelopment Analysis
DMU	Decision-Making Unit
DRS	Decreasing Returns to Scale
FB	Federal Bank
GBK	Ganesh Bank of Kurundwad
GDP	Gross Domestic Product
GTB	Global Trust Bank
H&SB	Hong Kong & Shanghai Bank
HDFC	Housing Development Finance Corporation
ICICI	ICICI Bank
IDBI	Industrial Development Bank of India
Ind B	Indian Bank
IOB	Indian Overseas Bank
IRS	Increasing Returns to Scale
IV	Instrumental Variable
J&K B	Jammu & Kashmir Bank
JPMCB	J P Morgan Chase Bank
KCH	Keppel Capital Holdings
KMB	Kotak Mahindra Bank
KTB	Krung Thai Bank
KVB	Karur Vysya Bank
KYC	Know Your Customer
LABs	Local Area Banks
LKB	Lord Krishna Bank
LnTA	*log* of Total assets
LPP	Linear Programming Problem
LVB	Lakshmi Vilas Bank
M&As	Mergers and Acquisitions
MCB	Mizuho Corporate Bank
MENA	Middle Eastern and North African
MPSS	Most Productive Scale Size
NBI	New Bank of India
NII	Net Interest Income
NPAs	Non- Performing Assets
NRI	Non- Resident of India
NSB	Nova Scotia Bank
OBC	Oriental Bank of Commerce
OCBC	Overseas- Chinese Banking Corporation
OE	Operating Expenses
OIB	Oman International Bank
OLS	Ordinary Least Squares
OP	Operating Profit
OTE	Overall Technical Efficiency

OUB	Overseas Union Bank
PAT	Profit after Tax
PBT	Profit before Tax
PCoB	Punjab Cooperative Bank
PNB	Punjab National Bank
PSB	Punjab & Sind Bank
PSBs	Public Sector Banks
PTE	Pure Technical Efficiency
RB	Ratnakar Bank
RBI	Reserve Bank of India
RBS	Royal Bank of Scotland
ROA	Return on Assets
ROE	Return on Equity
RRBs	Regional Rural Banks
SBB&J	State Bank of Bikaner & Jaipur
SBH	State Bank of Hyderabad
SBI	State Bank of India
SBMau	State Bank of Mauritius
SBM	State Bank of Mysore
SBoI	State Bank of Indore
SBP	State Bank of Patiala
SBS	State Bank of Saurashtra
SBT	State Bank of Travancore
SChB	Standard Chartered Bank
SCBs	Scheduled Commercial Banks
SE	Scale Efficiency
SEBI	Stock Exchange Board of India
SEM	Simultaneous Equation Method
SFA	Stochastic Frontier Analysis
SIB	South Indian Bank
Sin B	Shinhan Bank
SMEs	Small and Medium Enterprises
Syn B	Syndicate Bank
TB	Times Bank of India
TMB	Tamilnad Mercantile Bank
UCBs	Urban Co-operative Banks
Union B	Union Bank of India
United B	United Bank of India
UOB	United Overseas Bank
UWB	United Western Bank
V B	Vijaya Bank

CHAPTER 1

Introduction

The banking sector plays a vital role in the economic growth of a country. It acts as an intermediary between savers and borrowers and facilitates capital accumulation. More importantly, they provide loans and advances for small, medium and large-scale enterprises in India and supports economic growth. After liberalization of banking sector in early 1990s, Indian banking sector has changed and diversified all over the world and its performance in efficiency gains and profitability are vulnerable due to increased competition from foreign banks. To address these issues, Reserve Bank of India (RBI) and Government of India have laid emphasis on consolidation process of banks to generate more economies of scale and higher efficiency gains of banks. Consolidation can also lead to a more stable banking system. Post globalization, the Indian banking system appears to be quite fragmented and there is a need to shift from numerically more banks to consolidated strong banks that are competitive, profitable and well capitalized to support a higher growth economy. Consolidation may promote economies of scale of production and may raise banks' profit. Consolidation may also raise banks' scale of economies by raising their efficiency. A change in the structure of merged banks may have a considerable effect on their management and operating cost that could enhance their profit by reducing the wastage of inputs and producing outputs more efficiently. The recent episode of consolidation of State Bank of India (SBI) with its associate banks has generated renewed interest in this issue.

A report of RBI (2013) states that consolidation of small and large banks increases their economies of scale of production and raises the consolidated bank's profit. It also indicates that large banks' profitability may decline due to a merger deal with weaker banks. According to RBI (2013), generally, the larger banks are more likely to be efficient and have a higher profitability than the smaller banks (like Local Area Banks, Regional Rural Banks, and Urban Cooperative Banks).

Consolidation of banks refers to the process by which two banks agree to merge together as a single entity. In the banking sector, consolidation happens in two ways, viz., 'mergers' and

'acquisitions' A merger refers to the case when two banks combine to form a single entity and an acquisition implies that one bank (the acquirer) takes over another bank (the target) in a friendly or aggressive manner. In the banking sector, merger reduces the number of banks and creates synergy between merged banks. Bank Merger raises economies of scale and the scope of production. An acquisition takes place when a larger bank offers to purchase a target bank due to the declining performance of the target bank. Apart from that, government may interfere and force a larger bank to take over the weaker one through acquisition.

Bank consolidation is expected to improve banking sector performance. It creates changes in the structure of merged bank that may have a considerable effect on its management and operating cost. This may promote economies of scale and scope of consolidated banks. Many studies have found evidence of this (Sufian et al., 2007; Peristiani, 1997; Khasawneh, 2006; Berger and Humphrey, 1993; Singh, 2009). However, some empirical studies have found that bank consolidation may not lead to increased profitability and efficiency gains and actually may lead to deterioration in efficiency (Kaur and Kaur, 2010; Altunbas et al., 2000; Sanjeev, 2007). According to RBI (2013), mergers and acquisitions (M&As) can help to stabilize the banking sector and can mitigate financial crisis. An empirical study from US reveals that the consolidation of the commercial banks reduced the financial distress of merged banks (Berger and Humphrey, 1993).

Consolidation may impact banks' profitability and efficiency through improved scale of production, loans and services of the merged banks. In the global context, the prime motive behind the consolidation process is to achieve higher economies of scale and to increase the scope of production of banks. Economy of scope indicates a firm's ability to produce a broader set of outputs at a lower cost due to increased volume of business. Most of the US merger deals are in this category (Berger and Humphrey, 1993). However, in the Indian context, consolidation has been a way of restructuring weak banks (RBI, 2013). RBI (2013) points out that if a more efficient bank takes over a less efficient one that could generate cost efficiencies of banks by reducing operating expenses. It also points out that consolidated banks can ensure a positive effect on its management. The efficiency improvement may reduce the cost of services and may raise the quality of its product.

In recent time, rapid changes in the Indian banking sector have necessitated to examine the issue of consolidation. RBI (2013) states that, consolidation between or among the smaller and the healthier banks has encouraged economies of scale of production and improved profit. At the same time, merger deals between same asset sized banks make the business stronger. The strengthening of the business leads to improvement in performance. RBI (2013) suggests that if consolidation takes place in the Indian banking sector than it may be a way to enable banks to secure global markets. The reforms of Narasimhan committee 1991-I and 1998-II suggested that the consolidation process between two strong banks would create a positive effect on intermediation. It also suggested that the consolidation process of the Indian commercial banks can be a way to face the increased competition due to the entry of foreign banks in the wake of liberalization of the banking sector.

The Indian banking sector witnessed 25 consolidation deals during 1991-2013. During the period 1961-1991, there were 59 consolidation deals. This thesis focuses on 16 major bank consolidation deals that took place during 1991-2013. We discuss these 16 deals in chapter 2. It can be noted that only one such deal (the deal between Punjab National Bank (PNB) and New Bank of India (NBI) in the year 1993) is a merger deal, while the other deals were acquisitions.

The objective of this study is to examine whether consolidation in Indian banking sector has been beneficial, by using the above 16 consolidation deals as case study. In the Indian context, there are many studies that examine the performance of the banking sector. However, few studies have addressed whether consolidation has any impact on the banks' performance. This thesis is likely to contribute to the limited literature on impact of consolidation on the profitability and efficiency of the Indian banking sector. The results and findings of this study are likely to be useful for future consolidation deals.

1.1. Rationale and Scope of the Study

This thesis tries to study the impact of consolidation on Indian commercial banks in terms of profitability and efficiency.

Firstly, it tries to examine the impact of bank consolidation on Indian commercial banks' performance by analysing pre and post-mergers indicators of profitability. Secondly, the study attempts to investigate the effects of bank consolidation on bank's efficiency before and after this

process. It also tries to compare the efficiency performance of acquirers and targets and tries to investigate whether the acquirer is always more efficient than the target. We measure banks' overall efficiency by using technical and scale efficiency frontier with Data Envelopment Analysis (DEA). Finally, the thesis attempts to empirically investigate whether banks' profitability and efficiency indicators are significantly associated with the event of consolidation, by using standard econometric methods.

The rationale for this study derives from the lack of literature on the issue of banking sector performance in the context of consolidation. In the Indian context, there are very few studies that deal with the impact of consolidation on performance of banking sector, although, there are many studies that have analysed the performance of the banking sector in general. This thesis attempts to fill this gap in the literature. The few studies, namely, Chinnaswamy and Ponsabariraj (2014) and Kaur and Kaur (2010) that have analysed profitability and efficiency in the context of consolidation have covered the period of 1999 to 2011 and 1990 to 2008 respectively. In our study, we attempt to cover a longer period, i.e. 1991-2013, thus covering the entire post liberalization period. Further, we attempt to cover different aspects of efficiency such as, technical efficiency, pure technical efficiency and scale efficiency. Thus, the scope of our study is much broader in terms of period coverage as well as concepts covered.

1.2. Research Questions:

In this thesis, we attempt to study the impact of consolidation on Indian commercial banks in terms of profitability and efficiency. Thus, the specific research questions that we attempt to investigate are as follows:

1. Has consolidation improved banking sector profitability in India?
2. Has consolidation improved banking sector efficiency in India?
3. Is the acquirer more efficient than the target firm?
4. Is consolidation an important factor to determine the bank's profitability and efficiency?
5. Is increased asset size due to consolidation an important factor for profitability and efficiency in the Indian banking sector?

Accordingly, the main hypotheses are,

1. Ho: The Indian commercial banks' profitability has not improved after consolidation.
   H_1: The Indian commercial banks' profitability has improved after consolidation.
2. Ho: The Indian commercial banks' efficiency has not improved after consolidation.
   H_1: The Indian commercial banks' efficiency has improved after consolidation.
3. Ho: The acquiring firm is not more efficient than the target firm.
   H_1: The acquiring firm is more efficient than the target firm.
4. Ho: Bank consolidation has no impact on profitability and efficiency.
   H_1: Bank consolidation has an impact on profitability and efficiency.

We analyze 16 consolidation deals to address the above questions. In order to investigate these hypotheses, we use relevant data on Indian scheduled commercial banks from various sources. To analyze impact of consolidation on banks' profitability, we use various indicators of profitability and compare them before and after the consolidation deal. Chapter 5 of this thesis presents the empirical results of the analyses of consolidation on banks' profitability.

To investigate impact of bank consolidation on efficiency, we first compute measures of efficiency using the data envelopment analysis (DEA) approach. The efficiency scores are computed using DEA and we use these efficiency scores pre and post consolidation for studying the impact of consolidation on banks' efficiency. Using standard statistical methodology, we test for significant improvement of efficiency scores post-consolidation compared to pre-consolidation. Chapter 6 of the thesis presents details of this exercise.

To investigate the relationship among consolidation, banks' profitability and efficiency, we use the Simultaneous Equation Method (SEM). For this, we have taken a set of banks in 2013, distinguishing banks that had gone through consolidation from banks that did not go through consolidation in the last 10 years. For the profitability analysis and determinants, we have taken ROA and ROE as profitability indicators and these will be functions of assets size, consolidation dummy, interaction between assets size and consolidation dummy, other control variables, efficiency scores, etc. For the efficiency analysis and determinants, we have taken efficiency scores of all banks and it will be functions of asset size, consolidation dummy, interaction between assets size and consolidation dummy, profitability, other control variables,

etc. This method will help to measure whether consolidation has a significant impact on profitability and efficiency. This exercise is presented in Chapter 7.

1.3. Findings:

Empirical results of the analysis in Chapter 5 show that consolidation is impacted on profitability. The study found that consolidation affects profitability in a significant way and in both positive and negative way. Chapter 5 found that consolidation improves profitability of banks by reducing cost and improving the profit. Further, in a few deals we found in Chapter 5 that there is no improvement in profitability, while in some cases there was deterioration in profitability. Consolidation among domestic banks can sustain profitability and can rescue the distressed banks' performance. Further, consolidation resulted in profitability gains because of synergy and the benefits from improvement of products and services.

The findings outlined in Chapter 6 indicate that while some consolidation deals registered an improvement in efficiency, some other consolidation deals displayed deterioration in Pure Technical Efficiency (PTE) and Scale Efficiency (SE). Majority of the cases did not reflect significant improvement in overall technical efficiency, in terms of pure technical efficiency (PTE) measure, majority of cases we found improvement in PTE. Further, the consolidation led to a higher level of technical efficiency for the consolidated banks. For the acquirer and target banks' comparison analysis, the results of median test found that in most of the cases, the acquirer banks are more efficient than target banks in Pure Technical efficiency (PTE) and Scale Efficiency (SE). As far as Overall Technical Efficiency (OTE) is concerned, only in four deals the finding was that the acquirer was more efficient while the targets were found to be more efficient than acquirer in the remaining deals. In conclusion, it was found that voluntary consolidation resulted in improvement of consolidated bank efficiency and compulsory deals gave poor efficiency results. The deterioration of efficiency was more likely observed in terms of scale efficiency. Tobit regression results found that consolidation has a significant impact on banks' pure technical efficiency.

The relationship between efficiency (OTE, PTE and SE) and profitability (ROA and ROE) is estimated in Chapter 7. We find that consolidation dummy and asset size due to consolidation are significant determinants of pure technical efficiency (PTE) and not of the other

efficiency measurement. It was also found from this exercise that consolidation was not a significant determinant of banks' profitability indicators.

1.4. Organization of the thesis:

This thesis is organized into several chapters. This current chapter, the Chapter 1, introduces the thesis and covers the statement of the problem and objective of the study. Chapter 2 presents an overview of the 16 consolidation deals of Indian commercial banks that are studied in this thesis. Chapter 3 presents an extended review of the literature related to the main objectives of this thesis. Chapter 4 presents methodology of the study. This includes a discussion on various aspects such as empirical methodology, variables and the data. Chapter 5 presents an empirical analysis of the impact of consolidation on various profitability indicators of banks in India. Chapter 6 presents considers the effects of bank consolidation on banks efficiency and interprets the acquirer and target banks' performance before, during and after merger. Chapter 7 presents the relationship among consolidation, profitability and efficiency. In this chapter, we have considered the determinants of Indian commercial banks' profitability and efficiency with other control variables of banks. Chapter 8 concludes and summarizes the findings of the study while delineating policy implications and suggestions for future research. It also outlines the shortcomings and limitations of the study.

CHAPTER 2

Major Bank Consolidations in India: An Overview

2.1. Introduction

The Reserve Bank of India (RBI), India's central bank, has classified Indian Scheduled Commercial Banks (SCBs) into three categories namely, public sector banks, private sector banks and foreign banks.[1] In India, The group of scheduled public sector commercial banks constitute the biggest player and they hold more than 70 percent assets of the SCBs as of 2015. Table 2.1 presents the total number of SCBs in India by type of banks as of March 2015.

2.2. Bank Consolidation in India

The mergers and acquisitions in the Indian banking sector are regulated by the Banking Regulation Act (BR Act), 1949. RBI is the regulatory authority to approve and facilitate the merger and acquisition processes between or among banks. The BR Act distinguishes two kinds of merger and acquisition processes namely (i) voluntary merger and acquisition, and (ii) compulsory acquisitions. Voluntary mergers are accepted and regulated by the RBI under the BR Act, 1949 with special Section 44 (A). This section states that a voluntary deal requires the approval of the board of directors of banks and also requires the approval of two-third shareholders of both the banks. Finally, this voluntary proposal has to be submitted to the RBI for approval. Compulsory acquisitions are implemented or obligated by RBI under the BR Act, 1949 with Section 45.[2]

However, the BR Act for mergers and acquisitions is not applicable to government owned banks, viz., public sector banks including the State Bank of India (SBI) and its Associate Banks. The SBI Act, 1955 regulates the State Bank of India (SBI) and its Associate Banks and Banking Commercial Act, 1970 and 1980 regulate government-owned banks respectively.[3]

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[1] Scheduled Commercial Banks are those that are listed in the second schedule to the Reserve Bank of India Act, 1935. All but 4 commercial banks in India are scheduled commercial banks; these 4 are also called Local Area Banks (LABs).

[2]Banking Regulation Act, 1949 is accessed from, https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/BANKI15122014.pdf on 16-05-2014.

[3]SBI Act 1955 is accessed from, http://financialservices.gov.in/banking/SBIActandregulation.pdf on 16-05-2014 and Banking Commercial Act, 1970 is accessed from https://www.pnbindia.in/Upload/En/Bankingpercent20Companiespercent20Actpercent201970.pdf on 16-05-2014

Table 2.1: Scheduled Commercial Banks in India, year 2015		
S. No.	**Name of the banking group**	**No. of banks**
1	SBI and Associates Banks	6
2	Government Nationalised Banks	19
3	Other Public Sector Banks	1
4	Private Sector Banks	26
5	Foreign Banks	43
	TOTAL	95

Source: RBI, 2015, available from: http://rbi.org.in/commonman/English/Scripts/BanksInIndia.aspx. [27 May 2015]

The reforms suggested by the Narasimhan Committee 1991-I and 1998-II indicated that consolidation of the Indian commercial banks can be a way to face the challenges of banking sector liberalization. After the banking sector liberalization, Indian commercial banks faced challenges of improved norms of prudential regulation. Apart from that, the entry of foreign banks increased the competition for domestic banks. So, many weaker commercial banks merged with wealthier asset sized banks. Altogether, the Indian banking sector witnessed 25 consolidation deals from 1991-2014. These agreements of consolidation were determined and caused by several factors such as synergy, low banking efficiency, cost saving and expansion of economies of scale and market power.

The Indian banking sector signed more than 46 consolidation deals during the period of pre-nationalization of fourteen Indian commercial banks, i.e., from 1961 to 1968. Later during nationalization, there were 36 consolidation deals between 1969 and 1991. After the liberalization (1991), 25 consolidation deals have taken place. Table 2.2 presents some details on these 25 consolidation deals. Most of the merger and acquisition deals of the Indian commercial banks were for restructuring of weak banks and expansion of size, scale and scope.

In 1993, New Bank of India (NBI) merged with Punjab National Bank (PNB) due to the poor performance of NBI. It is the only merger deal that happened in the post-liberalization era, the remaining deals being based on acquisition only. Interestingly in 2008, Centurion Bank became a target for acquisition due to its failed acquisition deal with Lord Krishna Bank in 2007. Finally, Housing Development Finance Corporation (HDFC) bank came forward and acquired Centurion Bank. In 2010, private sector ICICI had acquired the public sector Bank of Rajasthan.

Table 2.2: List of selected Merger and Acquisitions (M&As) in Indian Banking Sector during 1991-2013

No	Target Bank	Acquirer Bank	Year	Purpose	Consolidation
1	New Bank of India (NBI), Public Sector Bank	Punjab National Bank (PNB), Public Sector Bank	1993	weak bank	Compulsory
2	Bank of Karad Ltd, Private Sector Bank	Bank of India , Public Sector Bank	1994	weak bank	Compulsory
3	Kashi Nath Seth Bank Ltd, Private Sector Bank	State Bank of India, Public Sector Bank	1996	weak bank	Compulsory
4	Bari Doab Bank Ltd, Private Sector Bank	Oriental Bank of Commerce, Public Sector Bank	1997	weak bank	Compulsory
5	Punjab Co-operative Bank(PCoB), (co-operative)	Oriental Bank of Commerce, Public Sector Bank	1997	weak bank	Compulsory
6	Bareilly Corporation Bank (BCB), Private Sector Bank	Bank of Baroda, Public Sector Bank	1999	Expansion of scale	Voluntary
7	Sikkim Bank Ltd, Private Sector Bank	Union Bank of India(UBI)	1999	weak bank	Compulsory
8	Times Bank Ltd. (TB), Private Sector Bank	HDFC Bank Ltd, Private Sector Bank	2000	Expansion of scale	Voluntary
9	Bank of Madura Ltd. (BoM), Private Sector Bank	ICICI Bank Ltd , Private Sector Bank	2001	Expansion of scale	Voluntary
10	ICICI Ltd, Private Sector Bank	ICICI Bank Ltd , Private Sector Bank	2002	Expansion of size	Voluntary
11	Benares State Bank Ltd (BSB), Private Sector Bank	Bank of Baroda, Public Sector Bank	2002	weak bank	Compulsory
12	Nedungadi Bank Ltd. (NB), Private Sector Bank	Punjab National Bank(PNB), Public Sector Bank	2003	weak bank	Compulsory
13	South Gujarat Local Bank, Private Sector Bank	Bank of Baroda (BoB), Public Sector Bank	2004	weak bank	Compulsory
14	Global Trust Bank Ltd. (GTB), Private Sector Bank	Oriental Bank of Commerce (OBC), Public Sector Bank	2004	weak bank	Compulsory
15	IDBI Bank Ltd, Private Sector Bank	IDBI Ltd , Private Sector Bank	2005	Expansion of size	Voluntary
16	Bank of Punjab Ltd. (BoP), Private Sector Bank	Centurion Bank Ltd , Private Sector Bank	2005	Expansion of scale	Voluntary
17	Ganesh Bank of Kurundwad (GBK), Private Sector Bank	Federal Bank Ltd(FB),, Private Sector Bank	2006	weak bank	Compulsory
18	United Western Bank Ltd(UWB), Private Sector Bank	IDBI Ltd, Private Sector Bank	2006	weak bank	Compulsory
19	Bharat Overseas Bank Ltd. (BovB), Private Sector Bank	Indian Overseas Bank (IovB), Public Sector Bank	2007	weak bank	Compulsory
20	Sangli Bank Ltd. (SB), Private Sector Bank	ICICI Bank Ltd, Private Sector Bank	2007	Expansion of scale	Voluntary
21	Lord Krishna Bank Ltd. (LKB), Private Sector Bank	Centurion Bank of Punjab, Private Sector Bank	2007	Expansion of scale	Voluntary
22	Centurion Bank of Punjab (CB), Private Sector Bank	HDFC Bank Ltd, Private Sector Bank	2008	Expansion of scale	Voluntary
23	The Bank of Rajasthan (BoR), Private Sector Bank	ICICI Bank Ltd, Private Sector Bank	2010	weak bank	Compulsory
24	State Bank of Indore (SBoI), Public Sector Bank	State Bank of India(SBI), Public Sector Bank	2010	Expansion of scale	Voluntary
25	ING, Private Sector Bank	Kodak Mahindra Bank, Private Sector Bank	2013	weak bank	Compulsory
Source: Report on Currency and Finance (2008), RBI and various news papers.					

In 2016, Government of India announced the merger of all the State Bank groups and Bharatiya Mahila Bank (BMB, set up as a public sector bank in 2012) into one State Bank of India. Accordingly, all SB Associate banks and BMB are merged into SBI in 2017. This deal is

one of the biggest deals in the Indian banking consolidation process aimed at making SBI a global competitor. This merger brought all banks of SBI groups to form one entity. The prime motive behind this deal was to make Indian banking more competitive and efficient.

Data from Table 2.2 shows that under the category of voluntary amalgamation 11 deals took place while 14 deals were ranked as compulsory consolidations. It is also noticeable that private sector banks have triggered more consolidation in India than Public Sector Banks (PSBs). Apart from that, up to 1999, mergers and acquisitions have been driven by weak and low-performance of target banks. Consolidation also took place for expansion of businesses and improving economics of scale from 1999 to 2005. Thereafter, bank consolidation in India has been driven by market forces and factors such as deregulation, technology, competition, etc.

In this thesis, we analyse 16 major consolidation deals during 1991-2014. We are focussing only on 16 deals because the relevant data for analysis is available for only these 16 deals which are discussed below.

Deal 1: Acquision of Punjab Cooperative Bank (PCoB) by Oriential Bank of Commerce (OBC), 1997

This consolidation deal was approved by RBI and the Government of India in 1997. In an environment of new liberalization policies and increased competition in the domestic market PCoB needed support from healthy banks to sustain its performance. A total of 10 branches of PCoB had been transferred to OBC due to financial distress. It is on account of the foreign exchange requirement that OBC acquired PCoB. This deal was triggered by weak performance of PCoB and the new banking polices.

Deal 2: Acquision of Bareilly Corporation Bank (BCoB) by Bank of Baroda (BoB), 1999[4]

Under Section 44(A) of the Banking Regulation Act, 1949, Bank of Baroda (BoB) had voluntarily acquired Bareilly Corporation Bank (BCoB) and its businesses in 1999. BoB had conducted a general body meeting with its shareholders to obtain the approval for this merger, and it had got the approval of the Reserve of India. Bank of Baroda had fixed the share swap ratio at 15 shares for Bareilly Corporation Bank shares. As it held 98 percent of the target bank equity of Rs.5.16 crore, its overall reserves went up to Rs. 1.32 crore. This deal helped to

[4]The information is accessed from http://expressindia.indianexpress.com/fe/daily/19980607/15855224.html accessed on 17-03-2016.

strengthen the branch management and network in western Uttar Pradesh where the target bank had 63 offices and its employees.

Bareilly Corporation Bank had Rs. 307 crore deposits and Rs. 344 crore assets level in 1997-98 and its net profit was Rs.94.05 lakh against the profit which was recorded at Rs. 25 lakh for one year earlier. Thus, results were observed in two consecutive years after the loss of Rs. 3 core. Capital Adequacy Ratio (CAR) of the Bareilly Corporation Bank (target bank) was registered flat at 3 percent against the RBI requirement of minimum CAR of 9 percent.

The merger had aimed to overlap their businesses in the northern region by means of this deal between these two banks. Acquisition had improved the synergy and benefitted them with more product strength.

Deal 3: Acquision of Times Bank of India (TB) by HDFC Bank, 2000 [5]

The acquiring bank is HDFC and the target bank is Times Bank of India. This deal has happened in 2000 and has been nodded by Government of India and approved by RBI putting new economic reforms on banking sector. As per the scheme of consolidation, this deal was approved by shareholders of both banks and finally, by the RBI. HDFC gave a single share for every 5.75 shares of Times Bank. Apart from that, this deal was a response to the new presence of private banks in India. It was made between two same assets sized entities and was motivated by some factors, namely, the better technology of HDFC bank and its compatibility. Further, HDFC had more CAR and had diversified and cross-selling capability. After the deal, HDFC Bank started its business in urban areas where Times Bank branches were fundamentally rooted. Without increasing branches, HDFC enlarged its presence in more cities. After this deal, the government discussed the possibility of consolidation among public and private banks. This deal expanded their services to different states.

Deal 4: Acquision of Bank of Madura (BoM) by ICICI Bank, 2001 [6]

The deal was approved by RBI in 2001 under the scheme of voluntary mergers and acquisitions. Bank of Madura's assets of Rs. 4,400 crore and its branches had been transferred to

[5]The information is accessed from the website http://www.hdfcbank.com/aboutus/general/timesbank_amalgamation.html on 17/02/2016.

[6]The information is accessed from http://www.iimb.ernet.in/publications/review/september2003/icicibank on 20-08-2016.

ICICI bank. It offered a base for ICICI bank in the entire southern part of India where BoM's branches numbered 263. BoM's employee strength of 2577 and Capital Adequacy Ratio (CAR) of 14.25 per cent had also been transferred to ICICI bank. The swap ratio for this deal was 1:2 in favour of Bank of Madura. It indicated that 2 shares of BOM for 1 ICICI bank's share for the shareholders. This deal helped to garner synergy of both bank's products and services which increased its financial capability, branch management, new technology and more importantly access to rural areas of its businesses.

Deal 5: Acquision of Benares State Bank (BSB) by Bank of Baroda (BoB), 2002[7]

In 2002, the second UP-based private sector Benares State Bank was acquired by public sector Bank of Baroda (BoB). The RBI had used the scheme of consolidation under Section 45 of the Banking Regulation Act, 1949 and sent the proper intimation to the Finance Ministry which approved and announced this deal. Under Section 35A of the BR Act, the RBI had passed a resolution and suggested that withdrawal of deposits be more than Rs.1000 banned.

BoB had acquired 105 branches of Benares State Bank in India. Benares State Bank's assets size of Rs.1134 crore, its deposits of Rs.1031 crore, advances of Rs. 229.96 crore, and its investment of Rs. 630.90 crore had been successfully transferred to the Bank of Baroda. In the capital of Rs.120 crore, Benares State Bank had been paid Rs. 62 crore toward losses in 2000. It had recorded Rs.13.38 crore net losses in a previous year. In contrast, BoB had more than 2500 branches in 2001; its deposits stood up Rs.53.985 crore; its advances increased to Rs. 27420 crore and its investment rose to Rs.19857 crore.

Deal 6: Acquision of Nedungadi Bank (NB) by Punjab National Bank (PNB), 2003[8]

Punjab National Bank (PNB) had taken Nedungadi Bank (NB) in the 2003. This deal had happened between the public (PNB) and private (NB) sector banks and 174 branches of Nedungadi Bank (target bank) started working as a public sector bank. This merger was announced and approved by the Finance Ministry which asked PNB to acquire NB by using the declared moratorium on the sick bank. NB recorded a 66.2 per cent loss of net profit to Rs.2.02

[7]The information is accessed from http://www.business-standard.com/article/finance/bank-of-baroda-to-take-over-benares-state-bank-101102001032_1.html on 17-03-2016.

[8]The information is accessed from http://www.rediff.com/money/2003/feb/03hot10.html and http://archive.financialexpress.com/news/pnb-completes-merger-with-nedungadi-bank/69894 on 17-03-2016.

crore, compared to 5.98 crore in the previous year and its total income went down by 19 per cent to Rs.41.66 crore, compared to 51.38 crore in 2001.

Nedungadi Bank had deposits of Rs.1438 crore and advances of Rs. 770 crore that had successfully transferred to PNB. In contrast, PNB has registered deposits of Rs.66200 crore and advances of more than Rs. 37100 crore. This merger has raised the branch number to a total of 4000 for PNB in India and developed its businesses in the southern regions especially Kerala. This merger increased their share prices from Rs.5.02 to Rs.11.50 on the Bombay Stock Exchange (BSE). Apart from that, NB had been held by the stock broker-led group. This merger frees the broker-led influences in the market. However, NB's shareholder got more secured price of shares and the support of government oriented institutions.

Deal 7: Acquision of Global Trust Bank (GTB) by Oriental Bank of Commerce (OBC), 2004 [9]

The deal was motivated by an effort to solve the bankruptcy of Global Trust Bank (GTB), a private bank, which was acquired by public sector Oriental Bank of Commerce (OBC) in 2004 and approved by the RBI. There was no swap ratio followed for the deal. The acquisition had increased the synergy between the banks that improved performance in the domestic market.

B.D. Narang the chairman of OBC said that GTB needed support from a healthy bank to sustain its businesses and OBC was the best options for them. This deal helped OBC to expand their activities in the southern regions of India. This process had positively impacted share prices and business developments. GTB had 276 ATMs and 103 branches that had merged with OBC. Secunderabad-based GTB bank branches had faced a financial crisis which was solved by the merger. More interestingly, there was no share transaction between these banks.

Deal 8: Acquision of Bank of Punjab (BoP) by Centurion Bank (CB), 2005[10]

Two private banks, Bank of Punjab (BoP) and Centurion Bank (CB) merged into a new entity, the Centurion Bank of Punjab, in 2005, duly approved by the RBI. The swap ratio of 9:4 for this deal was announced by the Centurion Bank. According to this ratio, for every four shares of the Bank of Punjab, the shareholder got nine shares of Centurion Bank. This merger raised the capital of the merged bank to around Rs. 108 crore, its net worth was raised to Rs.696 crore, its

[9]The information is accessed from http://www.business-standard.com/article/finance/gtb-to-be-merged-with-obc-104072601033_1.html on 17-03-2016.

[10]The information is accessed from http://timesofindia.indiatimes.com/business/india-business/Bank-of-Punjab-Centurion-merge/articleshow/1156032.cms and http://www.banknetindia.com/banking/bop.html on 17-03-2016.

total assets moved to Rs. 9395 crore and deposits increased Rs. 7837 crore. Apart from that, the new entity had 386 ATMs, 240 branches, and 2.2 million customers. The primary motive for the consolidation was to achieve scale and geographical expansion in India. This deal flagged the way for private sector banks to consolidate with private or public sector banks in India.

Deal 9: Acquision of Ganesh Bank of Kurundwad (GBK) by Federal Bank (FB), 2006 [11]

Reserve Bank of India made a draft scheme of consolidation of Ganesh Bank of Kurundwad (GBK) with Federal Bank in 2006. GBK's net worth had declined to Rs. 3.05 crore and it had no new plans to raise its capital in the market. In these circumstances, RBI had forced its acquisition by the Federal Bank which stood to gain in this takeover of GBK businesses and skilled employees of the bank. The primary purpose of the Federal Bank was to cover the agricultural sector in Maharashtra regions through acquisition. As Ganesh Bank was a small bank it was not able to provide certain needs of the industry and its poor performance motivated this deal. Consequently, Federal bank's branches increased from 20 to 32 in Maharashtra and it added 30 crore to its capital. Further, GBK's reserves of Rs. 657 crore were transferred to the acquirer.

Ganesh Bank's assets of Rs 233 crore, its deposits of Rs 217.4 crore and advances of Rs 105.7 crore moved to the Federal Bank. This deal helped the Federal Bank in expanding their services to Maharashtra, and it gave wider facilities for the agricultural sector and the small and medium enterprises (SMEs) in the region.

Deal 10: Acquision of United Western Bank (UWB) by IDBI, 2006 [12]

IDBI Bank had acquired the financially distressed United Western Bank (UWB) in 2006 by using the guidelines of moratorium from RBI. Both the acquirer and target banks in this case were private banks. IDBI Bank paid Rs.150.55 crore for United Western Bank shareholders at Rs. 28 per share. It was the first time that RBI had fixed this share ratio. After the merger, IDBI's total branches increased from 195 to 425 and this deal increased its businesses and assets to Rs.7166 crore. Also, the acquirer bank opened a new account for valuing the assets size of United Western Bank which was called `asset account'.

[11]The information is accessed from http://www.business-standard.com/article/finance/federal-bank-to-take-over-ailing-ganesh-bank-106011001041_1.html on 17-03-2016.

[12]The information is accessed from http://articles.economictimes.indiatimes.com/2006-10-01/news/27458128_1_uwb-shareholders-united-western-bank-idbi on 17-03-2016.

IDBI operated its business in 230 branches and 75 ATMs of UWB, which were located in Maharashtra. This deal gave IDBI the wealthiest loans market in the southern region. UWB had held two banking authorities namely, development banking and commercial banking that helped to build its presence in rural areas for priority sector lending. This deal raised the loans and advances in low-cost segments and covered large customers by proving more services in rural areas.

Deal 11: Acquision of Bharat Overseas Bank (BhOB) by Indian Overseas Bank (IOB), 2007[13]

The Ministry of Finance (GoI) and the Reserve Bank of India had announced the consolidation of private sector Bharat Overseas Bank with public sector Indian Overseas Bank in 2007. This acquisition was made because Bharat Overseas Bank was not able to follow the guidelines of RBI. Bharat Overseas Bank's overall share holding was held by seven commercial banks at the time of consolidation. Indian Overseas Bank, had the highest share holding of 30 percent. The remaining of 70 percent share was held by Bank of Rajasthan (16 percent), Vysya Bank (14.66 percent), Federal Bank (10.67 percent), Karur Vysya Bank (10 percent), South Indian Bank (10 percent) and Karnataka Bank (8.67per cent). Indian Overseas Bank had registered an asset of Rs 50,815 crore and capital of Rs 544.80 crore. Bharat Overseas Bank had recorded Rs. 3,214 crore of assets, Rs 198.39 crore of net worth and Rs 15.75 crore of capital that was successfully transferred to Indian Overseas Bank.

Deal 12: Acquision of Sangli Bank (SB) by ICICI Bank, 2007[14]

Regarding assets, ICICI is the largest Indian private sector bank. It has acquired numerous small banks to achieve this position in the Indian banking sector as well as a global presence. The consolidation deal between ICICI and Sangli Bank took place in 2007. Sangli Bank's performance was poor and its capital adequacy ratio plunged to 1.94 percent in 2006. In the circumstances, consolidation was undeniable to meet the minimum requirement of CAR 9 percent which was mandatorily stipulated by RBI for Indian commercial banks. Apart from that, the Tier I capital of the bank declined to 0.82 per cent in 2007 from 6.44 per cent in 2006, at the

[13]The information is accessed from http://articles.economictimes.indiatimes.com/2005-12-26/news/27512240_1_bhob-bharat-overseas-bank-iob on 17-03-2016.
[14]The information is accessed from http://timesofindia.indiatimes.com/business/india-business/ICICI-to-pay-Rs-302-cr-to-acquire-Sangli-bank/articleshow/756583.cms on 17-03-2016.

same time, Tier II fell to 0.82 per cent from 2.86 per cent in the respective years. Also, its net loss of Rs.31.31 crore was higher than the previous year which registered 29.27 crore in 2006 and its net non-performing assets also rose to Rs. 34.82 crore which was greater than the Rs. 20.79 crore NPA previously recorded in 2006. Sangli Bank's deposits in 2007 recorded at Rs. 1984.90 crore and advances of Rs.811.92 crore, were lower than the previous year's value of Rs. 2004.23 crore in deposits, and Rs. 888.29 crore in advances, respectively. ICICI bank had gained overall regional market in Maharashtra and some part of the southern states. Post-liberalization, it gained more assets and local branches of the Sangli banks and generated more loans and advances for rural businesses and its capital base and staff strength had shot up.

After the deal, the Sangli Bank shareholder had got 100 shares of ICICI Bank against 925 shares of Sangli Bank. For the share-swap deal, ICICI had paid Rs. 302 crore for Sangli Bank to acquire its business in Maharashtra. The target bank had 198 branches in Maharashtra and Karnataka. However, more than 50 per cent of its branches were situated in rural and semi-urban regions. Further, it had 1850 employees and Rs. 25 crore net worth which was transferred to the acquirer bank. More importantly, it's non-performing assets of Rs. 20 crore moved to ICICI and its overall assets added 0.06 percent to ICICI bank. We observed that the Sangli Bank's shareholders could not get any representative position on the board of the merged entity and also there was no employee enrichment, and the acquirer operated all the bank branches of the target.

Deal 13: Acquision of Lord Krishna Bank (LKB) by Centurion Bank of Punjab (CBoP), 2007 [15]

RBI approved the acquisition deal of Lord Krishna Bank by Centurion Bank of Punjab in 2007 by using Section 44A of the Banking Regulation Act, 1949. This deal transferred Rs.300 crore to CBoP and added 112 branches of the LKB to CBoP's branch network. According to the consolidation scheme of RBI, Centurion Bank of Punjab was ready to give up 13.22 crore for the shares of Lord Krishna Bank at the rate of Rs. 1 per share. The swap ratio for the deal had been determined in the ratio of 5:7 for LKB shareholders shares.

[15]The information is accessed from http://articles.economictimes.indiatimes.com/2007-08-28/news/28454720_1_centurion-bank-lord-krishna-bank-lkb on 17-03-2016.

Deal 14: Acquision of Centurion Bank of Punjab (CBoP) by HDFC Bank, 2008 [16]

Soon after CBoP acquired LKB in 2007, the RBI approved a consolidation deal in which HDFC Bank acquired CBoP in 2008. The share prices of CBoP were down due to its amalgamation with GBK in 2007. According to CBoP, the deal with GBK had resulted in low performance and it had given low returns to its shareholders. Finally, RBI suggested that CBoP merge with a healthy bank. The big proposal from HDFC was that it was ready to pay Rs. 10 for each CBoP share which numbered 68,883,956 equity shares. Also, CBoP had 400 branches and 7500 employees that were transferred to HDFC Bank. Apart from that, CBoP's loans of Rs. 16, 18,187 million and deposits of Rs. 21, 80,927 million had been acquired by HDFC bank.

Deal 15: Acquision of Bank of Rajasthan (BoR) by ICICI Bank, 2009 [17]

The proposal for acquisition of BoR by ICICI was approved by the board of directors of the two banks, both private sector banks. For regulatory approval, this proposal was sent to RBI which approved the deal in 2009. This deal had taken place following irregularities in the functioning of the promoter of the BoR, the Tayal Family, who had a 55 per cent stake of BoR. In 2009, BoR had registered a net loss of Rs. 44.7 crore. RBI had ordered special auditing of BoR's businesses and found lapses in its governance and disclosure norms especially, violation of the scheme, Know Your Customer (KYC). The Securities and Exchange Board of India (SEBI), India's stock market regulator, also found the promoters of BoR involved in fraud in the share market. According to this deal, ICICI bank had given 25 shares for 118 shares of BoR. The swap-ratio to this was 1: 4.72. BoR's capital of Rs. 1600 crore and 463 branches which were concentrated mostly in northern India had been transferred to ICICI which helped to expand its businesses in the northern regions.

Deal 16: Acquision of State Bank of Indore (SBoI) by State Bank of India (SBI), 2010 [18]

In 2010, State Bank of India (SBI), India's largest bank had acquired State Bank of Indore which had a large number of bank branches in Chhattisgarh and Madhya Pradesh. SBoI had faced some financial vulnerability including poor performance, increasing non-performing

[16] The information is accessed from http://www.wikiinvest.com/stock/HDFC_Bank_LTD_Ads_(HDB)/Merger_Centurion_Bank_Punjab on 20-08-2016.
[17] The information is accessed from the website of wap.business-standard.com/article/finance/bank-of-rajasthan-to-merge-with-icici-bank-110051900028-1.html on 20-02-2017.
[18] The information is accessed from the website of, http://www.business-standard.com/article/finance/state-bank-of-indore-to-become-sbi-branches-from-aug-27-110082400218_1.html on 17-03-2016

assets and more importantly, difficultly in sustaining standard financial institutions in terms of profit and efficiency. The acquisition was approved by Reserve Bank of India and Government of India by using the SBI Act, 1955.

SBI acquired a 98 per cent stake of State Bank of Indore which included its 66 NRI branches and 503 branches of domestic banking along with its 403 core branches. SBI's share-swap ratio of 34:100 to State Bank of Indore shares was offered shareholders for the deal of acquisition. Further, SBI has issued more than 1.16 lakhs shares for minority shareholders of the target bank with an initial stock price of Rs.10. The results of the deal were that the increased capital and assets size would help in accessing the easier competitive rates to other banks. This acquisition in the banking sector made, SBI a large bank regarding assets quality and advantages in terms of efficiency.

2.3. Conclusion

The discussion on bank merger deals above reveals that consolidation deals take place in expectation of improvement on business and management. Consolidation has been a way to remove sick and poorly managed banks. It is also a way to expand business opportunities. It is obvious that the private sector banks such as ICICI and HDFC have gained from consolidation in terms of branch overlap, employee strength, capital, assets size, and deposits-lending ratio. It is also observed that consolidation helps to regain the market share and improve business penetration in news regions of the country. While this process achieves higher efficiency gains and economics of scale, these deals are primarily motivated to restructure weak banks in India, to expand banking services and to provide higher loan facilities for different needs of the economy. Therefore, in this study we provide a methodology to measure efficiency gains and profitability improvements of the merged entity.

CHAPTER 3

Review of Literature

3.1. Introduction

In this chapter, an attempt has been made to review the literature pertaining to the issues of the present study which is related to banks profitability and efficiency due to the effects of consolidation. We review here the literature which examines both theoretical and empirical aspects related to consolidation and its effects on banks profitability and efficiency.

3.2. Review on Impact of Consolidation on Banks' Profitability

Profitability of banks is noticeably affected by the consolidation process. For example, when two banks agree to merge their services to strengthen their business that synergy encourages the performance positively. Ram Mohan (2005) and RBI (2013) state that consolidation between a smaller and a healthier bank encourages economies of scale and production. Most of the empirical papers point towards improvement of merged banks' performance after the merger. Vennett (1996) has used Return on Assets (ROA) and Return on Equity (ROE) to measure the performance of European bank mergers for the period 1988-1993. The results found that the merger deal between same size assets banks improved overall performance. However, merger deals of different asset sized banks might give a negative impact on their performance.

Empirical studies of Nigerian banks suggest that there was an acceptable improvement in their profitability after consolidation. Umoren and Olokoyo (2007) have used correlation and descriptive analysis to find the measurement of Nigerian banks' performance with a sample of thirteen mega mergers. The results of the study explained that efficiency in management practices improves income for the banks. Another study by Aransiola (2013) from Nigeria pointed out that the merger has affected banks' profit positively. Aransiola (2013) has used t-test and secondary data of Nigerian banks annual reports, in the period of 2000 and 2010, to measure the performance of merged banks. The results of the study found that there was a significant

improvement in banks' profitability during the merger and after the merger. It also found that the problem of bank distress was solved by bank mergers.

Apart from that, consolidation has a significant effect on lending and deposit rates. Reduction of deposit rates may raise the profit due to a wider gap between lending and deposit rates. Umoren and Olokoyo (2007) have used descriptive analysis and correlation analysis to measure the pre and post-merger performance of seven mega Nigerian bank mergers. Nineteen small mergers during 2005 also have been examined for profitability analysis. The descriptive analysis found that consolidation could bring low-interest rate on deposits relative to the interest rate of loans. Thus, the loan-deposit rates ratio of 0.47 post-merger was less than the pre-merger period ratio of 0.53. Loan-deposit rates ratio means the ratio between loan interest rate and deposit interest rate. The study reveals that both deposit and lending rates declined after the merger. The results showed that bank lending rates decreased to a lesser extent than the deposit rates which resulted in the widening of the profitability. This effect was due to consolidation through efficient management and asset utilization of loans. Further, Aransiola (2013) pointed out that the consolidation could reduce the deposit rate and increase loan rate. Apart from that, consolidation had two effects on profitability. First, it increases their market share and improves the market price by having market power. Second, it stimulates to increase efficiency gains of merged banks through reduction of cost. However, reducing the interest rates of merged banks helps to give more loans to customers that can generate profitability of banks. This result also was observed from bank mergers in Nigeria during 2000-2010.

Consolidation also helps to reduce operating costs and the reduction of non-performing assets so that significant improvement of profit occurs by reduction of employees and the cost of services. Umoren and Olokoyo (2007) explain that consolidation could reduce the credit risk for the consolidated bank and improve their performance on credit. However, in Nigerian banks the consolidation process apart from raising capital assets of the banks also saw a reduction of operating expenses due to this process. In the Indian context, Chellasamy and Ponsabariraj (2011) investigated the pre and post-merger performance of Indian commercial banks using selected parameters like net profit to total income, net profit to working capital, return on assets and return on equity for the period of 1999 to 2011. The t-test has been used to measure pre and

post-merger performance. Out of four measurements of profitability only one measure showed improvement after consolidation. The result suggests that pre and post-merger deals marginally affected banks' profit. Pilloff and Santomero (1998) have identified that for the U.S. banking industry, consolidation resulted in more revenue from the reduction of cost and risk on loans. Further, it could bring more gains for banks from economies of scale and scope. Another study from the European banking industry by Vivas et al. (2011) investigated the effects of consolidation on banks' profitability for the period of 1998 to 2004. The study found that consolidation improved return on assets and return on equity of European banks. A few studies have substantiated the result that consolidation improved profitability and efficiency of banks (Berger et al., 1999; Pilloff and Santomero, 1998; Vennet, 2002; Altunbas and Ibanez, 2004; Abraham and Dijcke, 2002; Amel et al., 2004; Cornett and Tehranian, 1992; Diaz et al., 2004). On the contrary, Berger and Humphrey (1992) have found that consolidation has no impact on banks profitability in US banking industry.

In the Indian context, several studies have analyzed the post-merger performance of firms in general (see, eg., Singh and Mogla, 2008; Saboo and Gopi, 2009; Hughes et al.,1996). However, literature on post-merger performance in the case of merger and acquisitions in banks is sparse. The issues of consolidation in India's banking sector are highly debated. Ram Mohan (2005) opined that as far as public sector banks (PSBs) are concerned there is no compelling reason for consolidation. However, RBI (2013) states that consolidation is essential to make the banking system more stable and globally competitive. By consolidation, the Indian banking sector can achieve few large banks instead of many small banks (RBI, 2013). Similar arguments have been put forward by Mehta and Kakani (2006) in favour of consolidation in the Indian banking sector. Mehta and Kakani (2006) pointed out that the Indian banking industry is slowly changing from the pattern of "large number of small banks to small number of large banks" due to consolidation. They also pointed out that mergers and acquisitions are important for stability of Indian banking and consolidation is likely to make Indian banks globally more competitive. In a similar spirit, Goyal and Joshi (2011) have reviewed some emerging issues regarding Indian banking industry. None of these papers, however, focus on the impact of consolidation on banks' performance. There is another strand of literature that discusses performance of Indian banks in

general, but not in the context of consolidation deals of Indian commercial banks (eg., Batra, 1996; Koeva, 2003).

On the specific issues of the impact of consolidation on bank's profitability there are only a few studies. An empirical study by Devarajappa (2012) has analyzed the profitability outcome in the HDFC and Centurion Bank merger in India and investigated whether consolidation affected their performance or not by using banks' financial parameters such as gross profit, net profit, operating expenses, return on capital, return on equity, and debt ratio. He has used these variables to calculate the pre and post-merger comparison of target and acquirer banks performances. The results of the study show that there was no improvement in net profit and operating profit, and, though return on capital has improved slightly, there was no considerable improvement on investment. However, returns on equity and debt ratio have increased which partially improved their performance. The above mentioned few ratios reveal that there are no consistent finding on profitability and some ratios had shown improvement on profitability while other ratios did not. It found that after merging these banks, post-merger profitability was slightly higher when compared with the pre-merger period.

Another study of Indian commercial banks by Nedunchezhian and Premalatha (2013) has analyzed the impact of mergers and acquisitions on commercial banks' performance from the period of 2003-2011. For the measurement of banking performance, different parameters have been used in the study, viz., capital adequacy ratio (CAR), management efficiency ratios, earning ratios, profitability ratios and leverage ratios. Further, t-test has been used to test the significance of difference between pre and post-merger results. The results show that while a few ratios of banks performance have registered lower gains, most other ratios have registered an improvement. Debt ratio, total advances, dividend ratio and returns on assets have recorded a low performance while the current ratio registered a better performance. Finally, the overall performance of selected banks after the merger deal has registered a better performance. Similarly, empirical investigations by Meena and Kumar (2014) on the impact of mergers and acquisitions on banking performance have found an improvement in post-merger profitability. The study analyzes the trends and progress of mergers and acquisition in India and its effects on bank performance in the period 2000 to 2013 by using different banking parameters and simple

ratios. The findings of the study suggested that M & As is successful in India when the deals are between healthier banks. Therefore, the authors suggest that Government of India and policy makers should not encourage a consolidation deal between a healthier and weaker bank as that could have an adverse effect on their profitability of the healthier banks.

Contrary to the finding of the above studies, Kumar (2013) found some opposite results. Kumar (2013) has analyzed the impact of bank mergers on the performance indicators in the case study of Bharat Overseas Bank's merger with Indian Overseas Bank in 2007. This paper has presented a comparison of pre and post-merger performance by using different indicators such as profit per employee, investment, advances, interest income, return on assets, NPAs and return on equity, etc. Finally it concluded that there is a considerable improvement in all efficiency indicators but improvement in the profitability indicator could be questionable.

Another study by Singh and Gupta (2015) has analyzed the impact of mergers and acquisitions on the productivity and profitability of Indian commercial banks for the period 2004-15. The study examines the strengths and weaknesses of the two selected banks in India, namely, the Government-owned SBI and a private bank, ICICI. They used simple statistical tools such as arithmetic mean, standard deviation and commonly t-test and p-value to measure pre and post-merger effects. The results showed that post consolidation of ICICI bank with different banks the acquirer, ICICI registered a significant improvement with some variables, viz., net profit, operating profit, return on capital, net worth, deposits and loans ratios while it recorded negative performance in gross profit, debt ratio, current asset to liability ratio and earnings of share prices. In the case of SBI in its deals with different banks, it registered a better improvement with net profit, net worth, loan-deposit ratio earning from shares, business per branch and deposits and credit per employee. It has registered a negative performance with gross profit, operating margin, return on capital, debt ratio and interest of loans. These results are recorded after the merger and acquisitions deals with different banks.

Thus, the literature related to the consolidation and their effects on profitability in the Indian banking is not conclusive. Few studies from the literature have found that consolidation impacts on banks' profitability positively and few studies have found deterioration on profitability after consolidation.

3.3. Impact of Consolidation on Banks' Efficiency

The literature on efficiency generally uses the Data Envelopment Analysis (DEA) methodology for measuring banks' efficiency by using input and output variables. DEA helps in identifying the various method of technical efficiency namely, Overall Technical Efficiency (OTE), Pure Technical Efficiency (PTE) and Scale Efficiency (SE). Before examining the empirical literature of bank efficiency, the above mentioned efficiency concepts have been explained below.

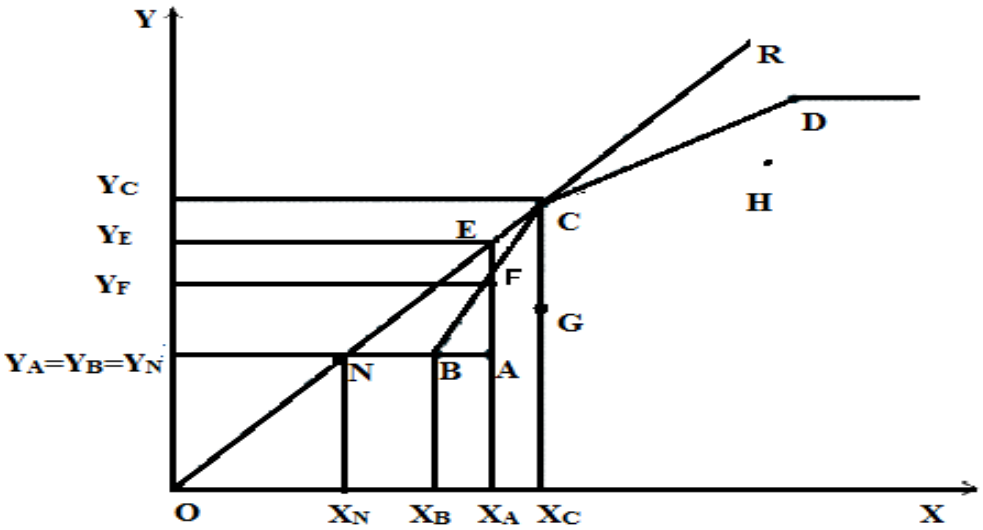
Technical efficiency refers to bank's ability to maximize outputs from the given level of inputs or minimize inputs for the given level of output. The measured *technical efficiency,* also known as *overall technical efficiency*, can be decomposed into two parts, viz., *pure technical efficiency* and *scale efficiency*. *Pure technical efficiency* refers to the bank's ability to avoid waste by producing as much outputs as input usage allows. *Scale efficiency* refers to the bank's ability to work at its optimal scale. *Allocative efficiency* is banks' ability to use these inputs in optimal proportion, given their respective costs. The multiplication between *Allocative efficiency* and *technical efficiency* provides *economic efficiency* (also called *cost efficiency*). These concepts are broadly explained below by using diagrams.

3.3.1. Theoretical Background: Overall, Pure Technical and Scale Efficiency

In this thesis, we use three measures of efficiency – overall technical efficiency, pure technical efficiency and scale efficiency. These efficiency concepts are explained by Farrell (1957) and later extensions were made by Fare et al. (1985) and Fernandez et al. (2001). These concepts were further reformulated by Charnes, Cooper and Rhodes (1978).

Bank's efficiency can be defined from two perspectives, viz., input-oriented efficiency and output-oriented efficiency. Input-oriented efficiency is measured in terms of how much a firm can minimize input usage relative to other firms, to produce a fixed level of output. Output-oriented efficiency is measured in terms of how much a firm can maximize output relative to other firms, using the same level of input.

Figure 3.1: Overall, Pure technical and Scale efficiencies



A firm (eg., a bank) is referred to as a 'decision-making unit (DMU)' which produces multiple outputs by using multiple inputs. For example, consider the case of a single output produced by using single input.[19] In Figure 3.1, X-axis shows input usage of firms and Y-axis shows output produced by firms. While A, B, C, D, H and G are six representative DMUs (banks). The DMU A produces Y_A amount of output by using X_A amount of input. The DMU B also produces same level of output by using $X_B < X_A$ amount of input. Since DMU B uses less input to produce the same level of output compared to DMU A, hence we can say that DMU A is inefficient compared to DMU B in the input-oriented efficiency sense.

The *best practice frontier* is determined by the DMUs which use the 'fewest' inputs to produce the given level of output. For simplicity, in Constant Returns to Scale (CRS) production technology, we assume constant returns to scale, i.e., one unit of input produce one unit of output. The ray OR shows the total product line under CRS. Farrell (1957) defined that the technical efficiency measures a DMU's success in producing maximum outputs from a given level of inputs. It shows that any point on the frontier has an efficiency score of unity, where unity denotes efficient (best practice) performance. In general, full technical efficiency satisfies the relation TE = 1. Alternatively, $TE < 1$ implies that the DMU is technically inefficient

[19] In general, firms use a bundle of different inputs to produce their bundle of outputs. In Figure 3.1, we consider a single input and a single output for simplicity.

(Fernandez et al., 2001). The overall technical efficiency (OTE) of representative DMUs is ONCR in Figure 3.1. This is the most efficient production frontier under CRS. This CRS frontier represents *potential* to actual input and output usage, while holding input and output proportions constant. This overall efficiency can be decomposed to pure technical and scale efficiencies when we consider Variable Returns to Scale (VRS) production technology.

Under the variable returns to scale (VRS), X_BBCD is the technical efficiency frontier in Figure 3.1. In VRS technology, the firms located in points B, C and D are producing on the boundary of production possibility set for input-output mix (X, Y). The firm B is producing its outputs in the increasing rates of the production frontier. It would turn into more productive by increasing its production scale towards C. On the contrary, D is operating in the decreasing return to scale and can become more productive by reducing its production scale towards C. Hence, B and D are inefficient firms as they lie below the CRS frontier. The firm C is achieving pure technical efficiency and is scale efficient as it lies on the CRS frontier and it is measured to be operating at the *most productive scale size (MPSS)*. Firms located in points A, G and H are neither on VRS frontier nor on CRS frontier, hence inefficient firms. The inefficiency of firm A can be measured by comparing with either C or N. The pure (input-oriented) technical efficiency of firm A is measured by the ratio $\left(\frac{OX_B}{OX_A}\right)$by comparing it with bank B.

***Scale Efficiency*:** It is possible that a DMU is technically efficient but operating in a sub-optimal scale of operation. This is possible if the unit operates under either *increasing returns to scale* (IRS) or *decreasing returns to scale* (DRS) and not under *constant returns to scale* (CRS). The DMU will become automatically scale efficient if the underlying production technology is CRS. Scale efficiency indicates the amount such that the average productivity can be enhanced by moving towards the point of MPSS. The (input-oriented) scale efficiency of bank A is$\left(\frac{OX_N}{OX_B}\right)$. Thus the overall technical efficiency score for firm A is $\left(\frac{OX_N}{OX_A}\right)$.But, $\left(\frac{OX_N}{OX_A}\right) = \left(\frac{OX_B}{OX_A}\right).\left(\frac{OX_N}{OX_B}\right)$ that is,

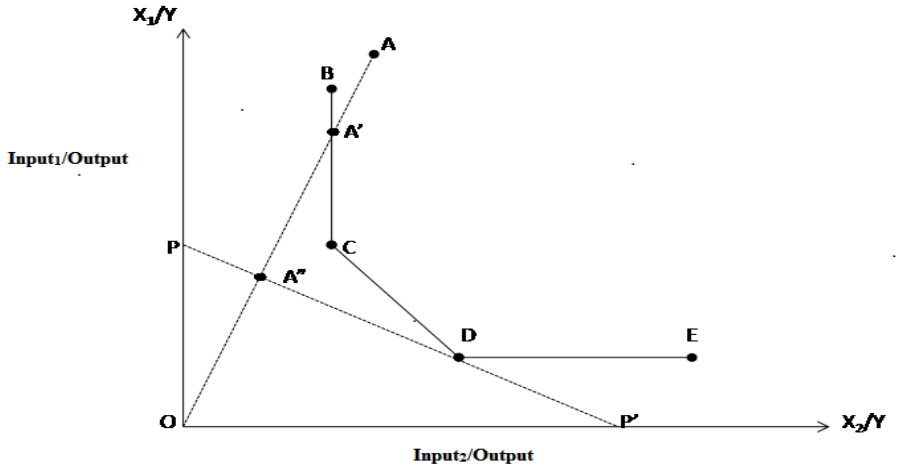
$$Overall\ Technical\ Efficiency(OTE)^{crs}_{input} = Pure\ Technical\ Efficiency(PTE)^{vrs}_{input}.Scale\ Efficiency_{input}$$

$$TE^{crs}_{input-ortented} = TE^{vrs}_{input-ortented}.SE_{input-ortented}$$

This will not be the same as in the output-oriented efficiency measure except for the constant returns to scale technology. In an analogous manner, it can be seen that the factor $\left(\frac{OY_C}{OY_A}\right)$ is a measure of the pure technical (output-oriented) efficiency of firm A. Although a firm may be technically inefficient in an overall sense, while experiencing scale inefficiencies, it can be purely technically efficient (Fernandez et al., 2001). This is evident in Figure 3.1 that firms B and D are purely technically efficient but exhibit scale inefficiencies. Firm G is neither scale efficient nor purely technical efficient as it lies below the frontier. Firm H is scale efficient as it produces at input level X_C, but (pure) technically inefficient as it is lying outside the frontier.

Overall, Technical and Allocative Efficiency: For simplicity, we are assuming constant returns to scale. The production relationship is summarized in Figure 3.2 in an input-input space. Points A to E denote five representative DMUs. In this case, we consider, the *best practice frontier* is determined by the units which use the 'fewest' inputs (i.e. the lower bound of the input requirement set) to produce the given level of output. Corresponding to the notion of an isoquant in neoclassical production theory, the observed points can be *enveloped* using piecewise linear segments, in which case the best practice frontier is the lower bound labelled C, D, E. Hence, these units are technically efficient. Given the technology and input prices slope of PP′, efficient cost minimization occurs at point D.

Figure 3.2: Efficiency of DMUs in relative input-input space.



Hence, the overall efficiency (OE) of a representative unit, for example A is$\frac{OA}{O_i}$. This ratio represents *potential* to actual input usage, while holding input proportions constant. This overall efficiency can be further decomposed to technical and allocative / price efficiencies. As defined by Farrell (1957), the technical efficiency measures a firm's success in producing maximum output from a given set of inputs. Thus, the technical efficiency for unit A is measured as the ratio of the distance of the frontier from the origin to the distance of that DMU along a ray from the origin$\left(\frac{OA'}{OA}\right)$. It follows that any point on the frontier has an efficiency score of unity, where unity denotes efficient (best practice) performance. In general, technical efficiency satisfies the relation$1 \leq TE \leq 0$. Alternatively, $TE < 1$ implies that the firm is technically inefficient (Fernandez and Nuthall, 2001). Further, allocative inefficiencies result from choosing incorrect input combination given input prices. The allocative efficiency (AE) of unit A thus can be measured by$\left(\frac{OA''}{OA'}\right)$. The relationship between them is as follows: $\frac{OA''}{OA} = \frac{OA'}{OA}.\frac{OA''}{OA'}$ i.e., $OE = TE.AE$

3.3.2. Empirical literature

Using above concepts of efficiency, empirical literature has analyzed the impact of consolidation on banks' efficiency. A study from the US by Berger and Humphrey (1993) points out that efficiency gains are achieved by making changes in inputs and outputs. Efficiency gains are also obtained by reducing costs, increasing incomes, lowering the risk on loans. As evident data from the US in the 1990s, bank mergers had a direct effect on improving the cost efficiency of banks, which improved marginally due to mergers in 1980s. Berger and Humphrey (1993) found that mergers and acquisitions in large US banks in the 1980s had slightly achieved scale inefficiency. Thus, it performed the part of technological effects that raised banks' economies of scale on production services. Further, international mergers and acquisitions (cross-border merger) improve cost efficiency of banks and other types of mergers and acquisitions (domestic based deals) have been found to lower efficiency gains in the US after mergers. It also showed that a few mergers had an insignificant effect on the bank`s efficiency, and some mergers contributed to the bank`s efficiency positively.

Rhodes (1998) summarized nine research papers that analyzed nine merger deals in the Singapore banking sector spanning over the period 1980-1990 and their impact on banks' efficiency. Seven out of nine cases supported the hypothesis that the acquiring bank is more efficient than the target. In two out of the remaining three mergers, the acquirer was less efficient than the target. Further, eight out of nine deals were successful in efficiency gains and only one deal did not experience any efficiency gain in post-merger. Apart from that, the result of the study found that branch overlap had risen in all cases after the merger activity. It also pointed out that if the acquirer is more efficient than the target bank than it is more likely to result in efficiency gains of the banks (Rhoades, 1998). An empirical study by Sufian and Majid (2007), of Singaporean commercial banks recorded some improvement in post-merger rather than the pre- merger efficiency scores which were calculated by using the DEA technique. By using this methodology, Sufian and Majid (2007) found that Singapore commercial banks' aggregate efficiency score of 94.93 percent during the post-merger was higher than 91.68 percent registered in the pre-merger period. This result is observed in both the product and intermediate method of DEA analysis.[20] During the merger, it found some deterioration in scale efficiency and bank size was an important factor in scale inefficiency. Further, it concluded that the acquirer was less efficient than the target bank. It found that the target bank, Keppel Capital Holdings (KCH) which registered a 99.30 percent in the overall efficiency was higher than the acquirer bank, Overseas- Chinese Banking Corporation (OCBC) which registered 86.50 per cent in the pre-merger. Another deal had substantiated these results, the acquirer United Overseas Bank (UOB) which recorded 84.70 percent in pre-merger overall efficiency was less than the target bank Overseas Union Bank (OUB) which registered 97.20 percent in pre-merger. The study found that both the product and intermediation models did not support the hypothesis that the acquirer is more efficient than the target bank (Sufian and Majid, 2007).

In the Indian context, Gourlay et al. (2006) analyzed efficiency gains from bank mergers in India for the period, 1991 to 2005 by using an extended version of Data Envelopment Analysis methodology which was developed by Bogetoft and Wang (2005). The efficiency results were divided into two methods namely, *Product method* and *Intermediate method*. In the

[20] Product method means that the banks are considered a service provider for customers and intermediate method means that banks are intermediators between borrowers and savers.

product method, fixed assets, other assets and borrowing were considered as input variables; while advances, deposits, and total investment were measured as output variables. In the intermediate method, deposits were considered as input variables and loans were considered as output variables. The results of the study show that the mergers have considerable and potential efficiency gains compared with non-merging banks. The results further show that most of the mergers have achieved the potential efficiency gains in Indian banking sector. These potential efficiency gains were achieved in consolidation by restructuring bank businesses and product-mix. Apart from that, restructure of the banking services had considerable efficiency outcomes in post-merger. The synergy of products also gave substantial benefit to the combined banks. Further, consolidation reduced the risk on loans. Finally, under both the input and the output models, the merged banks registered a higher level of technical efficiency that indicates a healthier bank. It reveals that healthier banks are more able to convert their input to output efficiently than the weaker ones. Under the production method, three out of five mergers have found a higher level of technical efficiency gains. Apart from that, wealthier banks' business policies and management have successfully shifted to the newly-created entity that allows doing business in the market efficiently.

For the period of 2000-2005 another study by Singh (2009) investigated the efficiency benefits of 12 merger deals in India by using the DEA methodology with selected variables such as capital, interest expenses, and operating cost. For the analysis of cost efficiency measurement, annually increased asset size and total income of banks were measures of output variables. For the profit efficiency analysis, net profit has been used. The study found that mergers have positively impacted profit and cost efficiencies of the selected bank mergers. Further, it revealed that the banks would not move with low expectation toward mergers rather their reasons include: improving efficiency, market power and profitability; and that they can strongly identify and measure the merger's effects rationally.

Kaur and Kaur (2010) considered eleven deals of mergers and acquisitions in India from 1991 to 2007. The overall results found that mergers led to a higher level of cost efficiencies for the merged entity. The cost efficiency is decomposed into two, viz., technical efficiency and allocative efficiency. Technical efficiency is the major factor in efficiency gains of the merged

entity rather than allocative efficiency. Further, the merger deal between healthier and distressed banks did not gain result in any efficiency gains in the selected deals. However, the deals of compulsory merger succeeded in achieving the interests of depositors and stakeholders did not get any gains from the merger.

A case study of the merger of Bharat Overseas Bank with Indian Overseas Bank (IOB) by Kumar (2013) points out that mergers and acquisitions are a way to improve bank's performance effectively by sharing bank's resources, reducing operating costs and improving products and services, and improving its economics of scale in their businesses. By using simple descriptive statistics and t-test, it found that all the efficiency indicator variables have registered a higher value in the post-merger period. Investment and advances have registered 114.36 percent, and interest income of IOB is registered at 116.15 percent. In a different manner, Non-Performing Assets (NPAs) of IOB have declined to 26 percent. The t-test shows that there is considerable improvement in efficiency in the post-merger period.

In general, bank consolidation leads to provision of compact and stable banking services and also causes a reduction in the cost of production by reducing the operating and interest expenses. Further, it is also helpful in achieving specific targets, i.e. by reducing the non-performing assets, increasing credits by efficiency, and controlling or maintaining the return on assets and the risk on assets (Berger and Humphrey, 1993; Gourlay et al., 2006; Singh, 2009; Kaur and Kaur, 2010; Kumar, 2013). This may or may not have the same results in the experience of different countries in mergers and acquisitions.

The main findings of the literature show that the acquirer may be less efficient than the target banks in some cases. Further, the merger and acquisition between the healthier and weaker banks generally improves the merged bank's efficiency positively and the healthier bank's performance and decision-making unit is shared by weaker banks (Rhodes, 1998; Sufian and Majid, 2007). According to above-mentioned literature, the choice of the variables and period of the merger deals might affect the results of DEA and might make deterioration on efficiency and profitability. However, the existing literature on Indian banks' mergers does not give a clear cut predicted result of bank mergers. Further, there is no conclusive evidence in support of the argument that the mergers should result in improving banks' efficiency especially, scale

efficiency. There are also inconclusive results due to the method of efficiency measurement, and this is mainly due to the differences in time periods, variables and analysis, and more importantly, due to variation in definition for measuring scale efficiency of banks by using variable returns to scale in the output-oriented model of DEA.

3.4. Bank Consolidation and Determinants of Bank Profitability and Efficiency

This section reviews the literature on determinants of the efficiency and profitability. The review related to consolidation and its determinants on profitability and efficiency is scarce. So we have mentioned the review related to determinants of profitability and efficiency in general.

3.4.1. Determinants of bank efficiency

There are a few empirical studies that explained the determinants of efficiency. A study by Casu and Molynenx (2003) has used the DEA and Tobit regression function to analyze the production efficiency of European banking systems for the period of 1993-1997. The results showed that the profitability of banks directly affects bank's efficiency; at the same time, it found that there is no relationship between a degree of capitalization and efficiency. Another study from Europe and Central Asia for the period, 1995-1998 has been conducted by Grigorian and Manole (2006) who found that foreign ownership and management improved banks' efficiency. They also found by using same methodology that well-capitalized banking services, wider market share, positively determined the bank efficiency and some macro economic variables such as GDP and per capita income also positively impacted banks' efficiency. Moreover, they found that non-bank financial institutions and market security had no impact on bank efficiency. Another study from Latin America also substantiated the same. A study by Hassan and Sachez (2007) is based on the determinants of efficiency in the banking sector in Latin America for which they used simple regression. The regression results of the study found that the capitalization, profitability ratios of the banks, interest rate and GDP are significantly related to higher bank efficiency. At the same time, loan loss, reserves, the value of a stock market trade, and the higher inflation rate of the country are negatively associated with bank efficiency.

On the contrary, a study by Pasiouras et.al (2007) also used DEA and Tobit function to estimate the efficiency of Greek banks and its determinants. DEA analysis explained the technical, allocative and cost efficiency scores of Greek banks. The results of the Tobit regression function by using these efficiency scores found that the internal and external factors of banks partially influenced the level of bank's efficiency. Moreover, they found that the bank's asset size is positively associated with bank efficiency but GDP and unemployment are negatively significant with bank efficiency.

An empirical study from European countries by Delis and Panikolaen (2009) investigated the determinant of efficiency in ten newly acceded banks. They used the DEA and Tobit regression to analyze the effects of industry-specific, bank-specific and macroeconomic determinants of bank's efficiency in Europe. The Tobit results showed that market interest rates, foreign ownership of management and real GDP growth significantly determined bank efficiency and credit risk and the concentration of the banking sector are involved in an inverse relationship with efficiency.

Another study from Middle Eastern and North African (MENA) countries by Naceur et.al (2009) examined bank efficiency by using the same DEA analysis in the period, 1993-2006. Afterwards, they applied the Tobit regression function to analyze the impact of bank-specific determinants of bank's efficiency including financial and institutional factors. The Tobit results of the study found that highly capitalized banks with higher liquidity and higher stock market value improved bank efficiency, whilst higher credit for private business and higher market concentration determined banks' efficiency negatively. Further, increased investments and incentives from the government or regulated bodies improved efficiency of banks.

A study from Mexico which analyzed the determinants of bank's efficiency by Garcia (2011) also substantiated these results. The study explained that after liberalization, the banking sector experienced improvement in their efficiency. By using the same DEA and Tobit methodology, it explained that the bank efficiency level has improved for the period of 2001-2006, and then declined from 2006-2008 due to the global crisis and afterwards recovered from 2008 onwards. Finally, it suggested that the main determinants of bank efficiency are observed from factors such as loan intensity, GDP per capita growth and ownership. At the same time,

non-interest expenses, non-performing loans and inflation rate negatively determined bank's efficiency.

In the Indian context, Mehta and Kakani (2006) pointed out that bank's large assets size alone is not a factor of bank's profitability and efficiency. Jayaraman and Srinivasan (2014) have also substantiated the point that assets are not a significant factor in increasing profit and efficiency of banks and other factors are more likely to contribute to generating profitability and efficiency. Hence, many studies have shown that the relationship between bank's assets size and its efficiency do not independently determine each other (Kumar 2008, Sanjeev 2007). Sometimes, the choice of the input and output variables might affect the results on efficiency and profitability. Further, many studies related to the determinants of bank efficiency and profitability in India in terms of the relationship between consolidation and other variables in India has found scarce evidence. An empirical study by Kalluru and Bhat (2009) examined the efficiency score and determinants of Indian commercial banks for the period of 1992-2006. They used the stochastic frontier analysis (SFA) and Tobit regression function to calculate the efficiency scores. The first analyses of the study showed that the cost efficiency of Indian commercial banks has declined in the period selected for the study. And the second stage on the Tobit regression found that the earning capacity of banks is the main determinant of efficiency followed by wider diversification and additional non-interest income activities.

A study by Sanjeev (2007) on the technical efficiency of Indian public sector banks during the period, 1997 to 2001, uses the data envelopment methodology with selected variables of these banks such as interest expenses and non-interest expenses measured as input variables, and interest income, commission and transaction income being considered as output variables. The study has focused on input-oriented technical efficiency of Indian public sector banks. The results found that there was no considerable and strong relationship between efficiency and bank's assets size. The finding of the study says increasing assets of banks could not improve the efficiency of Indian commercial banks. Another study by Majid (2012) measured the Indian commercial banks' efficiency for the period of 2000-2010. By using the same methodology, the results of the study show the mean of cost, Allocative, and technical efficiency which is registered as 0.986, 0.991 and 0.995 in the input model, and 0.928, 0.958 and 0.969 in the output

model, respectively. Additionally, the result suggests that Bank of India (BOI) and ICICI banks are more efficient than the other banks in India. The advancement in innovation technology and consolidation will create a positive effect on these banks. The technological innovation will impact on non- performing assets to create efficient loans for customers. The results also suggest that there is a positive trend in the performance of Indian commercial banks during 2000-01 to 2010-11 due to consolidation. According to the literature, the selected choice of the variables and time period of the merger deals might affect the results of DEA and distract the efficiency scores.

3.4.2. Determinants of Profitability

In the profitability literature, bank profitability has been used as a measure of internal and external determinants. The internal includes the bank-specific determinants of profitability while the external considers determinants of bank's profitability that are not related to bank management but there that create impacts on business operation at the economic level. A few studies have examined the internal and external determinants of bank profitability (Short, 1979; Bourke, 1989; Molyneux and Thornton, 1992; Demirguc-Kunt and Huizinga, 2000; Berger et al., 1987; Barajas et al., 1999). Internal factors of banks such as size of assets, capital, risk, cost management and expenses have been used as determinant of bank's profitability. Bank asset size is in direct relationship with bank's profitability. A few studies have substantiated these results (Smirlock, 1985; Ram Mohan, 2005). On the contrary, a few studies have found that bank assets size is not a determining factor of bank profitability (Mehta and Kakani, 2006; Jayaraman and Srinivasan, 2014; Kumar, 2008; Sanjeev, 2007). Small to medium-sized banks earn more profitability by turning its capital into profit. Large banks reduced operating cost which leads to more profit for banks. Berger et.al (1987) pointed out that cost savings of banks improved their profit performance. Credit risk and management have also driven the profit of banks. Further, there is a negative relationship between bank's liquidity and profitability. Banking expenses and cost per business have a considerable influence in generating higher profitability. Molyneux and Thornton (1992) found that there is a direct relationship between profitability and better management of businesses.

Under external determinants of banks profitability, other control variables such as, interest rates, inflation and cyclical production, market forces, market concentration, ownership have been used in the study. Molyneux and Thornton (1992) have used correlation analysis to

measure the relationship between bank's profitability and other control variables. The results of correlation analysis found that there is a positive relationship between bank concentration and profitability. However, increasing the gap between competitive market structures improved profit of banks but increased concentration resulted in negative managerial efficiency (Molyneux and Thornton, 1992). Further, Short (1979) found that privately-owned institutions get higher profits. In contrast, Molyneux and Thornton (1992) explained that ownership is irrelevant for examining profitability. A few studies have found that there is a direct relationship between inflation and profitability and interest rate is also directly associated with profitability (Molyneux and Thornton, 1992; Bourke, 1989).

Athanasoglou et.al (2008) examined the effects of bank-specific, industry-specific and macroeconomic determinants of bank profitability in Greek banks for the period, 1985-2001. The results found that all bank-specific determinants affected bank profitability except the size of assets and ownership. They found that capital was important in determining profit and exposure of credit risk, reduced profit. Operating expenses are negatively associated with profitability and cost management is instrumental for bank's performance. The overall results indicate that bank's profitability is driven by bank-specific factors that affected bank management and macroeconomic variables have no direct impact on banks management.

3.5. Conclusion

The above-mentioned review of the literature is giving information about consolidation effects on profitability and efficiency the performance of acquirer and targets bank's efficiency. Our research is based on this limited and existing literature on the Indian context which has given very low preference for consolidation effects.

In the existing literature on determinants of bank's profitability and efficiency, low priority for consolidation factors is given and we need to address the problem by using a simultaneous equation method. Obviously, the simultaneous equation method will help us to address the determinants of bank's profitability and efficiency because both profitability and efficiency and other banking parameters are correlated to each other. This method will be more reliable to examine whether consolidation is a significant factor in determining the efficiency and profitability of Indian commercial banks.

CHAPTER 4

Research methodology

4.1. Introduction

This study is empirical in nature. In this chapter we present details of various statistical and econometric methods used for the study. We also provide some description on the variables, data and technical concepts of the study. The research work is based on secondary data from various available sources. For the profitability analysis, a data set of Indian commercial banks' profitability indicators from 1995 to 2013 are used in the study. For the efficiency analysis, DEA efficiency measures are computed using a data set of selected input and output variables for banks from 1995 to 2013. The complete data for banking parameters such as total assets, total income, net worth, total advances, capital and reserves, interest income and expenditure, profit, total deposits and operating cost of banks for the entire study period from 1995 to 2013, used for the study have been provided Appendix 1. The above mentioned data are collected mainly from the following sources: "Statistical Tables Relating to Banks in India" and "A Profile of Banks", RBI. The present study has excluded the regional rural banks and cooperative banks.

This thesis tries to cover three main issues related of consolidation effects on Indian commercial banks, namely, profitability, efficiency and their determinants. First, this tries to examine the impact of bank consolidation on Indian commercial bank's profitability performance and analyze pre and post-merger effects on profitability for 16 consolidation deals. The profitability indicators are compared between pre-consolidation and post-consolidation periods and their significance of difference is tested by using standard t-test.

Second, Data envelopment analysis (DEA) is used for the efficiency measurement. After efficiency measures are computed by using two approaches of DEA, viz., input-oriented and output-oriented DEA, we test if there is any significant difference between these efficiency measures pre- and post consolidation, considering each of the 16 consolidations discussed in Chapter 2. We use the median test this. Additionally, the measured efficiency scores are examined for acquirer and target bank's performance on efficiency. Apart from that, the Tobit Regression framework is used for the determinants of banks efficiency. To address our final research question, i.e., if bank consolidation has significant impact on profitability and efficiency, we use a Simultaneous Equation Model (SEM) where both efficiency and

profitability are simultaneously determined by various factors including a dummy variable for consolidated banks. For this, we take a set of banks for 2013, consisting of banks which have gone through consolidation and which have not gone through consolidation in last 10 years. In the profitability equation, we take ROA and ROE as profitability indicators and in the efficiency equation we use various DEA efficiency scores (OTE, PTE and SE) as our endogenous variables. These endogenous variables are modeled as function of assets size, consolidation dummy, interaction variable (between assets size and consolidation dummy) and other bank specific control variables. In the following sections we explain the technical details of all the methods used in this thesis.

4.2. Profitability Analysis

The balance sheet comparison is used to find the performance and profitability of the banks. For the profitability analysis, we are investigating pre and post-merger performance indicators using balance sheets of selected commercial banks that have gone through consolidation over the period, 1995 to 2013.

The hypothesis of the study is,

H_0: Consolidation has no impact on profitability of consolidated bank

H_1: Consolidation has improved profitability of the consolidated bank

For this, we will analyze performance indicators three years prior to and three year post merger of each individual consolidation episode. For measure of profitability, we will use standard measures such as Return on Assets (ROA) and Return on Equity (ROE), etc. The three-year pre and post-consolidation measures of profitability are taken for testing the effects of consolidation. The choice of a three year period before and after consolidation is standard in literature. The literature has pointed out that it takes about three years for the impact of consolidation to settle down. Hence we use a three year window.

4.2.1. Paired sample t-test[21]

The paired sample t-test is used to measure the difference between 3-year average pre and post-consolidation measures of banks' profitability indicators. Banks' ROA, ROE, operating cost, interest income, interest expenditure and capital are used to measure profitability in the study. We have taken the average of three-year pre and three-year post-consolidation these indicators for commercial banks that have gone through consolidation.

The t-test is the standard statistical test used to test for significance of difference between means of paired samples.

The test statistics is

$$t = \frac{\text{observed difference between pre - merger and post - merger means}}{\text{standard error of the difference between the means}}$$

or

$$t = \frac{\overline{X} - \overline{Y}}{S_{\overline{D}}}$$

Where $\overline{X}$ is the 3 year pre-merger mean

$\overline{Y}$ is the 3 year post-merger mean

$S_{\overline{D}}$ is the standard error of the difference between the means

The difference between the standard error of sample means are measured by two steps,

$$\textit{Step 1: } S_{\overline{D}} = \frac{S_D}{\sqrt{N}}$$

$$\textit{Step 2: } S_D = \sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N-1}}$$

Where $S_{\overline{D}}$ is the standard error of the difference between dependent sample means

S_D is the standard deviation of the difference between dependent sample means

D is the difference between each pair of X and Y scores (i.e., X - Y)

[21] We have used Urden (2005) to write this.

N is the number of pairs of scores

Once we found *t* value and degrees of freedom, the process for determining the probability of finding a *t* value of a given size with a given number of degrees of freedom is exactly the same as it was for the independent samples *t* test.

4.3. Efficiency Analysis

We use Data Envelopment Analysis (DEA) to compute the efficiency of various banks. Data envelopment analysis (DEA) methodology is used to compute the bank's efficiency with respect to an efficiency frontier related to all commercial banks. If a bank's input-output combination lies on the frontier, it indicates that the bank is most efficient. If the bank's input-output combination lies below the efficient frontier, it implies that the bank is inefficient. The DEA model provides multi-dimensional measurement of technical efficiency scores that may have constant, increasing and diminishing returns to scale. It provides the exact nature of returns to scale. DEA further does analysis of the input and output-oriented result of efficiency scores. It works as a two-dimensional measurement of efficiency scores that help to measure and to adjust the input and output in achieving full efficiency. DEA further explains the elasticity of substitution between the inputs and it helps in achieving full efficiency by making an adjustment of inputs.

By using these efficiency scores, we compare pre and post-merger efficiency for banks which have gone through a consolidation process. For the testing of pre and post-merger differences between banks' efficiency indicators, we will use standard statistical test, viz., Median test.

In the following sub-sections, we describe the technical aspects of DEA and the statistical tests used for efficiency analysis used in this thesis.

4.3.1. Data Envelopment Analysis (DEA)[22]

The non-parametric Data Envelopment Analysis (DEA) approach consists in measuring overall, pure technical and scale efficiency. DEA compares many parameters simultaneously and

[22]We have extensively borrowed from Ray (2004) to write this section.

provide a scalar measure of overall performance by measuring the relative efficiency of each of the firms relative to a given set of firms. However, in DEA only a few inputs and outputs are chosen depending on how critical their contribution is to the effective performance of the firm. Another unique characteristic of DEA is that the type of units used for all the inputs and outputs does not have to be the same which makes the measure of efficiency "units invariant" This gives a tremendous flexibility in choosing the inputs and outputs, and a convenient way to compare relative efficiencies of DMUs (Cooper et al., 2000).

The average productivity of a DMU is measured as the ratio of its total outputs to total inputs (Ray, 2004). Under constant return to scale (CRS) technology, average productivity is same as overall technical efficiency (OTE). However, under variable return to scale (VRS) technology, the maximum average productivity at the most productive scale size (MPSS) can be compared with average productivity at the actual scale of production to measure scale efficiency. In the following section, we discuss efficiency scores estimation under CRS by DEA method.

DEA is a non-parametric method used to compute input output oriented pure technical and scale efficiency scores of Decision Making Units (DMUs), the commercial banks in this case. Further, production method and efficiency are based on the constant return to scale (CRS) or variable returns to scale (VRS). This allows the overall technical efficiency to be divided into two exhaustive components: pure technical efficiency (PTE) and scale efficiency (SE). It also includes the cost, profit, and allocative efficiencies.

Marginal rate of transformation of input to output combination will determine the returns to scale of the firms. The DMU frontier shows the banks' efficiency score with their ranking of performance. It also tries to explain each bank's performance with the input-output combination. Whether the input is used excessively or output is under-produced is determined by DMU frontier of the banks. DEA model 1 and model 2 show the input and output-oriented efficiency results, respectively. [23]

[23] Input-oriented method of technical efficiency means reduction of inputs with constant return to scale of output or fixed outputs. Output-oriented method of technical efficiency means that increasing outputs with constant return to scale of inputs or fixed inputs

The ratio of Average Productivity to the technically optimal production scale is called scale efficiency. For simplicity, the ratio of Average Productivity in constant returns to scale (AP_C) and Average Productivity in variable returns to scale (AP_V) is called scale efficiency (SE).

The measurement of average productivity necessitates aggregation of inputs and outputs. Since the market prices of inputs and outputs are not available, we use shadow prices for the aggregation. In the shadow prices, two conditions are imposed. First, all the shadow prices of the input and output bundles are non-negative. Second, the shadow prices are such that the average productivity is less than or equal to unity.

If firm *t* uses *n* inputs to produce *m* outputs, then its average productivity is given by,

$$AP_t = \frac{\sum_{r=1}^{m} v_{rt} y_{rt}}{\sum_{i=1}^{n} u_{it} x_{it}}. \qquad \text{..... (1)}$$

m = No. of outputs;

n = No. of inputs;

AP_t = Average Productivity of t^{th} bank;

u_t (shadow prices of inputs) = ($u_{1t}, u_{2t}, ..., u_{nt}$) ;

v_t (shadow prices of outputs) = ($v_{1t}, v_{2t}, ..., v_{mt}$).

The shadow prices are determined so as to maximize AP_t while satisfying the conditions that shadow prices are non-negative and they generate meaningful average productivity for all other firms. If there are N firms, then the problem is to

$$\text{Maximize } AP_t = \frac{\sum_{r=1}^{m} v_{rt} y_{rt}}{\sum_{i=1}^{n} u_{it} x_{it}}; \qquad \text{..... (1 (a))}$$

Such that,

$$AP_j = \frac{v^{t'} y^j}{u^{t'} x^j} = \frac{\sum_{r=1}^{m} v_{rt} y_{rj}}{\sum_{i=1}^{n} u_{it} x_{ij}} \leq 1;\ (j = 1, 2\ldots, N) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$u_{it} \geq 0 \quad ; (i = 1, 2, \ldots, n);$$

$$v_{rt} \geq 0\ ; (r = 1, 2, \ldots, m);$$

This is a fractional functional programming problem. To transform this into a linear programming problem (LPP), we proceed with the method of Charnes and Cooper (1962).

When all the shadow prices of input and output bundles are multiplied by a non-negative factor ($k > 0$), that will not affect our objective function (AP_t) as well as constraints. Let,

$$w_{it} = ku_{it} (i = 1,2,3,..., n);$$

$$p_{rt} = kv_{rt} (r = 1,2,3,..., m).$$

Then, the optimization problem is,

$$\max \frac{p^{t'} y^t}{w^{t'} x^t}; \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

$$s.t. \frac{p^{t'} y^t}{w^{t'} x^t} \leq 1;\ (t = 1, 2\ldots N); \quad \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

$$p^t \geq 0;$$

$$w^t \geq 0;$$

Now, we set $k \equiv \frac{1}{\sum_{i=1}^{n} u_{it} x_{it}}$.

Then, $w^{t'} x^t = 1$ and then the optimization problem turns into a linear programming problem (LPP) as follows:

$$\max \sum_{r=1}^{m} p_{rt} y_{rt}; \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

$$s.t. \sum_{r=1}^{m} p_{rt} y_{rt} - \sum_{i=1}^{n} w_{it} x_{it} \leq 0; \quad \ldots\ldots\ldots\ldots\ldots\ldots (6)$$

$$\sum_{i=1}^{n} w_{it} x_{it} = 1;$$

$$P_{rt} \geq 0 \quad ; (r=1, 2,\ldots m);$$

$$W_{it} \geq 0 \quad ; (i = 1, 2,\ldots n).$$

This linear programming problem can be solved using the simplex method. Thus, the optimal solution of this LPP yields a measure of the output-oriented technical efficiency of firm *t.* The output prices reflect the cost of the inputs drawn away from other uses to produce one unit of the output, and then the total imputed value of the output bundle exceeding the total imputed cost of the input bundle used would imply that the output bundle is overvalued.

In this thesis, the DMUs considered are Indian commercial banks. We consider a two-input and two-output model, given by y^t (output bundle) = (y_{1t}, y_{2y}) and x^t (input bundle) = (x_{1t}, x_{2t}). The efficiency scores are measured by using two input and two output variables, viz., X_t [Two Input Bundle] = [Interest Expenditure (X_1), Total Deposits (X_2)]; y_t [Two Output Bundle] = [Interest Income (Y_1), Total Advances / Loans (Y_2)].

Then, the linear programming problem (LPP) becomes,

$$\max p_{1t} y_{1t} + p_{2t} y_{2t} \qquad \ldots\ldots\ldots\ldots\ldots(6)$$

$$s.t. p_{1t} y_{11} + p_{2t} y_{21} - w_{1t} x_{11} - w_{2t} x_{21} \leq 0;$$

$$p_{1t} y_{12} + p_{2t} y_{22} - w_{1t} x_{21} - w_{2t} x_{22} \leq 0;$$

$$p_{1t} y_{1t} + p_{2t} y_{2t} - w_{1t} x_{1t} - w_{2t} x_{2t} \leq 0;$$

$$p_{1t} y_{1N} + p_{2t} y_{2N} - w_{1t} x_{1N} - w_{2t} x_{2N} \leq 0;$$

$$w_{1t} x_{1t} - w_{2t} x_{2t} = 1;$$

$$p_{1t}, p_{2t}, w_{1t}, w_{2t} \geq 0.$$

This is a primal LPP and it is difficult to solve because this LPP includes N+1 constraint (the additional constraint is $w_{1t}x_{1t} - w_{2t}x_{2t} = 1$). The dual of the linear programming problem is given by

$$min\ \theta \qquad \text{.....(7)}$$

$$\text{s. t.}\quad \lambda_1 y_{11} + \lambda_2 y_{12} + \ldots + \lambda_t y_{1t} + \ldots + \lambda_N y_{1N} \geq y_{1t};$$

$$\lambda_1 y_{21} + \lambda_2 y_{22} + \ldots + \lambda_t y_{2t} + \ldots + \lambda_N y_{2N} \geq y_{2t};$$

$$\theta x_{1t} - \lambda_1 x_{11} + \lambda_2 x_{12} + \ldots + \lambda_t x_{1t} + \ldots + \lambda_N x_{1N} \geq 0;$$

$$\theta x_{2t} - \lambda_1 x_{21} + \lambda_2 x_{22} + \ldots + \lambda_t x_{2t} + \ldots + \lambda_N x_{2N} \geq 0;$$

$$\theta \text{ free};\ \lambda_j \geq 0,\ (j = 1,2,\ldots,N).$$

Note that the dual has only 4 constraints.

Define $\phi = \frac{1}{\theta}$ and $\mu_j = \frac{\lambda_j}{\theta}$. Then, minimization of θ in the above dual is equivalent to maximization of ϕ. In terms of redefined variables, the LP problem becomes

$$max\ \phi \qquad \text{.....(8)}$$

$$s.t. \sum_{j=i}^{N} \mu_j y_{1j} \geq \phi y_{1t};$$

$$\sum_{j=i}^{N} \mu_j y_{2j} \geq \phi y_{2t};$$

$$\sum_{j=i}^{N} \mu_j x_{1j} \geq \phi x_{1t};$$

$$\sum_{j=i}^{N} \mu_j x_{2j} \geq \phi x_{2t};$$

$$\phi \text{ free};\ \mu_j \geq 0,\ (j = 1,2,\ldots,N).$$

Thus, clearly $\frac{1}{\phi^*}$ from this problem equals θ^* from the previous problem. Further, by standard duality results, θ^* equals $p^{t*'}y^t$, the efficiency score of firm t.

This linear programming problem is solved by using the Simplex method and the LPP can be solved for each bank *t* (t=1,2,3,….N).

Then the revised version output-oriented model under CRS is,

$$\text{Max } \underline{\phi} = \phi + \varepsilon (s^{+}_1 + s^{+}_2 + s^{-}_1 + s^{-}_2) \qquad \text{……..……(9)}$$

$$\text{s.t. } \Sigma^{N}_{j=1} \lambda_1 y_{1j} - s^{+}_1 = \phi\, y_{1t};$$

$$\Sigma^{N}_{j=1} \lambda_1 y_{2j} - s^{+}_2 = \phi\, y_{2t};$$

$$\Sigma^{N}_{j=1} \lambda_1 x_{1j} + s^{-}_1 = x_{1t};$$

$$\Sigma^{N}_{j=1} \lambda_1 x_{2j} + s^{-}_1 = x_{2t};$$

$$\lambda_j \geq 0;\ \phi \text{ free};\ s^{+}_1, s^{+}_2, s^{-}_1, s^{-}_2 \geq 0 \text{ slack variables.}$$

The revised form of input- oriented model under CRS is,

$$\text{Min } \underline{\theta} = \theta - \varepsilon (s^{+}_1 + s^{+}_2 + s^{-}_1 + s^{-}_2) \qquad \text{…….(10)}$$

$$\text{s.t. } \Sigma^{N}_{j=1} \lambda_1 y_{1j} - s^{+}_1 = y_{1t};$$

$$\Sigma^{N}_{j=1} \lambda_1 y_{2j} - s^{+}_2 = y_{2t};$$

$$\Sigma^{N}_{j=1} \lambda_1 x_{1j} + s^{-}_1 = \theta\, x_{1t};$$

$$\Sigma^{N}_{j=1} \lambda_1 x_{2j} + s^{-}_1 = \theta\, x_{2t};$$

Finally, the technical efficiency under CRS model is measured

$$TE_{Ouput}\,(CRS) = 1/\phi;\ \ TE_{input}\,(CRS) = 1/\theta;\ \phi, \theta = \text{AP (Average productivity)} \qquad \text{……(11)}$$

DEA (VRS) model

In variable return to scale (VRS), the above-mentioned linear programming problem is used with additional constraint λ which is equal to 1. Scale efficiency of banks has been measured by using the ratio of Constant Returns to Scale technical efficiency and Variable Returns to Scale technical efficiency. For simplicity, scale efficiency is the ratio of the constant and variable returns to scale average productivity. The banks taken input and output bundles give

the average productivity of the banks that is calculated by DEA. This average productivity is the technical efficiency of banks. Based on the constraints of λ (λ =1; λ > 1; λ < 1), return to scale of banks is observed.

In VRS, the average productivity of the input varies along the frontier of the production possibility set. It initially increases, reaching a maximum at a particular level, and declines with further increase in *x*.

The input-oriented measure of technical efficiency of any firm *t* under VRS requires the solution of the following LP problem due to Banker, Charnes and Cooper (BCC):

$$\begin{aligned} &\min \theta \\ &s.t. \sum_{j=1}^{N} \lambda_j x^j \le \theta\, x^t; \\ &\sum_{j=1}^{N} \lambda_j y^j \ge y^t; \qquad \text{..... (12)} \\ &\sum_{j=1}^{N} \lambda_j = 1; \\ &\lambda_j \ge 0 \ \ (j = 1,2,...,N). \end{aligned}$$

Let $(\theta^*; \lambda_1^*, \lambda_2^*, ..., \lambda_N^*)$ be the optimal solution. Define $x_*^t = \theta^* x^t$. Then (x_*^t, y^t) is the efficient input-oriented radial projection of (x^t, y^t) on to the frontier and,

$$\textit{Pure Technical Efficiency } (PTE)_{INPUT}(x^t y^t) = \theta^*$$

The output-oriented measure of technical efficiency is obtained from the solution of the following programme:

$$\begin{aligned} &\max \phi \\ &s.t. \sum_{j=1}^{N} \lambda_j x^j \le x^t; \\ &\sum_{j=1}^{N} \lambda_j y^j \ge \phi\, y^t; \qquad \text{..... (13)} \\ &\sum_{j=1}^{N} \lambda_j = 1; \\ &\lambda_j \ge 0 \ \ (j = 1,2,...,N). \end{aligned}$$

Again, define $\phi^* y^t = y_*^t$. Now (x^t, y_*^t) is the efficient output-oriented radial projection of (x^t, y^t) and,

$$Pure\ Technical\ Efficiency\ (PTE)_{OUTPUT}(x^t y^t) = \frac{1}{\phi^*}$$

Unique features of the VRS model is that it captures whether the bank is operating in decreasing, constant or increasing returns to scale.

Then the revised version of the output-oriented model under VRS is,

$$\text{Max } \underline{\phi} = \phi + \varepsilon (s^+_1 + s^+_2 + s^-_1 + s^-_2) \quad \ldots\ldots\ldots\ldots\ldots\ldots (14)$$

$$\text{s.t. } \Sigma^N_{j=1} \lambda_1 y_{1j} - s^+_1 = \phi\, y_{1t};$$

$$\Sigma^N_{j=1} \lambda_1 y_{2j} - s^+_2 = \phi\, y_{2t};$$

$$\Sigma^N_{j=1} \lambda_1 x_{1j} + s^-_1 = x_{1t};$$

$$\Sigma^N_{j=1} \lambda_1 x_{2j} + s^-_1 = x_{2t};$$

$$\Sigma^N_{j=1} \lambda_1 = 1 \ldots\ldots\ldots \text{(Additional constraint);}$$

$$\lambda_j \geq 0;\ \phi \text{ free};\ s^+_1, s^+_2, s^-_1, s^-_2 \geq 0 \text{ slack variables.}$$

The revised form of input- oriented model under VRS is,

$$\text{Min } \underline{\theta} = \theta - \varepsilon (s^+_1 + s^+_2 + s^-_1 + s^-_2) \quad \ldots\ldots\ldots\ldots\ldots\ldots (15)$$

$$\text{s.t. } \Sigma^N_{j=1} \lambda_1 y_{1j} - s^+_1 = y_{1t};$$

$$\Sigma^N_{j=1} \lambda_1 y_{2j} - s^+_2 = y_{2t};$$

$$\Sigma^N_{j=1} \lambda_1 x_{1j} + s^-_1 = \theta\, x_{1t};$$

$$\Sigma^N_{j=1} \lambda_1 x_{2j} + s^-_1 = \theta\, x_{2t};$$

$$\Sigma^N_{j=1} \lambda_1 = 1 \ldots\ldots\ldots \text{(Additional constraint).}$$

Finally, the technical efficiency under CRS model is measured

TE_{Ouput} (VRS) = 1/ ϕ*; TE_{Input} (VRS) = 1/ θ*; ϕ*, θ* = AP (Average productivity in VRS) ... (16)

Scale Efficiency[24]

Scale efficiency of banks is measured by using the ratio of constant returns to scale technical efficiency and variable returns to scale technical efficiency. For simplicity, we say that the ratio between the average productivity of constant and variable returns is scale efficiency.

$$SE_{OUTPUT} = TE_{OUTPUT} (CRS) / TE_{OUTPUT} (VRS);$$

$$SE_{INPUT} = TE_{INPUT} (CRS) / TE_{INPUT} (VRS);$$

$$TE_{INPUT} (CRS) = \text{Projected Value / Actual Value};$$

$$TE_{OUTPUT} (CRS) = \text{Actual Value / Projected Value};$$

$$TE_{OUTPUT} (CRS) = TE_{OUTPUT} (VRS) * SE_{OUTPUT};$$

$$TE_{INPUT} (CRS) = TE_{INPUT} (VRS) * SE_{INPUT.}$$

Having computed various efficiency scores for all banks during 1995 – 2013, we use these scores to test our hypothesis.

Hypothesis I →

H_0: {Average efficiency score of acquirer bank is same as that of the target bank};

Against H_1: {Average efficiency score of acquirer bank is higher than that of the target bank}.

Hypothesis II →

H_0: {Average pre-consolidation efficiency is score equal to average post-consolidation efficiency score};

Against H_1: {Average pre-consolidation efficiency score lower than the average post-consolidation efficiency score}.

[24] This concept is taken from Banker et.al (1984).

Hypothesis III →

H_0: {consolidation has a significant impact on efficiency of banks};

Against H_1: {consolidation has no impact on efficiency}.

4.3.2. Variables

For the efficiency analysis, on the nature of banking technology, two approaches are involved in analyzing the efficiency of banks, viz., production method and intermediate method of analysis. The production method analysis considers that the banking sector is a provider of services for customers of banks such as several transaction facilities for account holders and provides loans with the required documents. Based on this approach, banks related transactions and services or the number of bank accounts is measured as the suitable output variables for the analysis while the physical capital and the number of bank employees is considered as the input variables. The intermediation approach considers the banking sector as an intermediary between savers and borrowers. According to this approach, while the bank total deposits (X_1) and total expenditure (X_2) including interest expenses are input variables, the bank aggregate loans (Y_1) and bank's total income (Y_2) including interest income are output variables. We try to analyze the bank's efficiency with the help of DEA by intermediate method, as we perceive banks as an intermediary and not as a producer.

4.3.3. Statistical tests

Median Test

A nonparametric median test is used to test efficiency hypothesis I and II mentioned in section 4.3.1. Since the efficiency scores lie in (0, 1), hence we cannot assume normal distribution for these scores. Hence, the conventional t-test is not applicable here. Also, we use three years' pre-consolidation efficiency scores for target and acquirer banks for efficiency Hypothesis I and three years' pre- and three years' post-consolidation data of acquirer bank and merged bank, respectively for the efficiency Hypothesis II. The use of three years' data for testing the effect of consolidation in efficiency is a standard practice in empirical literature. Rhodes (1998) observed that any efficiency gains should be observed within a three-year period after the deal.

Hogg and Tanis (1988) explained the median test, also called the sign test. Let (X_1, X_2,.. X_{n1}) and (Y_1, Y_2,.. Y_{n2}) be two random samples from two independent distribution, with medians M_X and M_Y, respectively. In median test, the null hypothesis is H_0: $M_X = M_Y$. To check the null hypothesis, combine the two samples and order the combined sample in ascending order. Count the number, say V, of X values in the lower half of this combined sample. If H_0: $M_X = M_Y$ is true, then we would expect V to equal around n_1/n_2. If as an alternative, $M_X < M_Y$, we would expect V to be larger and the alternative $M_X > M_Y$ would suggest a smaller value of V. Then, V is our test statistic and we need to find the distribution of V to construct the critical region of the test.

Let F(x) and G(y) denote the distribution functions of sample X and sample Y, respectively. If F(z) = G(z), then H_0: $M_X = M_Y$ is true. While finding the distribution of V, we will assume that F (z) = G (z). If F (z) ≥ G (z), $M_X \leq M_Y$. If the observed value of V is quite large -that is, if the number of values of X falling below the median of the combined sample is large- we would suspect that $M_X < M_Y$. The critical regions for testing H_0: $M_X = M_Y$ against H_1: $M_X < M_Y$ is of the form v ≥ c, where c is to be determined to yield the desired significance level [when F (z) = G (z)]. Similarly, the critical region for testing H_0: $M_X = M_Y$ against H_1: $M_X < M_Y$ is of the form v ≤ c. When F (z) = G (z) is true and still assuming continuous-type distributions, we shall argue that V has a hyper geometric distribution. To simplify the discussion, say that $n_1 + n_2 = 2k$, where k is positive integer. To compute P (V=v), we need the probability that exactly v of X_1, X_2 … X_{n1} are in the lower half of the ordered combined sample. Under our assumptions, the probability is zero that any two of the 2k random variables are equal. The smallest k of the $n_1 + n_2 = 2k$ items can be selected in any one of $\binom{2k}{k}$ ways, each having the same probability, provided that F(z) = G(z). Of these $\binom{2k}{k}$ ways, the number in which exactly v of the n_1 values X

and k – v of the n_2 values of Y appear in the lower k items is $\binom{n_1}{v}\binom{n_2}{k-v}$. Hence

$$h(v) = P(V = v) = \frac{\binom{n_1}{v}\binom{n_2}{k-v}}{\binom{n_1+n_2}{k}}, v = 0,1,...,n1$$ with the understanding that $\binom{j}{i} = 0$ if i > j.

4.3.4. Tobit Regression Model

To test the if efficiency is impacted by consolidation, we use the Tobit regression model of efficiency scores for all banks for the year 2013 on a set of explanatory variables including a dummy variable that defines whether a particular bank has gone through a consolidation process.

The Tobit model is proposed by James Tobin (1958) to identify the relationship between a limited dependent variable (e.g., efficiency scores lying between 0 and 1) with some independent variables. This is also called censored regression model, used for estimating a linear relationship between variables when there is a left and right censoring of dependent variables. The measured efficiency scores of the banks lie between the interval of 0 and 1 ($0 < E^* \leq 1$); hence Tobit regression is more applicable methodology for the analysis of efficiency determinants. DEA scores are used as the dependent variable in the Tobit model. Selected banking variables, namely, assets, consolidation dummy, capital, profit or loss and operating cost have been used as independent variables. The Tobit model is namely,

$$\mathbf{y_i} = \alpha + \beta_1 \, capital_i + \beta_2 \, profit_i + \beta_3 \, operating\ cost_i + \beta_4 \, consolidation\ dummy_i + \varepsilon_i.$$

Case 1: two-limit (this study): $y_i = y_i^*$ if $0 < y_i^* < 1$;

$y_i = 1$, if $y_i^* \geq 1$;

$y_i = 0$, if $y_i^* \leq 0$.

Case 2: 0 to above: $y_i = y_i^*$, if $y_i^* \geq 0$ and , $y_i = 0$ otherwise;

Case 3: 1 to below: $y_i = y_i^*$, if $y_i^* \leq 1$and , $y_i = 1$ otherwise;

Where y_i = efficiency score of i^{th} bank;

Capital = capital of i^{th} bank;

Profit = profit of i^{th} bank;

Operating cost = operating cost of i^{th} bank;

Consolidation dummy = 1 if i^{th} bank has gone through consolidation over past 10 year and 0, otherwise.

ε_i = error term of i^{th} bank;

$\varepsilon_i \sim N(0,\sigma^2)$; α , β_1, β_2, $\beta 3$ and β_4 are unknown value of parameters. y is the efficiency scores and y* is the latent variable (dependent variable).[25] For this we use data for 2013 from Statistical Tables Related to the Banks in India, RBI.

4.4. Simultaneous Equation Method

The next objective of the thesis is to examine the determinants of profitability and efficiency and also examine if consolidation is important for profitability and efficiency of Indian commercial banks. The relationship among the banks' profitability, efficiency and consolidation is computed by using Simultaneous Equation Method (SEM). The SEM method is the more appropriate method to analyze the determinants of banks profitability and efficiency because these variables are correlated to each other. For SEM estimation, we consider the data of 66 selected Indian commercial banks including foreign banks. The data of dependent and independent variables for the SEM analysis is collected from `Profile of Banks, RBI'. The SEM analysis is based on the data and information for 2013. Our study includes the variable of consolidation dummy and interaction term (between consolidation dummy and assets of banks) for the relationship between consolidation and other endogenous variables. As efficiency scores lie in [0, 1], hence these scores are transformed by using the following logit transformation-

$$g_i = \ln \frac{Y_i}{1 - Y_i}$$

[25]The likelihood function (L) is maximized to solve x and y based on 32 observations (banks) of *yi* and *xi* is. The first product is over the observations for which the banks are 100 percent efficient ($y = 0$) and the second product is over the observations for which banks are inefficient ($y > 0$). *Fi* is the distribution function of the standard normal evaluated at $\varepsilon xi / \varepsilon$. **Log likelihood fn**.(L) =$\prod$ pr($y_i = 0$) $\prod$ pr($y_i = 1$) $\prod$ f(y_i*) ; L=$\prod$(1-F) $\prod$ $1/_{2 \prod \sigma 2}{}^{*}$ $e^{(-1/2\,\sigma 2)}$ $Y_i - \beta x_i$; $F_i = \int^{\beta xi/\sigma} 1/2 \prod^{1/2} e^{-t2/2}$ dt. (Distribution fn.)

Where Y_i = efficiency score of i^{th} bank.

Our study used capital, reserves, borrowings, investment, net interest income, operating cost, operating profit, profit per employee, office per employee, CRAR, net NPA, consolidation dummy, total assets and interaction variable (consolidation dummy * total assets) as exogenous variables. Efficiency scores (OTE, PTE and SE) and profitability indicators (ROA and ROE) have been used as an endogenous variable in SEM.

We used the Three-Stage Least Squares estimation (3SLS) for estimating the SEM. The 3SLS method is used for addressing the simultaneity bias which comes from the ordinary least squares (OLS) method. Both banks' profitability and efficiency are interrelated and affect each other. Higher efficiency of banks may earn higher profits while lesser efficiency may negatively affect bank's profit. On the other hand, higher profitability may improve their higher productivity and improve their management that may cause efficiency. Therefore, profitability and efficiency are interrelated. We use efficiency scores of banks for efficiency analysis. Similarly, ROA and ROE are used for profitability. Mathematically, profitability and efficiency equation are given below

π_i = *f* (g_i, *Consolidation dummy (CD), Interaction variable (CD*lnTA), Total assets (lnTA), Capital, Reserves, Borrowings, Investment, Net interest income, Operating cost, Operating profit, Profit per employee, Office per employee, CRAR and Net NPA).*

g_i = *h* (π_i, *consolidation dummy (CD), interaction variable (CD*Total assets), Total assets (lnTA), Capital, Reserves, Borrowings, Investment, Net interest income, Operating profit, Profit per employee, Office per employee, CRAR and Net NPA).*

Where π_i = profitability indicator (ROA, ROE) of i^{th} bank

g_i = logit transformation of efficiency indicator (OTE, PTE and SE) of i^{th} bank.

As already mentioned, three efficiency measures are used: OTE, PTE and SE. Further, two profitability indicators are used: ROA and ROE. Next, we use consolidation dummy, total

assets and their interaction term (i.e., asset size due to consolidation) for analyzing its impacts and determinants on profitability and efficiency, along with other control variables.

In the next section, we explain 3SLS estimation method for analyzing the problem of simultaneity bias.[26]

4.4.1. Three-Stage Least Squares (3SLS) Estimation

In the study, the system of equations is used to address simultaneity between bank's profitability and efficiency. Three-Stage Least Squares (3SLS) is used for estimation

Consider the following two-equation structural model:

$$y_1 = \alpha_1 y_2 + \beta_1 z_1 + u_1; \quad \text{..... (1)}$$

$$y_2 = \alpha_2 y_1 + \beta_2 z_2 + u_2; \quad \text{..... (2)}$$

Where,

z_1 and z_2 are exogenous variables and y_1 and y_2 are endogenous variables.

Then, substituting equation 1 in equation 2, we get,

$$y_2 = \alpha_2(\alpha_1 y_2 + \beta_1 z_1 + u_1) + \beta_2 z_2 + u_2;$$

or

$$y_2 = \alpha_2\alpha_1 y_2 + \alpha_2\beta_1 z_1 + \alpha_2 u_1 + \beta_2 z_2 + u_2;$$

or

$$y_2 - \alpha_2\alpha_1 y_2 = \alpha_2\beta_1 z_1 + \alpha_2 u_1 + \beta_2 z_2 + u_2;$$

or

$$(1 - \alpha_2\alpha_1) y_2 = \alpha_2\beta_1 z_1 + \beta_2 z_2 + \alpha_2 u_1 + u_2.$$

[26] These concepts (2SLS and 3SLS) are taken from Wooldridge (2009).

Now, for solving y_2, we assume:

$\alpha_2\alpha_1 \neq 1$.

Dividing $(1-\alpha_2\alpha_1)y_2$ with $(1-\alpha_2\alpha_1)y_2 = \alpha_2\beta_1 z_1 + \beta_2 z_2 + \alpha_2 u_1 + u_2$, we get,

$$y_2 = \pi_{21} z_1 + \pi_{22} z_2 + \vartheta_2,$$

Where,

$$\pi_{21} = \alpha_2\beta_1/(1-\alpha_2\alpha_1), \pi_{22} = \beta_2/(1-\alpha_2\alpha_1) \text{ and } \vartheta_2 = (\alpha_2 u_1 + u)/(1-\alpha_2\alpha_1).$$

This is a reduced form for y_2, which shows the exogenous variables and an error term only. Similarly, we can get the reduced form for y_1. Further, we must determine that the system of equations are identified which is the essential order conditions for the SEM estimation. The reduced form equations are free from endogeniety. Hence OLS can be used to the reduced form equations to get consistent parameter estimates. The 3SLS method has the following 3 stages-

Stage I: use OLS to reduced form equations and get estimates $\hat{y_1}$ and $\hat{y_2}$ for the endogenous variables by using the OLS estimates to reduced form equation.

Stage II: use $\hat{y_1}$ and $\hat{y_2}$ in the right hand side of the structural equation. By using $\hat{y_1}$ and $\hat{y_2}$, we get rid of simultaneity, hence we use OLS to the structural equations with $\hat{y_1}$ and $\hat{y_2}$ on right hand side.

Stage III: we use the OLS estimates of stage II to estimate variance-covariance matrix of the error terms of structural equation. This is then used to estimate GLS of the parameters.

4.5. Banking ratios:

- Efficiency = Output/Input
- Input Target = Actual Input/Relative Efficiency/100
- Input Slack = Actual Input –Input Target
- Input Slack Percentage= Input Slack/ Actual Input* 100

- Output Slack = Output Target - Actual Output
- Relative Efficiency of bank = Best possible Performance/Actual performance.
- Return on assets (ROA) = Net Income / Total Assets
- Return on equity (ROE) = Net Income / Net worth of Share Holder Equity

4.6. Reference Period

This paper tries to examine the impact of bank consolidation on efficiency and profitability of Indian commercial banks and examine the determinants of banks efficiency and profitability in terms of consolidation. Further, it examines whether the acquirer banks are more efficient than the target banks in 16 consolidation deals in the Indian banking sector during the period 1995-2013.

4.7. Data sources

Data are collected from different sources, viz.,

- Statistical Tables Relating to Banks in India, RBI.
- A Profile of Banks, RBI.
- Report on Currency and Finance, RBI.

4.8. Statistical Software

- DEA software used for Efficiency measurement.
- STATA 12.0 used for Regression Analysis and EXCEL used for statistical test.

4.9. Concepts/Definitions

- **Efficiency:** Efficiency means the relationship between the outputs and inputs. Efficiency is concerned with the optimal production and distribution or these scarce resources.
- **Synergy:** it implies the cooperation of two or more organizational products and services in one way or other, mixed products produce a higher combined effect than the separate effects which work alone.
- **Capital to Risk Weighted Assets Ratio (CRAR):** it is calculated by dividing with risk weighted assets which includes operational risk, market risk and credit risk. Further, higher CRAR refers to bank that the bank is well capitalized.
- **Credit Risk (CR):** it is a contractual transaction which is not able to fulfill its regulations or it's merely fulfilling commitments. All financial transaction of the banks or financial institution can face this problem.

- **Non Performing Assets (NPA):** it is an asset to the banks including rented assets. When the bank is not able to collect/get its loans and advances in certain period, the amount is called NPA. The bank is not able to perform and recover its amount within certain period.
- **Net NPA:** it is calculated from Gross NPA. The banks Gross NPA is subtracted with bank adjustment, Balance in Interest Suspense account, Total provisions, Part payment accepted and remained in suspense account.
- **Total Income (TI):** it refers to banks by summing interest earned by banks, commission, brokerage, exchange, and other operating income. The main sources of income to banks come from interest income on loans and advances.
- **Operating Expenses (OE):** it refer to banks by adding interest expended, staff expenses, other overheads.
- **Operating Profit (OP):** it is generally measured by using the method, before provision of operating profit minus provision for loan in losses; write off, depreciation in investments, and other provisions.
- **Profit before tax (PBT):** it is calculated via, Net operating profit plus or minus with gains or losses of assets sale.
- **Profit after tax (PAT):** it is calculated by, before tax the profit earned by banks minus tax provisions with banks.
- **Return on Asset (ROA):** it is an indicator of banks profitability measurement. It refers that the net profit income is generated on total assets. ROA is measured by dividing net income by average total assets of banks.

  ROA = (Profit after tax/Average Total assets)*100
- **Return on equity (ROE):** ROE is also an indicator of banks profitability. It is measured by relating net income to shareholders' equity. The shareholders' equity includes capital reserves and surplus of the bank. ROE is measured by,

  ROE = {Profit after tax/ (Total equity + Total equity of previous year) /2}*100
- **Net Interest Income (NII):** it measured the difference between interest income earned on loans/advances and interest expenses paid to depositors.

CHAPTER 5

Impact of Bank Consolidation on Profitability

5.1. Introduction

This chapter examines the impact of consolidation on India's commercial banks' profitability. Data from 1995 to 2013 are used to evaluate this impact in terms of banking profitability indicators for selected consolidation deals (discussed in Chapter 2). The chapter is structured into three sections: Section 5.2 presents some descriptive statistics of profitability indicators for the banking sector as a whole; Section 5.3 presents an analysis of the pre-and post merger profitability indicators of selected consolidation deals, along with the results of t-test. Section 5.4 concludes the chapter.

5.2. Descriptive statistics of profitability of banking sector

Generally, banks profitability is computed as the difference between the total income and total expenditure of banks' balance sheets. However, the bank's total income is divided into two categories, first, interest income earned on loans and investment and second, incomes from other sources. Interest income includes, in addition to interest earned on loans, the following: bills and discounts of banks, interest of RBI by keeping balances in it and other interbank funds and investment to the banks. In the incomes from other sources following are included: commission charges, exchange charges, brokerage charges, net profit on sale and revaluation of investments, net profit on sale of land and other assets are all included in other incomes, which is a secondary category of total income. Total expenditure too is divided into two categories, namely, interest expenditure and operating expenditures. Interest expenditure includes interest on deposits, interest on interbank and RBI borrowings. Operating expense includes payments for employees, provisions, rent, taxes, lighting, printing and stationery, advertisement and publicity, depreciation of banks assets, director's fees and allowances, auditor's fees and allowances, law expenses, postage, telephone and telegram charges, repairs and maintenance, insurance and other expenses.

Further, banks profitability is also measured by the bank's return on assets (ROA), return on equity (ROE), capital ratio, share prices and operating cost of the banks. Table 5.1 indicates

selected aggregate indicators of all banks' performance considered in the study for the period 1995-13.

Table 5.1: Descriptive Statistics of Overall Banking performance data from 1995 to 2013 (ratios)

Name	OC/TA	ROA	II/TA	IE/TA	C/TA	ROE	OC/TA	ROA	II/TA	IE/TA	C/TA	ROE
Year	**1995**						**2004**					
No. of banks	81	81	81	81	81	81	86	86	86	86	86	86
Maximum	16.2625	4.3395	16.5879	10.9346	96.7399	60.37	7.26651	5.20455	10.5641	7.61237	70.8164	48.3
Minimum	0.17532	-15.017	0.34052	0.00912	0.00719	-0.1773	0.56124	-11.278	1.77509	0.48968	0.00391	-6.6941
Mean	2.69267	0.54662	8.52176	5.17174	7.73057	4.9493	2.34963	1.0736	6.84797	4.09275	7.8018	3.39449
Year	**1996**						**2005**					
No. of banks	86	86	86	86	86	86	85	85	85	85	85	85
Maximum	21.5548	5.21008	20.1287	15.9703	84.6309	85.892	9.6647	5.50491	9.12797	7.3141	59.3834	29.4036
Minimum	0.54414	-8.1037	0.00874	0.11779	0.0052	-2.0436	0.55796	-7.6917	2.45051	0.55839	0.00499	-251
Mean	2.91949	0.39269	9.60808	6.37914	7.89514	2.8139	2.4567	0.51873	6.33042	3.57151	7.48626	-1.3596
Year	**1997**						**2006**					
No. of banks	92	92	92	92	92	92	83	83	83	83	83	83
Maximum	8.9441	4.26764	15.4521	13.1494	73.354	23.69	10.9744	6.40152	23.0561	20.8667	63.4331	36.1464
Minimum	0.86959	-5.3416	1.8613	0.2381	0.00394	-0.595	0.91456	-18.873	3.39472	0.56313	0.00459	-10.369
Mean	2.88848	0.91191	10.1024	6.55395	8.49099	1.4568	2.47587	0.62875	6.73395	3.94637	8.29211	2.09974
Year	**1998**						**2007**					
No. of banks	94	94	94	94	94	94	80	80	80	80	80	80
Maximum	12.4971	25.4128	17.8543	13.4459	94.7188	88.5	8.39316	9.36425	9.00239	6.59071	69.044	37.7786
Minimum	0.63591	-2.5754	3.23263	0.66544	0.00288	-4.8963	0.67378	-1.7306	0.72859	0.08543	0.00395	-0.1409
Mean	2.98925	1.60009	9.89581	6.5535	10.0278	2.41005	2.20599	1.14021	6.57581	3.75971	7.52102	2.88604
Year	**1999**						**2008**					
No. of banks	96	96	96	96	96	96	78	78	78	78	78	78
Maximum	33.467	14.4084	14.5083	11.7287	96.4209	72.11	9.14127	8.77369	11.2211	6.79163	92.1049	45.2643
Minimum	0.96594	-3.6297	1.39678	0.18838	0.00155	-3.7603	0.57111	0.04773	2.72374	0.20083	0.00316	0.00134
Mean	3.23301	1.22937	9.65729	6.69655	9.58046	2.62956	2.13879	1.47464	6.97088	4.2867	7.70079	2.998
Year	**2000**						**2009**					
No. of banks	101	101	101	101	101	101	79	79	79	79	79	79
Maximum	15.0325	4.86741	16.9423	10.7023	77.559	76.41	30.7848	10.4331	10.8564	7.53741	92.4414	53.65
Minimum	0.923	-11.371	1.83854	0.90256	0.00141	-0.5882	0.73066	-8.6179	0.30234	0.14527	0.00256	-0.5053
Mean	2.88926	0.35489	9.43914	6.38028	8.50146	2.899	2.38391	1.33645	7.32324	4.52099	8.25908	3.35129
Year	**2001**						**2010**					
No. of banks	100	100	100	100	100	100	79	79	79	79	79	79
Maximum	11.4888	7.57296	17.4419	11.1554	80.2095	41.45	21.9287	5.36486	8.93019	6.3201	92.2207	65.9036
Minimum	0.44409	-24.376	3.71422	1.15548	0.00128	-6.6471	0.31419	-12.257	1.16878	0.07683	0.00206	-0.633
Mean	2.8348	0.19017	9.27067	6.23494	8.80294	1.89756	2.46302	0.75615	6.41997	3.83474	9.08354	3.744
Year	**2002**						**2011**					
No. of banks	93	93	93	93	93	93	79	79	79	79	79	79
Maximum	31.9847	4.07531	46.1386	32.7655	92.0302	42.9	23.9336	4.7773	8.50664	5.63269	92.5969	89.6071
Minimum	0.48945	-33.385	2.06698	0.2842	0.00654	-1.5415	0.53676	-8.9323	2.1845	0.01061	0.00174	-0.1063
Mean	3.12399	0.03473	8.91129	6.10426	10.3335	1.92365	2.64821	1.04558	6.35621	3.43756	11.4033	4.29965
Year	**2003**						**2012**					
No. of banks	89	89	89	89	89	89	80	80	80	80	80	80
Maximum	10.5479	3.95334	12.1623	8.77753	85.8949	42.595	35.9433	7.05	146.869	87.1805	93.2545	24.91
Minimum	0.78729	-12.917	3.89237	0.01861	0.00407	-2.247	0.09909	-2.99	0.60808	0.01554	0.001477	-14.7
Mean	2.64013	0.75343	8.15302	5.23727	8.81662	2.43263	3.00490	1.41437	9.03010	5.24575	12.33884	11.4218
Year	**2013**											
No. of banks	80	80	80	80	80	80	80					
Maximum	34.0449	5.61	139.109	87.5710	84.42748	24.81	34.0449					
Minimum	0.10153	-6.09	0.61064	0.04055	0.001267	-17.86	0.10153					
Mean	2.88225	1.23325	9.35030	5.56654	10.44942	10.62	2.88225					

Sources: Statistical Tables Relating to the Banks in India, RBI, various issues.

Table 5.1 shows the year-wise number of banks, maximum and minimum values of selected parameters of profitability. The performance indicators are converted to ratio by

dividing them by the total assets of banks. In the statistics, negative ratios show that a banks' performance is poor. This is observed in return on assets and return on equity while the rest of the variables registered positive values on ratios from 1995 to 2013. While Table 5.1 presents descriptive statistics for the entire banking sector, Table 5.2 shows mean values of bank groups from 1995 to 2013 in selected parameters in ratios for Indian domestic and foreign banks. Ratios of selected bank groups of India, namely, public sector, private and foreign sector banks are presented. These ratios are discussed below in some detail.

5.2.1. Operating cost (OC/TA)

It is observed from Table 5.2 that the ratios of operating cost of foreign banks in 1995, recorded at 3.06, is higher than the private and public sector banks, which were2.29 and 2.85 respectively. In a comparison of private and public sectors banks, private sector banks are spending less on operating expenses than the public sector banks (PSBs) as is registered in 1995. It is clear that foreign banks incurred more expenses on their business operations in India and registered higher operating cost ratios than the other banking groups in India. These results have also been obtained for the period of 1995 to 2004. In the period of 2005 to 2013, Indian public sector banks registered lower operating cost on its businesses in India than the private and foreign banks. In 2005, PSBs registered OC/TA of 2.19, lower than other banking groups in India. Further, higher operating cost on businesses in India for foreign banks are still prevailing as these 2.92 ratios of operating cost in 2005 which denotes higher operating expenses than the others. These results have prevailed up to 2013. It is obvious from 2005 to 2013, that public sector banks registered low levels of operating expenses for businesses as observed for this whole period. Apart from that, in India, private banks are performing with lower expenses on its businesses than foreign banks.

Table 5.2: Bank Group-Wise Mean Values from 1995 to 2013												
Name	**OC/TA**	**ROA**	**II/TA**	**IE/TA**	**C/TA**	**ROE**	**OC/TA**	**ROA**	**II/TA**	**IE/TA**	**C/TA**	**ROE**
Year	**1995**						**1996**					
Public Banks	2.8555	0.14294	8.68157	5.81232	3.7926	0.44504	3.03607	-0.4536	9.01181	6.25104	3.86842	0.32375
Private Banks	2.2918	0.79209	7.61606	4.7396	8.22638	4.66341	2.70249	0.96862	9.90544	6.54905	4.64242	3.78652
Foreign Banks	3.06635	0.66142	9.6012	5.04886	11.4924	10.4388	3.07387	0.5405	9.84987	6.29652	16.2052	4.1654
Year	**1997**						**1998**					
Public Banks	2.9234	0.46707	9.83225	6.66382	3.62061	0.6973	3.03957	0.83853	9.35413	6.32023	3.57028	1.09479
Private Banks	2.53368	1.05107	10.2477	7.21758	3.47904	1.71686	2.33006	0.97982	9.86516	7.3084	2.42739	1.55316
Foreign Banks	3.24721	1.14673	10.1783	5.73041	18.2299	1.83329	3.62725	2.86225	10.3706	5.96659	23.142	4.36904
Year	**1999**						**2000**					
Public Banks	2.72254	0.42598	9.22866	6.35782	2.61697	1.01042	2.6489	0.55416	9.30858	6.46905	2.20428	1.29754
Private Banks	2.26805	0.61512	9.93123	7.73349	2.11447	1.10508	2.09473	0.82408	9.23006	6.95581	1.74116	1.83456
Foreign Banks	4.5004	2.39497	9.72765	6.00007	21.6469	5.24137	3.64913	-0.1307	9.68236	5.88472	17.7004	4.7395
Year	**2001**						**2002**					
Public Banks	2.77552	0.37797	9.11849	6.17847	1.99793	1.28414	2.41357	0.74823	8.85986	6.06049	1.90729	2.04698
Private Banks	2.12131	0.30224	9.43947	7.07011	1.66448	1.57992	2.17201	0.78748	8.91332	6.76394	1.60538	2.53865
Foreign Banks	3.39954	-0.0133	9.2439	5.6548	18.4465	2.52635	4.38855	-1.0759	8.94722	5.61916	23.3233	1.35164
Year	**2003**						**2004**					
Public Banks	2.36109	1.02963	8.44269	5.43057	1.60097	2.98865	2.2667	1.25361	7.54199	4.45933	1.46396	3.89632
Private Banks	2.2366	0.75206	8.37634	6.10162	1.70503	2.40345	2.23999	0.65559	7.30981	4.84341	1.60606	2.6468
Foreign Banks	3.35196	0.83805	7.99702	4.4787	19.9267	2.23128	2.54025	1.33843	5.72405	2.9749	20.1119	3.70074
Year	**2005**						**2006**					
Public Banks	2.19523	0.88255	7.00926	3.90706	1.30181	3.03077	2.10972	0.80132	6.85581	3.91147	0.95647	3.41938
Private Banks	2.28289	0.01658	6.83724	4.19335	1.70961	1.35145	2.42441	-0.3593	6.86751	4.19584	1.74983	1.77089
Foreign Banks	2.92843	0.24271	5.49779	2.70437	18.6944	-8.4519	2.63473	1.29092	5.97815	3.19775	18.7902	1.19756
Year	**2007**						**2008**					
Public Banks	1.80744	0.87288	6.97346	4.24416	0.78511	4.23073	1.52467	0.84838	7.17471	5.12275	0.66777	4.36143
Private Banks	2.11215	0.75306	7.12045	4.42862	1.91022	2.99272	2.05587	0.98935	7.64572	5.12832	1.63641	3.75191
Foreign Banks	2.65471	1.7095	5.75484	2.75508	18.4358	1.54579	2.84629	2.53748	6.18462	2.70274	20.1602	0.94187
Year	**2009**						**2010**					
Public Banks	1.44688	0.86602	7.57093	5.46041	0.52951	5.63455	1.4064	0.87427	7.0681	4.95588	0.41464	6.45151
Private Banks	2.05339	0.9802	8.38497	5.62978	1.55456	4.53822	1.97996	0.81828	7.47059	4.9766	1.56743	5.25289
Foreign Banks	3.46961	2.02109	6.32173	2.86239	20.1324	0.42594	3.76823	0.60426	5.06618	1.98836	22.3974	0.20071
Year	**2011**						**2012**					
Public Banks	1.54287	0.86023	7.1512	4.58337	0.52131	6.98055	2.698603	0.852308	13.33854	8.75094	0.472848	14.88692
Private Banks	2.02493	1.00771	7.29933	4.52219	1.59175	7.15404	2.006628	1.245	8.564263	5.821629	0.66347	14.2275
Foreign Banks	3.95532	1.22103	5.09137	1.79481	26.6837	0.24823	3.82635	1.943824	6.009437	2.226561	28.28069	7.121765
Year	**2013**											
Public Banks	2.601685	0.731538	13.12759	8.970512	0.421783	12.57885						
Private Banks	1.964135	1.292	8.897154	6.122903	0.547481	15.218						
Foreign Banks	3.636878	1.582353	6.728343	2.636235	23.94229	6.417353						
Sources: Statistical Tables Relating to the Banks in India, RBI.												

5.2.2. Return on assets (ROA)

The return on assets of private banks in 1995-96 is recorded higher than that for the foreign and public sector banks (see Table 5.2). In a comparison between private and public sectors banks, public sector banks registered lower returns on assets than private banks as observed in 1995 and 1996. It is clear therefore that private banks had higher return on assets ratios from business in India than the other banking groups in India. In the following years, these results changed in that the foreign banks' return on assets have increased to a level higher than the private banks in India, while public sector banks still remain at the third position. These results are indicated in Table 5.2 and have prevailed for the period of 1997 to 1999, 2008, 2009 and 2011.

However, in the year of 2000 and 2002, the return on assets of private banks is recorded as being higher than the foreign and public sector banks. It is obvious that foreign banks obtained the third rank on returns. In 2001 and 2010, public sector banks registered a higher ratio than other banking groups in India. Further, foreign banks remained at third position on banks' returns. In 2003 and 2005, public sector banks register a higher return on assets ratio than the foreign and private sector banks while the private sector banking group has registered third position on banks' returns. In 2004, 2005, and 2007, foreign sector banks registered a higher ratio than others banking groups in India while private banks remain and record the third position on banks' returns for these years.

5.2.3. Interest income (II/TA)

In 1995 and 2000, it is obvious that the ratios of interest income to asset of foreign banks were higher than those prevalent in private and public sector banks (see Table 5.2). By comparison, private sector banks were gaining a lower interest income than the public sector banks. It is evident that foreign banks gained more advantage in terms of interest income having registered more interest income than the other banking groups. In 1996, it was evident that the ratios of interest income to total asset obtained for private banks are higher than for the foreign and public sector banks. It is also evident that public sector banks obtained third position on interest income of banks. These results have also been obtained for 1997, 1999, and 2001.

In 1998 and 2002, foreign sector banks registered a higher ratio than others banking groups in India while, private banks remained at and recorded a third position on bank's returns. In 2003, 2004 and 2005, Indian public sector banks obtained the first position while foreign banks shifted to the third position in achieving higher interest income on loans of banks in India. Further, private banks performed well in interest income in these years. In the period of 2006 to 2011, private banks have achieved a higher ratio on interest income than the public and private banks while foreign banks have registered a third and lower position on these years.

5.2.4. Interest expenditure (IE/TA)

In 1995,it is observed that the ratios of interest expenditure to total asset of public sector banks is recorded at 5.81 is higher than that for the private and foreign banks which was observed at 4.73 and 5.04, respectively (see Table 5.2). By comparison, foreign banks spend lower interest expenses on deposits than the public sector banks in India. It is clear from the data that public sector banks spend more on deposits and have registered higher interest expenditure ratios than the other banking groups. In 1996, public and private sector banking groups achieved lower expenditure on deposits than foreign banks.

More interestingly, in the period of 1997 to 2010, foreign banks have achieved a lower expenditure on deposits and the first position regarding deposits interest gains. Indian public and private sector banks ranked second and third, respectively. These results are observed over a period from 1997 to 2010. In 2011, private sector banking groups performed better than public sector banks.

5.2.5. Capital (C/TA)

It is clear that foreign banking groups with higher capital to asset ratios in India registered the first position in comparison to other banking groups in India with public sector banks remaining in the third position for capital ratios (see Table 5.2). These results were obtained for and prevailed from the period of 1995 to 1997 and from 2003 to 2011.In the period of 1998 to 2002, foreign banks sustained a superior position on capital ratios while public sector banks improved its capital ratios and registered a second position. The capital ratios of private banks have registered a lower rank than the other banking groups in India for this period.

5.2.6. Return on equity (ROE)

In the period of 1995 to 2001, foreign sector banks have obtained a higher ratio of return on equity than Indian private and public sector banks which were ranked at the second and third position, respectively. In 2002 and 2011 (see Table 5.2), the ratios of return on equity of private banks are registered as being higher than that for public and foreign sector banks. By comparison, public sector banks registered higher return on equity than foreign banks in 2002 and 2011.It is obvious that public sector banks have obtained higher return on equity ratios than the other banking groups in 2003 and from the period of 2005 to 2010. In these periods, foreign banks' return on equity has registered a lower position in India while public sector banks remained in the first position on bank's return on equity. Foreign banks registered some changes in 2004 with improvement to the second position.

The next section gives the impact of consolidation on profitability of selected 16 consolidation deals in India. These 16 consolidation deals are discussed in Chapter 2.

5.3. Impact of bank consolidation on Indian commercial banks

A pre and post-merger comparison of selected banking parameters of profitability is obtained by comparing mean values of three-year pre and post-merger ratios (see Table 5.3) for 16 consolidation episodes discussed in Chapter 2. The study has taken profitability measurement variables in ratios and for standardization, all the variables are divided by the total assets of banks. By using the three-year pre and post-merger mean value of selected ratios of banks, namely, operating cost (OC/TA), return on assets (ROA), interest income (II/TA), interest expenditure (IE/TA), capital (C/TA) and return on equity (ROE), a description is presented below on whether data of post-merger shows improvement of bank's profitability indicators. Table 5.3 presents average values of different profitability indicators of consolidated banks three years before and three years after the consolidation. Table 5.4 presents results of the t-test of whether the average values before and after consolidation are significantly different. In the case of Table 5.4, the null hypothesis of no significant difference prior to and post consolidation is tested against the alternative that post consolidation there is an improvement. We consider each of the 16 consolidation deals separately in the next subsection.

Table 5.3: Pre and Post-Merger Three-Year Mean Value of Selected Mergers Deals in India (Ratios)													
No		Pre-Merger (Three Year Average)						Post- Merger (Three Year Average)					
	Name of the Bank	OC/TA	ROA	II/TA	IE/TA	C/TA	ROE	OC/TA	ROA	II/TA	IE/TA	C/TA	ROE
1	Oriental Bank of Commerce(A)	2.274	1.52583	10.037	6.20133	1.94425	0.80745	1.885	1.0366	10.059	7.08247	0.84026	1.232
	Punjab Co-Operative (T)	2.48188	-0.2572	8.1342	5.34783	0.48264	-0.2056						
2	Bank of Baroda (A)	2.4105	0.77625	9.78255	6.50149	0.99704	1.00225	2.32244	0.68718	8.79943	5.92124	0.46071	1.49869
	Bareilly Corporation (T)	3.95815	-0.3821	9.7501	6.46365	1.62771	-0.1899						
3	HDFC Bank (A)	2.19357	2.11894	8.68817	4.97721	7.56088	0.31008	1.89488	1.28938	7.29099	4.41936	1.22324	1.09749
	Times Bank (T)	1.76794	0.87147	9.03775	7.11248	4.60097	0.21303						
4	ICICI Banking (A)	1.405	1.1037	7.59203	5.77058	3.00833	0.40779	1.51154	0.89488	5.97993	4.84556	0.866	1.07173
	Bank of Madura (T)	2.71902	0.95455	8.5102	6.30914	0.31204	3.11243						
5	Bank of Baroda (A)	2.3576	0.6995	9.07668	6.0778	0.51006	1.35804	2.12408	0.95415	7.33193	4.35819	0.34745	2.73561
	Benares State (T)	3.15807	-1.3467	9.09668	7.87922	6.25727	-0.2098						
6	Punjab National Bank (A)	2.74334	0.7518	9.29107	6.17643	0.41433	1.86678	2.25153	1.06374	6.96712	3.65761	0.24202	4.40538
	Nedungadi Bank (T)	2.69412	-0.8817	9.70506	8.23046	0.58995	-1.6961						
7	Oriental Bank of Commerce(A)	1.76337	1.02915	9.76933	6.60996	0.62483	1.69729	1.48671	1.046	6.86013	4.25049	0.37335	2.83115
	Global Trust (T)	2.12075	-0.7194	8.80828	7.6037	1.50837	-0.4178						
8	Centurion Bank (A)	4.56102	-1.993	10.6678	7.61038	3.26002	-0.8785	3.96223	0.62335	7.35783	4.29849	0.97083	0.64387
	Bank of Punjab (T)	3.19869	0.80922	8.20718	5.78297	2.44109	0.332						
9	Federal (A)	1.85268	0.766	8.02558	5.17344	0.23732	4.15717	1.51033	1.19577	7.83843	4.84665	0.43585	2.83278
	Ganesh Bank of (T)	2.23975	-0.4491	8.48311	7.15633	0.80841	-0.6031						
10	IDBI Bank (A)	1.71222	0.76438	5.49129	3.71795	1.43387	0.51718	0.75311	0.55437	6.33668	5.69658	0.5575	1.02039
	United Western (T)	1.87803	-0.1661	7.11371	5.19169	0.44705	-0.4481						
11	Indian Overseas Bank (A)	2.1833	1.22836	7.71056	4.20591	1.04707	1.19154	1.64791	0.93832	7.79271	5.39524	0.46684	1.97938
	Bharat Overseas (T)	2.21213	0.67299	6.86986	3.81854	0.49044	1.28508						
12	ICICI Banking (A)	2.00346	1.17123	6.13519	4.4463	0.6377	1.86261	1.83649	1.04612	7.65746	5.5689	0.35281	3.00701
	Sangli Bank (T)	3.47688	-6.5414	7.09814	4.2557	1.34408	-3.6885						
13	Centurion Bank (A)	4.76188	-0.5477	7.99973	4.3201	1.6797	-0.3271	3.7559	0.58395	7.28259	4.36918	0.83909	0.69427
	Lord Krishna (T)	2.35815	0.05937	7.08582	5.19924	3.19349	0.08171						
14	HDFC Bank (A)	2.35481	1.24329	6.55141	2.88928	0.45954	2.83415	2.756	1.32204	7.7889	3.91539	0.20187	6.71969
	Centurion Bank (T)	4.33643	0.65871	7.15232	3.66623	1.42925	0.54864						
15	ICICI Banking (A)	1.94606	0.97772	7.52333	5.5373	0.37138	2.63343	0.54298	0.42269	2.13129	1.39141	0.09451	1.49079
	Bank of Rajasthan (T)	1.86908	0.77544	6.9798	4.6947	0.89229	0.87135						
16	State Bank of India (A)	1.81898	0.89331	6.78954	4.33722	0.08208	11.2173	1.640728	0.821784	7.422334	4.512377	0.590747	15.03166
	State Bank of Indore (T)	1.51155	0.80567	7.58894	5.40577	0.06135	13.388						
Source: Author's own calculations.													

Table 5.4: P-values of t-test of comparison between pre and post-merger average profitability indicators of acquirer banks							
Deal No	**Acquirer**	**Null Hypothesis (H_0): Pre-Merger Acquirer = Post-Merger Results**					
		OC/TA	**ROA**	**II/TA**	**IE/TA**	**C/TA**	**ROE**
1	Oriental Bank of Commerce	0.018168**	0.061954*	0.476478	0.041255**	0.004672*	0.055335*
2	Bank of Baroda	0.293711	0.333162	0.017938**	0.01149**	0.117284	0.191418
3	HDFC Bank	0.053912*	0.008314***	0.0262**	0.153608	0.032021**	0.006463***
4	ICICI Banking	0.440924	0.368287	0.264701	0.318155	0.082383*	0.103191
5	Bank of Baroda	0.079998*	0.004803***	0.014496**	0.025463**	0.00112***	0.003192***
6	Punjab National Bank	0.00704***	0.011946**	0.003729***	8.71E-05***	0.059114*	0.005438***
7	Oriental Bank of Commerce	0.094423*	0.483123	0.006945***	0.029127**	0.021778**	0.167315
8	Centurion Bank	0.215461	0.025458**	0.041676**	0.087764*	0.055541*	0.037235**
9	Federal	0.020181**	0.059319*	0.431594	0.375051	0.089255*	0.251577
10	IDBI Bank	0.129573	0.173666	0.307179	0.060769*	0.025285**	0.029529**
11	Indian Overseas Bank	0.033405**	0.189263	0.370301	0.024701**	0.002247***	0.115841
12	ICICI Banking	0.132028	0.191069	0.059408*	0.082244*	0.023703**	0.020964**
13	Centurion Bank	0.02764**	0.212162	0.072632*	0.367271	0.046862**	0.138707
14	HDFC Bank	0.146741	0.200123	0.159729	0.139777	0.023132**	0.008514***
15	ICICI Banking	0.013237**	0.009338***	0.064228*	0.037674**	0.00339***	0.001684***
16	State Bank of India	0.265953	0.061701*	0.158411	0.193808	0.09965*	0.027385**

Source: Author's own calculations. ***, ** and * = 1 percent, 5 percent and 10 percent level of significant.
OC/TA = operating cost is divided by total assets; II/TA= interest income is divided by total assets; IE/TA=interest expenditure is divided by total assets; C/TA = capital is divided by total assets;

Deal 1: Oriental Bank of Commerce

In 1997, Oriental Bank of Commerce merged with Punjab Cooperative Bank and the results of the profitability analyses show that for three parameters, namely, operating cost, interest income and return on equity the consolidated bank registered improvement on profitability. This reveals that bank's profitability has been achieved by reducing cost and increasing income on loan's interest rates while the rest of the variables declined and are negatively associated with bank's profitability. The mean value of operating cost in the pre-merger period registered at 2.27, higher than the post-merger results which registered at 1.88 (see Table 5.3). It indicates that post consolidation bank's operating cost had reduced. On return on assets, the pre-merger average was registered at 1.52 which is higher than the post-merger average of 1.03. It reveals that return on assets of banks declined after the deal. On interest income, the pre-merger mean value is observed as being slightly lower than the post-merger value. On interest expenditure, it is recorded a higher ratio in the post-merger than pre-merger ratio. This indicates that post consolidation the interest expenditure on deposits has gone up to an average of 7.08, which is higher than the pre-merger mean value of 6.20. The same result is also observed in the capital on assets ratio which registered at 0.84 in post-merger lower than the pre-

merger mean value. Finally, return on equity of the merged entity has registered at 1.23 in the post-merger period higher than the pre-merger ratio of 0.80.

The t-test results reported in Table 5.4 indicates the difference between pre and post-merger averages of all profitability indicators except interest income is statistically significant at varying levels of significance. As shown in Table 5.4, differences of pre and post-consolidation in operating cost to asset ratio and interest expense to asset ratio are significant at 5 percent level of significant, that in ROA and ROE are significant at 10 percent level and the difference in capital to asset ratio is significant at 1 percent level. The average interest income to asset ratio is not significantly different before and after consolidation. Thus, the merger deal of OBC and Punjab Co-operative Bank had a significant improvement on operating cost and ROE but a significant deterioration is ROA, interest expenditure and capital-asset ratio. Also, the merged bank's interest income was not significantly different from pre-merger period.

***Deal 2*: Bank of Baroda**

A deal between Bank of Baroda and Bareilly Cooperation Bank in 1999 is analyzed here for the results of pre and post-merger selected profitability parameters ratios. The results of profitability comparison in Table 5.3 show that three parameters of bank's performance, namely, operating cost, interest expenditure and return on equity have shown improvement after consolidation. On the other hand, ROE, interest income, capital-to-asset and ROE have recorded deterioration post-consolidation. However, a look at the t-test results in Table 5.4 reveals that the pre and post-consolidation means of only interest income and interest expenditure (as proportion of total asset) are statistically significant, both at 5 percent level of significance. Other profitability indicators, viz., operating cost, ROA, capital-to-asset ratio and ROE are not significantly different before and after the consolidation. It is evident that the pre-merger mean value of interest income, registered at 9.78 is higher than the post-merger value at 8.79 and this difference is significant. It shows that post-consolidation there was a significant drop in the interest income of Bank of Baroda. On interest expenditure, the pre merger average recorded at 6.50 is significantly higher than the post-merger average of 5.92. This indicates that consolidation has led to significant reduction in interest expenditure on deposits, which is an improvement in the bank's performance.

***Deal 3*: HDFC Bank**

The HDFC Bank acquired Times Bank in 2000. The performance indicators of HDFC bank before and after this acquisition are presented in Table 5.3 under serial number 3. It is found that profitability measurement in three parameters of bank performance, namely, operating cost, interest expenditure on deposits and return on equity (ROE), there is improvement on bank's profit. Out of these, operating cost is significant at 10 percent level, and ROE is significant at 1 per cent, while the apparent improvement in interest expenditure is not statistically significant (Table 5.4). Table 5.3 indicates that the mean value of operating cost, pre-merger, registered at 2.19, which is higher than the post-merger results registered at 1.89. Thus, post consolidation, HDFC bank's average operating costs (relative to total asset) reduced significantly. Similarly, average return on equity of the HDFC after merger has been recorded at 1.09 post-merger which is significantly higher than the pre-merger value of 0.31. On other indicators of profitability, viz., ROA, interest income and capital-asset ratio, the post-consolidation performance of the bank is found to be significantly worse than the pre-consolidation period. On return of assets, it has registered 2.11 ratios in the pre-merger period which is significantly higher than the post-merger ratios which obtain at 1.28. It shows that return on assets have declined after the deal. On interest income, the pre-merger mean value of 8.69 was higher than the post-merger mean value of 7.29. On interest expenditure, a lower ratio is recorded post-merger than in the pre-merger period, but this difference is not significant according to the t-test. The average capital-asset ratio at 1.22 in the post-merger period is significantly lower than pre-merger mean value of 7.56, thus indicating deterioration after the acquisition deal.

***Deal 4*: ICICI Bank**

A merger deal between ICICI Bank and Bank of Madura took place in 2001 to improve the scale of economies of the merged entity. The results presented in Table 5.3 show that two banking parameters, namely, interest expenditure and return on equity have improved after the merger. It is evident (see Table 5.3) that the mean of operating cost observed pre-merger at 1.40 was lower than the post-merger ratio registered at 1.51, which reveals that consolidation has improved bank's operating cost of businesses. In the pre-merger period, return on assets recorded

at 1.10 is higher than the post-merger ratio at 0.89 which shows that bank's return on assets has reduced after the deal. In the pre-merger period, interest income had its mean value at 7.59 which is higher than the post-merger ratio at 5.97. Therefore, consolidation did not improve on bank's interest income. On interest expenditure, a record of 4.84 in the post-merger phase is lower than pre-merger ratio. This indicates that consolidation has reduced interest expenditure on deposits which is observed at 5.77 in the pre-merger period. Similarly, the ratio of capital to asset at 0.86 in the post-merger period is lower than the pre-merger mean value of 3.0. Finally, the ICICI bank return on equity has attained 1.07 in the post-merger period which is higher than the pre-merger ratio of 0.40. The results of the t-test in Table 5.4 indicate that the difference between pre and post merger average is significant only for capital-asset ratio (at 10 percent level), all other ratios are found to be insignificant. Thus, we can infer that except for capital-asset ratio, there was no significant impact of consolidation on other indicators of profitability. As far as capital-asset ratio is concerned, there was a significant deterioration post consolidation.

***Deal 5*: Bank of Baroda**

In the 2002 deal between Bank of Baroda and Benares State Bank the results of pre and post consolidation comparison of profitability indicators (Table 5.3) found that for four parameters, namely, operating cost, return on assets, interest expenditure and return on equity, there was improvement after consolidation. This has been achieved by reducing operating cost and interest expenditure while improving returns on assets and equity. Table 5.3 shows that the mean value of operating cost in the pre-merger period registered at 2.35 was higher than the post-merger results at 2.12. It indicates that consolidation has reduced bank's operating cost for its businesses. For return on assets, the value is registered at 0.69 in the pre-merger period is lower than the post-merger ratio at 0.95. It reveals that return on assets of banks increased after the deal. On interest income, it is obvious that the pre-merger mean value of interest income on loans was higher at 9.08 than that post-merger mean value registered at 7.33, indicating a deterioration in performance. On interest expenditure, it recorded a higher ratio post-merger than in the pre-merger period. This indicates that consolidation has increased interest expenditure on deposits which increased from 4.35 (pre-merger) to 6.07 after consolidation. In capital ratio, it registered at 0.34 during post-merger which is lower than the pre-merger mean value of 0.51.

Finally, return on equity of the merged entity has registered at 2.73 post-merger which is higher than the pre-merger value at 1.35. The t-test results from Table 5.4 indicate that the mean difference between pre and post consolidation performance indicators were all significant at different levels of significance. Thus we can conclude that the consolidation deal between Bank of Baroda and Banaras bank resulted in significant improvement in four parameters (OC, ROA, IE, ROE)and significant deterioration in two parameters (II and C/TA).

***Deal 6*: Punjab National Bank**

The deal between Punjab National Bank and Nedungadi Bank took place in 2003. The results from Table 5.3 show that on four banking parameters, namely, operating cost, returns on assets, interest expenditure and return on equity, the post consolidation performance of the consolidated bank was better than pre consolidation performance. On the other two parameters, namely, interest income and capital, the post consolidation performance was worse than pre consolidation. Table 5.3 shows that the mean value of pre-merger operating cost registered at 2.74 was higher than the post-merger results which registered at 2.25. It indicates that consolidation has reduced bank's operating cost for its businesses. On return on assets, value is registered at 0.75 in the pre-merger period which is lower than the post-merger ratio of 1.06. It reveals that return on assets of banks increased after the deals. On interest income, it is obvious that the pre-merger mean value of interest income on loans is observed as higher than the post-merger which registers at 6.96 and it is changed on loan's interest income. It shows that consolidation does not have an impact on bank's interest ratios on loans and management. On interest expenditure, it is recorded a lower ratio in the post-merger period than for the pre-merger ratio. This indicates that consolidation has declined interest expenditure on deposits at 3.65 which is higher than the pre-merger mean value of 6.17. In capital ratio, capital is registered at 0.24 for post-merger which is lower than the pre-merger mean value. More interestingly, return on equity of the merged entity has registered 4.40 in the post-merger phase which is higher than the pre-merger value of 1.86.

As indicated by the t-test results (Table 5.4), these differences between pre and post acquisition deal are all found to be significant at conventional significance levels. Thus, similar

to the deal 5 above, this consolidation deal also indicated significant improvement in OC, ROA, IE and ROE and significant deterioration in II and C.

***Deal 7*: Oriental Bank of Commerce**

Oriental Bank of Commerce acquired Global Trust Bank in 2004; post-acquisition, four banking parameters, namely, operating cost, returns on assets, interest expenditure on deposits and return on equity show improvement and interest income and capita-asset ratio show deterioration (Table 5.3) Table 5.3 shows that the mean value of pre-merger operating cost registered at 1.76 which is higher than the post-merger results of 1.48. It indicates that consolidation has reduced bank's operating cost for its businesses. For return on assets, the value is registered at 1.02 in the pre-merger period which is slightly lower than the post-merger ratios of 1.04. On interest income, it is obvious that the pre-merger mean value of 9.77 is observed to be higher than the post-merger value which registers at 6.86, indicating post-consolidation there was a decline in the consolidated bank's interest income. On interest expenditure, it has recorded an improvement from 6.60 in the pre-consolidation period to 4.25 in the post-consolidation period. In capital ratio, capital is registered at 0.37 in the post-merger phase which is lower than the pre-merger mean value, indicating deterioration. More interestingly, return on equity of the merged entity has registered 2.83 in the post-merger higher than the pre-merger value of 1.69, showing an improvement. Whether these differences in performance indicators before and after the acquisition deal is significant or no can be ascertained from the statistical t-test results presented in Table 5.4. As shown against this deal in Table 5.4, we see that except for ROA and ROE, the other indicators displayed significant difference at conventional levels of significance. Thus, we can infer that the acquisition deal did not impact the acquired bank's ROA and ROE significantly. However, there was significant improvement in Operating Cost (at 10 percent level) and Interest Expenditure (at 5 percent level) and significant worsening in Interest Income (at 1 percent level) and capital-asset ratio (at 5 percent level).

***Deal 8*: Centurion Bank of Punjab**

Centurion Bank acquired Bank of Punjab in 2005; four banking parameters, namely, operating cost, return on assets, interest expenditure on deposits and return on equity register

improvement on profitability while rest of the variables show deterioration (Table 5.3).Table 5.3 shows that the mean value of pre-merger operating cost observed at 4.56 which is higher than the post-merger results of 3.96. It indicates that consolidation reduced bank's operating cost on its businesses. On return on assets, it is registered at -1.99 in pre-merger periods which is lower than the post-merger ratios observed at 0.62. It reveals that return on assets of banks increased after the deals. On interest income, the pre-merger mean value of interest income on loans is observed to be higher than the post-merger which registers at 7.35and it found to be significant at 5 percent level (Table 5.4). It shows that consolidation has deterioration an impact on bank's interest ratios on loans and management. On interest expenditure, it recorded a higher ratio in the post-merger period compared to the pre-merger ratio. This indicates that consolidation has increased interest expenditure on deposits which observed at 4.29 in post-merger higher than the pre-merger value of 7.61. The capital ratio is registered at 0.97 in post-merger the phase lower than the pre-merger mean value. More interestingly, return on equity of the merged entity has registered at 0.64 in the post-merger which is higher than the pre-merger -0.87.

Whether these profitability indicators before and after consolidation deal is significantly different or not can be answered from the statistical t-test results given in Table 5.4. As shown in Table 5.4, except operating cost, the other performance indicators found to be significant. Thus, we say that the consolidation deal did not impact the acquired bank's operating cost significantly. However, there was significant improvement in ROA, ROE and II/TA (at 5 percent level). Capital-asset ratio and Interest Expenditure have been found to be significantly worse at 10 percent level.

***Deal 9*: Federal Bank**

The deal between Federal Bank and Ganesh Bank of Kurundwad took place in 2006.The results from Table 5.3 show that on four banking parameters, namely, operating cost, interest expenditure on deposits, capital ratio and return on assets, the post-consolidation performance of the acquirer bank was better than pre-consolidation performance. On the other two parameters, namely, interest income and ROE, the post-consolidation performance was worse than pre-consolidation. Table 5.3 shows that the mean value of pre-merger operating cost registered at 1.85 was higher than the post-merger results which registered at 1.51. It indicates the

consolidation has reduced bank's operating cost for its businesses. On ROA, value is registered at 0.76 in the pre-merger period which is higher than the post-merger ratio of 1.19. It shows that return on assets of banks declined after the deals. On interest income, the pre-merger mean value of interest income on loans is observed as higher than the post-merger which registers at 7.83. It shows that consolidation does not have an impact on bank's interest ratios on loans. On interest expenditure, it is recorded a lower ratio in the post-merger period than the pre-merger ratio. This indicates that consolidation has declined interest expenditure on deposits which registers at 4.84in post-merger is lower than the pre-merger ratio of 5.17. The results also reflected in the capital on assets ratio which registered at 0.43 in post-merger which is higher than pre-merger mean value at 0.23.

The t-test is shown in Table 5.4 that consolidation deal indicated significant improvement in OC (at 5 percent level), ROA, capital (at 10 percent level) and others have found to be insignificant.

***Deal 10*: IDBI Bank**

Analysis of the deal in 2006 between IDBI Bank and United Western Bank found that for three banking parameters, namely, operating cost, interest income on loans, and return on equity have improved post merger. Apart from that, rests of the variables have negatively performed. It is apparent in Table 5.3 that the pre-merger operating cost observed at 1.71 is higher than the post-merger results which register at 0.75. This reveals that consolidation has reduced bank's operating cost for its businesses. In the pre-merger period, return on assets recorded at 0.76 which is higher than the post-merger ratio of 0.55. This indicates that bank's return on assets has declined after the deals. In the pre-merger period, the interest income on loans is registered at 5.49 which is lower than the post-merger value of 6.33. It shows that consolidation positively affected on bank's interest income on loans. The interest expenditure in post-merger at 5.69 is higher than the pre-merger ratio of 3.71. This indicates that consolidation increased interest expenditure on deposits. The ratio of capital registered at 0.55 in post-merger period which is lower than the pre-merger mean value. More interestingly, return on equity of the merged entity observed at 1.02 in the post-merger which is higher than the pre-merger ratio of 0.51.The t-test results from Table 5.4 show that pre and post merger means of capital and ROE are found to be

significant at 5 percent level and interest expenditure is registered at 10 percent level of significance. Thus we conclude that the consolidation deal resulted in significant improvement in ROE but significant deterioration in IE and Capital. In other parameters, there was no significant impact.

***Deal 11*: Indian Overseas Bank**

The results of the deal between Oriental Bank of Commerce and Bharat Overseas Bank in 2007 show that there was profound improvement in operating cost after the consolidation and slight improvement in interest income and return on equity. Table 5.3 shows that the pre-merger operating cost registered at 2.18 which is higher than the post-merger value of 1.64. It indicates that consolidation has reduced bank's operating cost for its businesses. On return on assets, it registered at 1.22in pre-merger which is higher than the post-merger value of 0.93. On interest income, it is obvious that the pre-merger interest income on loans is observed to be lower than the post-merger value which registers at 7.79 and consolidation is changed slightly on loans interest income. On interest expenditure, consolidation has increased interest expenditure on deposits which is observed at 5.39 higher than the pre-merger value of 4.20. The results are also reflected in the capital-assets ratio. Capital-asset ratio is registered at 0.46 ratios in the post-merger period which is lower than the pre-merger. More interestingly, return on equity of the merged entity registered at 1.97 in post-merger period which is higher than the pre-merger ratio of 1.19. The results of the t-test in Table 5.4 show operating cost and interest expenditure are found to be significant at 1 percent level. As far as the capital-asset ratio is concerned, there was a significant deterioration in post-consolidation at 5 percent level of significance. Thus, we can infer that post-consolidation, there was significant improvement in only one parameter, viz., operating cost. There was significant deterioration in interest expenditure and capital. On other three parameters, there was no significant difference before and after consolidation.

***Deal 12*: ICICI Banking**

The deal between ICICI Banking and Sangli Bank took place in 2007. The results show that for three banking parameters, namely, operating cost, interest income on loans and return on equity improvement is observed. Table 5.3 shows that the pre-merger on operating cost to asset

ratio is observed at 2.00 which is higher than the post-merger value of 1.83.In the pre-merger period, ROA is recorded at 1.17 which is slightly higher than the post-merger ratio of 1.04.The pre-merger value of interest income to asset is registered at 6.13, lower than the post-merger value of 7.65, indicating improvement. On interest expenditure, it is recorded at 5.56 in the post-merger phase which is higher than the pre-merger ratio of 4.44, indicating some deterioration. The ratio of capital to asset is registered at 0.35 in the post-merger phase, which is lower than pre-merger mean value of 0.67, a deterioration. More interestingly, return on equity of the merged entity has been achieved at 3.00 post-merger, which is higher than the pre-merger ratio of 1.86. The t-test results shown in Table 5.4 indicate that four parameters are significantly different between pre and post merger period. These are: Capital, ROE (both at 5 percent level), interest income and interest expenditure (at 10 percent level) and the difference in the other two indicators of profitability are registered as insignificant. Thus, deterioration in capital and interest expenditure performance and improvement in interest income and ROE are observed after the deal.

***Deal 13*: Centurion Bank**

Centurion Bank acquired Lord Krishna Bank in 2007 and the deal impacts on three banking parameters is shown in Table 5.3, namely, operating cost, return on asset and return on equity suggest improvement. Out of these three parameters, the significant improvement was seen in operating cost (Table 5.4). As shown in Table 5.3, the operating cost to asset ratio 4.76 pre-merger went down significantly to 3.76 post-merger. The difference in performance in ROA and ROE were not significant (Table 5.4). Interest income to asset ratio went down significantly from 7.99 to 7.28 and capital-asset ratio also went down significantly from 1.7 to 0.8. Thus, after the consolidation, only one indicator (OC/TA) showed significant improvement but two indicators (II/TA and C/TA) showed worsening off. Other three indicators (ROA, IE/TA and ROE) did not change significantly. Thus, in this case, we can see that the post consolidation results were more negative. Interestingly, the next year, the Centurion Bank, the acquirer of deal 13, was itself acquired by HDFC bank, perhaps due to the negative performance observed here.

***Deal 14*: HDFC Bank**

In 2007, Centurion Bank became the target of acquisition by HDFC Bank. The results of Table 5.3 and Table 5.4 together reveal that after this consolidation period, the consolidated bank did not show significant improvement in majority (5 out of 6) of the performance indicators. In fact, in capita-asset ratio, it recorded significant deterioration from 0.5 to 0.2. Only in one indicator, viz., ROE, the consolidated bank performed significantly better –the ROE of the acquirer bank improved from 2.83 to 6.72 and this improvement was significant at 5 per cent level (Table 5.4).

***Deal 15*: ICICI Bank**

ICICI Bank acquired Bank of Rajasthan (BoR) in 2010. Table 5.3 shows that the operating cost in pre-merger is observed at 1.94 that is higher than the post-merger results of 0.54. This reveals that post consolidation the acquirer bank could reduce its operating cost on businesses. This improvement is significant at 5 per cent level, as indicated by t-test result of Table 5.4. Similarly, acquirer bank's interest expenditure to asset ratio also went down drastically from 5.5 to 1.4 (Table 5.3) and this difference is statistically significant at 5 per cent level (Table 5.4). Thus, the consolidated banks could reduce both operating cost and interest expenses on deposits. On other parameters of performance, however, there is decline in performance. This deterioration in performance in ROA, interest income, capita-asset ratio and ROE are found to be statistically significant at various levels (Table 5.3 and Table 5.4).

***Deal 16*: State Bank of India**

SBI Bank acquired State Bank of Indore (SBoI) in 2010. Post consolidation, there was a decline in ROA from .89 to .82 (significant at 10 per cent level). However, significant improvement is observed in capital-asset ratio (from 0.08 to 0.59, significant at 10 per cent level) and a significant improvement in ROE from 11.22 to 15.03 (significant at 5 per cent level). Other performance indicators, viz., operating cost, interest income and interest expenditure, there was no significant difference between pre and post consolidation phase.

5.4. Summary and Conclusion

The above discussion point out that post consolidation, performances in the 16 banks consolidation deals considered here are not uniform. While there are improvements in some indicators of profitability, there may be deterioration in others. The only indicator of performance that showed significant deterioration consistently in majority of the 16 deals is the capita-asset ratio. In 13 out of 16 deals, capital-asset ratio went down after consolidation after the consolidation. This may be due to addition of poor quality asset of the target bank with the acquirer bank's asset. In case of two deals, viz., deal 9 (Federal Bank + Ganesh Bank) and deal 16 (SBI and SB of Indore), there was improvement in this ratio post consolidation.

To conclude, profitability performance of consolidated banks after consolidation is not uniform. Depending on the indicator of profitability, one may see either improvement or decline in performance. While consolidation deals have led to improvement in some indicators, with regard to some other indicators consolidation might have led to deterioration or no significant difference in performance.

CHAPTER 6

Impact of Mergers and Acquisitions on Efficiency of Banks

6.1. Introduction

An analysis of the impact of mergers and acquisitions on the efficiency of Indian commercial banks is made in this chapter. In order to analyze efficiency related issues in the context of mergers and acquisitions, we first compute efficiency measures of all banks by using Data Envelopment Analysis (DEA). Using the various efficiency scores computed by DEA, we address two main questions in the chapter: first, whether the acquirer banks are necessarily more efficient than the target bank and second, whether the efficiency indicators show any significant improvement. This chapter is divided into four sections: Section 6.2 presents descriptive statistics of the efficiency measures calculated for the analysis in this chapter. Section 6.3 provides an analysis of the first research question by comparing acquirer and target banks' efficiency performance. In Section 6.4 we present a comparison of pre and post consolidation performances of consolidated banks. This section also presents a Tobit regression analysis of determinants of efficiency of banks in an attempt to find if consolidation is a significant determinant of efficiency. Section 6.5 presents a Tobit regression analysis of whether consolidation impacts banks' efficiency scores. Section 6.6 concludes the chapter.

6.2: Data and Descriptive Statistics

Table 6.1 indicates some descriptive statistics of input and output variables used for computing efficiency measures from the period 1995 to 2013, considered for this study on efficiency analysis. In the analysis, bank's total advances and total interest income are considered as output variables while bank's total deposits and interest expenditure are considered as input variables, as per the intermediation approach of DEA method. Table 6.1 presents year-wise number of banks, maximum and minimum values of selected variables and their means. The data are for public, private and foreign banks from 1995 to 2013 and all monetary values are in millions of Indian rupees.

Table 6.1: Descriptive Statistics Of Overall Banking Data from 1995 To 2013									
Year	**1995**				**Year**	**1996**			
Name	**Advances**	**Int.Income**	**Deposits**	**Int. exp.**	**Name**	**Advances**	**Int.Income**	**Deposits**	**Int. exp.**
No. of Banks	71	71	71	71	No. of Banks	74	74	74	74
Minimum	98	23	246	3	Minimum	146	36	355	24
Maximum	485302	106521	851219	66879	Maximum	598257	129586	963955	82259
Mean	28916	6124.01	56180.6	4002.68	Mean	33171.4	7399.35	60666.4	4880.16
Year	**1997**				**Year**	**1998**			
No. of Banks	75	75	75	75	No. of Banks	77	77	77	77
Minimum	453	85	713	59	Minimum	564	102	471	37
Maximum	622332	149507	1107012	95914	Maximum	742373	158789	1310913	104732
Mean	35663.3	8617.39	70320.6	5818.19	Mean	41128	9318.48	82069.4	6374.55
Year	**1999**				**Year**	**2000**			
No. of Banks	77	77	77	77	No. of Banks	77	77	77	77
Minimum	509	132	407	56	Minimum	476	139	517	58
Maximum	823598	191075	1690419	130444	Maximum	981020	222009	1968211	152726
Mean	47011.3	11053.1	98350.4	7717.6	Mean	56710.2	12838.4	115460	8944.18
Year	**2001**				**Year**	**2002**			
No. of Banks	76	76	76	76	No. of Banks	78	78	78	78
Minimum	109	128	514	70	Minimum	32	141	662	66
Maximum	1135903	260034	2428284	177556	Maximum	1208065	298101	2705601	207288
Mean	68274.6	14852.5	137196	10123.9	Mean	82381.7	16083.8	152779	11093.7
Year	**2003**				**Year**	**2004**			
No. of Banks	77	77	77	77	No. of Banks	78	78	78	78
Minimum	23	123	652	54	Minimum	26	103	513	40
Maximum	1377585	310870	2961233	211095	Maximum	1579335	304605	3186187	192742
Mean	95761.3	18196.7	175709	12109.4	Mean	110585	18426.1	201673	11204.2
Year	**2005**				**Year**	**2006**			
No. of Banks	77	77	77	77	No. of Banks	77	77	77	77
Minimum	24	85	482	33	Minimum	43	87	781	29
Maximum	2023745	324280	3670475	184834	Maximum	2618009	359796	3800461	203904
Mean	149202	20199.4	238208	11547.2	Mean	196479	24025.3	280680	13884.4
Year	**2007**				**Year**	**2008**			
No. of Banks	74	74	74	74	No. of Banks	73	73	73	73
Minimum	18	103	865	40	Minimum	15	112	742	31
Maximum	3373365	394910	4355211	234368	Maximum	4167682	489503	5374040	319291
Mean	266685	31651	363208	19244.8	Mean	339075	42218.7	454636	28473.6
Year	**2009**				**Year**	**2010**			
No. of Banks	71	71	71	71	No. of Banks	70	70	70	70
Minimum	19	138	608	32	Minimum	18	115	920	30
Maximum	5425032	637884	7420731	429153	Maximum	6319142	709939	8041162	473225
Mean	422306	54702.5	572128	37045.2	Mean	497801	59108.5	674712	38855.5
Year	**2011**				**Year**	**2012**			
No. of Banks	68	68	68	68	No. of Banks	66	66	66	66
Minimum	22	133	968	38	Minimum	808.745	183.307	1047.6	44.073
Maximum	7567195	813944	9339328	488680	Maximum	8675789	1065215	1E+07	632304
Mean	629916	72106.5	823044	43926.4	Mean	765918	98822	975199	64999
Year	**2013**								
No. of Banks	66		66		66		66		
Minimum	999		242		1194		56		
Maximum	10456166		1196571		12027396		753258		
Mean	887626		115139		1122634		77601		
Sources: The Statistical Tables Relating to the Banks in India, RBI.									

In these statistics, the total advances of the banks included bills purchased and discounted, cash credits, overdrafts and loans, term loans and finally, priority sector advances. The deposits of banks have included term deposits from the bank and included other bank's deposits. Apart from that, customer savings deposits and term deposits have been included in

deposits of the banks. In the term deposits, the deposits of Indian branches and outside branches such as foreign nation's branches have also been included. The variable 'interest income' include interest and discounts on advances and bills, income on investments, interest on balance with RBI and other banks' funds and finally, rewards from the state and central government. The final variable of the study, interest expenditure includes interest on deposits, interest on RBI and inter bank borrowings.

As the DEA efficiency scores are computed relative to all available input and output variables for the all the banks, hence these scores are very sensitive to the data being used. In our preliminary exercise, we have observed that inclusion of foreign banks induces considerable instability in the efficiency scores of all banks on a year-to-year basis. As foreign banks may have very high values for the input and output variables compared to the domestic banks, therefore, inclusion of foreign banks as and when they enter in the Indian banking sector would give rise to unstable results. Hence, we consider only 14 foreign banks that have been present in India during the entire span of 1995-2013. For 1995, 27 public sector banks, 29 private sector banks, and 14 foreign banks in India have been taken for our analysis. For 1996, the same numbers of public sector and foreign banks, and 32 private sector banks have been considered for the analysis. Over a period of time, the new entry and exit of domestic banks have been taken into account but foreign banks' entries and exits have been omitted from the dataset.

If the efficiency score of any bank is equal to 1 that indicates that the bank is fully efficient. If it is below this value, we assume that the bank is inefficient and if the value is equal to zero we conclude that the bank is completely inefficient.

Table 6.2 presents bank group wise mean efficiency scores computed by DEA using the intermediary approach for three groups of banks operating in India; namely, Public sector, Private Sector and Foreign Banks. We have presented both input-oriented and output-oriented mean efficiency scores for these bank groups. Input-oriented efficiency implies how a bank is able to minimize its inputs to produce a given level of output. Output-oriented efficiency implies bank's ability to increase output by utilizing fixed levels of inputs.

Table 6.2: Bank Group-Wise Mean and Aggregate Mean from 1995 to 2013											
Input-Oriented						Output-Oriented					
Year	Name	Public Banks	Private Banks	Foreign Banks	All Banks	Year	Name	Public Banks	Private Banks	Foreign Banks	All Banks
1995	OTE	0.68874	0.72143	0.88407	0.741	1995	OTE	0.68874	0.72143	0.88407	0.741
	PTE	0.89181	0.80687	0.95707	0.869		PTE	0.89793	0.81467	0.9595	0.875
	SE	0.77481	0.905	0.92421	0.859		SE	0.76904	0.89603	0.92193	0.853
1996	OTE	0.52574	0.61506	0.79036	0.616	1996	OTE	0.52574	0.61506	0.79036	0.616
	PTE	0.77967	0.67258	0.86536	0.748		PTE	0.80981	0.68748	0.8765	0.768
	SE	0.68089	0.92661	0.9095	0.834		SE	0.65285	0.90642	0.89971	0.813
1997	OTE	0.67744	0.68544	0.85914	0.715	1997	OTE	0.67744	0.68544	0.85914	0.715
	PTE	0.88067	0.72847	0.92879	0.821		PTE	0.89163	0.7355	0.92829	0.828
	SE	0.77141	0.94529	0.92264	0.878		SE	0.76089	0.93732	0.92421	0.871
1998	OTE	0.46215	0.46547	0.68856	0.511	1998	OTE	0.46215	0.46547	0.68856	0.511
	PTE	0.88944	0.67129	0.86725	0.789		PTE	0.89952	0.69432	0.87769	0.804
	SE	0.5217	0.70721	0.79525	0.66		SE	0.51522	0.68291	0.78363	0.645
1999	OTE	0.60389	0.53952	0.69312	0.596	1999	OTE	0.60389	0.53952	0.69312	0.596
	PTE	0.8963	0.69339	0.854	0.8		PTE	0.90374	0.712	0.86629	0.813
	SE	0.67481	0.78297	0.81165	0.751		SE	0.66881	0.76197	0.79765	0.737
2000	OTE	0.602	0.56153	0.74761	0.619	2000	OTE	0.602	0.56153	0.74761	0.619
	PTE	0.88085	0.71534	0.864	0.808		PTE	0.89333	0.72919	0.8675	0.819
	SE	0.688	0.78778	0.86917	0.772		SE	0.67737	0.77241	0.86417	0.761
2001	OTE	0.63241	0.60665	0.79033	0.659	2001	OTE	0.63241	0.60665	0.79033	0.659
	PTE	0.87733	0.6871	0.85817	0.795		PTE	0.89115	0.70519	0.86311	0.809
	SE	0.72533	0.89232	0.92467	0.841		SE	0.71296	0.86835	0.91856	0.825
2002	OTE	0.67841	0.63363	0.81305	0.697	2002	OTE	0.67841	0.63363	0.81305	0.697
	PTE	0.87926	0.70773	0.87138	0.811		PTE	0.89015	0.7194	0.87571	0.821
	SE	0.77496	0.89633	0.93419	0.865		SE	0.76456	0.88127	0.92667	0.853
2003	OTE	0.59893	0.56014	0.78086	0.634	2003	OTE	0.59893	0.56014	0.78086	0.634
	PTE	0.84652	0.68962	0.8721	0.794		PTE	0.86067	0.70638	0.8729	0.806
	SE	0.71037	0.81731	0.89376	0.801		SE	0.69793	0.7961	0.88943	0.787
2004	OTE	0.47511	0.4482	0.64595	0.511	2004	OTE	0.47511	0.4482	0.64595	0.511
	PTE	0.80026	0.6549	0.78962	0.742		PTE	0.82248	0.68043	0.79771	0.761
	SE	0.60096	0.69947	0.8139	0.696		SE	0.5837	0.66597	0.80076	0.674
2005	OTE	0.5067	0.49662	0.66267	0.547	2005	OTE	0.5067	0.49804	0.66267	0.547
	PTE	0.81174	0.64083	0.7909	0.744		PTE	0.83867	0.66943	0.79552	0.765
	SE	0.63256	0.78548	0.8349	0.745		SE	0.60981	0.75243	0.83267	0.724
2006	OTE	0.63896	0.63854	0.84014	0.696	2006	OTE	0.63896	0.62929	0.84014	0.696
	PTE	0.77367	0.67457	0.86705	0.764		PTE	0.79733	0.68104	0.86559	0.776
	SE	0.83937	0.95593	0.96836	0.919		SE	0.81337	0.93307	0.971	0.905
2007	OTE	0.4727	0.47832	0.67359	0.534	2007	OTE	0.4727	0.49128	0.67359	0.534
	PTE	0.7867	0.71488	0.85173	0.782		PTE	0.80381	0.72152	0.84614	0.792
	SE	0.60604	0.68788	0.79832	0.691		SE	0.59281	0.6906	0.80259	0.681
2008	OTE	0.4983	0.52913	0.78195	0.594	2008	OTE	0.4983	0.52492	0.78195	0.594
	PTE	0.80407	0.70233	0.90468	0.801		PTE	0.82074	0.73217	0.90477	0.813
	SE	0.62493	0.77425	0.86927	0.748		SE	0.61119	0.74038	0.87055	0.736
2009	OTE	0.48915	0.46909	0.71464	0.552	2009	OTE	0.48915	0.47113	0.71464	0.552
	PTE	0.82931	0.70961	0.87082	0.803		PTE	0.84065	0.72391	0.87636	0.814
	SE	0.59092	0.67917	0.82886	0.693		SE	0.58262	0.66587	0.82136	0.682
2010	OTE	0.46427	0.50365	0.71914	0.554	2010	OTE	0.467	0.49739	0.71914	0.554
	PTE	0.8315	0.7073	0.8491	0.796		PTE	0.84869	0.71813	0.84857	0.808
	SE	0.5615	0.73826	0.85	0.706		SE	0.55285	0.7097	0.8519	0.694
2011	OTE	0.38189	0.41624	0.68267	0.485	2011	OTE	0.38188	0.41624	0.681	0.485
	PTE	0.84754	0.67086	0.81224	0.782		PTE	0.85719	0.71005	0.8281	0.798
	SE	0.45315	0.65876	0.84924	0.639		SE	0.44762	0.6149	0.83862	0.626
2012	OTE	0.22835	0.2599	0.4038	0.291	2012	OTE	0.22835	0.2599	0.40965	0.291
	PTE	0.84746	0.6992	0.7682	0.779		PTE	0.85435	0.7532	0.75755	0.8
	SE	0.27115	0.4058	0.5781	0.405		SE	0.26877	0.35345	0.61115	0.39
2013	OTE	0.22835	0.2599	0.4038	0.291	2013	OTE	0.22835	0.2599	0.4038	0.291
	PTE	0.84746	0.6992	0.7682	0.779		PTE	0.85435	0.7532	0.77675	0.8
	SE	0.27115	0.4058	0.5781	0.405		SE	0.26877	0.35345	0.5851	0.39
Source: Authors own calculation; PTE ≡ VRSTE ; OTE ≡ CRSTE											

The efficiency scores have been divided into three important components, namely, overall technical efficiency (OTE), pure technical efficiency (PTE) and Scale efficiency (SE).[27] In the input-oriented model of 1995, it is observed that the mean efficiency of public sector banks registered at 0.689 is less than that of the private and foreign sector banks which registered at 0.721 and 0.888 respectively. Among these banks, foreign banks have registered a higher efficiency score in all the fields. For the same period, the output-oriented model also shows the same results for constant returns to scale of all banks but the mean score of pure technical efficiency (0.875) has increased and scale efficiency (0.852) has declined as is observed in the efficiency measures.

It is obvious that in 1995, foreign banks were more efficient in the Indian market than their Indian counterparts. It is also observed that mean efficiency of foreign banks has registered 0.884 but in pure technical efficiency public sector banks have recorded mean efficiency score of 0.891 which is higher than that of the foreign banks. Apart from that, more interestingly, Indian private sector banks' mean value of scale efficiency was recorded more than the Indian public sector banks. The results are also observed on the output-oriented method of efficiency score and it is prevailing up to 2002.

In 2003, in the input-oriented model, foreign banks recorded a higher efficiency score in all returns to scale, namely, OTE, PTE and SE and it has recorded 0.780, 0.872 and 0.893, respectively. More interestingly, it is observed that the Indian private sector banks have registered a scale efficiency of 0.817, higher than Indian public sector banks' scale efficiency of 0.710. These results also prevail in the output-oriented method as is shown in Table 6.2. In 2004, the Indian public sector banks have higher variable returns to scale in both the input and output model that has registered 0.800 and 0.822, respectively and comparatively to other groups. However, the result is significantly higher than both private and foreign banks. In 2005, the same results are also observed with some deterioration in efficiency scores. In both the periods, it is shown that considerable and more significant result in efficiency of scale is observed and that is much higher than the public sector banks and less than the private sector banks.

[27] Variable return to scale tries to indicate which firm is working which return to scale. It may be increasing return to scale, decreasing return to scale and constant return to scale. Pure technical efficiency is Variable returns to scale technical efficiency (VRSTE) and overall technical efficiency is related to constant returns to scale technical efficiency (CRSTE).

In 2006 to 2010, it is shown that the public sector banks have faced low PTE scores 0.773, 0.7867, 0.8040 and 0.829, respectively. These are still lower than the foreign banks' and higher than the private sector banks' in India. In these periods, banking performance is lowered due various factors including global crisis and banking reforms. Indian commercial banks have witnessed in this period 8 consolidation deals. In 2011 and after, foreign banks returned to normalcy compared with others banking groups while public sector banks registered high and remarkable changes in PTE and this prevails up to 2013. Further, the Indian private sector banks still sustain their scale efficiency from 1995 to 2013. Policies and changes that happened in the domestic and international market would not impact the scale efficiency of private sector banks.

The results of Table 6.2 can be summarized as follows: the aggregate level clearly revealed that public sector and private sector banks are less efficient compared to foreign banks. It is found that the overall mean value of efficiency scores for public sector banks have registered less than that of foreign banks in 1995 to 1998 and private sector banks are more scale efficient than the public sector banks but less than foreign banks. Public sector banks registered higher efficiency scores compared to private sector banks during 2000 to 2006. In both the models (input oriented and output oriented), domestic public and private sector banks are performing and utilizing their resources at a low level of efficiently compared to foreign banks. In the circumstances, any consolidation that takes place between them may raise their efficiency scores significantly and that would enable them to acquire new technologies and services.

Fully Efficient Banks

Table 6.3 and Table 6.4 present lists of banks that were found to be having efficiency score of 1, i.e. banks that were fully efficient during different years in our study period. In Table 6.3 we present list of fully efficient banks according to pure technical efficiency (PTE) measure and in Table 6.4 we enlist those banks which were fully efficient by overall technical efficiency (OTE) measure. It shows that SBI, Bank of India, Punjab National Bank, HDFC, ICICI and latest Kodak Mahindra banks achieved PTE scores of 1 during this period consistently for each year.

Table 6.3: Full Efficient Banks in PTE																			
	'95	**'96**	**'97**	**'98**	**'99**	**'00**	**'01**	**'02**	**'03**	**'04**	**'05**	**'06**	**'07**	**'08**	**'09**	**'10**	**'11**	**'12**	**'13**
State Bank of India	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
State Bank of Tran core	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bank of Baroda	1	-	-	-	-	1	-	-	-	-	-	-	-	-	1	1	1	1	-
Indian Bank	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Centurion Bank	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Global Trust	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IndusInd Bank	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Punjab Co Operative	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UTI Bank	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ABN Amro Bank	1	1	-	1	1	1	-	1	1	1	1	-	1	1	1	-	-	-	-
American Express	1	-	-	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-
Bank of America	1	1	1	1	1	1	1	1	1	1	-	1	1	1	1	-	-	-	-
Nova Scotia	1	1	1	-	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-
Bank of Tokyo	1		1	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1
Barclays Bank	1	1	-	1	-	-	-	-	-	1	1	1	1	1	-	1	1	1	1
Citibank	1	-	-	1	-	1	1	1	1	1	1	1	1	1	1	-	1	1	-
Deutsche Bank	1	-	1	1	-	1	1	1	1	-	-	-	-	-	1	1	1	1	1
Bank of India	-	1	1	1	1	1	1		1	1	-	-	-	1	-	-	-	-	-
Bank of Punjab	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Times Bank	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Standard Chart Bank	-	1	-	-	-	1	1	1	1	1	1		1	1	1	1	1	1	1
Ganesh Bank of	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Societe Generale	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IDBI Bank	-	-	1	-	-	1	-	-	-	-	1	1	1	1	-	-	-	-	-
Bank of Cylon	-	-	-	1	1	-	1	1	-	-	-	-	1	1	1	1	1	1	1
State Bank of Mauritius	-	-	-	1	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-
Punjab National Bank	-	-	-	-	1	-	1	1	1	1	1	1	1	-	-	-	-	-	-
Indian Overseas Bank	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Syndicate Bank	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
HDFC Bank	-	-	-	-	-	1	-	-	-	-	1	-	1	1	1	1	1	1	1
China trust Bank	-	-	-	-	-	1	1	1	1	1	1	1		1	1	1	1	-	-
State Bank of Patiala	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
ICICI Banking	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1
J P Morgan Chase Bank	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-
DBS Bank	-	-	-	-	-	-	-	1	1		1	-	-	-	-	-	-	-	-
Mizuho Bank	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	1	1	1
Abu-dhabi Commercial	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Hongkong Shang. Bank	-	-	-	-	-	-	-	-	-	-	-	-	1			1	1		-
Shinhan Bank	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Kodak Mahindra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1
BNP Paribas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Source: Author's own Calculation by using DEA. 1 shows the bank is full efficient.																			

Most of the foreign banks, namely, ABN Amro, Bank of America, Bank of Tokyo, Barclays Bank, Deutsche Bank, Standard Chartered Bank, Bank of Ceylon, Citibank, China Trust Bank, and Mizuho Corporation Bank are highly efficient. These banks are relatively efficient in all formats, namely, OTE, PTE and SE.

Table 6.4: Full Efficient Banks in OTE

	'95	**'96**	**'97**	**'98**	**'99**	**'00**	**'01**	**'02**	**'03**	**'04**	**'05**	**'06**	**'07**	**'08**	**'09**	**'10**	**'11**	**'12**	**'13**
Centurion Bank	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bank of Tokyo	1	-	1	-	-	-	1	1	-	1	1	1	-	1	-	-	1	-	-
Barclays Bank	1	1	-	1	-	-	-	-	-	1	1	1	-	-	-	1	1	-	1
Standard Chart.d Bank	-	1	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
ABN Amro	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Times Bank	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Societe Generale	-	-	1	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Deutsche Bank	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
IDBI Bank	-	-	1	-	-	-		-	-	-	1	1	-	-	-	-	-	-	-
Bank of Cylon	-	-	-	1	1	1	1	1	-	-	-	-	-	1	1	-	-	-	-
State Bank of Mauritius	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
China trust Commercial Bank	-	-	-	-	-	1	1	-	1	-	-	1	-	-	1	1	-	-	-
J P Morgan Chase Bank	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-
DBS Bank	-	-	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-
ICICI Banking	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Bank of America	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-
Mizuho Corporate Bank	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	1	1	1
Abu-dhabi Commercial	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Citibank	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Shinhan Bank	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
American Express	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-

Source: Author's Own Calculation by using DEA.

Table 6.4 lists banks with overall full efficiency in India from 1995 to 2013. It is obvious that foreign banks contribute relatively in determining the efficiency of other commercial banks and foreign banks are more efficient than Indian public and private sector banks. Bank of Tokyo, Barclays Bank, Bank of Cylon, China Trust Bank, and Mizuho Corporation Bank are more times efficient than the other banks which have observed more than five-year efficiency scores equal to 1. It is also clear that any other banks particularly, Indian public sector and private sector banks are not able to achieve a single position in gaining full efficiency on OTE equal to 1 for the period of 1995 to 2013 except IDBI, ICICI, Centurion Bank and Times Bank which register at least one year equal to 1 in gaining the position of full efficiency in all formats. It is obvious that entry of the foreign banks is the more relevant factor in determining the Indian commercial bank's efficiency. It is observed in 1997 that IDBI Bank registered full efficiency in all formats.

This efficiency performance however declined later and when the merger deal happened between IDBI and IDBI Ltd it reached the full efficiency in 2008 and 2009. It is observed that foreign banks have achieved higher efficiency gains in variable returns to scale technical efficiency (PTE) and constant return to scale technical efficiency (OTE). State Bank of India, Bank of Baroda , Punjab National Bank, HDFC Bank and ICICI Bank have full efficient scores in variables returns to scale and have not achieved full efficiency in overall technical efficiency which includes scale efficiency. For a period of time, foreign banks have dominated the Indian domestic market efficiency scores, as is observed in Table 6.3 and 6.4.

After presenting some insight on the efficiency scores of different banks in different years, we now turn to the issue of consolidation and efficiency. The next section investigates whether or not the acquirer is more efficient than the target bank by using their pre-merger and post-merger efficiency scores and comparing acquirer and target banks in selected mergers.

6.3: Is the Acquirer More Efficient Than the Target Banks?

We measure the pre-merger efficiency scores of acquire and target banks. Our study attempts to compare the difference in acquirer and target bank's efficiency scores to examine whether the acquirer bank is more efficient than the target bank. Theoretically, the most efficient and well managed banks take the less efficient ones as it is expected that the more efficient ones are better organized and more capable of handling the management issues efficiently. It is obvious that when a more efficient bank takes over a less efficient one that may lead to an improvement in the performance of the merged bank due to better management and efficient decision-making which helps in restructuring the weak bank. Thus it is interesting to examine whether the acquirer banks were indeed more efficient than the target banks in the case of bank consolidations in India. Our study tries to measure the efficiency scores by using the overall, pure and scale efficiency scores of the acquirer and target banks in India prior to the consolidation. Table 6.5 indicates the scores of overall efficiency, pure technical efficiency and scale efficiency for both DEA Model 1 (input-oriented model) and DEA Model 2 (output-oriented model).

Table 6.5: Mean of Efficiency Scores of Selected Mergers and Acquisitions in India three year pre-merger.								
	Input-Oriented				Output-Oriented			
DEAL	Name of the Bank	OTE	PTE	SE	Name of the Bank	OTE	PTE	SE
1	Oriental Bank of Commerce(A)	0.669	0.88867	0.74967	Oriental Bank of Commerce(A)	0.669	0.89867	0.74133
	Punjab Co-Operative (T)	0.564	1	0.564	Punjab Co-Operative (T)	0.564	1	0.564
2	Bank of Baroda (A)	0.556	0.932	0.59767	Bank of Baroda (A)	0.556	0.93633	0.59467
	Bareilly Corporation (T)	0.522	0.595	0.87467	Bareilly Corporation (T)	0.522	0.595	0.87867
3	HDFC Bank (A)	0.66	0.81	0.81133	HDFC Bank (A)	0.66	0.81667	0.80467
	Times Bank (T)	0.51367	0.65933	0.781	Times Bank (T)	0.51367	0.66567	0.77667
4	ICICI Banking (A)	0.492	0.67867	0.72367	ICICI Banking (A)	0.492	0.70367	0.69767
	Bank of Madura (T)	0.50933	0.707	0.72067	Bank of Madura (T)	0.50933	0.71767	0.70967
5	Bank of Baroda (A)	0.624	0.984	0.63433	Bank of Baroda (A)	0.624	0.98467	0.634
	Benares State (T)	0.49233	0.551	0.89767	Benares State (T)	0.49233	0.55367	0.89467
6	Punjab National Bank (A)	0.65033	0.987	0.65867	Punjab National Bank (A)	0.65033	0.98767	0.658
	Nedungadi Bank (T)	0.53867	0.608	0.89667	Nedungadi Bank (T)	0.53867	0.62533	0.868
7	Oriental Bank of Commerce (A	0.62333	0.89933	0.693	Oriental Bank of Commerce (A	0.62333	0.911	0.68433
	Global Trust (T)	0.52133	0.612	0.85033	Global Trust (T)	0.52133	0.636	0.81867
8	Centurion Bank (A)	0.53933	0.736	0.73633	Centurion Bank (A)	0.53933	0.74467	0.728
	Bank of Punjab (T)	0.53533	0.671	0.79567	Bank of Punjab (T)	0.53533	0.68233	0.78267
9	Federal (A)	0.50367	0.68967	0.729	Federal (A)	0.50367	0.712	0.70633
	Ganesh Bank of (T)	0.379	0.39867	0.95167	Ganesh Bank of (T)	0.379	0.42833	0.887
10	IDBI Bank (A)	0.796	0.88433	0.89733	IDBI Bank (A)	0.796	0.89633	0.887
	United Western (T)	0.47767	0.58633	0.80967	United Western (T)	0.47767	0.59967	0.792
11	Indian Overseas Bank (A)	0.56467	0.855	0.66433	Indian Overseas Bank (A)	0.56467	0.88033	0.644
	Bharat Overseas (T)	0.55433	0.63233	0.87733	Bharat Overseas (T)	0.55433	0.64567	0.861
12	ICICI Banking (A)	0.479	1	0.479	ICICI Banking (A)	0.479	1	0.479
	Sangli Bank (T)	0.47333	0.55067	0.85867	Sangli Bank (T)	0.47333	0.58267	0.816
13	Centurion Bank (A)	0.57867	0.729	0.79833	Centurion Bank (A)	0.57867	0.73967	0.78633
	Lord Krishna (T)	0.44733	0.53167	0.83633	Lord Krishna (T)	0.44733	0.561	0.797
14	HDFC Bank (A)	0.67467	0.98567	0.686	HDFC Bank (A)	0.67467	0.99	0.68267
	Centurion Bank (T)	0.59767	0.73567	0.817	Centurion Bank (T)	0.59767	0.746	0.80567
15	ICICI Banking (A)	0.488	1	0.488	ICICI Banking (A)	0.488	1	0.488
	Bank of Rajasthan (T)	0.44833	0.57833	0.77667	Bank of Rajasthan (T)	0.44833	0.59333	0.756
16	State Bank of India (A)	0.525	1	0.525	State Bank of India (A)	0.525	1	0.525
	State Bank of Indore (T)	0.46967	0.75633	0.62267	State Bank of Indore (T)	0.46967	0.77133	0.61
Source: Author's own calculation								
OTE = overall technical efficiency (Constant Return to Scale of Technical Efficiency)								
PTE = pure technical efficiency (Variable Returns to Scale of Technical Efficiency)								
SE = Scale Efficiency								
(A) = Acquirer ; (T) = Target bank								

Table 6.5 shows input and output-oriented DEA efficiency scores of selected commercial banks mergers and acquisitions in India. It presents mean of three-year pre-merger efficiency scores for the acquirer (A) and target banks (T) for each of the 16 consolidation deals in India from 1991 to 2013 considered in our study and discussed in Chapter 2. Table 6.5 indicates that both the acquirer and target banks had inefficiency but the acquirer performed better than the target banks in general.

It is evident that 15 out of 16 consolidation deals have recorded that the acquirer is more efficient in OTE than the target which registered lower input wastage of acquirers to produce the same level of production. These results have observed in deals 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16. These results have been found in the output-oriented model as same as input-oriented results. Further, 2 out of 16 deals, namely, deals 3 and 10 show that the acquirer is more efficient and registers higher efficiency scores in all three efficiency measures -OTE, PTE and SE. However, the deal of ICICI and Bank of Madura (BoM), i.e., the deal 4, has given a different result that the target BoM was more efficient in all measures of efficiency than the acquirer ICICI bank.

The overall technical inefficiency is a product of PTE and SE. When we look separately at PTE and SE, the two components of OTE we observe in almost all the cases except two deals namely, deal 1 and 4, PTE was higher for acquirer compared to the target. However, on scale efficiency, target banks in most cases were more efficient than the acquirer. These results have observed in deals 2, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15 and 16. These results have been found in the output-oriented model as also for same as input-oriented results. Further, 2 out of 16 deals, namely, deals 3 and 10 show that the acquirer is more efficient in all measures (OTE, PTE and SE) measurement. On the other hand, in case of deal 4, the acquirer was less efficient than the target in all measures of efficiency. A few banks, namely, ICICI, SBI and Punjab Co-operative have achieved full efficient gains in PTE. If the PTE efficiency scores equal 1, it reveals that the banks PTE efficiency frontier lies on OTE frontier. This further reveals that the usage of resources of banks is functioning well and there is no wastage of inputs to converts outputs.

Table 6.5 also shows the output-oriented PTE and SE scores. In terms of output oriented scores, it is evident out of the 16 consolidation deals that 4 banks have attained full efficiency in PTE score equal to 1. In addition, rest of the banks attained inefficient scores in PTE which have registered the efficiency scores within the range of 50 to 90 percent. State Bank of India, ICICI banking and Punjab Co-operative has gained 100 percent full efficiency in PTE under the assumption of VRS. Fifteen out of 16 acquirer banks had higher PTE scores than target banks. In terms of scale efficiency concerns, 12 out of 16 target banks have positioned higher efficiency than target banks in the scale of production. Further, acquirers HDFC Bank and IDBI Bank in

case of deals 10 and 14 were more efficient than the target in overall efficiency and its decomposition scores PTE and SE.

Whether the observed differences between the efficiency scores of acquirer and target banks are statistically significant has been tested by using non-parametric median test. As discussed in Chapter 4 on methodology, the efficiency scores lie between 0 and 1 and hence we cannot use the t-test for testing the significance of difference between paired means. In this case the median tests are more appropriate.

Table 6.6 presents the median test P-values for difference between acquirer and target banks efficiency scores (OTE, PTE and SE) computed by using both input-oriented and output oriented models. The null hypothesis tested here is that of no difference between the efficiency scores of acquirer and target banks against the alternative hypothesis of acquirer bank's efficiency being higher than the target bank's efficiency. The median test of the overall efficiency of acquirer and target banks comparison shows that twelve out of 16 consolidation deals have accepted the null hypothesis with a higher probability value (0.45). These results are found in deals 1, 2, 3, 4, 7, 8, 9, 11, 12, 13, 14, and 15. The median test rejects the null hypothesis for 4 out of 16 consolidation deals at 0.05 percent significance level. These have observed in deals 5, 6, 10 and 16. The above mentioned results for input-oriented model hold for the output-oriented model also.

Table 6.6: Median test results of hypothesis of equal efficiency score between acquirer and target (pre-consolidation).

Merger Deals	input-oriented			output-oriented		
	OTE	PTE	SE	OTE	PTE	SE
	P value	P value	P value	P value	P value	P value
Deal 1 = OBC + PCoB	0.45	0.05**	0.05**	0.45	0.05**	0.05**
Deal 2 = BOB+ BCB	0.45	0.05**	0.05**	0.45	0.05**	0.05**
Deal 3 = HDFC+ TB	0.45	0.05**	0.45	0.45	0.05**	0.45
Deal 4 = ICICI+BOM	0.45	0.45	0.45	0.45	0.45	0.45
Deal 5 = BOB+BSB	0.05**	0.05**	0.05**	0.05**	0.05**	0.05**
Deal 6 = PNB+NB	0.05**	0.05**	0.05**	0.05**	0.05**	0.05**
Deal 7 = OBC+GTB	0.45	0.05**	0.05**	0.45	0.05**	0.05**
Deal 8 = CB+BOP	0.45	0.45	0.45	0.45	0.45	0.45
Deal 9 = FB+GBOK	0.45	0.05**	0.05**	0.45	0.05**	0.05**
Deal 10 = IDBI+UWB	0.05**	0.05**	0.45	0.05**	0.05**	0.45
Deal 11 = IOB + BhOB	0.45	0.05**	0.45	0.45	0.05**	0.45
Deal 12 = ICICI+SB	0.45	0.05**	0.05**	0.45	0.05**	0.05**
Deal 13 = CB+LKB	0.45	0.05**	0.45	0.45	0.05**	0.45
Deal 14 = HDFC+CB	0.45	0.05**	0.45	0.45	0.05**	0.45
Deal 15 = ICICI+BOR	0.45	0.05**	0.05**	0.45	0.05**	0.05**
Deal 16 = SBI+SBOI	0.05**	0.05**	0.05**	0.05**	0.05**	0.05**

Source: Authors own calculations. ***,** and * = 1 percent , 5 percent and 10 percent level of significant respectively

As far as pure technical efficiency (PTE) is concerned, the median test of the pure technical efficiency of acquirer and target banks comparison found that 14 out of 16 consolidation deals have accepted the alternative hypothesis at 5 percent level of significance. However, 2 out of 16 consolidation deals have expressed a higher probability (0.45) level of accepting the null hypothesis. These results have been observed in deals 4 and 8.

As far as scale efficiency (SE) is concerned, the median test of scale efficiency of acquirer and target banks comparison shows that null hypothesis can be rejected for 9 out of 16 consolidation deals at 5 percent significance. However, for 7 out of 16 consolidation deals, the null hypothesis can be accepted at 5 per cent level. The overall median test of scale efficiency indicates that acquirer banks have more efficiency gains than target banks which were also observed in Table 6.6. According to these consolidation deals, it is clearly noted that the deal between HDFC and Times Bank of India and the deal between IDBI and United Western Bank have supported the hypothesis, in all aspects of efficiency, viz., overall efficiency (technical efficiency) and scale efficiency. Thus, as far as pure technical efficiency is concerned, the hypothesis that the acquirer is more efficient than the target bank is supported in almost all the cases except for the deal between ICICI and Bank of Madura. In this particular deal, the Bank of Madura (Target) was more efficient than ICICI bank (the acquirer). Finally, both the input and output models of overall efficiency have clearly shown that the acquirer is more efficient than the target but it does not reflect in scale efficiency.

6.4: Has efficiency improved after consolidation?

In this section we turn to our next issue of testing whether there is efficiency improvement post consolidation. Table 6.7 shows the pre and post-merger input- oriented mean efficiency scores along with the associated p-value of the median test of the difference of these efficiency scores. We compare difference in three efficiency scores – OTE, PTE and SE of the acquirer banks before and after the consolidation. Table 6.8 presents those values as in Table 6.7 but for output oriented efficiency scores. The pre and post-merger mean efficiency scores indicate three-year pre and three-year post-merger mean values. Tables 6.7 and 6.8 provide us information on whether there was significant improvement in efficiency scores post consolidation for the selected 16 consolidation cases covered in our study.

Table 6.7: Mean of Efficiency Scores before and after-merger of Acquirer banks with P-value of Median test (Input-oriented)										
		OTE			PTE			SE		
Deal	**Name of the Bank**	**Pre-Merger**	**Post-Merger**	**P value**	**Pre-Merger**	**Post-Merger**	**P value**	**Pre-Merger**	**Post-Merger**	**P value**
1	Oriental Bank	0.669	0.62333	0.45	0.88867	0.893	0.45	0.74967	0.69733	0.45
2	Bank of Baroda	0.556	0.643	0.45	0.932	0.981	0.05**	0.59767	0.656	0.45
3	HDFC Bank	0.66	0.70033	0.45	0.81	0.88967	0.05**	0.81133	0.788	0.45
4	ICICI Banking	0.492	0.696	0.45	0.67867	1	0.05**	0.72367	0.696	0.45
5	Bank of Baroda	0.624	0.53767	0.45	0.984	0.918	0.05**	0.63433	0.58567	0.45
6	Punjab National Bank	0.65033	0.57633	0.45	0.987	1	0.05**	0.65867	0.57633	0.45
7	OBC	0.62333	0.51333	0.45	0.89933	0.75667	0.05**	0.693	0.67933	0.45
8	Centurion Bank	0.53933	0.54833	0.45	0.736	0.65633	0.45	0.73633	0.83367	0.45
9	Federal	0.50367	0.50667	0.45	0.68967	0.73667	0.45	0.729	0.68767	0.45
10	IDBI Bank	0.796	0.43267	0.05**	0.88433	0.98367	0.45	0.89733	0.44	0.05**
11	Indian Overseas Bank	0.56467	0.49533	0.45	0.855	0.83467	0.45	0.66433	0.59433	0.45
12	ICICI Banking	0.479	0.558	0.45	1	1	0.05**	0.479	0.558	0.45
13	Centurion Bank	0.57867	0.533	0.45	0.729	0.705	0.45	0.79833	0.757	0.45
14	HDFC Bank	0.67467	0.52533	0.05**	0.98567	1	0.05**	0.686	0.52533	0.05**
15	ICICI Banking	0.488	0.36767	0.45	1	1	0.05**	0.488	0.36767	0.45
16	State Bank of India	0.525	0.292	0.05**	1	1	0.05**	0.525	0.292	0.05**
Source: Author's own calculation.										
OTE = Constant Return to Scale of Technical Efficiency; PTE = Variable Returns to Scale of Technical Efficiency; SE = Scale Efficiency										
P- values are for the Median test of hypothesis of equal efficiency score pre and post-consolidation. .***,** and * = 1 percent, 5 percent and 10 percent level of significance, respectively.										

Table 6.8: Mean of Efficiency Scores before and after-merger of Acquirer banks with P-value of Median test (Output-oriented)										
		OTE			PTE			SE		
DEAL	Name of the Bank	Pre-Merger	Post-Merger	P value	Pre-Merger	Post-Merger	P value	Pre-Merger	Post-Merger	P value
1	Oriental Bank	0.669	0.60067	0.45	0.89867	0.89533	0.45	0.74133	0.67133	0.45
2	Bank of Baroda	0.556	0.643	0.45	0.93633	0.982	0.05**	0.59467	0.65533	0.45
3	HDFC Bank	0.66	0.70033	0.45	0.81667	0.89967	0.05**	0.80467	0.779	0.45
4	ICICI Banking	0.492	0.696	0.45	0.70367	1	0.05**	0.69767	0.696	0.45
5	Bank of Baroda	0.624	0.53767	0.45	0.98467	0.92733	0.05**	0.634	0.58	0.45
6	Punjab National Bank	0.65033	0.57633	0.45	0.98767	1	0.05**	0.658	0.57633	0.45
7	OBC	0.62333	0.51333	0.45	0.911	0.79633	0.05**	0.68433	0.645	0.45
8	Centurion Bank	0.53933	0.583	0.45	0.74467	0.745	0.45	0.728	0.78733	0.45
9	Federal	0.50367	0.50667	0.45	0.712	0.75033	0.45	0.70633	0.675	0.45
10	IDBI Bank	0.796	0.43267	0.05**	0.89633	0.98467	0.45	0.887	0.43967	0.05**
11	Indian Overseas Bank	0.56467	0.49533	0.45	0.88033	0.84767	0.45	0.644	0.585	0.45
12	ICICI Banking	0.479	0.558	0.05**	1	1	0.05**	0.479	0.558	0.45
13	Centurion Bank	0.57867	0.533	0.45	0.73967	0.735	0.45	0.78633	0.726	0.45
14	HDFC Bank	0.67467	0.52533	0.05**	0.99	1	0.05**	0.68267	0.52533	0.05**
15	ICICI Banking	0.488	0.36767	0.45	1	1	0.05**	0.488	0.36767	0.05**
16	State Bank of India	0.525	0.292	0.05**	1	1	0.05**	0.525	0.292	0.05**
Source: Author's own calculation.										
OTE = Constant Return to Scale of Technical Efficiency; PTE = Variable Returns to Scale of Technical Efficiency; SE = Scale Efficiency										
P- values are for the Median test of hypothesis of equal efficiency score pre and post-consolidation.***,** and * = 1 percent, 5 percent and 10 percent Level of significance, respectively										

The median test p-values are incorporated in the Table 6.7 and 6.8 for testing significance of differences between pre and post-consolidation efficiency scores of acquirer. In the Table 6.7 and Table 6.8, the pre and post-merger mean efficiency scores indicate three-year pre and three-year post-merger average value in the aggregate form. It is more clearly stated that whether consolidation makes an important effect in achieving the bank's efficiency and it has considered three variables and two model approach. The estimated efficiency scores are showing 16 merger deals and are represented by ratios ranging from 0 to 1.

Deal 1: Oriental Bank of Commerce

The deal between Oriental Bank of Commerce and Punjab co-operative bank happened in 1997. In input oriented efficiency measures as shown in Table 6.7, the overall efficiency scores of the bank in pre-merger indicate low-efficiency performance relative to post-merger value. After the merger, it is observed that the PTE of the bank is recorded with improvement and except this rest of the scores are registered with deterioration. It reveals that consolidation brings deterioration on OTE and SE of the acquirer and brings improvement on PTE. The results of median test for all efficiency scores are found to be insignificant. Thus, we can conclude that consolidation has no impact on efficiency. These results are also observed in the output-oriented model as shown in Table 6.8.

Deal 2: Bank of Baroda

The deal between Bank of Baroda (BOB) and Bareilly Cooperation Bank (BCB) has happened in 1999. The results as shown in Table 6.7 present input-oriented efficiency scores of pre and post-merger. The efficiency scores show that the post-merger efficiency scores are registered with an improvement. It is apparent in Table 6.7 that the results of the BOB is recorded in pre-merger 0.556, 0.932 and 0.597 in all formats, is less than the post-merger which is recorded 0.643, 0.981 and 0.656 in OTE, PTE, and SE respectively. These results are tested by using median test whether there is a significance differences between pre and post-consolidation. The median test for input-oriented results (as shown in Table 6.7) found that the PTE is the only efficiency score is found to be significant at 5 percent level and others scores are found to be insignificant. The consolidation has an impact on only PTE and other efficiency scores have no

significant impact. These results are also observed in output methods as shown in Table 6.8. Table 6.8 shows that the PTE is shown at 5 percent level of significance and other scores are found insignificant.

Deal 3: HDFC Bank

The deal between HDFC Bank and Times bank of India happened in 2000. The input-oriented efficiency results (as shown in Table 6.7) show that the post-consolidation efficiency scores of OTE and PTE have registered with an improvement. It is apparent in Table 6.7 that the results of the HDFC bank which are registered 0.66 and 0.81 in pre-merger is less than the post-merger which is recorded 0.700, 0.889 in OTE and PTE respectively. In post-consolidation, the scale efficiency of HDFC is registered a deterioration. Apart from that, it is observed that the scale efficiency of the bank in pre-merger has registered 0.811 that has higher than the 0.788 which has registered in post-merger. It emphasizes that the production of banks declines after HDFC preferences to take over the Times Bank. The median test results (as presented in Table 6.7) show as same as Deal 2 that only PTE is significant at 5 percent level and others are found insignificant. These results conclude that consolidation can bring considerable effects on pure technical efficiency of HDFC. The same kind of results is also observed in output-oriented DEA model of efficiency scores as given in Table 6.8.

Deal 4: ICICI Bank

The deal between ICICI banking and Bank of Madura happened in 2001. As presented in Table 6.7, the post-merger efficiency scores of OTE and PTE have observed with an improvement. It is apparent that the post-merger efficiency scores in OTE and PTE is 0.696, and 1 that is higher than the pre-merger efficiency scores of the ICICI which is registered 0.492 and 0.678, respectively. The scale efficiency of the ICICI bank is deteriorated as same as previous deal. It is observed that the scale efficiency of the bank is declined from 0.723 to 0.696. It reveals that the banks loans and services for the customers decline after the takeover of weaker one. The median test is found as same as previous one that only PTE is found to be significant at 5 percent level and others are found to be insignificant. More interestingly, the acquirer is achieved full efficiency in PTE that indicates that the bank is used their resources effectively in converting as

output. Finally, it is obvious that consolidation is generated a considerable effect on PTE of ICICI. It represents that the combining assets and better management raise their usage of inputs effectively but it represents in scale negatively. As far as output-oriented model of efficiency scores is concerned, similar results is observed as given in Table 6.8.

Deal 5: Bank of Baroda

The deal between Bank of Baroda (BOB) and Benares State Bank (BSB) happened in 2002. Table 6.7 indicates complete deterioration on all formats of input-oriented efficiency scores (OTE, PTE and SE) of Bank of Baroda. It is observed that the pre-merger efficiency scores in all formats (OTE, PTE and SE) is registered in post-merger at 0.537, 0.918 and 0.585 in all formats respectively. As far as the result of median test is concerned, PTE is found to be significant at 5 percent level as same as previous one and others efficiency scores are found insignificant. As evident from the Table 6.7 shows that increased assets size and consolidation are contributed by decreasing the efficiency of Bank of Baroda.

The output-oriented results as presented in Table 6.8 are also substantiated to input-oriented results. Table 6.8 shows that only PTE is observed at 5 percent level of significance as same as input-oriented result and other efficiency scores are found insignificant.

Deal 6: Punjab National Bank (PNB)

The deal between Punjab National Bank (PNB) and Nedungadi Bank (NB) happened in 2003. The input-oriented results (as given in Table 6.7) show an improvement in PTE of the PNB and PNB is achieved the complete efficiency improvement in PTE. Apart from that, rest of the efficiency scores is associated with deterioration. It reveals that the efficiency performance of merged banks is declined in OTE and SE due to certain regulatory difficulties. It is apparent that pre-merger scores in two formats (OTE and SE) are recorded 0.650 and 0.658 respectively that is higher than the post-merger scores 0.576 and 0.576, respectively. The median test results (as included in Table 6.7) show as same as previous one that the PTE is found to be significant at 5 percent level and others are registered insignificant. These results conclude that consolidation can have considerable effects on PTE. These results are also substantiated by output-oriented as shown in Table 6.8.

Deal 7: Oriental Bank of Commerce (OBC)

The deal between Oriental Bank of Commerce (OBC) and Global Trust Bank (GTB) happened in 2004. It is obvious in Table 6.7 that the post-merger efficiency scores in all formats (OTE, PTE and SE) are recorded with deterioration for OBC. It show that the post-merger which is observed 0.537, 0.918 and 0.585 (OTE, PTE and SE) in all formats is found lower than the pre-merger. As far as median test result is concerned, PTE is found to be significant at 5 percent level of significance as same as previous deal and others efficiency scores are found insignificant. As evident from the Table 6.7 clearly shows that consolidation of these banks reduced the efficiency of acquirer banks. These results are also observed in the output-oriented results as given in Table 6.8.

Deal 8: Centurion Bank (CB)

The deal between Centurion Bank (CB) and Bank of Punjab (BOP) has happened in 2005. After this deal, the CB becomes Centurion Bank of Punjab (CBoP). Centurion Bank's input-oriented efficiency results (as presented in Table 6.7) indicate that the post-merger efficiency scores of OTE and SE have registered with improvement. In input-oriented results, after the merger, it is observed that the OTE and SE of the bank are registered higher than the pre-merger period and except the score of PTE that is associated with deterioration. Interestingly, the median test results show that all efficiency scores are found to be insignificant. This concludes that consolidation has no impact on efficiency of CBoP.

As far as output-oriented result is concerned, it found that consolidation brings more efficient in OTE and SE of CBoP and lower effects on their PTE. These results are also substantiated to the output-oriented results of DEA scores. Here, the median test result is found as same as output-oriented results as presented in Table 6.8.

Deal 9: Federal Bank (FB)

The deal between Federal Bank (FB) and Ganesh Bank of Kurundwad (GBK) has happened in 2006. Table 6.7 shows that the post- merger efficiency scores of OTE and PTE are recorded with an improvement. It is obvious in Table 6.7, the efficiency scores of the bank which are registered 0.503 and 0.689 in pre-merger is lower than the post-merger which is registered

0.506 and 0.736 in OTE and PTE respectively. Apart from that, the scale efficiency of FB in post-merger is registered with deterioration. It is apparent that the scale efficiency of the acquirer in pre-merger has registered 0.729 that is higher than the 0.687 which is registered in post-merger. On the contrary, the median test results show that, all efficiency scores are found to be insignificant (as presented in Table 6.7). It emphasizes that the production of banks diminishes when the bank is preferred to take over the weaker one. These results indicate that consolidation has no impact on efficiency of FB. Further, the same kind of results has also appeared in output-oriented DEA model of efficiency scores (as shown in Table 6.8).

Deal 10: IDBI Bank

The deal between IDBI Bank and United Western Bank (UWB) happened in 2006. Table 6.7 (input-oriented) shows an improvement in PTE of IDBI Bank. Apart from that, rests of the efficiency scores are shown deterioration that explains that the efficiency performance of merged banks is declined in OTE and SE. It is apparent that pre-merger scores in two formats (OTE and SE) are recorded 0.796 and 0.897 respectively that is higher than the post-merger which is registered 0.432 and 0.44 in PTE and SE respectively. As far as the result of median test is concerned, the OTE and SE are found to be significant at 5 percent level and PTE is found insignificant. These results are also observed in output-oriented as shown in Table 6.8. The results found that consolidation has an impact on OTE and SE of IDBI.

Deal 11: Indian Overseas Bank (IOB)

The deal between Indian Overseas Bank (IOB) and Bharat Overseas Bank (BhOB) happened in 2007. Table 6.7 presents complete deterioration on all formats of efficiency scores of OBC. It is apparent that the pre-merger efficiency scores in all formats (OTE, PTE and SE) are registered higher than the post-merger which is registered 0.495, 0.834 and 0.594 in all formats respectively. The median test results show in Table 6.7 that all efficiency scores (input-oriented) are found to be insignificant. As observed from the Table 6.7 that clearly shows that consolidation of these banks is declined the efficiency of IOB. The output-oriented results (as presented in 6.8) show as same as input-oriented results.

Deal 12: ICICI Banking

The deal between ICICI Bank and Sangli Bank (SB) has happened in 2007. It is obvious that after consolidation, the efficiency score of OTE and SE which is mentioned in Table 6.7 shows an improvement. It reveals that consolidation improves efficiency and scale of production of ICICI. It is registered at higher efficiency position in post-merger compared with pre- merger efficiency measurement. As far as PTE is concerned, ICICI is sustained its PTE scores after the deal. The median test results show that only PTE is found to be significant and others are found insignificant. Consolidation is impacted on PTE by using inputs effectively. It is apparent in Table 6.7 that the results of the ICICI bank is recorded in pre-merger 1 in PTE that reveals ICICI bank converts its inputs to outputs effectively. The median test results show that only PTE is found to be significant and other scores (OTE and SE) are registered insignificant.

As far as median test result (as shown in Table 6.8) is concerned, we observe that OTE and PTE are found to be significant at 5 percent level and only SE is found insignificant. In output-oriented result, we conclude that consolidation has resulted on efficiency especially on OTE and PTE.

Deal 13: Centurion Bank of Punjab (CBoP)

The deal between Centurion Bank of Punjab (CBoP) and Lord Krishna Bank (LKB) happened in 2007. Table 6.7 demonstrates deterioration on the efficiency of CBoP. It is apparent that the pre-merger efficiency in all formats (OTE, PTE and SE) are registered higher than the post-merger which is registered 0.533, 0.0.705 and 0.757 in all formats respectively. As observed from the Table 6.7 that clearly shows that consolidation of these banks is deteriorated the efficiency of CBoP. As far as the result of median test is concerned, all efficiency scores are found insignificant. It found that pre and post-consolidation scores of all formats have registered same and consolidation has no impact on all formats of efficiency scores (as shown in Table 6.7). Here, the null hypothesis is accepted and this deal is not a successful one for efficiency. These results are also observed in the output-oriented model of technical efficiency measurement.

Deal 14: HDFC Bank

The deal between HDFC Bank and Centurion Bank of Punjab (CBoP) happened in 2008. This deal found that there is an enhancement in PTE of HDFC. Apart from that, rest of the efficiency scores are unhelpfully contributed with efficiency scores that clarify that the efficiency performance of merged banks is deteriorating in OTE and SE due to certain difficulties. It is evident that pre-merger scores in two formats (OTE and SE) are recorded 0.674 and 0.686 respectively that is higher than the post-merger which is registered 0.525 and 0.525 in PTE and SE respectively. According to median test result, we conclude that all formats of efficiency scores are found to be significant at 5 percent level of significance. We further conclude that consolidation has an improvement on PTE and has worsened the efficiency score of OTE and SE at 5 percent level of significance.

These results are also observed in output-oriented result (as presented in Table 6.8). As same as the median test result of input-oriented, the output-oriented result also show that consolidation has found enhancement on PTE and found worsening on OTE and SE at 5 percent level of significance. Here, the null hypothesis is rejected.

Deal 15: ICICI Banking

The deal between ICICI Bank and Bank of Rajasthan (BOR) happened in 2010. This deal demonstrates deterioration on OTE and SE of ICICI Bank (as shown in Table 6.7). It is apparent that the pre-merger efficiency of OTE and SE is registered higher than the post-merger which is registered 0.367 and 0.367, respectively. As observed from the Table 6.7 that clearly indicates that consolidation of these banks is deteriorated the efficiency of ICICI bank's OTE and SE. Further, consolidation sustains PTE scores because both pre and post-consolidation is registered with 1. As far as median test result is concerned, we observe that only PTE is found significant at 5 percent level.

In output-oriented result as presented in Table 6.8, we observe that PTE and SE are found to be significant but OTE is found insignificant. We conclude that consolidation has an impact on PTE and has worsened the SE at 5 percent level. Here, the null hypothesis is rejected.

Deal 16: State Bank of India

The deal between State Bank of India and State Bank of Indore (SBoInd) happened in 2010. This deal explains as same as pervious one that OTE and SE registers with deterioration on these efficiency scores of State Bank of India (as observed from the Table 6.7). It is apparent that the pre-merger efficiency scores in OTE and SE are registered higher than the post-merger which is registered 0.292 and 0.292, respectively.

In median test result, we observe that consolidation has sustained PTE and has worsened the efficiency score of OTE and SE at 5 percent level of significance. These results are also pointed out in output-oriented result (as given in Table 6.8). In output-oriented result also show that consolidation has sustained PTE and found worsening on OTE and SE at 5 percent level of significance. Here, we conclude that the null hypothesis is rejected.

It is observed in Table 6.7 and Table 6.8 that the deal 1, 5, 6, 7, 10, 11, 13, 14, 15, and 16 recorded less post-consolidation overall efficiency compared to the period before consolidation. In pre-mergers, OTE of these deals have registered 50 percent to 80 percent and post mergers have found more likely a deterioration on OTE efficiency scores which is registered approximately 30 percent to 62 percent. This OTE deterioration is not fully caused by pure technical inefficiency rather caused by scale inefficiency. However for these deals post-merger pure technical efficiency has shown improvement. It shows that consolidation could bring an improvement in its pure technical efficiency. These results have been observed for the deal 1, 3, 4, 6, 8, 9, 10, 14, 15, and 16 which is registered 75 percent to 100 percent efficiency gains.

As shown in Table 6.7 and Table 6.8, 3 out 16 consolidation deals, viz., deal 3, 4, and 9 have registered an improvement on OTE and PTE. It is also observed from Table 6.7 and Table 6.8 that 4 out of 16 deals namely, 5, 7, 11 and 13 have recorded deterioration in all three efficiency scores (OTE, PTE, SE) after consolidation.

In input-oriented as shown in Table 6.7, the deal 8 has recorded higher improvement on overall technical efficiency and scale efficiency and registered lower efficiency gains in pure technical efficiency. Furthermore, 2 out of 16 consolidation deals namely, deals 2 and 12 have achieved higher efficiency scores in all OTE, PTE and SE.

The output-oriented results (as presented in Table 6.8), 3 out 16 consolidation deals, viz., deal 3, 4, and 9 have found an improvement on OTE and PTE. Furthermore, deal 1, 6, 10, 14, 15 and 16 have recorded higher improvement only on PTE and rest of the scores (OTE and SE) registered lower efficiency gains. Furthermore, 3 out of 16 consolidation deals namely, deal 2, 8 and 12 have achieved higher efficiency scores in all OTE, PTE and SE (as given in Table 6.8).

Table 6.7 and Table 6.8 clearly show that overall, selected consolidation deals have a positive impact on the bank's efficiency, except some consolidation deals like Centurion bank. The OTE and PTE have been registered with improvement in most of the cases except some cases. However, some well-managed consolidation in the Indian context makes a distinct improvement in the efficiency as well as their overall performance of loans and services. Sometimes, weaker banks have been taken over by well assets sized banks, which create a considerable effect on their efficiency. Apart from that, certain acquisition was such that an acquirer bank becomes a target one, for example, HDFC Bank has taken Centurion Bank due to uncertain acquisition deal between the Centurion Bank and Lord Krishna Bank.

The median test is used to test whether pre- and post consolidation efficiency scores of acquirer and merged banks are significantly different. The median test of the overall technical efficiency of post-merger and pre-merger comparison shows that for 13 out of 16 consolidation deals the null hypothesis is accepted. It indicates the post-consolidation efficiency score is equal to the pre-consolidation efficiency scores in 13 out of 16 cases. The test rejects the null hypothesis for 3 out of 16 consolidation deals at 5 percent level. These are deal numbers 10, 14, and 16, namely, IDBI Bank, HDFC and SBI (see Table 6.7). Table 6.8 shows that 4 deals are found to be significant, namely, 10, 12, 14, and 16. Thus, by OTE measure, the median test rejects the hypothesis of efficiency improvement post-consolidation in majority of the cases. Post-consolidation overall efficiency measures were higher than pre-consolidation overall efficiency scores only in three cases of input results and four cases in output results.

As far as pure technical efficiency (PTE) is concerned, the median test accepts the null hypothesis for 10 out of 16 consolidation and rejects the null hypothesis for 6 deals out of 16 consolidation deals at 5 percent level. These results are observed from both in input and output-oriented results (as presented in Table 6.7 and Table 6.8).

For scale efficiency, the test rejects the null hypothesis for 3 deals out of 16 consolidation deals and accepts the hypothesis for 13 deals out of 16 consolidation deals at 5 percent level (as shown in Table 6.7). Further, Table 6.8 shows that 4 out of 16 deals rejects the null hypothesis and 12 cases accepts the hypothesis at 5 percent level.

Thus, for OTE and SE scores the median test rejects the hypothesis of better post-merger efficiency in majority of the cases. In PTE, however, in majority of the cases (10 out of 16), consolidation improved efficiency.

6.5. Is consolidation a significant determinant for efficiency?

In this section, we present a regression analysis of determinants of banks' efficiency and investigate if consolidation is an important factor for banks' efficiency. For this, the measured DEA input and output-oriented efficiency scores are taken for Tobit analysis, and other control variables of banks have taken for independent variables including consolidation dummy that takes value 1 if a bank has undergone consolidation and 0 otherwise. For the standardization, all the variables of banks are divided by total assets of banks except consolidation dummy and efficiency scores. The data covers 66 banks in India (26 public, 20 private and 20 foreign banks) in 2013.

Tobit regression results from Table 6.9 (Panel-A, B, and C) and 6.10 (Panel-A, B, and C) shows, a positive coefficient of an independent variable indicates that the efficiency of banks is positively affected by the variable and opposite results show that there is deterioration in efficiency due to the variable. These Tables include the results with three formats of efficiency scores which have been considered as dependent variables and selected variables of banks have taken as independent variables. It is divided into three panels, viz., determinants of overall technical efficiency performance, pure technical efficiency performance and scale efficiency performance and two models, namely, input-oriented and output-oriented. Table 6.9 (Panel-A, B, and C) and Table 6.10 (Panel-A, B, and C) show the coefficient of banks of selected dependent and independent variables, standard error, t-test, probability and significance with their interval.

Table 6.9 (Panel-A, B, and C) shows the Tobit regression results of an input-oriented model of efficiency scores and selected independent variables of banks in 2013 including consolidation dummy.

Table 6.9 (Panel-A): Tobit Regression: (INPUT OTE)						
Tobit estimates Number of obs = 66						
Prob > chi2= 0				LR chi2(4) = 67.65		
Log likelihood = 73.164273				Pseudo R2 = -0.8599		
OTE	Coef.	Std.	T	P>|t|	[95 percent	Conf.
Con. Dummy	0.0030729	0.02607	0.12	0.907	-0.04904	0.05519
Op. cost	0.2380656	0.43681	0.55	0.588	-0.63511	1.11124
Profit	0.0720002	1.01483	0.07	0.944	-1.95661	2.10061
Capital*	**0.9443404**	**0.09767**	**9.67**	**0***	**0.749103**	**1.13958**
Cons.	0.2330892	0.01921	12.13	0	0.194688	0.27149
_se	0.0734312	0.00655	(Ancillary parameter)			
(Panel-B) Tobit Regression: (INPUT PTE)						
Tobit estimates Number of obs = 66						
Prob > chi2= 0.0740				LR chi2(4) = 8.53		
Log likelihood = -6.5861473				Pseudo R2 = 0.3930		
PTE	Coef.	Std.	T	P>|t|	[95 percent	Conf.
Con. Dummy*	**0.2129744**	**0.08179**	**2.6**	**0.012*** **	**0.04947**	**0.37648**
Op.cost	0.4031212	1.31333	0.31	0.76	-2.2222	3.02844
Profit	4.273417	3.17386	1.35	0.183	-2.07104	10.6179
Capital	0.1453075	0.30611	0.47	0.637	-0.4666	0.75722
Cons.	0.7096212	0.05829	12.17	0	0.593097	0.82615
_se	0.2171938	0.02213	(Ancillary parameter)			
(Panel-C) Tobit Regression: (INPUT SE)						
Tobit estimates Number of obs = 66						
Prob > chi2= 0.0000				LR chi2(4) = 47.76		
Log likelihood = 31.509086				Pseudo R2 = -3.1293		
SE	Coef.	Std.	T	P>|t|	[95 percent	Conf.
Con. Dummy	-0.0790645	0.05099	-1.55	0.126	-0.181	0.02287
Op.cost	0.4072007	0.85477	0.48	0.635	-1.30147	2.11587
Profit	-0.140685	1.98229	-0.07	0.944	-4.10323	3.82186
Capital	1.322805	0.19415	6.81	0	0.93471	1.7109
Cons.	0.3378294	0.03752	9	0	0.262826	0.41283
_se	0.143403	0.01274	(Ancillary parameter)			
Source: Author's own calculation. ***=1 percent, **=5 percent and *=10 percent level significant.						
The independent variable is banks efficiency scores in 2013 which derived from DEA (model 1): Profitability is measure of bank's profit as the ratio of net profit divided by total assets of banks: capital is the ratio that is divided by total assets of banks: operating cost is also as mentioned is a ratio which is divided by total assets.						

It is apparent from Table 6.9 (Panel-A) that operating cost is not a significant factor in determining overall efficiency (OTE). Consolidation dummy and profit variables are also found to be insignificant for OTE. More interestingly, banks capital to assets ratio has significant and positive effect on overall technical efficiency. Thus, increased capital to assets improves banks OTE. Thus, consolidation does not have any significant impact on overall technical efficiency of banks. it is also observed Table 6.10 (Panel-A) that increased capital to assets has improved banks OTE positively and registered at 1 percent level of significance. The overall results of OTE of banks show that the consolidation dummy, operating cost, profit and capital are registered positive co-efficient on banks OTE and among these, capital is registered at 1 percent level of significance.

Table 6.10 (Panel-A): Tobit Regression: (OUTPUT OTE)						
Tobit estimates Number of obs = 66						
Prob > chi2= 0.0000				LR chi2(4) = 67.65		
Log likelihood = 73.164273				Pseudo R2 = -0.8599		
OTE	Coef.	Std.	t	P>|t|	95 percent	Conf.
Con. Dummy	0.0030729	0.02607	0.12	0.907	-0.04904	0.05519
Op. cost	0.2380656	0.43681	0.55	0.588	-0.63511	1.11124
Profit	0.0720002	1.01483	0.07	0.944	-1.95661	2.10061
Capital*	**0.9443404**	**0.09767**	**9.67**	**0***	**0.749103**	**1.13958**
Cons.	0.2330892	0.01921	12.13	0	0.194688	0.27149
_se	0.0734312	0.00655	(Ancillary parameter)			
(Panel-B) Tobit Regression: (OUTPUT PTE)						
Tobit estimates Number of obs = 66						
Prob > chi2= 0.0789				LR chi2(4) = 8.37		
Log likelihood = -1.6159004				Pseudo R2 = 0.7215		
PTE	Coef.	Std.	t	P>|t|	95 percent	Conf.
Con. Dummy*	**0.1774226**	**0.07393**	**2.4**	**0.019*****	**0.029648**	**0.3252**
Op. cost	0.1496198	1.18818	0.13	0.9	-2.22551	2.52475
Profit	4.143499	2.86376	1.45	0.153	-1.58107	9.86806
Capital	-0.0142293	0.27529	-0.05	0.959	-0.56452	0.53606
Cons.	0.7493016	0.05264	14.23	0	0.644076	0.85453
_se	0.1965454	0.02005	(Ancillary parameter)			
(Panel-C) Tobit Regression: (OUTPUT SE)						
Tobit estimates Number of obs = 66						
Prob > chi2= 0.0000				LR chi2(4) = 59.94		
Log likelihood = 34.645473				Pseudo R2 = -6.4074		
SE	Coef.	Std.	T	P>|t|	[95 percent	Conf.
Con. Dummy	-0.0547141	0.0468	-1.17	0.247	-0.14827	0.03885
Op. cost	0.7569952	0.78483	0.96	0.339	-0.81185	2.32584
Profit	-0.1462129	1.81972	-0.08	0.936	-3.78378	3.49135
Capital*	**1.446647**	**0.17856**	**8.1**	**0***	**1.089704**	**1.80359**
Cons.	0.3062163	0.03444	8.89	0	0.237363	0.37507
_se	0.1316397	0.01186	(Ancillary parameter)			
Source: Author's own calculation. ***=1 percent, **=5 percent and *=10 percent level significant.						
The independent variable is banks efficiency scores in 2013 which derived from DEA (model 2): Profitability is measure of bank's profit as the ratio of net profit divided by total assets of banks: capital is the ratio that is divided by total assets of banks: operating cost is also as mentioned is a ratio which is divided by total assets.						

Table 6.9 (Panel-B) indicates the Tobit regression results of PTE scores on selected independent variables of banks in 2013. It is evident from Table 6.9 (Panel-B) that among these variables, consolidation dummy is the only variable that is found to be significant with a positive sign. All other variables are insignificant. It is also observed in Table 6.10 (Panel-B) that output-oriented Pure technical efficiency shows that consolidation dummy, operating cost, capital and profit variables to total assets are positively associated with banks PTE scores, but except consolidation dummy rest of the variables are not registered at a significant level. The method of output-oriented results is same as input-oriented results in all formats.

Table 6.9 (Panel-C) shows the Tobit regression results of input-oriented scale efficiency (SE) scores. It is apparent from Table 6.9 (Panel-C) that the consolidation dummy, operating cost and profit are not significant. But capital is significant at 1 percent level of significant. Thus, the Tobit regression results indicate the consolidation had a positive effect on banks' efficiency only for pure technical efficiency. It is also observed in Table 6.10 (Panel-C) that output-oriented scale efficiency also shows as same as input-oriented scale efficiency results which are mentioned above. The measured efficiency scores of DEA input oriented (model 1) and output oriented (model 2) have analyzed by using the two censored Tobit model.

We interpret that Tobit results reveal that the consolidation dummy and other control variables including assets of banks are the significant factors in determining the overall efficiency of commercial banks India. Apart from that, consolidation dummy and capital asset ratio have registered at 1 percent significant in determining banks efficiency scores. These results are observed in both input and output-oriented model of DEA scores. Further, Profit and operating cost are found to be insignificant. Above mentioned results are explained that the consolidation has significant results on banks efficiency in PTE and it is also observed in output model. Apart from that, capital has an important factor in determining the bank's efficiency.

It is found that the bank consolidation is a considerable factor in determining banks' pure technical efficiency. Furthermore, it found that banks capital increases more efficiency gains by gaining more market and share prices. As far as overall and scale efficiency are concerned consolidation did not seem to help.

6.6: Conclusion

Using the non-parametric DEA methods, this chapter analyses the overall, pure technical and scale efficiency of Indian commercial banks over the period of 1995-2013. This chapter also examines the effects of consolidation on its measured efficiency by using limited literature on it. The results show the acquirer and target banks' efficiency comparison before the merger deal. The findings of the study clearly indicate that in the entire study period of selected consolidation deals, overall efficiency has improved except for some consolidation deals which have registered with a big deterioration on their pure technical efficiency and scale efficiency performances. The results also show that the selected acquirer efficiency performance of selected three-year average mean efficiency scores has comparatively higher than target bank's efficiency performance except for some deals which have happened in the crisis period. However, the result of the study directly accepts our objective-based hypothesis that the acquirer is more efficient than the target bank. The result has been observed from the comparison of pre-merger effects of selected consolidation deals with input and output comparisons. Thus, it will show that the consolidation of selected banks will improve its input usage effectively to produce more outputs.

The findings suggest that the consolidation of banks improves its efficiency by generating synergy among the services and by using their input and output combination effectively. More interestingly, voluntary consolidation makes the acquirer more efficient positively and compulsive deals get negative results on its efficiency. This is observed in Centurion Bank's merger with Lord Krishna Bank. The mergers led to a higher level of technical efficiency for the merging banks. The decomposition of technical efficiency into its components reveals that pure technical efficiency is the main source of efficiency gains that is observed relative to scale efficiency of banks and some deals have been negatively associated with scale efficiency. The consolidation deal between distressed and healthier bank creates some deterioration in wealthier bank's performance at the initial stage by giving acquirer brand and share value to distressed branches of target. The empirical results of the study indicate that the motives of the merger and acquisition in Indian banking sector have been based on the restructuring the weak and financially distressed banks. Further, it reveals that the strong bank merger with healthier bank creates more effects on its efficiency than the distressed bank deal that helps to set new branches

in the domestic as well as the global financial market. Therefore, the Government of India and its policies are more cautious in encouraging mergers as a way to reap economies of scale and scope. The future consolidation deal must be broadly scrutinized by the government and RBI before it's approved by them.

The results clearly show that the acquirer is more efficient than the target which is observed in OTE of selected consolidated banks. It is important to note here that PTE is more significant factor in determining OTE. OTE is decomposed into two efficiencies e.g. PTE and SE. Further, PTE is more led to get higher efficiency in OTE. Thus, it is more likely led to PTE. More interestingly, the scale efficiency of the acquirer is lesser than the target, and this is accepted in more cases of the study. The final finding of the results indicates that the consolidation has improved the overall efficiency of consolidated banks. It is observed in five deals and the rest of the deals have not developed and accepted the alternative hypothesis. More interestingly, PTE of consolidated banks have improved and have been allowed at the 5 percent significance level. Fourteen out of 16 deals have achieved PTE efficiency. As scale efficiency concerned, consolidation makes deterioration on acquirer banks. However, most of the deals have accepted that the scale efficiency has declined after the consolidation.

CHAPTER 7

Consolidation as Determinant of Profitability and Efficiency of Banks

7.1. Introduction

This chapter tries to examine if consolidation is a significant determinant of banks' profitability and efficiency. In this context, most of the Indian literature has explained determinants of banks' profitability and efficiency in general, but not taking consolidation into account. Further, we try to find whether increased assets size due to consolidation is an important factor for bank's profitability and efficiency. This chapter is organized as follows: Section 7.2 provides details of the descriptive statistics. Section 7.3 shows descriptive statistics of the variables used in the SEM analysis. Section 7.4 presents the results of the three-stage least squares (3SLS) estimation. Section 7.5 concludes the chapter.

7.2. Descriptive statistics

The descriptive statistics of selected variables for the study are presented in Table 7.1. For his study, we use data from 66 banks in 2013. Among 66 banks, there are 26 public sector banks, 20 private sector banks and 20 foreign banks.

Table 7.1: The descriptive statistics of selected banks variables in 2013 for SEM analysis

Variables	**Capital**	**Reserves**	**Borrowings**	**Investment**	**Operating cost**	**Operating Profit**
Banks	66	66	66	66	66	66
Maximum	39.93834	19.62496	49.89077	161.4061	22.05338	5.916586
Minimum	0.001267	-0.09238	0.171372	4.707367	0.604697	-1.23612
Mean	5.453103	6.889503	13.41607	31.23563	2.040133	2.250117
Variables	**ROE**	**ROA**	**CRAR**	**Net NPA**	**Office per employee**	**Profit per Employee**
Banks	66	66	66	66	66	66
Maximum	24.81	4.26	71.45	9.71	324	27.68
Minimum	-10.5	-3.26	11.02	0	6.990074	-3.1
Mean	11.905	1.157121	18.35242	1.412576	32.57358	2.339545
Variables	$E_{OTE\,\mathrm{I}}$	$E_{PTE\,\mathrm{I}}$	$E_{SE\,\mathrm{I}}$	$E_{OTE\,\mathrm{O}}$	$E_{PTE\,\mathrm{O}}$	$E_{SE\,\mathrm{O}}$
Banks	66	66	66	66	66	66
Maximum	20.72327	20.72327	20.72327	20.72327	20.72327	20.72327
Minimum	-1.51635	-1.0099	-1.51635	-1.51635	-1.02014	-1.51635
Mean	-0.64155	4.715743	-0.07969	-0.64155	4.820976	0.162684
Variables	**dummy (CD)**	**Interaction**	***lnTA***	**Net Interest Income**		
Banks	66	66	66	66		
Maximum	1	16.56679	16.56679	6.013579		
Minimum	0	0	8.036897	-1.12983		
Mean	0.19697	2.923878	13.0992	2.904419		

Source: Profile of Banks, RBI, 2013.
Capital, Reserves, Borrowings, Investment, Operating cost and Operating Profit are expressed as ratios to total asset.

In the Table 7.1, details of the maximum, minimum and mean of the variable are given. The above variables are used for the regression estimation that uses simultaneous equation model (SEM), as discussed in details in Chapter 4 (Section 4.4). Consolidation effects have been taken into account by consolidation dummy and interaction term between Consolidation dummy and total assets. Consolidation dummy is a binary variable that takes value 1 if a bank has gone through a consolidation in the last 10 years and 0 otherwise.

In Table 7.1, Banks Capital, Consolidation Dummy (CD), Interaction Term, Reserves, Borrowings, Investments, Operating cost, Operating profit, Return on Equity, Return on Assets, CRAR, Net NPA, Office per Employee, Profit per Employee and Net Interest Income have been taken as ratios. Further, total assets have been taken as *ln*TA. Importantly, bank's input-oriented efficiency scores (OTE_I, PTE_I and SE_I) and output-oriented efficiency scores (OTE_O, PTE_O and SE_O) have been converted to logit transformation values. Most of the banking parameters are converted to ratios by dividing these by the total assets of the banks.

7.3. 3SLS regression of profitability and efficiency

For the SEM estimation, we will use 3SLS regression method. Here the endogenous variables are banks' profitability and efficiency which are assumed to be determined by each other, including other control variables. The following sets of regression equations are used.

$$\boldsymbol{E} = \beta_0 + \beta_1 \boldsymbol{\Pi} + \beta_2 CD + \beta_3 (CD*lnTA) + \beta_4 + \beta_5\ Operating\ profit + \beta_6\ Net\ interest\ income + \beta_7\ Profit\ per\ employee + \beta_8\ ROE + \beta_9\ Capital + \beta_{10}\ CRAR + \beta_{11}\ Net\ NPA + \beta_{12}\ Office\ per\ employee + \beta_{13}\ Reserves + \beta_{14}\ Borrowings + \beta_{15}\ Investment + \varepsilon_1.$$

$$\boldsymbol{\Pi} = \alpha_0 + \alpha_1 \boldsymbol{E} + \alpha_2\, CD + \alpha_3 (CD*lnTA) + \alpha_4\, lnTA + \alpha_5\ Operating\ cost + \alpha_6\ Operating\ profit + \alpha_7\ Net\ interest\ income + \alpha_8\ Profit\ per\ employee + \alpha_9\ CRAR + \alpha_{10}\ Net\ NPA + \alpha_{11}\ Office\ per\ employee + \alpha_{12}\ Reserves + \alpha_{13}\ Borrowings + \alpha_{14}\ Investment + \alpha_{15}\ Capital + \varepsilon_2.$$

Where **E** is an efficiency measure and **Π** is a profitability measure, both endogenous variables.

Explanatory variables are discussed in section 4.9 of Chapter 4. We use three efficiency measures, viz., OTE, PTE and SE from input as well as output-oriented DEA models. Thus, we use 6 efficiency measures for our analysis-three measures (OTE, PTE and SE) from input-

oriented DEA model and three measures (OTE, PTE and SE) from output-oriented DEA model. Since these efficiency scores are in the range [0, 1], hence we use logit transformation of these scores in our regression. Thus, the dependent variable in the first equation of SEM is

$$E_i = \ln \frac{Y_i}{1 - Y_i}$$

Where Y= an efficiency score (OTE, PTE and SE) of i^{th} bank

For profitability, we use two measures, viz., ROA and ROE. Thus, we have six measures of efficiency and two measures of profitability. This gives us a set of 12 SEM regressions. In the next subsections we proceed to discuss the results of these 12 SEM regressions.

7.3.1. SEM analysis 1: Endogenous variables E_{OTE} and Π_{ROA}

The results of 3SLS estimation for overall technical efficiency and profitability are presented in Table 7.2. In SEM 1 analysis, we investigate that consolidation is a factor in impacting E_{OTE} and Π_{ROA}. The left hand panel of Table 7.2 shows the results of SEM using input-oriented efficiency and right hand side shows the results of SEM using output-oriented efficiency scores.

SEM results using input-oriented OTE scores: The results show that consolidation dummy (CD) has a no significant impact on E_{OTE} and Π_{ROA}. Similarly, the interaction variable indicating consolidation and asset size is also insignificant for E_{OTE} and $\Pi_{ROA.}$ These results indicate that consolidation has no impact on efficiency and profitability. The SEM results show that banks' profitability(measured by ROA) is positively associated with banks' efficiency (measured by OTE) at 10 percent significance level but not vice versa. Apart from that, looking at other control variables, we find that bank's capital and capital adequacy ratio are significant with E_{OTE} at the 1 percent and 5 percent level, respectively but CRAR has been found to be a negative coefficient with E_{OTE}. However, the rest of the explanatory variables are insignificant with E_{OTE} and Π_{ROA} which is observed in Table 7.2. Further, increased asset sizes also have been found to be insignificant.

Table 7.2: Simultaneous Equation results of E_{OTE} and Π_{ROA}									
Input-oriented efficiency scores 66's banks					**Output-oriented efficiency scores 66's banks**				
OTE equation (dep var: E_{OTE})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**OTE equation (dep var: E_{OTE})**	**Coef.**	**Std. Err.**	**T**	**P > t**
Π_{ROA}	1.915344	1.131076	1.69	0.090*	Π_{ROA}	1.915344	1.131076	1.69	0.090*
Consolidation Dummy (CD)	8.935263	9.22155	0.97	0.333	Consolidation Dummy (CD)	8.935263	9.22155	0.97	0.333
Interaction Term (CD* *ln*TA)	-0.6186858	0.6338659	-0.98	0.329	Interaction Term (CD* *ln*TA)	-0.6186858	0.6338659	-0.98	0.329
*Ln*TA	0.4900936	0.3314036	1.48	0.139	*ln*TA	0.4900936	0.3314036	1.48	0.139
Capital	0.2641123	0.0704051	3.75	0.000***	Capital	0.2641123	0.0704051	3.75	0.000***
Reserves	-0.1346389	0.1444697	-0.93	0.351	Reserves	-0.1346389	0.1444697	-0.93	0.351
Borrowings	0.0092632	0.0268078	0.35	0.73	Borrowings	0.0092632	0.0268078	0.35	0.73
Investment	-0.0127471	0.0131458	-0.97	0.332	Investment	-0.0127471	0.0131458	-0.97	0.332
Operating Profit	-0.7213196	0.8684141	-0.83	0.406	Operating Profit	-0.7213196	0.8684141	-0.83	0.406
Net in Income	0.0674437	0.5575972	0.12	0.904	Net in Income	0.0674437	0.5575972	0.12	0.904
Profit Per Employee	0.0135611	0.1313174	0.1	0.918	Profit Per Employee	0.0135611	0.1313174	0.1	0.918
ROE	-0.0402895	0.0723039	-0.56	0.577	ROE	-0.0402895	0.0723039	-0.56	0.577
CRAR	-0.0753449	0.0407592	-1.85	0.065*	CRAR	-0.0753449	0.0407592	-1.85	0.065*
Net NPA	0.3349402	0.4093273	0.82	0.413	Net NPA	0.3349402	0.4093273	0.82	0.413
Office per Employee	-0.0009085	0.0092473	-0.1	0.922	Office per Employee	-0.0009085	0.0092473	-0.1	0.922
_cons	-6.653114	4.703119	-1.41	0.157	_cons	-6.653114	4.703119	-1.41	0.157
ROA equation (dep var: Π_{ROA})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**ROA equation (dep var: Π_{ROA})**	**Coef.**	**Std. Err.**	**T**	**P>|t|**
E_{OTE}	-8.271382	265.7775	-0.03	0.975	E_{OTE}	-8.271382	265.7775	-0.03	0.975
Consolidation Dummy (CD)	8.937459	2.843259	0.03	0.975	Consolidation Dummy (CD)	8.937459	2.843259	0.03	0.975
Interaction Term (CD* *ln*TA)	-6.295135	200.0161	-0.03	0.975	Interaction Term (CD* *ln*TA)	-6.295135	200.0161	-0.03	0.975
*Ln*TA	5.054254	160.0391	0.03	0.975	*ln*TA	5.054254	160.0391	0.03	0.975
Capital	2.680617	85.3987	0.03	0.975	Capital	2.680617	85.3987	0.03	0.975
Reserves	0.3844356	9.787315	0.04	0.969	Reserves	0.3844356	9.787315	0.04	0.969
Borrowings	-0.0724314	2.004625	-0.04	0.971	Borrowings	-0.0724314	2.004625	-0.04	0.971
Investment	-0.151649	4.768246	-0.03	0.975	Investment	-0.151649	4.768246	-0.03	0.975
Operating Cost	-3.76516	113.7718	-0.03	0.974	Operating Cost	-3.76516	113.7718	-0.03	0.974
Operating Profit	-0.0573556	16.89734	0	0.997	Operating Profit	-0.0573556	16.89734	0	0.997
Net in Income	-1.432308	42.12085	-0.03	0.973	Net in Income	-1.432308	42.12085	-0.03	0.973
Profit Per Employee	-0.1716324	5.064197	-0.03	0.973	Profit Per Employee	-0.1716324	5.064197	-0.03	0.973
CRAR	-0.620385	19.93309	-0.03	0.975	CRAR	-0.620385	19.93309	-0.03	0.975
Net NPA	-2.313151	63.52478	-0.04	0.971	Net NPA	-2.313151	63.52478	-0.04	0.971
Office per Employee	0.0710193	2.141305	0.03	0.974	Office per Employee	0.0710193	2.141305	0.03	0.974
_cons	-56.39981	1813.74	-0.03	0.975	_cons	-56.39981	1813.74	-0.03	0.975
Equation	**RMSE**	**"R-sq"**	**F-Stat**	**P**	**Equation**	**RMSE**	**"R-sq"**	**F-Stat**	**P**
E_{OTE}	1.817822	0.5389	60.83	0	E_{OTE}	1.817822	0.5389	60.83	0
Π_{ROA}	16.93134	-217.3203	0.29	1	Π_{ROA}	16.93134	-217.3203	0.29	1
Source: Author's own calculation.									
***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively.									

SEM results using output-oriented OTE scores: The SEM estimation result of the output-oriented E_{OTE} and Π_{ROA} are given in right hand panel of Table 7.2. Here also the null hypothesis that consolidation has an impact on bank's profitability and efficiency is rejected.

It is also evident that Π_{ROA} has been found to be significant on determining E_{OTE} at the 10 percent level and it has registered a positive coefficient on E_{OTE}. However, E_{OTE} has been found to be insignificant on Π_{ROA}. The output-oriented result in equation 1 found that capital and CRAR have been found to be significant at 1 percent and 10 percent level, respectively. However, capital has recorded at 0.26 a positive coefficient on impacting E_{OTE} but CRAR has a negative coefficient at -0.07 on E_{OTE}. Further, other exogenous variables have been found to be insignificant on determining bank's efficiency and profitability.

The overall results show that the coefficient of consolidation is registered positive but insignificant. The interaction term registers with negative coefficient but insignificant for efficiency. As far as ROA is concerned, all variables are found to be insignificant. These results have been also observed in right hand panel of output-oriented efficiency.

7.3.2. SEM analysis 2: Endogenous variables E_{PTE} and Π_{ROA}

We present that consolidation is a determinant factor of E_{PTE} and $\Pi_{ROA.}$ The SEM 2 results are presented in Table 7.3, with input-oriented PTE in left panel and output-oriented PTE in right panel.

SEM results using input-oriented PTE scores: As far as pure technical efficiency is concerned in equation 1, the simultaneous estimation of E_{PTE} and Π_{ROA} from Table 7.3 shows that Π_{ROA} has a positive coefficient in determining bank's E_{PTE} at 5 percent significance level. The coefficient of consolidation dummy in determining PTE has been estimated at -47.32, significant at 5 per cent level. However, the interaction dummy, indicating consolidated banks' asset size is positive and significant. Thus, contrary to our expectation, consolidated banks are found to be significantly less efficient in terms of pure technical efficiency measure but if consolidation leads to higher asset size (indicated by the interaction term), then the impact is positive and significant. Many other control variables, viz., *lnT*otal assets, Capital and Net interest income, bank's borrowings and office per employee have been found to be positive coefficient and statistically significant at conventional levels in determining *PTE.* On the other hand, profit per employee is negatively and significantly associated with PTE.

Table 7.3: Simultaneous Equation results of E_{PTE} and Π_{ROA}									
Input-oriented efficiency scores 66's banks					Output-oriented efficiency scores 66's banks				
PTE equation (dep var: E_{PTE})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**PTE equation (dep var: E_{PTE})**	**Coef.**	**Std. Err.**	**T**	**P>t**
Π_{ROA}	5.753592	2.719333	2.12	0.034**	Π_{ROA}	5.864115	2.716177	2.16	0.031**
Consolidation Dummy (CD)	-47.32631	22.17045	-2.13	0.033**	Consolidation Dummy (CD)	-48.83349	22.14472	-2.21	0.027**
Interaction Term (CD* *ln*TA)	3.44919	1.523941	2.26	0.024**	Interaction Term (CD* *ln*TA)	3.550328	1.522172	2.33	0.020**
*ln*TA	1.867511	0.7967608	2.34	0.019**	*Ln*TA	1.777929	0.7958361	2.23	0.025**
Capital	0.336254	0.1692679	1.99	0.047**	Capital	0.3361611	0.1690715	1.99	0.047**
Reserves	0.2716586	0.3473342	0.78	0.434	Reserves	0.274927	0.3469311	0.79	0.428
Borrowings	0.2440534	0.0644514	3.79	0.000***	Borrowings	0.2441845	0.0643766	3.79	0.000***
Investment	0.0210889	0.0316052	0.67	0.505	Investment	0.020668	0.0315685	0.65	0.513
Operating Profit	-2.503395	2.087842	-1.2	0.231	Operating Profit	-2.591953	2.085418	-1.24	0.214
Net in Income	2.779085	1.340576	2.07	0.038**	Net in Income	2.799124	1.33902	2.09	0.037**
Profit Per Employee	-1.142336	0.3157132	-3.62	0.000***	Profit Per Employee	-1.122745	0.3153468	-3.56	0.000***
ROE	0.025739	0.173833	0.15	0.882	ROE	0.0145118	0.1736312	0.08	0.933
CRAR	-0.0567439	0.0979933	-0.58	0.563	CRAR	-0.0747734	0.0978795	-0.76	0.445
Net NPA	1.16432	0.9841049	1.18	0.237	Net NPA	1.099919	0.9829627	1.12	0.263
Office per Employee	0.0664072	0.0222325	2.99	0.003***	Office per Employee	0.064372	0.0222066	2.9	0.004***
_cons	-37.64509	11.30724	-3.33	0.001	_cons	-35.78673	11.29412	-3.17	0.002
ROA equation (dep var: Π_{ROA})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**ROA equation (dep var: Π_{ROA})**	**Coef.**	**Std. Err.**	**T**	**P>|t|**
E_{PTE}	0.1417545	0.1685978	0.84	0.4	E_{PTE}	0.1515715	0.1914292	0.79	0.428
Consolidation Dummy (CD)	6.878067	7.734962	0.89	0.374	Consolidation Dummy (CD)	7.503858	8.942497	0.84	0.401
Interaction Term (CD* *ln*TA)	-0.5018329	0.5529596	-0.91	0.364	Interaction Term (CD* *ln*TA)	-0.5459021	0.6388843	-0.85	0.393
*ln*TA	-0.2537739	0.4033933	-0.63	0.529	*Ln*TA	-0.2628797	0.4394907	-0.6	0.55
Capital	-0.0422345	0.0806084	-0.52	0.6	Capital	-0.0476784	0.0922284	-0.52	0.605
Reserves	-0.0221069	0.130485	-0.17	0.865	Reserves	-0.0317832	0.1501914	-0.21	0.832
Borrowings	-0.0362276	0.0318894	-1.14	0.256	Borrowings	-0.0379952	0.03601	-1.06	0.291
Investment	-0.0034954	0.0045357	-0.77	0.441	Investment	-0.0034377	0.0048133	-0.71	0.475
Operating Cost	-0.0412233	0.2355033	-0.18	0.861	Operating Cost	-0.0248515	0.269394	-0.09	0.926
Operating Profit	0.4195623	0.2467132	1.7	0.089*	Operating Profit	0.4318677	0.2619649	1.65	0.099*
Net in Income	-0.4157372	0.3892685	-1.07	0.286	Net in Income	-0.4374033	0.4373281	-1	0.317
Profit Per Employee	0.1588241	0.2177234	0.73	0.466	Profit Per Employee	0.168303	0.2428747	0.69	0.488
CRAR	0.0080746	0.0171021	0.47	0.637	CRAR	0.0113521	0.020807	0.55	0.585
Net NPA	-0.2207056	0.1575751	-1.4	0.161	Net NPA	-0.20027	0.190413	-1.05	0.293
Office per Employee	-0.0085537	0.0161788	-0.53	0.597	Office per Employee	-0.0092386	0.0180112	-0.51	0.608
_cons	5.321368	6.493209	0.82	0.412	_cons	5.41521	7.009935	0.77	0.44
Equation	**RMSE**	**"R-sq"**	**F-Stat**	**P**	**Equation**	**RMSE**	**"R-sq"**	**F-Stat**	**P**
E_{PTE}	4.370408	0.6688	129.92	0	E_{PTE}	4.365336	0.6645	127.18	0
Π_{ROA}	0.6267094	0.7009	208.5	0	Π_{ROA}	0.6654904	0.6627	184.9	0
Source: Author's own calculation.									
***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively.									

As far as Π_{ROA} is concerned in equation 2, only Operating profit has been found to be positively significant at 10 percent level. All other variables are found to be insignificant in determining ROA.

SEM results using output-oriented PTE scores: The relationship between output-oriented PTE and ROA including other control variables are explained in right panel of Table 7.3. It is observed that in the PTE equation, capital, Net interest income, Borrowings, office per employee lnTA and interaction term (consolidation dummy * total assets) are positively significant. The consolidation dummy has been found to be significant at 5 percent level but registered a negative coefficient on impacting E_{PTE}. These results are similar to the input oriented PTE above, and indicate that consolidation in general seem to have a negative impact on PTE but if asset size is increased due to consolidation then it impacts positively on PTE. The results further show that profitability indicator ROA is positive and significant at the 5 percent level in determining PTE. In equation 2, we have found that except for operating profit, no other variable is significant for ROA. Thus, PTE does not impact ROA although ROA impacts PTE. Also, consolidation is not a significant factor for ROA.

7.3.3. SEM analysis 3: Endogenous variables E_{SE} and Π_{ROA}

The 3SLS estimation for simultaneity between Scale Efficiency (SE) and Π_{ROA} are presented in Table 7.4. The left panel presents results for input-oriented SE and the right panel presents the results for output-oriented SE.

SEM results using input-oriented SE scores: It is evident from the results that the consolidation dummy and interaction term are insignificant with both the endogenous variable (E_{SE} and Π_{ROA}). Thus, consolidation and asset size effect of consolidation are not significant determinant of scale efficiency and profitability. Among other variables, it is found that profitability (ROA) has significant impact (at 10 per cent level) on Scale efficiency (E_{SE}) but E_{SE} is found to be insignificant for ROA. Further, bank's capital and capital adequacy ratio are significant with E_{SE} at 1 percent and 5 percent level, respectively but CRAR found to have a negative coefficient with E_{SE}. However, the rest of the independent variables have been found to be insignificant with E_{SE} and Π_{ROA} which is observed in left panel in Table 7.4.

SEM results using output-oriented SE scores: When we use output oriented scale efficiency measure in the efficiency equation and ROA in the profitability equation of the SEM, we found

that there is no relationship between consolidation, efficiency and profitability (right panel of Table 7.4).

Table 7.4: Simultaneous Equation results of E_{SE} and Π_{ROA}									
Input-oriented efficiency scores 66's banks					**Output-oriented efficiency scores 66's banks**				
SE equation (dep var: E_{SE})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**SE equation (dep var: E_{SE})**	**Coef.**	**Std. Err.**	**t**	**P>t**
Π_{ROA}	2.035808	1.12472	1.81	0.070*	**Π_{ROA}**	4.395759	1.590148	2.76	0.006***
Consolidation Dummy (CD)	2.979173	9.169727	0.32	0.745	Consolidation Dummy (CD)	-6.865715	12.96432	-0.53	0.596
-Interaction Term (CD* *ln*TA)	-0.1974578	0.6303037	-0.31	0.754	Interaction Term (CD* *ln*TA)	0.5757287	0.8911343	0.65	0.518
*ln*TA	0.0489959	0.3295412	0.15	0.882	*Ln*TA	-1.311435	0.4659111	-2.81	0.005***
Capital	0.2288638	0.0700094	3.27	0.001***	Capital	-0.0698633	0.0989805	-0.71	0.48
Reserves	-0.2285914	0.1436579	-1.59	0.112	Reserves	-0.6235911	0.203106	-3.07	0.002***
Borrowings	-0.0015564	0.0266572	-0.06	0.953	Borrowings	0.0343645	0.0376884	0.91	0.362
Investment	-0.0137279	0.0130719	-1.05	0.294	Investment	-0.0042075	0.0184813	-0.23	0.82
Operating Profit	-0.8243458	0.8635339	-0.95	0.34	Operating Profit	0.9547446	1.220879	0.78	0.434
Net in Income	0.1653929	0.5544637	0.3	0.765	Net in Income	-1.257746	0.7839104	-1.6	0.109
Profit Per Employee	0.0302957	0.1305794	0.23	0.817	Profit Per Employee	-0.4781643	0.1846154	-2.59	0.010***
ROE	-0.0805464	0.0718975	-1.12	0.263	ROE	-0.126639	0.10165	-1.25	0.213
CRAR	-0.0760983	0.0405301	-1.88	0.060*	CRAR	-0.0104305	0.0573022	-0.18	0.856
Net NPA	0.0823034	0.407027	0.2	0.84	Net NPA	1.384788	0.5754618	2.41	0.016**
Office per Employee	-0.0022264	0.0091954	-0.24	0.809	Office per Employee	0.0296566	0.0130006	2.28	0.023**
Cons	1.305291	4.676689	0.28	0.78	Cons	17.67192	6.611984	2.67	0.008
ROA equation (dep var: Π_{ROA})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**ROA equation (dep var: Π_{ROA})**	**Coef.**	**Std. Err.**	**T**	**P>|t|**
E_{SE}	-0.4913935	1.088772	-0.45	0.652	***E_{SE}***	-0.4988501	1.509353	-0.33	0.741
Consolidation Dummy (CD)	3.30103	7.838763	0.42	0.674	Consolidation Dummy (CD)	-0.4927797	9.024947	-0.05	0.956
Interaction Term (CD* *ln*TA)	-0.2369102	0.5385596	-0.44	0.66	Interaction Term (CD* *ln*TA)	0.0639377	0.6827814	0.09	0.925
*ln*TA	0.1429055	0.2434678	0.59	0.557	*ln*TA	-0.4645454	1.651066	-0.28	0.778
Capital	0.1713771	0.3314266	0.52	0.605	Capital	0.0591831	0.1231685	0.48	0.631
Reserves	0.0655988	0.0855668	0.77	0.443	Reserves	-0.0270879	0.3462607	-0.08	0.938
Borrowings	-0.0184675	0.0243366	-0.76	0.448	Borrowings	-0.0111127	0.0229656	-0.48	0.628
Investment	-0.0122345	0.0215131	-0.57	0.57	Investment	-0.0108594	0.0256028	-0.42	0.671
Operating Cost	-0.4471868	0.5180114	-0.86	0.388	Operating Cost	-0.7137579	1.494826	-0.48	0.633
Operating Profit	0.2967264	0.54127	0.55	0.584	Operating Profit	1.596429	3.596713	0.44	0.657
Net in Income	-0.1550978	0.3634222	-0.43	0.67	Net in Income	-1.0047	2.687168	-0.37	0.708
Profit Per Employee	-0.0188199	0.091433	-0.21	0.837	Profit Per Employee	-0.2923323	0.8348135	-0.35	0.726
CRAR	-0.0370591	0.0858518	-0.43	0.666	CRAR	-0.0046683	0.0382145	-0.12	0.903
Net NPA	-0.5633304	0.5202534	-1.08	0.279	Net NPA	-0.2728858	0.2726569	-1	0.317
Office per Employee	0.0082334	0.0119101	0.69	0.489	Office per Employee	0.0296818	0.0771088	0.38	0.7
Cons	0.4787735	3.142531	0.15	0.879	Cons	8.556051	26.11508	0.33	0.743
Equation	**RMSE**	**"R-sq"**	**F-Stat**	**P**	**Equation**	**RMSE**	**"R-sq"**	**F-Stat**	**P**
*Ln*SE	1.807606	0.5676	68.67	0	*Ln*SE	2.555625	0.5408	58.62	0
Π_{ROA}	1.167505	-0.0381	60.08	0	**Π_{ROA}**	1.594307	-0.9358	32.22	0.006
Source: Author's own calculation.									
***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively.									

In equation 1 (efficiency equation), looking at the other control variables, namely, ROA, bank's reserves, profit per employee and lnTA have a negative coefficient each while net NPA and office per employee have positive coefficients. In equation 2 (profitability equation), all control variables have been found to be insignificant.

7.3.4. SEM analysis 4: Endogenous variables E_{OTE} and Π_{ROE}

In SEM 4, we analyze the simultaneous relationship between overall technical efficiency (E_{OTE}) and profitability measured by return on equity (Π_{ROE}) including consolidation dummy and other control variables. The 3SLS estimation results are presented in Table 7.5 where left panel pertains to input oriented OTE and right panel pertains to output oriented OTE.

Table 7.5: Simultaneous Equation results of E_{OTE} and Π_{ROE}

Input-oriented efficiency scores 66's banks					**Output-oriented efficiency scores 66's banks**				
OTE equation (dep var: E_{OTE})	**Coef.**	**Std. Err.**	**T**	**P>t**	**OTE equation (dep var: E_{OTE})**	**Coef.**	**Std. Err.**	**T**	**P>t**
Π_{ROE}	0.7383301	0.9876751	0.75	0.455	Π_{ROE}	0.7383301	0.9876751	0.75	0.455
Consolidation Dummy (CD)	8.85376	15.87368	0.56	0.577	Consolidation Dummy (CD)	8.85376	15.87368	0.56	0.577
Interaction Term (CD* *ln*TA)	-0.5212618	1.074978	-0.48	0.628	Interaction Term (CD* *ln*TA)	-0.5212618	1.074978	-0.48	0.628
*ln*TA	-0.0767224	0.6787569	-0.11	0.91	*ln*TA	-0.0767224	0.6787569	-0.11	0.91
Capital	0.5264691	0.3688782	1.43	0.154	Capital	0.5264691	0.3688782	1.43	0.154
Reserves	0.1674074	0.526359	0.32	0.75	Reserves	0.1674074	0.526359	0.32	0.75
Borrowings	0.0714252	0.0821686	0.87	0.385	Borrowings	0.0714252	0.0821686	0.87	0.385
Investment	0.0083282	0.033179	0.25	0.802	Investment	0.0083282	0.033179	0.25	0.802
Operating Profit	-3.555062	3.179387	-1.12	0.263	Operating Profit	-3.555062	3.179387	-1.12	0.263
Net in Income	0.5563357	1.093744	0.51	0.611	Net in Income	0.5563357	1.093744	0.51	0.611
Profit Per Employee	0.1132391	0.3001644	0.38	0.706	Profit Per Employee	0.1132391	0.3001644	0.38	0.706
Π_{ROA}	1.631725	2.236403	0.73	0.466	Π_{ROA}	1.631725	2.236403	0.73	0.466
CRAR	-0.0628745	0.075291	-0.84	0.404	CRAR	-0.0628745	0.075291	-0.84	0.404
Net NPA	1.630257	1.248849	1.31	0.192	Net NPA	1.630257	1.248849	1.31	0.192
Office per Employee	0.0071422	0.0135789	0.53	0.599	Office per Employee	0.0071422	0.0135789	0.53	0.599
_cons	-11.03997	11.35225	-0.97	0.331	_cons	-11.03997	11.35225	-0.97	0.331
ROE equation (dep var: Π_{ROE})	**Coef.**	**Std. Err.**	**T**	**P>t**	**ROE equation (dep var: Π_{ROE})**	**Coef.**	**Std. Err.**	**T**	**P>t**
E_{OTE}	0.7543723	0.4377618	1.72	0.085*	E_{OTE}	0.7543723	0.4377618	1.72	0.085*
Consolidation Dummy (CD)	-7.62426	18.6359	-0.41	0.682	Consolidation Dummy (CD)	-7.62426	18.6359	-0.41	0.682
Interaction Term (CD* *ln*TA)	0.4157932	1.276992	0.33	0.745	Interaction Term (CD* *ln*TA)	0.4157932	1.276992	0.33	0.745
*Ln*TA	0.3008744	0.6466424	0.47	0.642	*ln*TA	0.3008744	0.6466424	0.47	0.642
Capital	-0.5709777	0.1899105	-3.01	0.003***	Capital	-0.5709777	0.1899105	-3.01	0.003***
Reserves	-0.3857025	0.241404	-1.6	0.11	Reserves	-0.3857025	0.241404	-1.6	0.11
Borrowings	-0.0780148	0.0521308	-1.5	0.135	Borrowings	-0.0780148	0.0521308	-1.5	0.135
Investment	-0.0147412	0.0273425	-0.54	0.59	Investment	-0.0147412	0.0273425	-0.54	0.59
Operating Cost	0.2408348	0.5375918	0.45	0.654	Operating Cost	0.2408348	0.5375918	0.45	0.654
Operating Profit	3.838664	1.425992	2.69	0.007***	Operating Profit	3.838664	1.425992	2.69	0.007***
Net in Income	-0.5571744	1.11834	-0.5	0.618	Net in Income	-0.5571744	1.11834	-0.5	0.618
Profit Per Employee	-0.121258	0.2838447	-0.43	0.669	Profit Per Employee	-0.121258	0.2838447	-0.43	0.669
CRAR	0.0404962	0.0874966	0.46	0.643	CRAR	0.0404962	0.0874966	0.46	0.643
Net NPA	-1.606211	0.4466483	-3.6	0.000***	Net NPA	-1.606211	0.4466483	-3.6	0.000***
Office per Employee	-0.0147715	0.0267643	-0.55	0.581	Office per Employee	-0.0147715	0.0267643	-0.55	0.581
Cons	10.79181	9.723009	1.11	0.267	_cons	10.79181	9.723009	1.11	0.267
Equation	**RMSE**	**"R-sq"**	**F-Stat**	**P**	**Equation**	**RMSE**	**"R-sq"**	**F-Stat**	**P**
E_{OTE}	3.13255	-0.3693	27.47	0.0252	E_{OTE}	3.13255	-0.3693	27.47	0.0252
Π_{ROE}	3.62347	0.6968	166.6	0	Π_{ROE}	3.62347	0.6968	166.6	0

Source: Author's own calculation.

***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively.

SEM results using input-oriented OTE scores: The consolidation dummy is insignificant with E_{OTE} and Π_{ROE}. Further, asset sizes interacted with consolidation dummy is also insignificant. Thus, consolidation does not have any significant impact on the dependent variables. Here, the null hypothesis that consolidation has an impact on efficiency and profitability is rejected.

Looking at the other exogenous variables, SEM equation 2 found that bank's capital and Net NPA are significant and register a positive coefficient with Π_{ROE} at 1 percent level. Moreover, operating profit has found negative coefficient on Π_{ROE} but is significant at 1 percent level. The results indicate that E_{OTE} has an insignificant impact on Π_{ROE} but Π_{ROE} is found to be insignificant with E_{OTE}. Apart from that, Π_{ROE} is insignificantly associated with E_{OTE} in equation 1. The results show that bank's E_{OTE} is significant with bank's Π_{ROE} at 10 percent level. Further, E_{OTE} has found to present a positive coefficient on Π_{ROE} in equation 2.These results reveal that bank's efficiency has a positive relationship on profitability. However, the rest of the independent variables have been found to be insignificant with E_{OTE} and Π_{ROE} which is presented in Table 7.5.

SEM results using output-oriented OTE scores: In equation 1, other exogenous variables have been found to be insignificant and the consolidation has no relationship with E_{OTE}. In equation 2, Capital and Net NPA have been found to be significant at 1 percent level but have given a negative coefficient on Π_{ROE}. Here, in equation 1 and 2, consolidation has been found to be insignificant on impacting E_{OTE} and Π_{ROE}. Therefore, the null hypothesis that the consolidation has an impact on profitability and efficiency is rejected.

The results further found that bank's Π_{ROE} has an insignificant impact on determining E_{OTE} in equation 1. In equation 2, E_{OTE} has found to be significant at 10 percent level and has given a positive coefficient on determining Π_{ROA}. Further, operating profit has also given positive coefficient on Π_{ROA} but Operating profit have found to be significant at 1 percent level.

7.3.5. SEM analysis 5: Endogenous variables E_{PTE} and Π_{ROE}

In SEM 5, the 3SLS estimation results are presented in Table 7.6 for the measurement of relationship among consolidation, Pure Technical Efficiency and Π_{ROE}.

Table 7.6: Simultaneous Equation results of E_{PTE} and Π_{ROE}									
Input-oriented efficiency scores 66's banks					**Output-oriented efficiency scores 66's banks**				
PTE equation (dep var: E_{PTE})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**PTE equation (dep var: E_{PTE})**	**Coef.**	**Std. Err.**	**T**	**P>t**
Π_{ROE}	-0.6466815	1.543156	-0.42	0.675	Π_{ROE}	-0.6583718	1.541944	-0.43	0.669
Consolidation Dummy (CD)	-47.25593	24.80124	-1.91	0.057*	Consolidation Dummy (CD)	-48.76305	24.78175	-1.97	0.049**
Interaction Term (CD* *ln*TA)	3.365054	1.67956	2	0.045**	Interaction Term (CD* *ln*TA)	3.466134	1.67824	2.07	0.039**
*Ln*TA	2.357016	1.060499	2.22	0.026**	*Ln*TA	2.267772	1.059665	2.14	0.032**
Capital	0.1096811	0.5763401	0.19	0.849	Capital	0.1094322	0.5758873	0.19	0.849
Reserves	0.0108096	0.8223901	0.01	0.99	Reserves	0.0138983	0.821744	0.02	0.987
Borrowings	0.19037	0.1283813	1.48	0.138	Borrowings	0.190464	0.1282804	1.48	0.138
Investment	0.0028881	0.0518392	0.06	0.956	Investment	0.0024547	0.0517985	0.05	0.962
Operating Profit	-0.0561572	4.967515	-0.01	0.991	Operating Profit	-0.1430309	4.963612	-0.03	0.977
Net in Income	2.356875	1.70888	1.38	0.168	Net in Income	2.376623	1.707537	1.39	0.164
Profit Per Employee	-1.228419	0.4689808	-2.62	0.009***	Profit Per Employee	-1.208887	0.4686123	-2.58	0.010***
Π_{ROA}	5.998527	3.494184	1.72	0.086*	Π_{ROA}	6.109219	3.491439	1.75	0.080*
CRAR	-0.0675134	0.1176356	-0.57	0.566	CRAR	-0.0855503	0.1175432	-0.73	0.467
Net NPA	0.0456771	1.951218	0.02	0.981	Net NPA	-0.0194939	1.949685	-0.01	0.992
Office per Employee	0.0594546	0.0212159	2.8	0.005***	Office per Employee	0.0574146	0.0211992	2.71	0.007***
_cons	-33.85657	17.73691	-1.91	0.056	_cons	-31.9956	17.72297	-1.81	0.071
ROE equation (dep var: Π_{ROE})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**ROE equation (dep var: Π_{ROE})**	**Coef.**	**Std. Err.**	**T**	**P>|t|**
E_{PTE}	0.6612649	0.4446281	1.49	0.137	E_{PTE}	0.6491812	0.4345019	1.49	0.135
Consolidation Dummy (CD)	28.20273	28.02257	1.01	0.314	Consolidation Dummy (CD)	28.61057	28.07666	1.02	0.308
Interaction Term (CD* *ln*TA)	-2.152469	1.963058	-1.1	0.273	Interaction Term (CD* *ln*TA)	-2.177437	1.965548	-1.11	0.268
*Ln*TA	-0.7755636	1.235852	-0.63	0.53	*Ln*TA	-0.6892697	1.18252	-0.58	0.56
Capital	-0.6326691	0.252315	-2.51	0.012**	Capital	-0.6310938	0.2503046	-2.52	0.012**
Reserves	-0.8431022	0.4292326	-1.96	0.050**	Reserves	-0.8448448	0.4281515	-1.97	0.048**
Borrowings	-0.2036547	0.1007159	-2.02	0.043**	Borrowings	-0.2014031	0.099051	-2.03	0.042**
Investment	-0.0291675	0.0303534	-0.96	0.337	Investment	-0.028847	0.0302108	-0.95	0.34
Operating Cost	0.7760806	0.8208471	0.95	0.344	Operating Cost	0.7759581	0.8170261	0.95	0.342
Operating Profit	3.764951	1.652144	2.28	0.023**	Operating Profit	3.820081	1.644539	2.32	0.020**
Net in Income	-2.001575	1.570804	-1.27	0.203	Net in Income	-1.985845	1.557652	-1.27	0.202
Profit Per Employee	0.6968382	0.6488593	1.07	0.283	Profit Per Employee	0.6693328	0.6300818	1.06	0.288
CRAR	0.0222978	0.0974535	0.23	0.819	CRAR	0.0331947	0.0991872	0.33	0.738
Net NPA	-1.243109	0.6217818	-2	0.046**	Net NPA	-1.200058	0.636288	-1.89	0.059*
Office per Employee	-0.0695537	0.0511772	-1.36	0.174	Office per Employee	-0.0675062	0.0498537	-1.35	0.176
Cons	30.32688	19.75766	1.53	0.125	_cons	28.7084	18.76639	1.53	0.126
Equation	**RMSE**	**"R-sq"**	**F-Stat**	P	**Equation**	**RMSE**	**"R-sq"**	**F-Stat**	P
E_{PTE}	4.894336	0.5846	106.74	0	E_{PTE}	4.890491	0.579	104.69	0
Π_{ROE}	4.198498	0.593	124.14	0	Π_{ROE}	4.179249	0.5967	125.28	0
Source: Author's own calculation.									
***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively.									

SEM results using input-oriented PTE scores: The Pure Technical Efficiency is taken as a dependent variable in equation 1.Interestingly, the results show that interaction variable (*consolidation dummy and lnTA*) and *lnT*otal assets are found to be statistically significant at the 5 percent level and have registered a positive coefficient in determining E_{PTE}. Thus we have

observed that increased asset's size of consolidated banks and asset size in general have a positive coefficient on improving E_{PTE}. Further, the consolidation dummy has been found to be statistically significant at 10 per cent level but has registered a negative coefficient on affecting E_{PTE}. These results accept the null hypothesis that consolidation and assets size are important factors in determining PTE.

Further, Π_{ROA} and Office per employee have also shown a positive coefficient and have registered significant at 10 percent and 1 percent level, respectively. Moreover, Profit per employee has a negative coefficient on E_{PTE}. The 3SLS estimation of further shows that Π_{ROE} has been found to be insignificant in determining banks' E_{PTE}.

Π_{ROE} has been taken as an endogenous variable in equation 2. The results show that Capital, Reserves, Borrowing, Operating profit and Net NPA have been found to be statistically significant at 5 per cent level but all the variables have registered a negative coefficient in determining Π_{ROE} except Operating profit. Therefore, remaining variables are registered as insignificant both in equation 1 and 2.

SEM results using output-oriented PTE scores: The right panel in Table 7.6 presents the relationship between E_{PTE} and Π_{ROE} including other exogenous variables. In equation 1, Profit per employee has shown a negative impact on E_{PTE} at 1 percent significance level. Further, *ln*TA, Consolidation dummy and Interaction term (consolidation dummy * *ln*TA) have been found to be significant at 5 percent level and have given a positive coefficient but the consolidation dummy has registered a negative coefficient. In equation 1, the null hypothesis that consolidation has an impact on E_{PTE} is accepted.

In equation 2, other control variables, Capital, Reserves, Borrowing and Operating profit have been found to be significant at the 5 percent level but it is only Operating profit that has been found to present a positive coefficient. Further, Net NPA has also been found significant at 10 percent level but has given a negative coefficient on Π_{ROE}. The overall results from Table 7.6 found that consolidation has no impact on Π_{ROE} and is insignificant. Further, the rest of the variables are found to be insignificant.

7.3.6. SEM analysis 6: Endogenous variables E_{SE} and Π_{ROE}

The 3SLS estimation is given in Table 7.7 for investigating the relationship among consolidation, E_{SE} and Π_{ROE}.

Table 7.7: Simultaneous Equation results of E_{SE} and Π_{ROE}

Input-oriented efficiency scores 66's banks					Output-oriented efficiency scores 66's banks				
SE equation (dep var: E_{SE})	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**SE equation (dep var: E_{SE})**	**Coef.**	**Std. Err.**	**T**	**P>t**
Π_{ROE}	0.7033657	0.9902757	0.71	0.478	Π_{ROE}	0.1780612	0.8650752	0.21	0.837
Consolidation Dummy (CD)	2.897117	15.91547	0.18	0.856	Consolidation Dummy (CD)	-6.897609	13.90328	-0.5	0.62
Interaction Term (CD* *ln*TA)	-0.0993715	1.077809	-0.09	0.927	Interaction Term (CD* *ln*TA)	0.613854	0.9415415	0.65	0.514
*Ln*TA	-0.521673	0.6805441	-0.77	0.443	*Ln*TA	-1.533249	0.594503	-2.58	0.010***
Capital	0.4930039	0.3698495	1.33	0.183	Capital	0.0328058	0.3230895	0.1	0.919
Reserves	0.0755081	0.527745	0.14	0.886	Reserves	-0.5053902	0.4610222	-1.1	0.273
Borrowings	0.0610282	0.082385	0.74	0.459	Borrowings	0.0586906	0.071969	0.82	0.415
Investment	0.0074907	0.0332663	0.23	0.822	Investment	0.00404	0.0290605	0.14	0.889
Operating Profit	-3.67735	3.187758	-1.15	0.249	Operating Profit	-0.154195	2.78473	-0.06	0.956
Net in Income	0.657608	1.096624	0.6	0.549	Net in Income	-1.066426	0.9579779	-1.11	0.266
Profit Per Employee	0.1306513	0.3009548	0.43	0.664	Profit Per Employee	-0.4391569	0.2629051	-1.67	0.095*
Π_{ROA}	1.750261	2.242291	0.78	0.435	Π_{ROA}	4.28477	1.958799	2.19	0.029**
CRAR	-0.0635431	0.0754892	-0.84	0.4	CRAR	-0.0055504	0.0659451	-0.08	0.933
Net NPA	1.386425	1.252138	1.11	0.268	Net NPA	1.891689	1.09383	1.73	0.084*
Office per Employee	0.005879	0.0136147	0.43	0.666	Office per Employee	0.0328071	0.0118934	2.76	0.006***
_cons	-3.111386	11.38215	-0.27	0.785	_cons	15.95519	9.943102	1.6	0.109
ROE equation (dep var: Π_{ROE})	**Coef.**	**Std. Err.**	**T**	**P>t**	**ROE equation (dep var: Π_{ROE})**	**Coef.**	**Std. Err.**	**T**	**P>t**
E_{SE}	0.7500167	0.4452831	1.68	0.092*	E_{SE}	0.5813291	0.3495103	1.66	0.096*
Consolidation Dummy (CD)	-3.180927	18.57984	-0.17	0.864	Consolidation Dummy (CD)	2.09705	18.71538	0.11	0.911
Interaction Term (CD* *ln*TA)	0.0985977	1.271003	0.08	0.938	Interaction Term (CD* *ln*TA)	-0.311184	1.281886	-0.24	0.808
*Ln*TA	0.6504082	0.6073128	1.07	0.284	*Ln*TA	1.383043	0.7189139	1.92	0.054*
Capital	-0.555136	0.1874359	-2.96	0.003***	Capital	-0.3708149	0.1346165	-2.75	0.006***
Reserves	-0.3332858	0.2468738	-1.35	0.177	Reserves	-0.2311446	0.2609717	-0.89	0.376
Borrowings	-0.0715095	0.0537157	-1.33	0.183	Borrowings	-0.0829545	0.0539056	-1.54	0.124
Investment	-0.0146389	0.0279913	-0.52	0.601	Investment	-0.0194652	0.0276472	-0.7	0.481
Operating Cost	0.2568387	0.5533869	0.46	0.643	Operating Cost	0.4873447	0.624282	0.78	0.435
Operating Profit	3.99177	1.463371	2.73	0.006***	Operating Profit	2.430544	1.689562	1.44	0.15
Net in Income	-0.6398436	1.14219	-0.56	0.575	Net in Income	0.3417242	1.308314	0.26	0.794
Profit Per Employee	-0.1362054	0.2902821	-0.47	0.639	Profit Per Employee	0.1827832	0.350639	0.52	0.602
CRAR	0.040263	0.0894649	0.45	0.653	CRAR	-0.010806	0.08409	-0.13	0.898
Net NPA	-1.441244	0.4892477	-2.95	0.003***	Net NPA	-1.861345	0.4521414	-4.12	0.000***
Office per Employee	-0.0144165	0.0273554	-0.53	0.598	Office per Employee	-0.0380601	0.032667	-1.17	0.244
Cons	4.960856	9.475316	0.52	0.601	_cons	-4.290054	11.29534	-0.38	0.704
Equation	**RMSE**	**"R-sq"**	**F-Stat**	P	**Equation**	**RMSE**	**"R-sq"**	**F-Stat**	P
E_{SE}	3.140798	-0.3054	29.66	0.0132	E_{SE}	2.743707	0.4708	66.04	0
Π_{ROE}	3.70713	0.6827	159.22	0	Π_{ROE}	3.75414	0.6746	155.26	0

Source: Author's own calculation.

***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively.

SEM results using input-oriented SE scores: It is evident from the results that the consolidation dummy and interaction term are insignificant with endogenous variable (E_{SE} and Π_{ROE}). The results accept the alternative hypothesis that there is no relationship among consolidation, profitability and efficiency. It indicates that there is no relation between Π_{ROE} and E_{SE} including consolidation and its effects.

Looking at other control variables, the results in equation 1 found that Π_{ROE} has shown to be insignificant on E_{SE}. In equation 2, E_{SE} is found to be significant on Π_{ROE}. It is evident in Table 7.7 on equation 2 that E_{SE} is positively associated with banks' Π_{ROE} at 10 percent significance level. However, in equation 1, we found that Π_{ROE} is insignificant with E_{SE}. These results are similar to E_{OTE} and the profitability indicator Π_{ROE}. Further, banks' capital, Operating cost and net NPA are significant with Π_{ROE} at 1 percent level but Capital and net NPA have been found to have a negative coefficient on Π_{ROE}. In equations 1 and 2, the rest of the exogenous variables have been found to be insignificant with E_{SE} and Π_{ROE} which is shown in Table 7.7.

SEM results using output-oriented SE scores: The increased assets size (*ln*TA) has positively correlated with $\boldsymbol{\Pi}_{ROE}$ at 10 percent level of significant. However, other control variables have been found to be insignificant. The overall findings from Table 7.7 show that consolidation has no impact on $\boldsymbol{E}_{SE}$ and profitability in equations 1 and 2. Here, the null hypothesis that there is a relationship among these variables is rejected.

Looking at other independent variable, in equation 1, Office per employee and Net NPA have been found to be significant at 1 percent and 10 percent level, respectively. These exogenous variables are positively correlated with $\boldsymbol{E}_{SE}$. Further, Office per employee and Profit per employee have been found significant at 1 percent and 10 percent level, respectively but these variables are negatively associated with $\boldsymbol{E}_{SE}$. The results further show that $\boldsymbol{\Pi}_{ROE}$ has been found to be insignificant. In equation 2, Bank's capital and Net NPA have negatively determined bank's $\boldsymbol{\Pi}_{ROE}$ at 1 percent level of significance. Further, $\boldsymbol{E}_{SE}$ has been found to be significant on determining $\boldsymbol{\Pi}_{ROE}$.

7.4. Conclusion

The 12 SEM estimation results presented in this chapter show that in general consolidation is not an important factor for determination of efficiency and profitability in Indian banking sector. Among different measures of efficiency, we find that only in case of pure technical efficiency, consolidation has significant impact and for overall and scale efficiency measures, there is no significant impact of consolidation. We observe that banks that have undergone a consolidation process during the last 10 years are significantly less efficient compared to banks that have not gone through any consolidation process during this period. However, among the consolidated banks, asset size affects pure technical efficiency in a positive and significant manner. Thus, if consolidation leads to increased asset size, then it has a positive effect on pure technical efficiency. This result was observed for efficiency measures calculated from input oriented as well as output oriented DEA models. As far as profitability is concerned, consolidation has no impact on banks' profitability, measured by ROA as well as ROE. As far as simultaneity between efficiency and profitability is concerned, efficiency seems to be positively affected by profitability of banks but not vice versa.

CHAPTER 8

Summary and Conclusions

8.1. Introduction

In consolidation of banks it is commonly known that larger asset size banks are able to gain more benefits as they can increase their economies of scale. The Government of India and RBI were pivotal in the decision taking for bank consolidation which became necessary as a result of rapid changes in the Indian banking sector. In chapter 2, a few factors that have triggered particular consolidation deals have been looked at. Apart from that, financial stability and efficiency were achieved by generating consolidation deals between the banks the financial sector of economy.

An amalgamation of banks by consolidation results in a combining of capital and assets and as a result, its services see expansion in new regions. Expansion of banking services improves bank's profits and efficiency directly or indirectly. The higher value of assets helps in stabilizing the performance of the banking process and financial stability which is the main purpose of the consolidation. Finally, these changes create ability to give more credit. In this scenario, the banks' loans by consolidation create changes that result in profitability.

Consolidation is driven by a several market forces such as, deregulation, technology, globalization, financial distress and government policies of the country. In India, it is evident that market forces drove the deals from 1991 to 1998, while it is registered that from 1998 to 2005, consolidation was driven by government intervention and its policies. Since 2005, it is driven by market forces again as is mentioned in Chapter 2. In general, consolidation is a way to gain efficiency, wider dispersion of services, higher market shares among other benefits. In India, considerable gains on efficiency have been observed all most all the cases except for a few deals.

In India, many of the bank mergers have been driven by market forces and by weak performance of banks. Further, financial distress of banks indicates that banks needed more capital to sustain performance. Consolidation can generate more capital from healthier banks to rescue distressed banks in India and can sustain the weaker bank’s profitability.

Literature from the US and other countries found that often consolidation in these markets unlike in India is driven by considerations of higher economies of scale and scope. Apart from that, consolidation reduces the cost of the operation for businesses and gives cost efficiency and in many cases evidence of a considerable impact on overall technical efficiency is found. Consolidation results in gains because of diversification benefits from businesses, products and services.

Mergers and acquisitions (M &As) affect bank's size of assets, gains of share prices, profitability and efficient decision-making by management. By means of M &As the assets of two banks become aggregated under a single management. In general, bank mergers and acquisitions by means of consolidated bank's assets become more competitive with regard to deposits and lending rates for customers. Further, bank's size of assets is a positive factor in the lending of diversified loans for the needs of economy and this makes the banks more powerful in the market. While M&As also create a positive effect on market prices that further generate a positive externality on the bank's profit. Sometimes, M &A may exert a negative effect on profitability while existing customers of banks would withdraw their contribution to consolidated banks. However, acquisition may also result on low market share. The strengthening of the market and efficient management helps in the efficient utilization of inputs for different diversified loans for new or existing bank holders. It also leads to more risk taking behavior on loans for different sectors of the economy. Further, a higher capital adequacy ratio (CAR) also plays a role in the greater lending of loans. However, increased assets size exercises a positive role on improving bank's production and services. Production can be raised due to an efficient utilization of inputs and a reduction of operating cost that can generate higher production and income to the banks.

M & As have certain effects on bank's competition. While two or more banks are providing services in a particular region, it generates competition among them. Merging them together can enable them to get gains from businesses. A bank expands its businesses to global levels by competing with the market. Apart from that, consolidation results in a centralized banking sector which will make the Indian banking system more stable and secure in a financial

crisis as centralized banks are less vulnerable due to quick decision making. However, less centralized services get more vulnerable and vice versa.

The upcoming sections summarize the results and findings of this thesis.

8.2. Findings of Profitability analysis

The main findings of the study indicate that consolidation affects profitability in a significant way and in both positive and negative way. This was seen by different indicators of profitability where post-consolidation, some indicators reflected negative and some showed positive results in a comparative study of banks before and after consolidation. The consolidation impacts in profitability i.e. ROA, ROE, interest income and capital, operating cost and interest expenses are compared using these measures pre-consolidation and post-consolidation. The paired samples t-test was used to measure significant difference of consolidation on profitability indicators.

Based on the results, we found that, out of the 16 consolidation episodes considered here, reduction in operating cost post consolidation was observed for 9 cases of consolidation and in the rest 7 cases there was no significant improvement in this parameter. The ROA improved in 6 cases, deteriorated in 2 cases and did not change significantly in 8 cases. Interest income showed improvement in 2 cases only, while there was decline in interest income in 7 cases and no significant difference in another 7 cases of consolidation considered in our study. In 4 cases, we saw reduction in interest expenditure but in another 5 cases there was increase in interest expenditure after consolidation and it remained unchanged in 7 cases. As far as capital-asset ratio is concerned, there was improvement in only 2 cases and significant decline in capital-asset ratio was observed in 13 out of 16 cases. Thus, almost all cases, except in 2 cases, the capital-asset ratio deteriorated after consolidation. In case of return on equity (ROE), we saw improvement in 9 cases of consolidation and decline in 1 case while in the rest of the 6 cases ROE did not change significantly after consolidation compared to before consolidation.

These results indicate that in some of the cases, consolidation improves profitability and it reduces operating cost and business expenses of banks. We state that consolidation improves profitability by reducing cost and improving the profit of banks. However, in a few deals we found that there is no improvement in profitability, while in some cases there was deterioration in profitability.

Thus, the results of our analysis do not provide a uniform trend in the performance of consolidated banks. While economies of scale and scope are expected to improve profitability performance, it is found that empirically this was not the case in all consolidation deals and in all parameters of profitability. The empirical results could be because many consolidation deals in the Indian banking sector have been made to restructure and resolve the distress of weak banks. Therefore, the benefits of the economies of scale and scope due to consolidation may be outweighed by the distress of the weak banks. These points further reveal that Indian commercial banks require support from large assets and capital-owned banks. Finally, the Government of India and policy makers considered consolidation between weak and large banks to resolve distress in sick and weak banks and not to reap the banks' economies of scale and scope.

8.3. Findings of Efficiency analysis

The thesis has addressed questions related to bank efficiency in the context of consolidation. We have studied the impact of selected consolidation deals on efficiency in India. Further, we have addressed the issue of whether the acquiring banks are more efficient than target banks by using the three-year period prior to pre consolidation efficiency scores.

Above mentioned research questions are addressed by using DEA. The efficiency scores of 16 banks that have undergone consolidation have been taken for testing of the hypothesis that the acquirer is more efficient than target. By using the Median test on overall technical efficiency, we found that 4 out of 16 consolidation deals have shown that the acquirer banks' overall technical efficiency (OTE) was higher than target banks' OTE. In case of the other 12 cases, the hypothesis that the acquirer is more efficient than target was rejected for OTE measure. As far as pure technical efficiency (PTE) measure is concerned, 14 out of 16 consolidations had acquirer banks more efficient than the target banks. As far as scale efficiency (SE) measure is concerned, 9 out of 16 acquirer banks had higher efficiency than their respective targets. These results indicate that target banks may have more managerial efficiency than acquirer banks and the hypothesis that acquirer is more efficient than the target may not be valid in all cases of consolidation. The Median test has clearly substantiated to these observed results.

For our prime objective namely the impact of bank consolidation on efficiency, the DEA results found that 3 out of 16 consolidation deals to have lower post-consolidation OTE

efficiency than the pre-consolidation scores, thus there was significant deterioration in OTE in 3 cases after consolidation. The rest of the deals have found no significant change in OTE after consolidation compared to pre consolidation. The Median test has substantiated this result. Although majority of the consolidation deals did not reflect significant improvement in overall technical efficiency, in terms of pure technical efficiency (PTE) measure, however, we see that 10 out of 16 deals reflected improvement in PTE measure post-consolidation. When banks have less input wastage to produce output at minimum cost it achieves higher input efficiency gains compared to other banks. This result suggests that distressed banks can regain their efficiency performance by using inputs efficiently. The rest of the cases have not sustained this result. The Median test substantiated these results. Finally, for scale efficiency, in post-consolidation, the result of the study found that most of the cases have registered with deterioration on scale efficiency. In case of 3 deals, the deterioration in SE score after consolidation was significant. Therefore, it means that all the banks have registered with scale inefficiency. The selected deals have explained the inability of Indian commercial banks to capture the full efficient scores by upgrading their systems, branch locations and staffing level. These efficiency scores differ across banks based on their assets size, branch locations and selected input and output variables. The larger assets size banks register relatively higher technical efficiency than lower asset size banks.

8.4. **Findings of SEM analysis**

This section gives details of the findings, which relates to the determinants of banks profitability and efficiency and whether consolidated banks are more efficient and more profitable than unconsolidated banks. Using OTE, PTE and SE measures for efficiency and ROA and ROE for profitability, we use a simultaneous equation model (SEM) to determine if consolidation and 'asset size effect' of consolidation are important factors for efficiency and profitability, along with other control variables. Using a set of 12 SEM models using various combinations of efficiency and profitability measures in the SEM, we find the following results.

Consolidation has no significant impact on profitability, by whichever measure (ROA and ROE) we measure banks' profitability. It also does not have any impact on overall technical efficiency and scale efficiency. It has a significant negative impact on pure technical efficiency, indicating that consolidated banks have significantly less PTE measures than banks that have not

gone through any consolidation with other banks. However, if consolidation increases asset size, then this is found to improve banks' pure technical efficiency in a significant manner. In OTE and SE measures, consolidation has no impact on efficiency.

Further, on the simultaneity of efficiency and profitability, we found that profitability impacts efficiency but efficiency does not impact profitability in the Indian banking sector. The overall findings show that consolidation has an impact only on pure technical efficiency and it was found to be insignificant on other efficiency scores. But, consolidation has no effect on profitability that has been found to be insignificant on profitability with other control variables.

To conclude the thesis we state the following: the various episodes of consolidation in Indian banking sector did not conclusively indicate an improvement of post consolidation performances of banks' profitability and efficiency. While some improvement was observed, we also saw deterioration in many cases. This may be due to the case that the banking consolidation during our period of study was mainly for restructuring of weak banks. 8 out of the 16 consolidation episodes that we have studies were of compulsory type driven by intervention of RBI for resolution of financial distress of the target banks. We have seen that the voluntary consolidations seemed to have led to better outcome in profitability and PTE indicators. Compulsory consolidations led to improvement in some profitability indicators but did not improve any efficiency indicators. It is possible that improvement in performance indicators soon after the merger is difficult in such cases.

8.5. Limitations and future research

In this thesis, DEA is used for measuring efficiency. Although DEA is preferred for being non-parametric, it is also true that DEA scores are generally sensitive to the total number of banks considered. Thus, any change in the sample size will change the efficiency scores. This can be considered as one of the limitations of our study. As a future research, we propose to complement the study with other measures of efficiency, such as those calculated from stochastic frontier function methodologies. Further, we could not include a the consolidation deals between ING Bank and Kotak Mahindra Bank that took place in 2013 and the very recent consolidation of State Banks of India and its associate banks that took place in 2017, due to non-availability of relevant data to study these deals. When the data are available, this research can be extended to include these deals.

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APPENDIX.1: ALL THE DATA TABLES USED FOR THE THESIS.

Total Advances of the Public Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
State Bank of India	485302	598257	622332	742373	823598	981020	1135903	1208065	1377585	1579335
State Bank of Bikaner & Jaipur	21002	24475	30118	36605	38408	44011	51681	59313	67733	85966
State Bank of Hyderabad	33030	38762	40410	46302	53320	60876	70915	84226	96626	118137
State Bank of Indore	12496	14705	16070	19017	21203	28415	34275	42892	51830	64061
State Bank of Mysore	17948	20389	24069	26320	29861	34951	42867	49145	52607	63067
State Bank of Patiala	27682	33049	37871	41054	48136	57754	68334	86788	107464	130863
State Bank of Saurashtra	15330	18131	21553	23988	27206	31997	35956	41111	46488	52405
State Bank of Travancore	31264	33492	36593	40008	42519	51312	63975	74355	91707	111324
Allahabad Bank	41915	48156	49379	57239	69848	82401	95827	109925	125436	153415
Andhra Bank	24098	25803	29073	32963	45239	55736	74232	96777	115129	128855
Bank of Baroda	147842	160126	165316	198035	210915	243929	274207	336630	353481	356009
Bank of India	122076	155958	183369	220207	243270	252311	318231	383108	426332	458559
Bank of Maharashtra	23440	26922	31113	36205	40618	52522	66725	82551	95081	117315
Canara Bank	108783	130958	144128	168247	195301	235467	278318	331267	404716	476386
Central Bank of India	78096	89026	87903	106779	127998	158049	188334	212875	231592	228041
Corporation Bank	20656	24421	30148	43028	62862	77775	86661	109874	120292	138897
Dena Bank	28712	34017	40437	51472	63957	71179	70019	75230	84356	94118
Indian Bank	78746	78735	68649	72604	74965	82034	94339	109084	122750	141261
Indian Overseas Bank	66282	75043	72540	86672	101175	115732	130955	151623	174470	202949
Oriental Bank of Commerce	35289	46718	48864	63185	77076	93255	110764	141579	156772	196808
Punjab & Sind Bank	24383	27898	140669	31864	40999	47648	51809	55767	58921	60300
Punjab National Bank	117315	126799	27912	160426	190474	225717	280291	343694	402281	472247
Syndicate Bank	44207	53977	58325	69600	93128	122063	131162	148847	163054	206469
Union Bank of India	71291	86811	91684	102762	113088	146132	175054	213833	255148	294259
United Bank of India	28149	28511	30273	33715	38443	45628	57394	68227	73517	79633
UCO Bank	48762	49821	48959	56105	62222	76303	100854	128054	159231	206264
Vijaya Bank	23563	24437	24753	32251	37672	46876	57200	61967	78913	110453
Source: The Statistical Tables Relating to Banks in India, RBI.										

Total Advances of the Public Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
State Bank of India	2023745	2618009	3373365	4167682	5425032	6319142	7567195	8675789	1.00E+07
State Bank of Bikaner & Jaipur	120091	158958	205262	250759	298507	351764	412067	492443	575350
State Bank of Hyderabad	155997	208630	281093	358488	436792	528248	647203	770523	898565
State Bank of Indore	90407	118760	153514	182243	216121	236771	340298	398353	449326
State Bank of Mysore	87813	117542	164655	210272	256161	295359	514332	629345	737998
State Bank of Patiala	153593	221800	287698	364000	436341	463472	460442	553460	674836
State Bank of Saurashtra	67141	84430	110811	122413	327109	384613	-	-	-
State Bank of Travancore	148483	188664	247863	281366	-	-	-	-	-
Allahabad Bank	211508	291478	412900	497205	588018	716049	936249	1111451	1294897
Andhra Bank	175168	221004	278891	342384	441393	561135	714354	832230	983733
Bank of Baroda	434004	599118	836209	1067013	1439859	1750353	2286764	2873773	3281858
Bank of India	560126	651738	849359	1134763	1429094	1684907	2130962	2488333	2893675
Bank of Maharashtra	130617	164697	229194	292858	342908	403147	468808	560598	754708
Canara Bank	604214	794257	985057	1072380	1382194	1693346	2124672	2324898	2421766
Central Bank of India	272773	374835	517955	729974	854832	1053835	1297254	1475129	1719358
Corporation Bank	185464	239624	299497	391856	485122	632026	868504	1004690	1187166
Dena Bank	113086	142312	183034	230240	288780	354624	448281	566925	657812
Indian Bank	183801	224846	290581	398387	514653	621461	752499	903236	1056425
Indian Overseas Bank	252052	347562	470603	604018	748853	789992	1118330	1407244	1603641
Oriental Bank of Commerce	252992	335773	441385	545658	685004	834893	959082	1119777	1289551
Punjab & Sind Bank	63222	91075	117375	183433	246154	326391	426379	461514	514308
Punjab National Bank	604128	746274	965965	1195016	1547030	1866012	2421067	2937748	3087252
Syndicate Bank	267292	364662	516704	640510	815323	904064	1067819	1236202	1475690
Union Bank of India	401051	533800	623864	550819	688039	825045	990708	1155400	1282829
United Bank of India	113897	155223	221563	742669	965342	1193153	1509861	1778821	2081022
UCO Bank	276557	373776	469889	278581	353936	423300	535024	630433	689087
Vijaya Bank	143358	166640	242236	316892	354681	415067	487186	579037	697658
Source: The Statistical Tables Relating to Banks in India, RBI.									

Total Advances of the Private Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Bank of Madura	7335	9970	11482	12780	13939	16654	-	-	-	-
Bank of Punjab	2032	2213	3650	5188	8423	13014	15065	16115	17971	23535
Bank of Rajasthan	10184	13610	14983	14803	14875	17284	18670	19560	22212	24316
Bareilly Corporation	721	816	903	977	-	-	-	-	-	-
Benares State	1243	1528	1950	2468	2058	2315	2300	-	-	-
Bharat Overseas	3501	3992	4389	5215	6374	6876	7807	9006	11531	13915
Catholic Syrian	6313	8336	9551	10104	9500	10607	12630	12109	14707	18982
Centurion Bank	1005	1878	7352	8448	13504	18398	20284	16260	13137	15564
City Union Bank	2721	3853	4764	5755	6664	7694	8764	10111	12145	15470
Development credit Bank	2859	4199	6116	7628	10213	16381	20657	22593	24884	24395
Dhanalakshmi	4078	4486	5624	5761	6052	7763	8801	9177	10805	11386
Federal	16315	22285	29994	39212	42278	40357	48541	51891	62175	77005
Ganesh Bank of	227	307	453	564	664	784	838	889	983	972
Global Trust	5618	13773	14625	17559	21184	32110	40997	30326	32761	22455
HDFC Bank	980	3686	5753	8420	14006	33623	46367	68137	117549	177445
ICICI Banking	1212	6508	7980	11279	21101	36573	70315	470349	532794	620955
IndusInd Bank	8034	11212	19277	24508	26623	36771	42369	55742	53479	73012
Jammu & Kashmir	12079	13641	16940	21582	29510	35181	47629	64239	80110	92849
Karnataka Bank	8123	11854	14497	18183	20466	24514	28282	34176	38997	46679
Karur Vysya Bank	6492	8243	9563	11547	14479	18073	22542	24600	33444	40232
Lakshmi Vilas	4498	4928	6084	7579	9094	11501	14802	15653	17637	20387
Lord Krishna	1501	2701	3931	3936	3676	4855	5855	8262	9150	11179
Nainital Bank	576	688	743	734	875	1033	1204	1308	1724	2355
Nedungadi Bank	1975	2540	3631	4929	6448	7938	8486	7699	-	-
Punjab Co-Operative	98	146	-	-	-	-	-	-	-	-
Ratnakar Bank	869	916	1230	1498	1637	1874	2454	2704	3121	3460
Sangli Bank	3580	4221	3918	3827	4391	4779	5395	5631	5682	6482
South Indian	7428	10284	11544	14632	16647	20211	24684	32311	36129	41968
Tamilnad Mercantile	6341	6958	7462	8255	9715	12550	15884	17727	19600	21140
Times Bank	-	3512	8135	10589	13120	-	-	-	-	-
United Western	7727	8907	10763	13697	16786	23580	27479	26577	31455	37445
UTI Bank	3589	5569	6395	16273	21698	35066	48211	53523	71799	93630
Vysya Bank	27093	25418	26237	25728	27821	39378	43163	-	-	-
IDBI Bank Ltd	-	-	4954	8431	10744	16007	17250	30993	43252	73989
SBI Commercial &	-	-	1447	2407	2566	3679	2863	2455	1759	1206
ING Vysya Bank	-	-	-	-	-	-	-	44183	56116	70465
Kotak Mahindra	-	-	-	-	-	-	-	-	-	20970
Source: The Statistical Tables Relating to Banks in India, RBI.										

Total Advances of the Private Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Bank of Punjab	24170	-	-	-	-	-	-	-	-
Bank of Rajasthan	28962	40650	57040	74339	77808	83295	-	-	-
Bharat Overseas	16514	20535	-	-	-	-	-	-	-
Catholic Syrian	22893	26949	30126	33136	36838	44669	62200	76635	88515
Centurion Bank	21940	65334	112214	161819	-	-	-	-	-
City Union Bank	20130	25495	33292	45371	56453	68335	92555	121375	152461
Development credit Bank	20014	18673	26585	40688	32740	34597	42715	52844	65861
Dhanalakshmi	14102	15944	18395	21020	31961	50063	90652	87581	77771
Federal	88226	117365	148991	189047	223919	269501	319532	377560	440967
Ganesh Bank of	945	883	-	-	-	-	-	-	-
HDFC Bank	255663	350613	469448	634269	988831	125831	1599827	195420	2397206
ICICI Banking	914052	1461631	1958656	2256161	2183109	181206	2163659	253728	2902494
IndusInd Bank	89998	93105	110842	127953	157706	205506	261657	350640	443206
Jammu & Kashmir	115171	144831	170799	188826	209304	230572	261936	330774	392004
Karnataka Bank	62874	77916	95527	108420	118100	144357	173481	207207	252077
Karur Vysya Bank	46198	55554	70405	94215	104099	134470	178145	239492	294801
Lakshmi Vilas	23177	29528	36127	38588	52458	62775	80944	101887	117028
Lord Krishna	13868	14209	10178	-	-	-	-	-	-
Nainital Bank	3632	6035	7951	9949	11315	12884	16784	19152	21552
Ratnakar Bank	4238	4908	5305	5858	8011	11704	19052	41323	63762
Sangli Bank	7583	8883	2051	-	-	-	-	-	-
South Indian	53653	63702	79189	104538	118520	158229	204887	272807	318155
Tamilnad Mercantile	26262	31264	40467	53313	65717	82876	107587	137789	162560
United Western	39763	40063	-	-	-	-	-	-	-
UTI Bank	156029	-	-	-	-	-	-	-	-
IDBI Bank Ltd	454136	527391	624708	822127	1034283	138202	1570981	180573	1963064
SBI Commercial &	2307	2538	3295	3585	3110	2051	2698	-	-
ING Vysya Bank	90806	102315	119762	146496	167509	185072	236021	287214	317720
Kotak Mahindra	40172	63483	109241	155522	166253	207751	293293	390792	484690
Axis bank	-	223142	368765	596611	815568	104342	1424078	1697595	1969660
Yes Bank	-	-	-	94303	124031	221931	343636	379886	469996
Source: The Statistical Tables Relating to Banks in India, RBI.									

Total Advances of the Foreign Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
ABN Amro	8050	9397	11500	15476	20765	38964	42355	44867	54471	66966
Abu-dhabi Commercial	779	1350	2254	2163	2276	2366	2664	2991	2737	1676
American Express	12300	13067	10767	10304	9615	8919	13198	15579	11901	12626
Bank of America	14764	20211	29426	38441	36331	36575	35167	31601	32981	30593
Bank of Bahrain	1151	1805	2275	1991	2146	2550	3152	3214	3528	3037
Bank of Cylon	-	-	-	816	770	907	890	948	846	628
Nova Scotia	2205	3057	4319	5048	6144	8753	14514	18874	14598	20192
Bank of Tokyo	5442	9616	10934	7055	4979	3911	5120	6987	4275	4857
Barclays Bank	1968	2193	1761	717	509	476	109	69	23	26
Citibank	27913	34786	39844	47668	49996	66202	92729	113852	126287	152591
China trust Commercial Bank	-	-	-	-	767	757	866	584	730	895
Deutsche Bank	9329	11412	16935	16434	16351	17621	20967	18880	16076	20981
Hongkong & Shanghai Bank	16048	21459	22192	28085	27948	43024	62461	82021	82021	96281
Oman International Bank	1623	1578	2170	1712	2032	2241	1164	483	279	174
Societe Generale	3218	5991	5590	4595	2895	2331	1864	1494	868	1708
Standard Chartered Bank	10351	20185	25947	31797	33812	43189	51869	90329	130418	161523
State Bank of Mauritius	-	-	-	1028	1901	2633	2290	1943	2488	2621
BNP Paribas	-	-	-	-	-	6751	10619	15214	14227	13149
J P Morgan Chase Bank	-	-	-	-	-	-	-	32	456	987
Mizuho Corporate Bank	-	-	-	-	-	-	-	2317	1876	1818
DBS Bank	-	-	-	-	-	-	-	2383	1917	1087
Source: The Statistical Tables Relating to Banks in India, RBI.										

Total Advances of the Foreign Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
ABN Amro	98364	150732	183876	203814	166597	-	-	-	-
Abu-dhabi Commercial	899	1186	2034	1621	1373	1524	1803	2892	5198
American Express	14828	20171	15932	6806	6976	8747	10781	14741	17103
Bank of America	32191	33691	29162	34524	33559	36312	58591	62054	76230
Bank of Bahrain	2635	1690	1709	2803	2871	3866	3829	6435	6926
Bank of Cylon	593	487	409	414	453	405	667	809	999
Nova Scotia	20532	24405	29691	47738	48053	50713	62991	66056	77661
Bank of Tokyo	5589	10335	15886	23071	29913	33477	52673	64525	68395
Barclays Bank	24	43	1727	76355	105505	75652	83113	86570	84723
Citibank	181109	244553	328611	383765	399199	366551	405970	471030	520355
China trust Commercial Bank	586	983	1159	1282	1485	2035	2346	2846	2765
Deutsche Bank	25406	25818	49451	89601	87976	129228	142938	125489	223741
Hongkong & Shanghai Bank	126206	168123	231417	299444	275887	275887	275887	355123	357087
Oman International Bank	127	77	18	15	19	18	22	-	-
Societe Generale	1592	2709	3849	3845	3658	4151	6995	10564	17569
Standard Chartered Bank	199703	240767	301038	333515	375160	415522	492008	555700	619543
State Bank of Mauritius	2217	2251	1343	2141	3027	4101	5971	8121	8150
BNP Paribas	17188	18538	23417	37716	37099	37376	54507	61842	77373
J P Morgan Chase Bank	1500	757	7993	10593	7026	10122	34627	45293	53445
Mizuho Corporate Bank	2667	3280	6415	8567	11192	10827	25158	35816	55188
DBS Bank	5600	8917	12298	23642	27229	40152	75522	128443	138581
Shinhan	-	911	1363	3138	4576	4801	6192	9145	12061
Source: The Statistical Tables Relating to Banks in India, RBI.									

Interest Income of the Public Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
State Bank of India	106521	129586	149507	158789	191075	222009	260034	298101	310870	304605
State Bank of Bikaner & Jaipur	4597	6052	7365	8508	9639	11160	12668	13575	14382	15736
State Bank of Hyderabad	6331	8085	9555	10346	12258	14824	16938	19183	20673	22129
State Bank of Indore	2530	3183	3782	4073	4948	5600	7097	8878	9865	10462
State Bank of Mysore	3680	4878	5998	6126	6970	8001	9154	9711	10371	10571
State Bank of Patiala	5935	7727	9076	9401	10181	11705	13443	15046	17637	18883
State Bank of Saurashtra	3153	3985	4860	5028	5998	6972	7682	8428	9044	9780
State Bank of Travancore	5873	7649	9087	9818	10194	11595	13154	14539	15844	17399
Allahabad Bank	9496	10934	12782	14045	15948	18452	20674	22728	25703	26687
Andhra Bank	5528	6694	7873	9161	10530	14410	18751	20298	21950	22273
Bank of Baroda	29465	35302	37618	41709	48213	52202	57573	59556	60976	61471
Bank of India	23389	28903	35134	39358	45906	47370	53169	56087	59282	57959
Bank of Maharashtra	5664	7420	8579	9910	11339	14673	17059	19981	20817	22034
Canara Bank	24218	29481	34138	38230	46907	48517	56183	63706	66577	70069
Central Bank of India	16683	21527	25309	28423	32820	37480	42653	46575	50730	50637
Corporation Bank	5190	6656	8281	10275	13563	16044	18045	19457	21025	22012
Dena Bank	6465	8194	10144	12164	14924	15874	17164	17084	17723	17355
Indian Bank	13213	15029	15632	14642	16252	18986	21002	22939	25319	26669
Indian Overseas Bank	12110	15969	18594	19845	22990	33151	27934	31707	34859	37541
Oriental Bank of Commerce	7861	10260	12505	14580	18729	24581	27587	30405	32947	33005
Punjab & Sind Bank	5178	6540	36540	8443	9867	11305	12375	12659	12842	12785
Punjab National Bank	25548	31677	7321	39922	44480	51546	58635	66479	74850	77797
Syndicate Bank	11596	13679	15979	16932	20865	24376	27922	28824	28752	30849
Union Bank of India	15615	19842	23022	25040	28690	37480	37330	40157	43062	45163
United Bank of India	6987	8231	10069	13347	14530	16969	19308	20348	21194	20730
UCO Bank	10372	12034	13031	14452	16928	19775	22747	25418	27927	30963
Vijaya Bank	5264	6687	7328	8101	10000	11975	13562	15385	16708	19401
Source: The Statistical Tables Relating to Banks in India, RBI.										

Interest Income of the Public Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
State Bank of India	324280	359796	394910	489503	637884	709939	813944	1065215	1196571
State Bank of Bikaner & Jaipur	17409	19658	25043	30520	38103	39772	47965	62914	74982
State Bank of Hyderabad	23251	27489	34894	44032	57095	63341	78513	106467	124478
State Bank of Indore	11098	13227	17076	22256	27131	27361	40791	50784	59655
State Bank of Mysore	11678	13468	18058	24944	32473	35589	64781	81211	95643
State Bank of Patiala	21332	24615	31702	43102	58041	59753	52288	68961	86348
State Bank of Saurashtra	11322	11768	13383	15579	41232	43781	-	-	-
State Bank of Travancore	20083	22986	28323	34341	-	-	-	-	-
Allahabad Bank	31856	37673	48839	61712	73647	83692	110147	155233	174357
Andhra Bank	22735	26751	33153	42096	53746	63729	82913	113387	129097
Bank of Baroda	64314	70500	92126	118135	150916	166983	218859	296737	351967
Bank of India	60315	70287	91803	123552	163474	178780	217517	284807	319089
Bank of Maharashtra	23677	24745	27220	34405	42916	47356	55631	72140	96134
Canara Bank	75720	87115	113646	142007	171191	187520	230640	308506	340779
Central Bank of India	52049	53856	62342	78843	104552	120643	152206	191495	218607
Corporation Bank	22498	26265	34302	45166	60674	69877	91353	130178	153341
Dena Bank	17252	17601	21185	26759	34475	40104	50335	67941	88994
Indian Bank	28707	33645	42847	52130	68303	77144	93610	122313	138926
Indian Overseas Bank	39510	44063	58321	77388	96414	102458	121015	178891	206767
Oriental Bank of Commerce	35719	41189	51649	68272	88565	102571	120878	158149	177048
Punjab & Sind Bank	12486	12996	17269	22193	32472	39342	49325	64745	73401
Punjab National Bank	84598	95842	115375	142650	193262	214221	269865	364761	418933
Syndicate Bank	37576	40504	60401	79063	95796	100472	114509	152684	171207
Union Bank of India	49698	58637	73822	65086	81214	95263	113708	146324	167517
United Bank of India	21331	23600	28527	92146	118894	133027	164526	210285	251247
UCO Bank	35469	43546	53179	35573	43119	52489	63415	79611	92515
Vijaya Bank	20943	23118	28231	38885	52378	52007	58441	79881	90519
Source: The Statistical Tables Relating to Banks in India, RBI.									

Interest Income of the Private Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Bank of Madura	1319	1870	2478	2814	3232	3702	-	-	-	-
Bank of Punjab	-	280	807	1486	1865	2628	3404	3632	3534	3399
Bank of Rajasthan	2249	2917	3651	3504	3503	3997	4424	4526	4727	5029
Bareilly Corporation Bank	213	268	321	347	-	-	-	-	-	-
Benares State Bank	377	493	629	784	800	928	1007	-	-	-
Bharat Overseas Bank	666	865	935	1256	1438	1396	1569	1671	1760	1985
Catholic Syrian Bank	1262	1682	2163	2387	2548	2834	3130	3367	3470	3572
Centurion Bank	23	402	1042	1726	3947	4428	5473	4822	3713	3338
City Union Bank	508	751	985	1212	1499	1759	1849	2121	2335	2762
Development credit Bank	523	885	1274	1507	2211	2632	3888	3774	3593	3525
Dhanalakshmi Bank		843	1247	1335	1424	1632	1771	1811	1892	1911
Federal Bank	3350	4231	5875	7016	8594	8818	9192	10424	11115	11921
Ganesh Bank of	45	59	85	111	137	164	186	193	190	184
Global Trust Bank	360	1710	3568	3941	4914	6464	8975	7242	5396	3542
HDFC Bank	126	1156	1617	2408	3761	6799	12595	17030	20230	25489
ICICI Banking	198	1161	1827	2597	5441	8529	12421	21519	93681	88940
IndusInd Bank	615	1912	4093	5510	5936	6374	7287	7101	7430	9862
Jammu & Kashmir Bank	2625	3217	3996	5306	6937	8846	10765	13537	14274	15213
Karnataka Bank	1559	2238	3357	4299	4914	5780	6539	7432	8115	8485
Karur Vysya Bank	1277	1735	2203	2669	3376	4180	4612	4823	5156	6476
Lakshmi Vilas Bank	986	1210	1460	1550	1868	2225	2511	2715	2710	2860
Lord Krishna Bank	282	506	801	1008	969	972	1234	1441	1555	1664
Nainital Bank	176	228	302	361	427	480	565	633	674	701
Nedungadi Bank	440	563	733	1022	1469	1729	1772	1553	-	-
Punjab Co Operative	23	36	-	-	-	-	-	-	-	-
Ratnakar Bank	184	225	277	330	402	494	607	642	650	652
Sangli Bank	731	900	965	1107	1131	1245	1478	1387	1390	1348
South Indian Bank	1765	2364	2794	3387	3999	4689	5404	6155	6553	6803
Tamilnad Mercantile	1110	1503	1792	2077	2459	3118	3756	4329	4716	5377
Times Bank		371	1442	2140	2864	-	-	-	-	-
United Western Bank	1380	1877	2320	2594	3354	4195	4727	4924	4771	4627
UTI Bank	292	1289	1577	2556	3733	4833	8896	11795	14648	15867
Vysya Bank	4599	5614	6397	6447	7255	7938	8893	-	-	-
IDBI Bank Ltd	-	-	439	1493	2950	4238	5391	5093	5981	7368
SBI Commercial &	-	-	411	535	686	665	642	569	489	395
Source: The Statistical Tables Relating to Banks in India, RBI.										

Interest Income of the Private Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Bank of Punjab	3286	-	-	-	-	-	-	-	-
Bank of Rajasthan	5224	5403	7579	10494	13836	13595	-	-	-
Bharat Overseas	2187	2521	-	-	-	-	-	-	-
Catholic Syrian	3682	3653	4161	4813	5566	5780	7621	10756	13209
Centurion Bank	3461	8032	12685	21855	-	-	-	-	-
City Union Bank	2907	3264	4001	5960	8044	9566	12184	16968	21888
Development credit Bank	3032	2771	3469	5623	6452	4590	5363	7170	9161
Dhanalakshmi	1922	2099	2465	3125	4084	5346	9064	13937	13080
Federal	11910	14365	18174	25154	33154	36732	40520	55584	61676
Ganesh Bank of	181	124	-	-	-	-	-	-	-
HDFC Bank	30935	44753	68890	101150	163323	161727	199282	278742	350649
ICICI Banking	94099	143061	229943	307883	310926	257069	259741	335427	400756
IndusInd Bank	11344	11883	15003	18807	23095	27070	35894	53592	69832
Jammu & Kashmir	15492	17063	18993	24342	29881	30569	37131	48356	61368
Karnataka Bank	8399	10180	12562	15605	19174	19760	23709	31010	37643
Karur Vysya Bank	5908	6509	8674	11064	14461	17580	22177	32704	42424
Lakshmi Vilas	2982	3221	4292	5061	6576	9093	10648	15193	17605
Lord Krishna	1951	1841	1890	-	-	-	-	-	-
Nainital Bank	736	921	1232	1687	2091	2241	2568	3419	3927
Ratnakar Bank	656	702	795	1073	1379	1442	1892	4651	8793
Sangli Bank	1306	1311	1113	-	-	-	-	-	-
South Indian	7090	7613	9766	12912	16869	19357	24460	35834	44343
Tamilnad Mercantile	5127	5483	6380	7610	9772	11184	13710	18824	24704
United Western	4866	4863	-	-	-	-	-	-	-
UTI Bank	19242	-	-	-	-	-	-	-	-
IDBI Bank Ltd	26557	53807	63454	80409	116316	152613	186008	233699	250643
SBI Commercial &	258	362	344	437	541	402	363		
ING Vysya Bank	9906	12224	14014	16804	22399	22329	26941	38568	48616
Kotak Mahindra	4203	7189	13541	25354	30651	32556	43036	61802	80425
Axis bank	-	28888	45604	70053	108355	116380	151548	219946	271826
Yes Bank	-	-	-	13047	20033	23697	40418	63074	82940
Source: The Statistical Tables Relating to Banks in India, RBI.									

Interest Income of the foreign Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
ABN Amro	1265	1630	2063	2692	3674	6050	8563	7563	7425	7614
Abu-dhabi Commercial	283	380	482	473	578	739	1237	1844	1841	1634
American Express	3207	3659	3500	3266	3453	3029	3062	3026	3187	3059
Bank of America	2870	3905	5750	7254	9175	6657	5709	4593	3561	2802
Bank of Bahrain	257	349	434	462	486	567	611	591	566	396
Bank of Cylon	-	-	-	102	135	139	128	141	123	103
Nova Scotia	337	529	783	818	1073	1034	1951	2545	2256	1410
Bank of Tokyo	1117	1889	2321	1604	1252	1135	997	1107	1063	777
Barclays Bank	486	707	522	481	514	360	318	365	287	303
Citibank	7615	8920	10876	11874	13446	14892	17504	19102	19794	22795
China trust Commercial Bank	-	-	-	-	132	208	164	166	143	127
Deutsche Bank	1532	2231	3112	4044	4327	4713	5391	4494	3320	3009
Hong Kong & Shanghai Bank	4013	5319	5970	6303	7632	9925	13204	14995	14801	14140
Oman International Bank	305	379	503	425	401	503	384	292	236	212
Societe Generale	925	1332	1530	1136	1027	666	483	421	315	296
Standard Chartered Bank	2868	4758	5486	6936	8760	9672	11256	16448	22870	25232
State Bank of Mauritius	-	-	-	163	236	337	399	358	245	295
BNP Paribas	-	-	-	-	-	2190	2624	2786	2479	1778
J P Morgan Chase Bank	-	-	-	-	-	-	-	238	294	374
Mizuho Corporate Bank	-	-	-	-	-	-	-	300	262	201
DBS Bank	-	-	-	-	-	-	-	423	355	296
Shinhan	-	-	-	-	-	-	-	-	-	-
Source: The Statistical Tables Relating to Banks in India, RBI.										

Interest Income of the foreign Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
ABN Amro	9074	13761	466	30383	31197	-	-	-	-
Abu-dhabi Commercial	1498	1114	2891	647	478	411	428	760	1176
American Express	2697	2592	415	544	774	638	622	783	886
Bank of America	2572	3476	4301	5137	6069	5686	7253	11131	13352
Bank of Bahrain	343	290	301	350	486	405	520	760	947
Bank of Cylon	85	97	103	112	138	115	133	183	242
Nova Scotia	1590	1838	2637	3544	5453	4238	4619	6626	8002
Bank of Tokyo	313	790	1274	2135	3154	2564	3133	6019	8217
Barclays Bank	570	657	1376	6238	20365	16593	16804	12913	15086
Citibank	22027	30644	43836	59640	68402	60705	62979	77676	89161
China trust Commercial Bank	91	87	118	142	186	169	208	363	382
Deutsche Bank	3902	6037	9717	14454	18815	15789	18802	23982	27031
Hong Kong & Shanghai Bank	16268	22019	35079	49792	63269	63269	63269	62626	70332
Oman International Bank	179	169	177	146	145	144	147	-	-
Societe Generale	375	929	1691	2210	1527	1087	1823	2216	2436
Standard Chartered Bank	24930	30564	40428	48781	56494	56749	63524	79432	90835
State Bank of Mauritius	361	397	365	371	445	436	575	1241	1460
BNP Paribas	1762	2232	3030	4595	6364	5850	6461	8424	8646
J P Morgan Chase Bank	400	1258	2793	4514	5159	4381	7396	11928	15451
Mizuho Corporate Bank	173	239	445	748	1290	984	1544	2876	4248
DBS Bank	345	1545	3826	6341	8086	8798	10659	17971	25592
Shinhan	-	168	252	482	639	693	892	1451	2050
Source: The Statistical Tables Relating to Banks in India, RBI.									

Total Deposits of the Public Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
State Bank of India	851219	963955	1107012	1310913	1690419	1968211	2428284	2705601	2961233	3186187
State Bank of Bikaner & Jaipur	40103	46599	53977	65254	77408	90740	103261	116610	132336	156423
State Bank of Hyderabad	55639	60916	72375	86486	106149	125270	148419	174028	205989	242579
State Bank of Indore	20556	24653	27972	33688	40279	50964	66984	79185	92168	104187
State Bank of Mysore	32813	37981	43662	47686	55748	66324	76083	85249	90131	110837
State Bank of Patiala	52887	62108	72294	77374	88473	101817	115742	139471	178697	224733
State Bank of Saurashtra	26186	31433	36997	39947	47791	57729	66675	76027	90510	106748
State Bank of Travancore	47898	54242	64637	74681	86503	101826	115728	134597	159263	197214
Allahabad Bank	92310	101489	115406	135408	155104	176421	201060	226659	254634	314766
Andhra Bank	53117	59673	70910	79207	104387	144180	182915	184908	210619	229405
Bank of Baroda	262866	283695	321568	391258	446140	513082	539858	618045	663664	729673
Bank of India	244802	275230	319726	393386	444302	477439	516788	597106	644536	710031
Bank of Maharashtra	53417	59712	73653	91343	109285	134066	170246	191306	221758	264459
Canara Bank	224751	262432	314450	380450	419586	480014	590695	640300	720948	863446
Central Bank of India	176546	197516	230510	263735	306493	358717	415179	471374	511651	559086
Corporation Bank	61363	57340	66733	93516	126014	142796	165601	189243	217246	231909
Dena Bank	57794	64764	78613	101153	117954	132866	145730	153547	164913	183492
Indian Bank	127400	133149	143288	154227	171559	191135	216930	240388	270159	304444
Indian Overseas Bank	126869	145887	159726	193286	219143	243178	274142	318085	366986	414826
Oriental Bank of Commerce	66735	87109	100541	130580	168049	220952	246804	284884	298091	356735
Punjab & Sind Bank	52775	58774	308064	76096	94966	105560	119047	124826	132236	136420
Punjab National Bank	247134	271229	63796	351736	407771	474832	561311	641235	758135	879164
Syndicate Bank	117770	127183	149463	168162	199143	236554	250948	285483	306605	425848
Union Bank of India	154025	178917	200050	230556	281357	311054	348881	397939	447486	505589
United Bank of India	80422	87899	103458	120376	145163	167877	184774	196107	210313	227582
UCO Bank	103283	114432	126141	144625	162512	183600	215357	268488	313434	392443
Vijaya Bank	58700	59885	68273	82158	96902	115929	126322	146805	170198	210151
Source: The Statistical Tables Relating to Banks in India, RBI.										

Total Deposits of the Public Sector Banks (contd.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
State Bank of India	3670475	3800461	4355211	5374040	7420731	8041162	9339328	10436474	12027396
State Bank of Bikaner & Jaipur	190384	216936	284805	341084	392244	460588	538523	615721	721162
State Bank of Hyderabad	289295	340246	415027	501083	624489	729707	886279	987319	1133243
State Bank of Indore	138071	166607	199765	246988	283320	306245	432255	501863	569690
State Bank of Mysore	135852	163688	220224	274624	329158	388800	680661	794166	886721
State Bank of Patiala	264957	337777	391836	485705	600062	645519	581579	714698	846237
State Bank of Saurashtra	126131	138412	158049	161683	420419	508834	-	-	-
State Bank of Travancore	241330	259965	309840	353539	-	-	-	-	-
Allahabad Bank	407621	484997	595437	716164	849718	1060558	1318872	1595931	1787416
Andhra Bank	275507	339224	414540	494366	593900	776882	921563	1058512	1237956
Bank of Baroda	813335	936620	1249160	1520341	1923970	2412619	3054395	3848711	4738833
Bank of India	788215	939320	1198817	1500120	1897085	2297619	2988858	3182160	3818396
Bank of Maharashtra	288442	269062	339193	417583	522549	633041	668447	765287	943369
Canara Bank	969084	1168032	1423814	1540724	1868925	2346514	2939727	3270537	3558560
Central Bank of India	607517	664827	827763	1103197	1312719	1621075	1793560	1961733	2260383
Corporation Bank	272332	328765	423569	554244	739839	927337	1167475	1361422	1660055
Dena Bank	200961	236231	276899	339432	430506	513443	642096	771668	972072
Indian Bank	348084	408055	470909	610460	725818	882277	1058042	1208038	1419802
Indian Overseas Bank	442412	505293	687404	843256	1001159	1107947	1452288	1784342	2021353
Oriental Bank of Commerce	478503	501975	639960	778567	983689	1202576	1390543	1559649	1758975
Punjab & Sind Bank	141707	169246	193188	248314	346757	491551	597232	631240	706415
Punjab National Bank	1031669	1196849	1398597	1664572	2097605	2493298	3128987	3795885	3915601
Syndicate Bank	462946	536244	786336	951708	1158851	1170258	1355961	1579411	1853559
Union Bank of India	618306	740943	851802	799090	1002216	1224156	1452776	1540035	1734310
United Bank of India	253484	292498	371667	1038587	1387028	1700397	2024613	2228689	2637616
UCO Bank	494702	545437	648600	469707	545359	681803	778448	891163	1006515
Vijaya Bank	256180	277093	376045	479520	545354	619318	732483	830555	970172
Source: The Statistical Tables Relating to Banks in India, RBI.									

Total Deposits of the Private Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Bank of Madura	13197	15482	19309	27727	30131	36310	-	-	-	-
Bank of Punjab	-	2783	8314	13207	17661	26077	30456	33536	35896	41369
Bank of Rajasthan	20345	25068	29389	28267	29849	32421	35332	39600	52992	74059
Bareilly Corporation	2202	2574	3237	3194	-	-	-	-	-	-
Benares State	4118	4704	5951	6838	7843	9015	10319	-	-	-
Bharat Overseas	6144	6845	8209	10915	12862	14085	16139	18233	21491	24715
Catholic Syrian	10982	13807	15277	18487	21392	24578	27758	31914	35062	38805
Centurion Bank	803	2153	10316	12471	21408	38671	42574	35350	28347	30288
City Union Bank	4573	5721	7879	10218	12270	13405	16116	19737	23174	28467
Development credit Bank	4585	6885	10224	14364	18834	27666	34305	36918	36571	44742
Dhanalakshmi	-	7067	10763	10403	12359	14007	14943	16572	18379	21558
Federal	27910	36972	46034	64244	67821	64634	76654	88653	109474	134767
Ganesh Bank of	360	483	713	923	1133	1386	1639	1782	1879	2082
Global Trust	6320	13243	22793	32854	40968	61989	77342	64431	69209	63990
HDFC Bank	6419	6857	12791	21917	29151	84277	116581	176538	223761	304089
ICICI Banking	3306	7280	13476	26290	60729	98660	163782	320851	481693	681086
IndusInd Bank	10687	14122	30931	42733	50184	65460	71871	84001	85979	112003
Jammu & Kashmir	23781	28952	36581	48825	64440	94221	111681	129111	146749	186614
Karnataka Bank	13337	18553	25106	34084	43821	51742	60755	70015	82917	94070
Karur Vysya Bank	13419	11588	15755	21379	25379	30906	36153	41801	51219	59115
Lakshmi Vilas	10373	9131	11325	14189	15910	19634	22776	24769	27705	32958
Lord Krishna	2401	3915	6035	6728	6678	8820	12272	15024	16633	23112
Nainital Bank	1720	2112	2719	3282	3837	4636	5351	6080	6687	7588
Nedungadi Bank	3894	4657	5834	8346	11829	15882	17494	14381	-	-
Punjab Co0Operative	246	355	-	-	-	-	-	-	-	-
Ratnakar Bank	1629	1745	2180	2741	3375	4380	5322	6041	6423	7152
Sangli Bank	7304	8234	9369	10706	11603	13789	15167	16127	16778	18594
South Indian	15155	17239	20966	27383	31226	38854	46686	59197	68613	82800
Tamilnad Mercantile	10440	11169	12583	16045	20560	26645	31981	37300	40846	44043
Times Bank	-	3557	13157	22144	30112	-	-	-	-	-
United Western	14315	16230	20438	26684	34346	43488	52212	44910	53911	64302
UTI Bank	3389	9257	14087	27306	30407	57200	90922	122872	169647	209539
Vysya Bank	51877	43008	50695	57487	65104	74240	81411	-	-	-
IDBI Bank Ltd	-	-	5053	18455	27513	34482	35675	52345	60323	100482
SBI Commercial &	-	-	2901	4326	4328	5137	4997	5625	4944	3733
Source: The Statistical Tables Relating to Banks in India, RBI.										

Total Deposits of the Private Sector Banks (cotd.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Bank of Punjab	43066	-	-	-	-	-	-	-	-
Bank of Rajasthan	81203	88913	108159	138494	151871	150624	-	-	-
Bharat Overseas	27492	32441	-	-	-	-	-	-	-
Catholic Syrian	40211	42889	47486	53176	63328	69784	87257	106049	123416
Centurion Bank	35304	93996	148637	218093	-	-	-	-	-
City Union Bank	30952	35177	46993	64250	82066	102846	129143	163408	203048
Development credit Bank	38948	31240	44152	60749	46469	47873	56102	63356	83638
Dhanalakshmi	23388	25327	30880	36084	49688	70985	125296	118044	112021
Federal	151929	178787	215844	259134	321982	360580	430148	489371	576149
Ganesh Bank of	2174	2041	-	-	-	-	-	-	-
HDFC Bank	363543	557968	682979	1007686	1428116	1674044	2085864	2467064	2962470
ICICI Banking	998188	1650832	2305102	2444310	2183478	2020166	2256021	2555000	2926136
IndusInd Bank	131143	150063	176448	190374	221103	267102	343654	423615	541167
Jammu & Kashmir	216450	234846	251943	285933	330041	372372	446759	533469	642206
Karnataka Bank	108371	132432	140374	170162	203333	237307	273365	316083	360562
Karur Vysya Bank	66722	75768	93403	125500	151014	192719	247219	321116	386530
Lakshmi Vilas	34959	43364	50199	56185	73609	90754	111495	141141	156190
Lord Krishna	21761	22789	18725	-	-	-	-	-	-
Nainital Bank	9333	11250	14807	17900	21372	25075	28249	34775	37236
Ratnakar Bank	7838	8742	8764	11011	13071	15850	20422	47393	83405
Sangli Bank	19052	20042	13259	-	-	-	-	-	-
South Indian	84923	95787	122392	151561	180923	230115	297211	365005	442623
Tamilnad Mercantile	48269	52029	60199	76703	95660	116393	137933	171104	202238
United Western	64529	64802	-	-	-	-	-	-	-
UTI Bank	317120	-	-	-	-	-	-	-	-
IDBI Bank Ltd	151026	260009	433540	729980	1124010	1676671	1804858	2104926	2271165
SBI Commercial &	3315	3782	4879	5220	5881	4915	5133		
ING Vysya Bank	125693	133353	154186	204576	248899	258653	301943	351954	413340
Kotak Mahindra	42995	65659	110001	164237	156449	238865	292610	385365	510288
Axis bank	-	401135	587856	876262	1173741	1413002	1892378	2201043	2526136
Yes Bank	-	-	-	132732	161694	267986	459389	491517	669556
Source: The Statistical Tables Relating to Banks in India, RBI.									

Total Deposits of the Foreign Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
ABN Amro	8008	5815	11206	14587	18810	34229	46095	48653	50223	58564
Abu-dhabi Commercial	2888	2519	3248	4116	4854	5905	16972	16625	17686	18160
American Express	24512	23148	19406	19811	17332	14183	13743	10482	23879	27885
Bank of America	21634	19271	31586	38603	35019	25118	23239	19055	15450	15892
Bank of Bahrain	1879	2134	2889	2760	2803	3659	3958	4477	4762	4333
Bank of Cylon	-	-	-	471	407	517	689	817	853	1010
Nova Scotia	1202	1402	3908	6118	5931	6814	13841	18450	14495	16941
Bank of Tokyo	7483	8955	10387	10141	9951	6279	6361	8829	5773	5788
Barclays Bank	982	1288	2184	1356	1631	2070	1670	1673	1078	895
Citibank	60907	67752	72035	75507	94366	102033	140518	152425	177425	204651
China trust Commercial Bank	-	-	-	-	531	699	514	750	652	626
Deutsche Bank	11195	13428	17567	20250	21284	21674	23218	24765	19451	25325
Hong Kong & Shanghai Bank	34006	38444	45273	54929	63860	87547	99513	128012	128012	162699
Oman International Bank	1843	1951	2717	2909	3528	4160	3966	4335	3567	2864
Societe Generale	6029	5869	6042	6561	4216	3726	2228	1339	1279	4125
Standard Chartered Bank	21640	27386	41914	48070	53527	50060	50885	72438	180025	199490
State Bank of Mauritius	-	-	-	708	1271	1280	1978	1802	1564	1797
BNP Paribas	-	-	-	-	-	10602	17056	16343	15796	17371
J P Morgan Chase Bank	-	-	-	-	-	-	-	662	1857	3918
Mizuho Corporate Bank	-	-	-	-	-	-	-	1594	1429	513
DBS Bank	-	-	-	-	-	-	-	1329	1240	3755
Source: The Statistical Tables Relating to Banks in India, RBI.										

Total Deposits of the Foreign Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
ABN Amro	70260	118638	159983	189116	159603	-	-	-	-
Abu-dhabi Commercial	16625	4587	4738	4136	5086	5229	5650	6234	7043
American Express	22644	22599	26641	2093	3299	5690	5194	5013	6747
Bank of America	19925	21062	27180	41908	41668	54903	59916	59649	73780
Bank of Bahrain	3937	3268	3643	3954	4719	5150	5148	6719	6958
Bank of Cylon	1044	872	865	742	864	920	968	1048	1194
Nova Scotia	16020	23546	20786	37547	29757	34543	36546	46816	60556
Bank of Tokyo	5324	7843	9605	13269	20760	21994	16543	32842	41464
Barclays Bank	747	3608	10101	69018	124855	70754	67401	53826	50632
Citibank	214844	279117	378750	461250	516775	544521	566681	646977	665594
China trust Commercial Bank	482	781	1029	917	608	1143	971	1466	1927
Deutsche Bank	35579	43799	69784	137550	141474	146930	146464	168427	207943
Hong Kong & Shanghai Bank	170128	249551	348247	426203	499703	499703	499703	614233	568660
Oman International Bank	2252	2026	1941	1768	1866	1716	1658	-	-
Societe Generale	5266	9429	11278	13628	8246	8365	8880	12807	13826
Standard Chartered Bank	225222	284598	341747	369565	418018	481924	584191	639647	620017
State Bank of Mauritius	1499	2644	2118	2481	3722	3479	4992	7662	6009
BNP Paribas	16737	18475	20979	32360	33531	50203	46465	59004	55797
J P Morgan Chase Bank	9302	18263	16666	33132	35866	59309	63839	88445	103687
Mizuho Corporate Bank	1098	1371	1214	4472	11475	11881	6710	6728	17434
DBS Bank	6114	14522	38362	50957	60229	66371	73680	129220	154876
Shinhan		1494	2077	3359	7660	6923	7925	10371	14404
Source: The Statistical Tables Relating to Banks in India, RBI.									

Interest Expenditure of the Public Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
State Bank of India	66879	82259	95914	104732	130444	152726	177556	207288	211095	192742
State Bank of Bikaner & Jaipur	3103	3729	4658	5369	6335	7424	8109	8672	8868	8571
State Bank of Hyderabad	3922	5058	6074	6507	7607	9624	10825	12686	13195	13716
State Bank of Indore	1498	1904	2293	2492	3003	3723	4762	5956	6193	5928
State Bank of Mysore	2393	3037	3699	3813	4509	5190	6017	6559	6505	6027
State Bank of Patiala	3558	4825	5864	5855	6347	6951	7394	8476	9746	10661
State Bank of Saurashtra	1858	2446	3079	3137	3772	4558	5166	5627	5848	5743
State Bank of Travancore	4301	5460	6613	7136	7811	8776	9202	10295	10616	10565
Allahabad Bank	7275	7617	8767	9765	11040	12810	13866	15424	16606	15829
Andhra Bank	3922	4550	5411	6053	7166	10254	13746	14545	14421	13167
Bank of Baroda	18246	22496	25518	28375	32478	35066	38196	40761	39942	35755
Bank of India	15577	19385	23733	26511	31806	34431	36630	37690	38920	35945
Bank of Maharashtra	3839	4621	5358	6182	7334	10002	11476	14113	14054	14317
Canara Bank	14720	18770	22779	27481	31308	34145	37353	45503	44248	43246
Central Bank of India	11607	14227	16952	18921	22333	25216	28161	31225	31756	29415
Corporation Bank	3032	4073	5111	6392	9782	11461	12232	13205	13104	12372
Dena Bank	4123	5192	6401	7899	10519	11692	12675	12656	12042	11432
Indian Bank	10535	14106	14420	13529	14280	15187	16113	17629	17115	15499
Indian Overseas Bank	9254	12135	14321	14900	17333	23580	19127	22006	22644	21547
Oriental Bank of Commerce	4720	6257	8009	9586	12897	17453	19681	20684	20899	18447
Punjab & Sind Bank	3744	4981	24387	6066	7340	8511	9011	9491	8979	7852
Punjab National Bank	17410	20890	5346	26991	27954	35382	38251	43526	43613	41550
Syndicate Bank	7673	8706	10429	11372	14252	16123	16985	17749	16655	16556
Union Bank of India	9955	12872	15390	16875	20375	25216	25140	26790	28085	27801
United Bank of India	5996	6476	8005	9363	11084	12865	14172	14331	13997	12925
UCO Bank	7459	8677	9868	10848	12463	14249	16126	18120	19107	19017
Vijaya Bank	3515	4858	4988	5496	6827	8094	8958	10532	10274	11023
Source: The Statistical Tables Relating to Banks in India, RBI.										

Interest Expenditure of the Public Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
State Bank of India	184834	203904	234368	319291	429153	473225	488680	632304	753258
State Bank of Bikaner & Jaipur	8720	9729	14354	21130	27071	27657	30268	40700	49324
State Bank of Hyderabad	13627	16546	21345	32903	42427	44709	50028	72822	85299
State Bank of Indore	6076	7812	11242	16538	19794	19281	24431	34941	41253
State Bank of Mysore	6230	7351	10929	17321	24090	23224	41446	57859	71134
State Bank of Patiala	11570	14649	20596	34196	46763	44411	35327	49984	65066
State Bank of Saurashtra	6242	6976	8772	11941	28406	29779	-	-	-
State Bank of Travancore	11122	13435	16984	24768	-	-	-	-	-
Allahabad Bank	18216	21898	31331	44989	52061	57187	69922	103606	125693
Andhra Bank	12044	15062	18978	28700	37477	41781	50703	75794	91527
Bank of Baroda	34521	38751	54266	79017	99682	107589	130837	193567	238814
Bank of India	37946	43967	57399	81260	108485	121220	139410	201672	228849
Bank of Maharashtra	14860	15029	16278	23118	30350	34393	35947	46969	65801
Canara Bank	44215	51300	73377	106629	124013	130714	152407	231613	261989
Central Bank of India	28299	30055	37598	57725	82267	95190	98952	139809	161231
Corporation Bank	11204	13997	20524	30732	43764	50844	61955	98709	119082
Dena Bank	10386	10375	12632	18172	23831	29103	32702	46931	65163
Indian Bank	15670	18543	24126	31591	42218	45532	53249	78133	93684
Indian Overseas Bank	20955	23391	32713	52888	67718	70779	78934	128729	154248
Oriental Bank of Commerce	20482	25139	34736	51562	68600	73497	79103	115991	130036
Punjab & Sind Bank	6759	6690	9599	14335	22353	27502	33721	49734	56991
Punjab National Bank	44531	49174	60229	87309	122953	129440	151791	230617	270368
Syndicate Bank	20638	21696	38900	58336	69776	73074	70681	101833	116666
Union Bank of India	29052	34894	45920	50208	64767	72022	75259	107303	121702
United Bank of India	12177	13395	16752	63610	80758	91103	102364	142354	175819
UCO Bank	21405	27888	36232	26527	31504	38577	41721	54819	67642
Vijaya Bank	11098	13390	17512	30584	41130	37516	38973	60846	71739
Source: The Statistical Tables Relating to Banks in India, RBI.									

Interest Expenditure of the Private Sector Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Bank of Madura	847	1336	1693	2005	2552	2661				
Bank of Punjab	-	69	538	1086	1453	1891	2271	2731	2546	2118
Bank of Rajasthan	1352	2015	2663	2692	2858	3061	3093	3233	2918	3130
Bareilly Corporation	139	169	222	232	-	-	-	-	-	-
Benares State	309	356	473	590	670	802	905	-	-	-
Bharat Overseas	385	548	638	930	1126	1048	1055	1178	1154	1132
Catholic Syrian	887	1214	1649	1895	2091	2203	2317	2560	2576	2349
Centurion Bank	3	230	682	1323	2961	3625	4452	3787	2693	2038
City Union Bank	331	506	724	973	1235	1292	1313	1576	1671	1799
Development credit Bank	348	427	806	1148	1673	2068	3019	2863	2878	2569
Dhanalakshmi	-	585	962	1013	1126	1234	1373	1386	1360	1217
Federal	2234	3169	4721	5637	7716	7015	6822	7662	7723	7703
Ganesh Bank of	27	43	59	84	112	128	149	159	160	159
Global Trust	142	1360	2898	3228	4385	5072	6972	6359	5174	4351
HDFC Bank	48	708	872	1376	2292	3743	7538	10737	11920	12111
ICICI Banking	132	849	1171	1867	4255	6670	8377	15589	79440	70153
IndusInd Bank	372	1342	3101	4290	4788	5011	5695	5472	5585	6693
Jammu & Kashmir	1406	1812	2523	3289	4309	5982	7196	9154	9010	9014
Karnataka Bank	985	1460	2166	2916	3753	4638	5019	6028	6566	6348
Karur Vysya Bank	852	1223	1435	1840	2469	2810	3057	3177	3466	3504
Lakshmi Vilas	639	839	1047	1133	1434	1625	1845	2097	2028	2025
Lord Krishna	173	332	623	837	849	827	1032	1309	1292	1325
Nainital Bank	113	133	180	225	257	287	343	376	390	370
Nedungadi Bank	291	350	496	721	1136	1251	1575	1453	-	-
Punjab Co0Operative	15	24	-	-	-	-	-	-	-	-
Ratnakar Bank	119	151	182	225	280	354	423	445	451	429
Sangli Bank	463	557	655	716	786	862	968	968	992	824
South Indian	1241	1598	2154	2615	3118	3507	3909	4602	4794	4801
Tamilnad Mercantile	648	885	1078	1370	1736	2234	2548	2895	3024	3220
Times Bank	-	215	1049	1772	2320	-	-	-	-	-
United Western	878	1290	1672	1887	2453	3046	3632	3911	3583	3409
UTI Bank	141	1013	1221	2222	3006	3929	7914	9800	11424	10215
Vysya Bank	3430	4469	5138	5409	6305	6832	7160	-	-	-
IDBI Bank Ltd	-	-	196	1046	2309	3326	4375	3657	3965	4057
SBI Commercial &	-	-	355	458	604	525	565	514	363	260
Source: The Statistical Tables Relating to Banks in India, RBI.										

Interest Expenditure of the Private Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Bank of Punjab	1937	-	-	-	-	-	-	-	-
Bank of Rajasthan	3089	3171	4394	7356	9985	10245	-	-	-
Bharat Overseas	1137	1455	-	-	-	-	-	-	-
Catholic Syrian	2220	2184	2515	3172	3909	4552	5140	7686	9816
Centurion Bank	1682	4044	6990	14920	-	-	-	-	-
City Union Bank	1798	1866	2326	3962	5618	6785	7984	11970	15647
Development credit Bank	2335	2020	2274	3884	4480	3174	3471	4893	6317
Dhanalakshmi	1191	1269	1498	2135	2868	3940	6413	11461	10316
Federal	6887	8367	10850	16474	19999	22624	23055	36050	41929
Ganesh Bank of	150	103	-	-	-	-	-	-	-
HDFC Bank	13156	19295	31795	48871	89111	77863	93851	149896	192538
ICICI Banking	65709	95975	163585	234842	227259	175926	169572	228085	262092
IndusInd Bank	7189	8732	12289	15799	18504	18206	22129	36549	47504
Jammu & Kashmir	9530	10425	11315	16238	19879	19375	21695	29972	38208
Karnataka Bank	5231	6521	8364	11017	14438	17078	17584	23689	28606
Karur Vysya Bank	3341	3680	5203	7654	10357	11931	14508	23532	30840
Lakshmi Vilas	1915	2166	2992	3819	5041	6602	6998	11480	13685
Lord Krishna	1383	1296	1440	-	-	-	-	-	-
Nainital Bank	365	403	555	930	1164	1306	1407	2011	2461
Ratnakar Bank	388	402	424	524	744	853	940	2783	6218
Sangli Bank	810	810	710	-	-	-	-	-	-
South Indian	4521	4511	6091	9151	11640	13674	16549	25617	31535
Tamilnad Mercantile	2816	3023	3422	4988	6434	7439	8272	12320	16108
United Western	3401	3213	-	-	-	-	-	-	-
UTI Bank	11930	-	-	-	-	-	-	-	-
IDBI Bank Ltd	24679	50008	56875	73644	103057	130052	142719	188251	196912
SBI Commercial &	165	190	227	359	361	327	261		
ING Vysya Bank	6338	7412	8593	11821	15903	14031	16875	26485	33230
Kotak Mahindra	1948	3389	6992	13096	15466	13975	20585	36677	48368
Axis bank	-	18106	29933	44200	71493	66335	85918	139769	175163
Yes Bank	-	-	-	9741	14921	15818	27948	46917	60752
Source: The Statistical Tables Relating to Banks in India, RBI.									

Interest Expenditure of the Foreign Banks (Rs. millions)										
Name	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
ABN Amro	790	1231	1246	1791	2361	3631	5249	4089	3763	3122
Abu-dhabi Commercial	173	303	432	364	449	598	1051	1674	1676	1471
American Express	1559	2520	2414	2206	2544	1964	2108	2034	2100	1785
Bank of America	1487	2548	3430	4520	5973	4027	3892	3118	2289	1627
Bank of Bahrain	120	181	368	424	434	480	510	509	447	324
Bank of Cylon	-	-	-	46	56	58	70	66	68	62
Nova Scotia	238	482	500	577	768	701	1460	1844	1594	970
Bank of Tokyo	494	1115	1227	1077	806	585	407	504	485	206
Barclays Bank	337	561	429	398	362	284	251	291	204	73
Citibank	4075	5407	6609	7130	9068	8458	9785	11028	10296	9237
China trust Commercial Bank	-	-	-	-	75	142	99	89	54	40
Deutsche Bank	819	1291	1399	1851	2132	2384	2556	2425	1771	2283
Hong Kong & Shanghai Bank	2183	3023	3849	3795	5157	6447	8485	9970	8780	7228
Oman International Bank	158	239	324	376	427	531	414	421	334	230
Societe Generale	596	1103	1178	902	830	593	399	355	205	158
Standard Chartered Bank	2097	244	3530	4650	5849	5770	6656	9333	11534	10706
State Bank of Mauritius	-	-	-	37	148	207	263	253	145	165
BNP Paribas	-	-	-	-	-	1574	1921	2093	1703	994
J P Morgan Chase Bank	-	-	-	-	-	-	-	114	77	91
Mizuho Corporate Bank	-	-	-	-	-	-	-	221	179	68
DBS Bank	-	-	-	-	-	-	-	258	172	136
Source: The Statistical Tables Relating to Banks in India, RBI.										

Interest Expenditure of the Foreign Sector Banks (cont.)									
Name	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
ABN Amro	3338	6592	323	14598	14372	-	-	-	-
Abu-dhabi Commercial	1379	1011	1667	267	200	201	244	403	694
American Express	1512	1545	246	252	812	322	381	807	1173
Bank of America	1276	1470	1806	1632	1519	1860	1975	4239	5731
Bank of Bahrain	218	199	173	188	250	265	237	289	421
Bank of Cylon	53	41	40	31	32	38	38	44	56
Nova Scotia	1075	1297	1792	2579	3710	1808	2386	3757	4554
Bank of Tokyo	86	298	477	770	1743	1264	672	1676	2922
Barclays Bank	158	282	710	3234	9785	6981	8325	6190	9808
Citibank	7521	10057	16964	23114	24288	20168	22225	28875	37382
China trust Commercial Bank	33	29	70	83	64	30	59	149	124
Deutsche Bank	3047	3683	4671	5365	5879	3024	4616	5898	7069
Hong Kong & Shanghai Bank	6444	8279	12134	20159	26610	26610	26610	25168	30006
Oman International Bank	148	138	128	121	92	85	83	-	-
Societe Generale	199	518	1169	1654	802	442	1121	1261	1191
Standard Chartered Bank	11074	11902	16519	21300	24896	17838	23506	36904	40692
State Bank of Mauritius	226	247	247	257	305	357	359	850	787
BNP Paribas	906	1131	1725	2538	2720	1430	2410	4038	4008
J P Morgan Chase Bank	163	516	1274	2035	2308	1799	2471	4440	7423
Mizuho Corporate Bank	58	114	152	338	582	506	380	163	603
DBS Bank	85	605	2425	3934	4939	3176	5908	10450	15359
Shinhan	-	71	61	148	257	222	301	625	1048
Source: The Statistical Tables Relating to Banks in India, RBI.									

Bank Wise details of selected parameter in1995																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE	**name**	OC	ROA	II	IE	C	ROE	**Name**	ROA	II	IE	C	ROE	OC
SBI	2.96	0.59	8.73	5.48	0.39	1.51	BoM	2.57	2.08	8.13	5.22	0.14	14.97	ABN	2.04	1.77	9.89	6.18	1.17	1.51
SBBJ	3.37	0.16	9.09	6.14	0.41	0.39	BoP	0.28	0.02	0.34	0.01	15.96	0	Abu-DB	0.91	1.59	8.5	5.2	0.06	26.4
SBH	2.73	0.62	9	5.58	0.25	2.53	BoR	2.58	2.04	9.24	5.56	0.33	6.25	AEB	2.75	3.15	10.03	4.88	0.49	6.43
SBInd	3.52	0.34	9.57	5.67	0.33	1.04	BCB	4.12	-0.22	8.97	5.87	2.18	-0.1	BoA	2.35	4.34	10.32	5.35	0.01	603.7
SBM	3.13	0.07	9.41	6.12	0.31	0.24	BSB	3.28	-1.87	7.08	5.82	11.53	-0.16	BoB	1.61	2.03	10.57	4.94	0.08	24.65
SBP	2.57	0.5	9.09	5.45	0.38	1.32	BOB	2.67	0.79	9.01	5.21	0.71	1.11	NSB	2.08	0.58	11.47	8.11	5.58	0.1
SBS	3.29	0.44	9.93	5.85	0.3	1.47	CSB	3.06	0.35	9.9	6.96	0.42	0.84	M B	1.05	3.32	10.21	5.25	2.33	1.43
SBT	2.55	0.35	9.82	7.19	0.33	1.04	CB	0.67	0.65	1.23	0.17	54.73	0.01	BoT	1.22	3.62	11.69	5.17	5.88	0.62
Allah B	2.77	-0.71	8.81	6.75	5.74	-0.12	CUB	2.27	1.07	9.32	6.06	0.81	1.31	B I	1.31	2.08	9.4	6.26	0.96	2.17
Andh B	3.9	-0.69	8.73	6.2	6.74	-0.1	DB	2.69	0.84	9.95	6.63	1.53	0.55	BNDeP	2.67	2.84	16.59	8.12	0.18	16.14
BoB	2.51	0.56	9.47	5.86	2.38	0.24	Federal	2.29	1.3	10.08	6.72	0.45	2.92	BB	2.57	0.98	15.76	10.93	6.68	0.15
BoI	2.57	0.17	7.76	5.17	6.47	0.03	GB	2.71	0.29	10.68	6.45	0.07	4	CMB	16.26	-15.02	2.56	0.73	84.72	-0.18
Can B	2.78	0.77	9.17	5.58	2.24	0.35	GTB	0.83	1.48	3.76	1.48	10.84	0.14	CLB	1.58	2.15	11.71	5.46	1.98	1.09
CBI	3.09	-0.41	8.07	5.62	6.32	-0.06	HDFC	0.18	0.09	0.37	0.14	4.42	0.02	DB (Asia)	3.13	0.75	9.88	5.28	0.01	58.15
Cor B	1.96	1.02	7.31	4.27	1.58	0.65	ICICI	2.68	0.43	4.34	2.9	23	0.02	GBB	2.79	1.19	8.89	5.76	0.03	35.22
DB	3.2	0.41	8.91	5.68	3.9	0.11	Indus B	0.66	1.56	4.4	2.66	8.59	0.18	H&S B	2.97	1.11	9.21	5.01	1.12	0.99
Ind B	2.45	0.09	8.53	6.8	4.22	0.02	J&K B	2.47	0.58	9.55	5.11	0.25	2.28	I N B	11.47	-9	2.47	0.33	72.88	-0.12
IOB	2.3	0.06	7.57	5.79	8.34	0.01	Kaur B	2.82	0.8	9.88	6.24	0.29	2.8	OIB	2.11	0.55	12.21	6.31	2.02	0.27
OBC	2.49	1.38	9.54	5.73	2.34	0.59	KVB	2	1.53	8.49	5.67	0.27	5.77	Sakura	0.59	2.37	10.42	4.66	4.23	0.56
PSB	2.61	-0.12	8.18	5.92	7.64	-0.02	LVB	2.35	1.56	8.37	5.43	0.82	1.9	Sanwa	1.2	1.52	8.64	4.02	5.68	0.27
PNB	2.92	0.3	8.9	6.06	1.27	0.24	LKB	2.29	1.42	9.68	5.92	4.11	0.35	Societe	0.92	1.3	11.47	7.39	5.05	0.26
Syn B	3.52	-0.64	8.11	5.37	7.82	-0.08	N B	3.56	0.25	9.5	6.14	0.54	0.46	Sonali	4.27	2.67	7.05	0.66	0.73	3.65
Union	2.57	0.62	9.15	5.84	1.98	0.32	N B	4.25	0.29	10.12	6.69	0.78	0.37	SBoM	2.69	-0.68	1.93	0.14	62.45	-0.01
United	2.73	-2.03	7.19	6.17	11.5	-0.18	PCo-B	2.86	0.59	7.61	4.91	0.33	1.8		-	-	-	-	-	-
UCO B	2.93	-0.63	7.79	5.6	11.65	-0.05	R B	2.66	0.56	9.73	6.3	0.71	0.79		-	-	-	-	-	-
Vijaya	2.82	0.47	7.87	5.26	3.8	0.12	S B	3.04	0.18	8.83	5.6	0.73	0.25		-	-	-	-	-	-
	-	-	-	-	-	-	S I B	2.88	0.85	10.17	7.15	0.82	1.05		-	-	-	-	-	-
	-	-	-	-	-	-	T M B	2.52	1.35	8.93	5.21	0.02	60.11		-	-	-	-	-	-
	-	-	-	-	-	-	T B	1.12	1.81	4.97	0.01	96.74	0.02		-	-	-	-	-	-
	-	-	-	-	-	-	U W B	2.38	0.63	8.44	5.37	0.73	0.85		-	-	-	-	-	-
	-	-	-	-	-	-	UTI B	1.25	0.41	5.17	2.5	20.36	0.02		-	-	-	-	-	-
	-	-	-	-	-	-	VB	1.33	1.64	7.46	5.56	0.04	38.36		-	-	-	-	-	-
Source: A Profile of Banks, RBI.																				

Bank Wise details of Selected Parameter in 1996																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	3.09	0.58	8.97	5.69	0.33	1.75	BoM	3.34	0.55	9.16	6.54	0.57	0.96	ABN	1.92	1.43	9.5	7.18	0.87	1.63
SBBJ	3.42	0.39	9.11	5.61	0.55	0.71	BoP	2.05	2.86	5.99	1.48	22.49	0.13	Abu-DB	1.18	1.05	12.68	10.12	0.07	15.7
SBH	3.05	0.61	9.93	6.21	0.21	2.9	BoR	2.36	1.5	9.36	6.47	0.58	2.6	AEB	3.15	1.17	12.1	8.33	0.52	2.25
SBInd	3.67	0.39	10.2	6.1	0.56	0.69	BCB	4.37	-1.5	9.71	6.13	1.87	-0.8	BoA	2.34	2.95	10.16	6.63	0.01	567.75
SBM	3.61	0.54	10.29	6.4	0.76	0.71	BSB	3.77	-3.21	8.9	6.41	10.82	-0.3	BoB	1.62	1.6	12.01	6.25	6.44	0.25
SBP	2.52	0.63	9.27	5.79	0.3	2.11	BOB	2.91	1.17	10.62	6.73	0.65	1.81	NSB	1.41	0.51	11.6	10.58	6.88	0.07
SBS	3.08	-4.94	8.54	5.24	6.73	-0.73	CSB	3.14	0.02	10.94	7.9	0.35	0.07	M B	1.07	1.32	9.14	5.17	1.47	0.9
SBT	2.97	0.39	11.51	8.22	0.53	0.75	CB	3.07	2.98	11.3	6.48	28.5	0.1	BoT	1.06	2.21	12.17	7.18	5.55	0.4
Allah B	3.04	0.05	8.8	6.13	6.27	0.01	CUB	2.33	1.32	10.35	6.97	0.74	1.77	B I	0.99	1.2	7.22	6.06	0.7	1.73
Andh B	3.25	-0.16	9.45	6.42	6.02	-0.03	DCB	2.6	2.34	9.68	4.67	1.81	1.29	BNDeP	2.25	1.39	11.31	6.69	0.1	13.85
BoB	2.53	0.59	10.26	6.54	1.68	0.35	DB	2.47	0.57	10.1	7.01	2.7	0.21	BB	3.43	2.02	20.13	15.97	5.86	0.35
BoI	2.71	0.83	8.72	5.85	1.76	0.47	Federal	2.41	1.04	9.7	7.27	0.39	2.68	CMB	21.55	-8.1	6.22	0.12	73.8	-0.11
BoM	3.73	-0.16	9.51	5.92	9.6	-0.02	GB	2.65	0.19	10.15	7.41	0.05	3.67	CommerzB	6.49	-4.4	1.8	0.22	70.96	-0.06
Can B	2.74	0.81	9.47	6.03	1.56	0.52	GTB	1.25	1.82	7.73	6.14	4.7	0.39	CLB	1.4	1.04	13.26	11.5	1.86	0.56
CBI	3.4	-0.32	9.28	6.13	5.63	-0.06	HDFC	2.28	2.55	11.65	7.14	20.16	0.13	DB (Asia)	3.76	1.19	11.66	6.75	0.01	113.65
Cor B	2.2	1.52	9.64	5.9	1.62	0.94	ICICI	2.37	1.43	10.03	7.34	12.96	0.11	DBS	2.36	0.77	7.1	4.54	24.77	0.03
DB	3.07	0.63	9.94	6.3	1.78	0.35	Indus B	1.46	2.42	10.14	7.12	6.36	0.38	DresherB	5.5	-4.64	4.27	3.28	15.49	-0.3
Ind B	2.85	-7.51	8.45	7.93	3.68	-2.04	J&K B	1.98	0.53	9.27	5.22	0.2	2.63	GB	2.82	0.77	9.42	6.39	1.11	0.69
IOB	2.76	0.02	8.83	6.71	7.38	0	Kaur B	2.42	1.11	9.82	6.4	0.59	1.88	H&S B	2.72	1.74	10.2	5.79	1.13	1.54
OBC	2.14	1.64	9.75	5.95	1.83	0.9	KVB	2.86	2.11	11.35	8	0.39	5.39	I N B	2.03	-1.07	3.74	4.05	7.32	-0.15
PSB	3.06	-1.83	9.04	6.88	7.68	-0.24	LVB	3.53	0.9	10.89	7.55	1.02	0.88	OIB	2.25	1.32	12.47	7.87	4.15	0.32
PNB	3.21	-0.3	10.06	6.63	1.15	-0.26	LKB	2.09	1.54	10.81	7.09	2.56	0.6	Sakura	0.54	2.43	9.96	4.25	8.72	0.28
Syn B	3.47	0.13	0.01	5.6	8.29	0.02	N B	3.8	0.28	10.11	5.91	0.44	0.64	Sanwa	1.36	0.17	11.75	7.97	20.01	0.01
Union	2.8	0.39	9.67	6.27	1.65	0.24	N B	4.54	0.37	10.7	6.65	2.08	0.18	Societe	1.07	0.56	11.53	9.55	3.53	0.16
United	3	-2.17	7.61	5.99	12.7	-0.17	PCo-B	2.29	-0.68	8.4	5.57	0.56	-1.21	Sonali	2.57	5.21	10.97	1.12	75.37	0.07
UCO B	3.27	-1.53	7.76	5.6	10.71	-0.14	R B	3.27	0.58	10.7	7.15	0.71	0.81	SBoM	3.07	0.23	3.73	0.18	84.63	0.01
Vijaya	3.36	-3.47	9.26	6.73	3.52	-0.99	S B	3.86	0.36	9.96	6.16	0.72	0.5		-	-	-	-	-	-
	-	-	-	-	-	-	S I B	3.05	0.22	11.5	7.77	0.69	0.33		-	-	-	-	-	-
	-	-	-	-	-	-	T M B	2.62	1.68	10.52	6.19	0.02	85.89		-	-	-	-	-	-
	-	-	-	-	-	-	T B	1.71	1.23	6.01	3.49	16.22	0.08		-	-	-	-	-	-
	-	-	-	-	-	-	U W B	2.88	0.75	10.01	6.88	1.59	0.47		-	-	-	-	-	-
	-	-	-	-	-	-	UTI B	1.52	0.93	10.66	8.38	9.51	0.1		-	-	-	-	-	-
	-	-	-	-	-	-	VB	1.92	2.01	10.67	8.49	0.19	10.6		-	-	-	-	-	-
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 1997																				
Public sector banks							Private sector banks							Foreign banks						
Name	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.94	0.86	9.55	6.13	0.34	2.56	BoM	3.28	1.06	10.19	6.96	0.48	2.22	ABN	3.23	2.08	11.05	6.67	0.8	2.59
SBBJ	2.97	0.5	9.05	5.72	0.45	1.11	BoP	2.3	2.13	7.65	5.1	9.96	0.21	Abu-DB	1.22	0.31	10.24	9.17	0.04	7.25
SBH	2.81	0.56	10.13	6.44	0.18	3.04	BoR	2.61	0.23	10.72	7.82	0.53	0.44	AEB	3.82	1.6	13.75	9.48	0.62	2.6
SBInd	3.56	0.49	10.87	6.59	0.5	0.97	BCB	3.58	0.07	9.26	6.39	1.49	0.05	ABB	3.77	0.49	4.27	1.35	41.14	0.01
SBM	3.44	0.74	11.01	6.79	0.66	1.12	BSB	3.32	0.21	9.21	6.92	8.92	0.02	BI	4.34	1.17	11.75	6.48	14.33	0.08
SBP	2.5	0.68	10.47	6.76	0.29	2.39	BOB	2.33	1.06	9.61	6.56	0.54	1.97	BA	1.73	4.27	11.34	6.76	0	1.0823
SBS	2.82	1.45	9.88	6.26	6.38	0.23	CSB	3.37	0.24	12.76	9.73	0.32	0.74	BB	1.49	0.64	11.09	9.41	4.78	0.13
SBT	2.84	0.52	11.67	8.49	0.45	1.15	CB	1.44	1.2	8.04	5.26	7.82	0.15	BC	2.94	3.18	7.66	1.83	45.91	0.07
Allah B	3.02	0.49	9.71	6.66	1.87	0.26	CUB	2.27	1.23	10.88	8	0.6	2.06	NSB	1.64	-0.77	11.91	7.6	8.41	-0.09
Andh B	3.11	0.43	9.53	6.55	7.16	0.06	DCB	3.13	1.77	9.99	6.32	1.28	1.38	BT	1.34	1.38	13.83	7.32	5.95	0.23
BoB	2.37	0.73	9.99	6.78	0.68	1.09	DB	2	0.65	10.23	7.89	1.13	0.58	BNDeP	1.83	1.8	10.28	4.87	0.08	23.69
BoI	2.77	0.95	9.26	6.25	1.57	0.6	Federal	2.06	0.85	10.76	8.64	0.4	2.14	BB	3.72	0.18	12.58	10.34	4.96	0.04
BoM	3.41	0.54	9.79	6.11	8.54	0.06	GB	2.63	0.32	10.34	7.19	0.04	8.67	CMB	8.38	0.48	4.55	0.32	55.68	0.01
Can B	2.63	0.41	9.57	6.39	1.36	0.3	GTB	2.01	2.16	13.46	10.93	3.92	0.55	CCB	5.34	0.14	6.32	0.6	43.99	0
CBI	3.19	0.57	9.59	6.42	6.84	0.08	HDFC	2.32	2.23	8.91	4.8	11.02	0.2	CHB	4.49	1.41	6.62	0.34	40.88	0.03
Cor B	2.24	1.53	10.16	6.27	1.01	1.53	ICICI	2.27	2.25	10.25	6.57	8.42	0.27	CommerzB	6.72	0.18	8.26	3.98	27.71	0.01
DB	2.99	0.75	10.44	6.59	2.13	0.35	Indus B	1.58	2.06	11.49	8.71	3.37	0.61	CLB	1.8	1.76	13.9	13.15	4.43	0.4
Ind B	2.8	-2.28	9.18	8.47	3.84	-0.59	J&K B	1.84	0.59	9.44	5.96	0.17	3.57	DB (Asia)	3.05	2.08	10.6	4.76	9.95	0.21
IOB	2.73	0.58	10.37	7.99	1.86	0.31	KarnaB	2.48	1.41	11.6	7.48	0.47	3.02	DBS	4.12	2.36	13.55	7.31	31.48	0.07
OBC	2.19	1.56	10.82	6.93	1.67	0.94	KVB	2.66	1.86	11.35	7.39	0.31	6.01	DresherB	5.23	-0.59	14.81	12.2	12.11	-0.05
PSB	3.04	0.68	10.43	6.96	1	0.68	LVB	3.45	1.39	10.91	7.82	0.86	1.62	GB	3.25	1.03	10.2	6.74	0.93	1.11
PNB	3.06	0.26	9.64	7.04	9.29	0.03	LKB	1.77	0.78	11.22	8.73	1.68	0.46	INB	2.68	-1.67	8.32	4.43	9.63	-0.17
Syn B	3.5	0.38	9.12	5.95	7.36	0.05	Nai B	3.18	0.25	10.41	6.2	0.35	0.73	MB	2.8	0.52	14.8	8.41	3.11	0.17
Union	2.77	0.96	10.28	6.87	1.51	0.64	Ned B	3.77	0.64	11.18	7.57	1.56	0.41	OIB	1.86	2.01	12.53	8.06	6.58	0.31
United	2.81	-0.89	7.9	6.28	13.43	-0.07	R B	3.48	0.73	10.71	7.03	0.58	1.25	Sakura	0.87	2.97	12.2	4.41	10.59	0.28
UCO B	3.16	-1.08	7.97	6.04	10.49	-0.1	S B	3.32	0.5	9.48	6.43	0.64	0.78	Sanwa	1.43	1.42	12.42	5.38	16.85	0.08
Vijaya	3.26	0.24	9.1	6.19	6.91	0.03	S I B	2.71	0.33	11.8	9.1	0.6	0.55	Societe	1.45	1.46	15.45	11.9	4.12	0.36
	-	-	-	-	-	-	T M B	2.88	2.23	11.68	7.02	0.02	122.14	Sonali	3.65	3.31	1.86	0.87	0.51	6.5
	-	-	-	-	-	-	T B	1.79	0.74	9.57	6.96	6.64	0.11	SBoM	2.06	3.56	8.69	1.18	68.62	0.05
	-	-	-	-	-	-	U W B	2.75	0.94	10.06	7.25	1.3	0.72	TFB	8.94	-5.34	3.7	0.24	73.35	-0.07
	-	-	-	-	-	-	UTI B	1.6	0.92	9.54	7.39	6.96	0.13	TSCB	1.46	2.13	7	2.07	17.57	0.12
	-	-	-	-	-	-	VB	1.92	1.09	10.67	8.58	0.24	4.45		-	-	-	-	-	-
	-	-	-	-	-	-	IDBI	2.74	0.46	5.55	2.48	12.65	0.04		-	-	-	-	-	-
	-	-	-	-	-	-	SBIC	1.29	1.17	9.48	8.19	23.06	0.05		-	-	-	-	-	-
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 1998																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.63	1.04	8.84	5.83	0.29	3.54	BoM	2.83	1.01	8.29	5.91	0.35	2.9	ABN	2.85	2.33	9.65	6.42	0.54	4.34
SBBJ	3.29	1.06	9.98	6.3	0.59	1.81	BoP	2.47	2.09	9.59	7.01	6.78	0.31	Abu-DB	1.41	0.42	9.74	7.51	0.04	10.25
SBH	2.52	0.91	9.74	6.13	0.16	5.63	BoR	2.87	-2.58	10.27	7.89	0.53	-4.9	AEB	3.7	2.11	10.14	6.85	0.49	4.35
SBInd	3.41	0.68	9.95	6.09	0.43	1.58	BCB	3.92	0.28	10.27	6.87	1.53	0.18	ABB	2.53	1.7	5.03	1.41	54.44	0.03
SBM	3.43	0.86	10.45	6.5	0.61	1.4	BSB	3.26	0.13	10.07	7.57	7.97	0.02	BI	7	3.58	17.85	12.42	18.52	0.19
SBP	2.53	1.48	9.75	6.07	0.26	5.78	BOB	2.09	0.87	9.86	7.3	0.41	2.12	BA	1.81	2.55	10.44	6.51	0	885
SBS	3.13	1.5	9.66	6.03	6.03	0.25	CSB	2.97	0.35	11.76	9.34	0.27	1.31	BB	1.54	3.66	11.09	10.17	4.48	0.82
SBT	2.38	0.69	10.75	7.81	0.55	1.27	CB	2.11	1.27	10.89	8.35	6.39	0.2	BC	1.51	2.55	8.49	3.8	31.6	0.08
Allah B	2.78	0.85	9.27	6.44	1.63	0.52	CUB	2.07	1	10.58	8.49	1.57	0.64	NSB	1.46	0.84	9.68	6.83	7.81	0.11
Andh B	2.95	0.82	9.92	6.56	6.41	0.13	DCB	2.41	1.67	8.36	6.37	0.92	1.81	BT	2.18	25.41	12.12	8.14	7.54	3.37
BoB	2.34	1	9.1	6.19	0.64	1.57	DB	2.3	0.69	11.03	8.36	1.2	0.58	BNDeP	1.96	0.98	8.13	4.89	0.05	18.14
BoI	2.52	0.79	8.49	5.72	1.38	0.57	Federal	1.88	0.69	9.6	7.71	0.3	2.32	BB	6.52	1.71	16.23	13.45	6.96	0.25
BoM	3.21	0.53	9.3	5.8	7.03	0.08	GB	2.63	0.08	10.55	8.01	0.03	2.67	CMB	7.5	2.73	4.62	4.23	27.41	0.1
Can B	2.34	0.47	8.87	6.37	1.34	0.35	GTB	1.88	2.12	10.42	8.54	2.75	0.77	CHB	4.73	5.01	13.87	2.53	41.99	0.12
CBI	3.05	0.57	9.31	6.2	5.92	0.1	HDFC	2.22	2.23	8.51	4.86	7.07	0.32	CBK	7.55	1.82	11.25	1.06	94.72	0.02
Cor B	2.05	1.49	9.16	5.7	1.07	1.39	ICICI	1.76	1.53	7.92	5.69	5.03	0.3	CommerzB	4.21	0.2	10.78	6.44	17.48	0.01
DB	2.75	0.86	9.92	6.44	1.69	0.51	Indus B	1.51	1.81	10.96	8.54	3.14	0.58	CLB	2.32	0.59	12.43	8.54	4.04	0.15
Ind B	2.69	-1.55	7.53	6.95	12.36	-0.13	J&K B	1.75	0.9	9.48	5.88	0.54	1.68	DB (Asia)	3.38	3.58	12.36	5.66	8.93	0.4
IOB	2.55	0.53	9.26	6.95	1.56	0.34	KarnaB	2.18	1.51	11.14	7.56	0.35	4.31	DBS	2.78	0.97	8.89	6.94	32.2	0.03
OBC	2.03	1.42	9.86	6.48	1.3	1.09	KVB	2.59	1.73	10.57	7.29	0.24	7.26	DresherB	3.44	1.02	10.24	7.58	13.06	0.08
PSB	12.5	5.29	9.35	6.72	7.81	0.68	LVB	2.95	1.31	9.41	6.88	0.7	1.88	GB	2.72	2.27	10.39	5.83	0.84	2.7
PNB	0.64	0.16	10.04	6.79	0.53	0.31	LKB	2.22	0.51	12.59	10.45	1.71	0.3	HB	10.64	2.48	14.07	3.12	78.75	0.03
Syn B	3.29	0.42	8.69	5.84	6.62	0.06	Nai B	2.86	0.45	10.34	6.44	0.29	1.58	INB	3.13	2.04	8.54	6.74	12.89	0.16
Union	2.62	0.97	9.72	6.55	1.31	0.74	Ned B	3.06	0.78	10.96	7.73	1.09	0.71	KTB	6.08	5.9	12.75	5.54	91.97	0.06
United	2.6	0.07	9.28	6.51	11.89	0.01	R B	2.9	0.91	10.05	6.84	0.73	1.26	MB	4.3	2.84	13.13	7.95	10.03	0.28
UCO B	2.89	-0.52	7.78	5.84	11.11	-0.05	S B	3.08	0.35	9.54	6.17	0.74	0.47	OIB	1.93	0.9	11.71	10.36	7.28	0.12
Vijaya	2.95	0.25	8.58	5.82	5.89	0.04	S I B	2.39	0.68	11.05	8.53	0.63	1.08	OCB	7.21	0.87	6.72	0.67	86.65	0.01
	-	-	-	-	-	-	T M B	2.38	1.98	10.8	7.12	0.01	136.25	Sakura	1.35	0.2	12.23	4.77	11.1	0.02
	-	-	-	-	-	-	T B	1.79	1.02	8.8	7.29	4.11	0.25	Sanwa	1.68	1.16	12.08	5.72	17.82	0.07
	-	-	-	-	-	-	U W B	2.24	1.13	8.73	6.35	1.01	1.12	Societe	1.86	1.09	11.97	9.5	4.29	0.25
	-	-	-	-	-	-	UTI B	1.25	0.56	8.06	7	3.62	0.15	Sonali	4.98	5.44	3.23	1.63	0.6	9
	-	-	-	-	-	-	VB	1.93	1.14	9.75	8.18	0.24	4.7	SBoM	1.26	4.47	8.37	1.91	42.83	0.1
	-	-	-	-	-	-	IDBI	1.52	0.91	6.78	4.75	4.54	0.2	SB	2.2	1.02	3.99	1.8	26.33	0.04
	-	-	-	-	-	-	SBIC	0.95	2.22	8.43	7.22	15.76	0.14		-	-	-	-	-	-
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 1999																				
Public sector banks							Private sector banks							Foreign banks						
Name	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.65	0.46	8.59	5.86	0.24	1.95	BoM	2.91	0.83	8.91	7.03	0.32	2.56	ABN	2.08	2.2	9.24	5.94	0.38	5.84
SBBJ	3.24	0.9	9.42	6.19	0.49	1.84	BoP	1.99	1.53	8.8	6.86	4.96	0.31	Abu-DB	0.97	0.32	8.59	6.67	0.03	10.7
SBH	2.9	0.85	9.3	5.77	0.13	6.47	BoR	3.25	-1.84	9.54	7.78	0.49	-3.76	AEB	4.52	0.25	10.54	7.77	0.48	0.52
SBInd	3.4	0.63	9.98	6.05	0.35	1.77	BSB	3.48	-2.32	9.15	7.66	7.1	-0.33	ABB	1.95	3.15	6.81	1.32	59.69	0.05
SBM	3.57	0.49	10.14	6.56	0.52	0.93	BOB	2.14	0.74	9.45	7.41	1.04	0.71	BI	12.25	14.41	12.84	10.09	44.64	0.32
SBP	2.41	0.93	9.38	5.85	0.23	4.09	CSB	2.8	0.02	10.98	9.01	0.43	0.04	BM	4.92	1.47	3.77	0.96	62.13	0.02
SBS	3	0.4	9.41	5.92	4.92	0.08	CB	3.6	0.69	12.71	9.54	3.82	0.18	BA	1.95	1.99	12.68	8.26	0	721.1
SBT	2.2	0.4	9.34	7.16	0.46	0.87	CUB	2.06	0.87	10.59	8.72	1.7	0.51	BB	1.82	0.71	10.29	9.18	7.28	0.1
Allah B	2.67	0.77	9.15	6.34	1.42	0.55	DCB	2.36	0.9	9.37	7.09	0.7	1.28	BC	1.99	2.33	11.22	4.67	31.73	0.07
Andh B	2.83	0.78	9.11	6.2	3.01	0.26	DB	2.17	0.28	10.31	8.15	1.06	0.26	NSB	1.55	2.2	11.36	8.14	8.33	0.26
BoB	2.31	0.81	9.23	6.22	0.56	1.43	Federal	1.88	0.03	10.64	9.56	0.27	0.12	BT	33.47	4.29	10.23	6.59	8.15	0.53
BoI	2.37	0.37	8.51	5.9	1.18	0.32	GB	2.41	0.08	11.01	8.95	0.22	0.37	BNDeP	2.19	1.06	8.81	5.67	0.05	22.51
BoM	3.06	0.43	9.31	6.02	2.71	0.16	GTB	1.82	1.36	9.45	8.43	2	0.68	BarB	3.6	0.33	12.15	8.57	4.87	0.07
Can B	2.56	0.47	9.75	6.51	1.2	0.39	HDFC	2.04	1.89	8.65	5.27	4.6	0.41	CMB	11.11	1.87	8.56	9.5	34.01	0.06
CBI	3.11	0.41	9.29	6.32	5.11	0.08	ICICI	1.19	0.91	7.79	6.09	2.36	0.38	CCB	3.01	0.26	7.6	4.33	20.21	0.01
Cor B	1.81	1.28	9.05	6.53	0.8	1.6	Indus B	1.41	0.6	9.62	7.76	2.58	0.23	CHB	2.8	3.68	8.81	1.62	24.1	0.15
DB	2.54	0.74	10.05	7.09	1.39	0.53	J&K B	1.78	1.14	9.23	5.73	0.64	1.79	CityB	3.5	0.91	10.43	7.04	0	587.05
Ind B	2.61	-3.63	7.58	6.66	11.67	-0.31	KarnaB	1.89	0.87	10.08	7.7	0.28	3.14	CommerzB	3.89	0.27	9.28	6.17	15.08	0.02
IOB	2.75	0.23	9.4	7.09	1.36	0.17	KVB	2.24	1.19	10.82	7.91	0.19	6.17	CLB	1.8	1.74	13.82	10.2	4.16	0.42
OBC	1.97	1.23	9.97	6.87	1.03	1.2	LVB	3.08	0.76	9.95	7.64	0.61	1.25	DB (Asia)	3.42	1.11	9.72	4.79	6.57	0.17
PSB	2.57	0.57	9.3	6.91	2.29	0.25	LKB	2.34	0.16	12.24	10.72	2.46	0.07	DBS	2.18	1.31	11.69	8.68	22.61	0.06
PNB	2.97	0.8	9.6	6.03	0.46	1.75	Nai B	2.69	0.75	10.31	6.2	0.6	1.25	DresherB	5.19	1.57	12.66	8.51	19.98	0.08
Syn B	3.41	0.65	9.53	6.51	1.58	0.41	Ned B	2.85	0.62	11.23	8.69	0.78	0.79	GB	2.6	1.49	10	6.33	0.72	2.07
Union	2.51	0.51	9.19	6.52	1.08	0.47	R B	2.9	0.78	10.26	7.14	0.75	1.03	HB	8.37	1.08	8.23	0.19	96.42	0.01
United	2.4	0.09	8.44	6.44	10.52	0.01	S B	3.03	0.34	9.01	6.26	0.7	0.48	INB	4.41	0.03	10.48	6.91	10.64	0
UCO B	2.87	-0.33	8.16	6.01	10.91	-0.03	S I B	2.51	0.17	11.16	8.7	0.99	0.17	KTB	5	4.31	7.92	0.44	87.37	0.05
Vijaya	2.8	0.27	9.01	6.15	5.01	0.05	T M B	2.25	1.43	10.05	7.1	0.01	125.11	MB	3.53	2.73	10.78	8.43	8.89	0.1
	-	-	-	-	-	-	T B	1.72	0.85	8.75	7.09	3.05	0.28	MGT	4.86	3.88	1.4	0.8	40.78	0.04
	-	-	-	-	-	-	U W B	2.02	0.95	8.55	6.25	0.76	1.24	OIB	1.54	2.84	8.52	9.08	7.5	0.38
	-	-	-	-	-	-	UTI B	1.3	0.79	9.53	7.68	3.37	0.24	OCB	5.82	4.39	9.09	1.86	70.17	0.06
	-	-	-	-	-	-	VB	1.9	0.4	9.55	8.3	0.23	1.78	Sakura	1.72	3.77	13.59	6.78	12.91	0.29
	-	-	-	-	-	-	IDBI	1.59	0.9	8.63	6.75	4.09	0.22	Sanwa	2.03	1.04	11.55	5.82	20.42	0.05
	-	-	-	-	-	-	SBIC	1.24	1.63	11.39	10.02	16.61	0.1	Societe	2.56	3.17	14.51	11.73	8.46	0.37
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	5.77	6.69	5.66	2.48	0.54	12.3
	-	-	-	-	-	-		-	-	-	-	-	-	SBoM	1.22	1.79	7.45	4.69	26.34	0.07
	-	-	-	-	-	-		-	-	-	-	-	-	SB	2.44	1.56	9.89	5.84	13.64	0.11

Source: A Profile of Banks, RBI.

Bank Wise details of selected parameter in 2000																			
Public sector banks							Private sector banks							Foreign banks					
Nam	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.41	0.78	8.49	5.84	0.2	3.9	BoM	2.42	1.03	8.33	5.99	0.26	3.87	ABN	1.83	1.58	8.05	4.83	2.25	0.7
SBBJ	2.85	0.97	8.95	5.95	0.4	2.41	BoP	2.07	1.04	8.23	5.92	3.29	0.32	Abu-DB	1.1	0.52	10.98	8.88	0.03	17.55
SBH	2.42	0.82	9.56	6.21	0.11	7.41	BoR	3.12	0.29	9.68	7.42	1.52	0.19	AEB	6.38	1.02	11.11	7.2	0.58	1.77
SBInd	3.07	0.72	8.92	5.93	0.28	2.59	BSB	2.87	-0.54	9.26	8	6.2	-0.09	ABB	2.08	2.8	7.23	1.41	49.97	0.06
SBM	3.41	0.58	9.66	6.26	0.43	1.34	BOB	2.12	0.06	8.63	6.48	0.97	0.07	BI	15.03	-8.1	9.88	7.1	53.34	-0.15
SBP	2.35	1.06	9.51	5.65	0.2	5.28	CSB	2.96	0.25	10.53	8.18	0.39	0.63	BM	2.79	0.45	5.89	3.76	25.19	0.02
SBS	2.56	1.15	9.25	6.05	4.17	0.28	CB	1.99	0.66	8.48	6.94	2.92	0.23	BA	3.25	2.69	11.72	7.09	0	7.641
SBT	2.37	0.53	9.32	7.06	0.4	1.33	CUB	1.99	1.3	11.4	8.38	1.56	0.84	BB	1.75	0.9	10.16	8.61	6.17	0.15
Allah B	2.72	0.35	9.36	6.5	1.25	0.28	DCB	1.82	0.87	7.91	6.21	0.5	1.74	BC	1.54	2.62	8.6	3.61	23.58	0.11
Andh B	2.27	0.76	9.12	6.49	2.2	0.35	DB	2.15	0.71	10.24	7.74	0.92	0.77	NSB	1.43	1.46	8.07	5.48	8.39	0.17
BoB	2.22	0.86	8.91	5.98	0.5	1.71	Federal	2.33	0.61	11.6	9.23	0.29	2.14	BT	14.7	4.87	12.95	6.68	11.39	0.43
BoI	2.49	0.31	8.45	6.14	1.14	0.27	GB	2.19	0.14	10.95	8.55	0.54	0.26	BNPP	2.33	0.94	9.6	6.9	0.04	21.5
BoM	2.76	0.59	9.64	6.57	2.17	0.27	GTB	1.65	1.44	8.58	6.73	1.61	0.9	BarB	3.67	-2.1	11.2	8.83	6.4	-0.33
Can B	2.48	0.43	8.92	6.28	1.06	0.41	HDFC	1.47	1.03	5.83	3.21	3.49	0.3	CMB	5.6	2.87	5.17	4.4	12.17	0.24
CBI	3	0.36	9.04	6.08	4.35	0.08	ICICI	1.27	0.87	7.06	5.52	1.63	0.54	CCB	3.3	0.25	12.44	8.5	21.22	0.01
Cor B	1.81	1.39	9.57	6.84	0.72	1.94	Indus B	1.13	0.7	7.97	6.27	1.99	0.35	CHB	2.43	0.5	8.8	0.93	23.12	0.02
DB	2.44	0.37	9.42	6.94	1.23	0.3	J&K B	1.51	1.14	8.38	5.66	0.45	2.5	CityB	3.53	1.77	10.51	5.97	0	1256.7
Ind B	2.68	-1.81	8.07	6.45	10.64	-0.17	KarnaB	1.84	1.01	10.07	8.08	0.24	4.32	CommerzB	3.99	0.46	11.39	8.37	15.56	0.03
IOB	3.13	0.37	12	8.54	1.21	0.3	KVB	2.29	1.9	11.16	7.5	0.16	11.86	CAI	3.78	-9.83	11.89	8.99	18.02	-0.55
OBC	1.74	1.14	10.02	7.11	0.78	1.45	LVB	2.78	1.14	9.62	7.03	0.5	2.29	CL	2.07	1.58	13.22	9.7	4.94	0.32
PSB	2.82	0.52	9.5	7.15	2.04	0.25	LKB	1.82	0.61	9.37	7.97	2.26	0.27	DB (Asia)	3.89	1.1	10.13	5.12	6.28	0.18
PNB	2.82	0.75	9.52	6.54	0.39	1.92	Nai B	2.69	0.86	9.59	5.74	0.5	1.72	DBS	1.7	1.44	8.36	5.02	15.37	0.09
Syn B	3.13	0.79	8.97	5.94	1.74	0.46	Ned B	2.68	0.84	9.94	7.19	0.59	1.43	DresherB	5.21	-11.37	11.1	5.51	20.96	-0.54
Union	3.55	0.43	10.71	7.21	0.97	0.45	R B	2.98	0.7	9.86	7.06	1.38	0.5	H&SB	2.35	0.96	7.84	5.09	0	607.95
United	2.39	0.16	8.7	6.59	9.28	0.02	S B	2.8	0.34	8.36	5.79	0.69	0.48	ING	6.85	-4.01	16.94	10.7	21.03	-0.19
UCO B	2.65	0.16	8.39	6.05	9.61	0.02	S I B	2.53	0.58	10.55	7.89	0.8	0.73	KBC	2.58	0.58	7.5	4.53	17.86	0.03
Vijaya	2.97	0.41	9.36	6.33	2.03	0.2	T M B	2.14	1.32	10.14	7.26	0.01	145.11	KTB	4.65	0.26	9.2	1.41	77.56	0
	-	-	-	-	-	-	U W B	1.94	1.16	8.7	6.32	0.62	1.86	MB	3.4	-3.61	9.91	7.68	8.92	-0.4
	-	-	-	-	-	-	UTI B	0.98	0.76	7.25	5.89	1.98	0.39	MGT	6.25	1.98	6.19	4.18	36.34	0.05
	-	-	-	-	-	-	VB	1.98	0.5	8.88	7.65	0.22	2.24	OIB	1.25	-8.98	8.39	8.85	15.27	-0.59
	-	-	-	-	-	-	IDBI	1.39	1.35	9.39	7.37	3.1	0.44	OCB	5.33	-0.25	9.56	2.38	66.21	0
	-	-	-	-	-	-	SBIC	1.14	1.7	9.4	7.42	14.14	0.12	Sakura	2.15	-0.77	12.65	6.29	15.26	-0.05
	-	-	-	-	-	-		-	-	-	-	-	-	Sanwa	2.41	0.14	9.05	4.81	21.9	0.01
	-	-	-	-	-	-		-	-	-	-	-	-	Societe	2.83	0.02	9.94	8.85	9.1	0
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	3.28	2.14	1.84	0.9	0.33	6.4
	-	-	-	-	-	-		-	-	-	-	-	-	SBM	0.92	1.48	8.08	4.96	19.99	0.07
	-	-	-	-	-	-		-	-	-	-	-	-	SB	2.38	0.25	12.42	8.46	17.4	0.01
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2001																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.63	0.51	8.24	5.63	0.17	3.05	BoP	2.45	0.93	9.12	6.08	2.81	0.33	ABN	2.57	1.29	10.16	6.23	2	0.64
SBBJ	3.08	0.76	9.14	5.85	0.36	2.11	BoR	3.04	0.74	10.18	7.12	2.31	0.32	Abu-DB	0.44	0.44	6.54	5.56	0.01	41.45
SBH	2.46	0.82	9.23	5.9	0.09	8.71	BSB	3.13	-1.18	8.88	7.98	5.47	-0.22	AEB	6.58	-0.62	8.39	5.77	0.43	-1.44
SBInd	2.72	0.78	8.63	5.79	0.21	3.66	BOB	2.17	0.94	8.4	5.65	0.84	1.11	ABB	2.39	3.5	7.77	1.16	47.48	0.07
SBM	3.68	0.27	9.72	6.39	0.38	0.71	CSB	2.71	0.38	10.48	7.75	0.35	1.07	BI	11.49	-2.95	5.16	2.35	80.21	-0.04
SBP	2.62	1.12	9.38	5.16	0.17	6.51	CB	2.42	0.12	9.31	7.57	2.59	0.05	BM	3.49	1.05	10.4	7.34	21.7	0.05
SBS	2.88	0.16	8.95	6.02	3.66	0.04	CUB	1.82	1.17	10.18	7.23	1.32	0.89	BA	1.6	1.25	10.31	7.03	0	345.4
SBT	2.48	0.67	9.08	6.35	0.35	1.95	DCB	1.81	0.76	9.81	7.61	0.58	1.31	BB	1.72	0.8	9.83	8.21	5.54	0.15
Allah B	2.98	0.18	9.37	6.29	1.12	0.16	DB	2.87	0.4	10.45	8.1	0.81	0.49	BC	1.63	0.95	8.44	4.57	25.03	0.04
Andh B	2.24	0.59	9.2	6.74	2.21	0.27	Federal	1.98	0.69	10.42	7.73	0.25	2.81	NSB	0.96	1.06	8.79	6.57	5.13	0.21
BoB	2.54	0.43	9.09	6.03	0.46	0.93	GB	2.14	0.22	10.61	8.52	0.7	0.31	BT	4.46	7.57	10.53	4.3	10.54	0.72
BoI	2.93	0.42	8.93	6.15	1.07	0.39	GTB	1.73	0.85	9.48	7.36	1.28	0.66	BNPP	2.82	0.33	9.75	7.14	0.04	8.93
BoM	2.84	0.24	8.96	6.03	1.74	0.14	HDFC	1.98	1.35	8.06	4.83	1.56	0.86	BarB	2.81	1.35	7.31	5.77	4.74	0.28
Can B	2.51	0.43	8.46	5.62	0.87	0.49	ICICI	1.69	0.82	6.29	4.24	1.12	0.73	CMB	5.36	5.06	8.27	5.48	15.78	0.32
CBI	3.06	0.1	9.03	5.96	3.82	0.03	Indus B	1.19	0.47	8.42	6.58	1.84	0.25	CCB	2.79	0.63	10.71	6.48	23.2	0.03
Cor B	1.73	1.33	9.16	6.21	0.61	2.18	J&K B	1.3	1.32	8.46	5.66	0.38	3.48	CHB	2.3	3.15	9.86	1.65	26.01	0.12
DB	3.24	-1.49	9.58	7.08	1.15	-1.29	KarnaB	1.58	0.68	9.79	7.52	0.2	3.36	CityB	3.09	1.47	8.99	5.03	0.36	4.07
Ind B	2.79	-1.03	7.88	6.05	9.4	-0.11	KVB	2.33	1.7	10.88	7.21	0.14	12.01	CommerzB	2.21	0.14	8.21	6.4	10.03	0.01
IOB	2.89	0.38	9.22	6.31	1.47	0.26	LVB	2.5	1.02	9.61	7.07	0.44	2.32	CAI	2.27	-1.62	7.02	5.56	8.43	-0.19
OBC	1.94	0.75	10.19	7.27	0.71	1.05	LKB	1.85	0.36	8.75	7.31	1.9	0.19	CL	1.73	0.19	12.32	9.22	7.46	0.03
PSB	2.98	0.1	9.23	6.72	1.81	0.05	Nai B	2.54	0.87	9.69	5.89	0.86	1.01	DB (Asia)	3.9	1.71	9.77	4.63	7.12	0.24
PNB	2.95	0.73	9.23	6.02	0.33	2.18	Ned B	2.53	-3.57	9.32	8.28	0.54	-6.65	DBS	1.58	1.58	8.92	6.06	10.89	0.15
Syn B	3.81	0.83	9.89	6.01	1.67	0.5	R B	2.84	0.67	10.18	7.11	1.53	0.44	DresherB	10.92	-24.38	17.44	11.16	32.52	-0.75
Union	2.62	0.4	9.58	6.45	0.87	0.46	S B	2.92	0.38	9.11	5.96	0.79	0.49	H&SB	2.66	1.29	8.47	5.44	0	104.4
United	2.52	0.09	8.99	6.6	8.43	0.01	S I B	2.21	0.8	10.36	7.49	0.68	1.16	ING	6.52	-3.97	4.84	3.34	20.05	-0.2
UCO B	2.73	0.12	8.32	5.9	8.29	0.01	T M B	1.9	1.37	10.24	6.95	0.01	180	KBC	2.32	0.3	13.38	10.18	13.49	0.02
Vijaya	3.07	0.5	9.51	6.28	2.52	0.2	U W B	1.63	0.05	8.23	6.32	0.52	0.1	KTB	4.41	2.22	9.46	1.18	72.9	0.03
	-	-	-	-	-	-	UTI B	1.2	0.8	8.26	7.35	1.23	0.65	MB	2.05	-3.1	8.36	7.26	9.13	-0.34
	-	-	-	-	-	-	VB	1.8	0.38	8.75	7.05	0.22	1.7	MGT	4.76	0.25	6.8	4.93	29.93	0.01
	-	-	-	-	-	-	IDBI	2.09	0.39	10.96	8.89	2.85	0.14	OIB	1.32	-4.41	6.36	6.87	19.19	-0.23
	-	-	-	-	-	-	SBIC	1.42	-6.5	9.94	8.75	15.48	-0.42	OCB	5.96	0.79	10	1.4	74.51	0.01
	-	-	-	-	-	-		-	-	-	-	-	-	Sakura	1.83	-2.07	11.28	7.03	13.01	-0.16
	-	-	-	-	-	-		-	-	-	-	-	-	Sanwa	3.33	0.25	8.38	4.49	18.41	0.01
	-	-	-	-	-	-		-	-	-	-	-	-	Societe	2.81	0.04	7.38	6.09	9.3	0
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	5.13	3.05	3.71	1.42	0.47	6.45
	-	-	-	-	-	-		-	-	-	-	-	-	SBM	0.84	1.05	9.03	5.95	18.85	0.06
	-	-	-	-	-	-		-	-	-	-	-	-	SB	2.68	-1.69	9.98	7.44	17.54	-0.1
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2002																				
Public sector banks							Private sector banks							Foreign banks						
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.07	0.7	8.56	5.95	0.15	4.62	BoP	3.42	0.92	9.35	7.03	2.7	0.34	ABN	3.62	1.72	10.16	5.49	2.27	0.76
SBBJ	2.57	1.06	8.73	5.58	0.32	3.29	BoR	3.02	0.84	9.42	6.73	2.09	0.4	Abu-DB	0.49	0.47	10.03	9.11	0.01	42.9
SBH	1.88	1.02	8.67	5.74	0.08	13.13	BOB	2.16	1.08	7.93	5.59	0.75	1.44	AEB	5.49	0.27	8.6	5.78	0.72	0.37
SBInd	2.24	1.24	8.83	5.92	0.17	7.15	CSB	2.56	1.07	9.68	7.36	0.3	3.52	ABB	1.91	2.86	6.27	0.69	41.98	0.07
SBM	3.03	0.64	9.38	6.33	0.35	1.83	CB	3.86	-2.27	11.63	9.13	3.68	-0.62	BI	3.85	0.22	4.26	1.7	86.5	0
SBP	2.06	1.34	8.68	4.89	0.14	9.41	CUB	1.68	1.27	9.51	7.06	1.08	1.18	BC	1.29	0.02	8.32	3.89	22.55	0
SBS	2.48	0.88	8.99	6.01	3.35	0.26	DCB	1.99	0.81	9.01	6.84	0.55	1.48	NSB	0.94	1	8.73	6.32	4.63	0.22
SBT	2.02	0.73	8.82	6.24	0.3	2.42	DB	2.68	0.53	9.59	7.34	2.18	0.24	BT	4.88	4.08	8.61	3.92	7.76	0.52
Allah B	2.86	0.32	9.18	6.23	1	0.33	Federal	1.89	0.81	10.28	7.55	0.21	3.78	BarB	1.87	1.78	4.6	3.67	33.11	0.05
Andh B	2.17	0.97	9.69	6.95	2.15	0.45	GB	2.07	0.5	10.04	8.28	0.79	0.63	BNPP	3.59	-0.94	7.54	5.66	0.95	-0.99
BoB	2.2	0.77	8.4	5.75	0.42	1.85	GTB	2.32	0.55	9.91	8.7	1.66	0.33	CCB	3.34	1	13.35	7.14	28.5	0.03
BoI	2.19	0.73	8.03	5.4	0.7	1.04	HDFC	1.76	1.25	7.16	4.51	1.18	1.06	CHB	1.75	3.42	7.11	0.97	19.31	0.18
BoM	2.23	0.68	9.31	6.57	1.54	0.44	ICICI	0.6	0.25	2.07	1.5	0.93	0.27	CityB	3.52	1.51	8.89	5.13	0.78	1.94
Can B	2.21	1.03	8.82	6.3	0.8	1.28	Indus B	0.93	0.5	6.96	5.36	1.56	0.32	CommerzB	31.98	-12.01	46.14	32.77	105.55	-0.11
CBI	2.72	0.31	8.85	5.93	2.14	0.15	J&K B	1.59	1.77	9.21	6.23	0.33	5.39	CAI	1.61	0.99	5.95	5	6.76	0.15
Cor B	1.63	1.31	8.24	5.59	0.61	2.15	KarnaB	1.68	1.17	9.57	7.76	0.17	6.75	CL	2.06	0.31	10.44	8.9	8.17	0.04
DB	2.44	0.06	9.07	6.72	1.1	0.05	KVB	2.1	2.12	9.44	6.22	0.12	18.09	DBS	1.53	2.02	7.92	4.83	9.29	0.22
Ind B	2.4	0.11	7.58	5.83	12.57	0.01	LVB	2.47	1.06	9.53	7.36	0.4	2.63	DB (Asia)	3.44	2.24	8.19	4.42	7.15	0.31
IOB	2.5	0.65	8.95	6.21	1.26	0.52	LKB	2.21	1.14	8.36	7.59	3.29	0.35	DresherB	15.02	-10.87	2.58	1.38	87.82	-0.12
OBC	1.64	0.99	9.42	6.41	0.6	1.66	Nai B	2.55	0.87	9.55	5.68	0.76	1.15	H&SB	2.4	0.8	7.17	4.77	3.42	0.23
PSB	2.77	0.17	9.2	6.9	1.77	0.09	Ned B	2.88	0.08	9.85	9.22	0.65	0.12	ING	3.4	-0.44	4.65	3.71	12.54	-0.04
PNB	2.47	0.77	9.12	5.97	0.52	1.49	R B	3.12	1	9.39	6.5	1.41	0.71	JPMCB	7.24	3.18	6.32	3.02	44.58	0.07
Syn B	3.24	0.79	9.08	5.59	1.49	0.53	S B	2.87	0.58	8	5.58	1.01	0.58	KBC	4.01	-6.34	7.33	12.31	27.9	-0.23
Union	1.89	0.37	9.05	6.04	0.76	0.49	S I B	1.84	0.95	9.39	7.02	0.55	1.75	KTB	4.33	0.02	8.71	0.68	80.83	0
United	4.24	1.38	8.93	6.29	7.95	0.17	T M B	1.99	1.29	10.12	6.77	0.01	197.68	MB	1.88	1.59	11.18	8.96	9.41	0.17
UCO B	2.42	0.38	8.1	5.77	7.22	0.05	U W B	1.96	0.5	9.59	7.62	0.58	0.86	MCB	2.14	-1.45	8.39	6.18	19.82	-0.07
Vijaya	2.61	0.81	9.53	6.52	2.07	0.39	UTI B	1.43	0.93	8.21	6.82	1.33	0.7	OIB	1.16	-4.47	4.42	6.38	22.26	-0.2
	-	-	-	-	-	-	IDBI	2.15	0.79	7.67	5.51	2.11	0.37	OCB	15.84	-3.9	8.21	0.56	92.03	-0.04
	-	-	-	-	-	-	SBIC	1.2	0.46	8.07	7.3	14.19	0.03	SCB	1.38	-33.38	4.97	5.54	21.66	-1.54
	-	-	-	-	-	-		-	-	-	-	-	-	Societe	2.83	-2.29	7.57	6.38	10.95	-0.21
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	6.64	1.41	3.54	2	0.56	2.5
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	2.38	2.17	8.7	4.94	1.98	1.1
	-	-	-	-	-	-		-	-	-	-	-	-	SCG	4.11	2.48	9.29	5.5	1.36	1.82
	-	-	-	-	-	-		-	-	-	-	-	-	SBM	1.19	0.85	9.27	6.57	21.63	0.04
	-	-	-	-	-	-		-	-	-	-	-	-	SB	3.02	-3.13	12.97	8.03	18.54	-0.17
	-	-	-	-	-	-		-	-	-	-	-	-	TDB	4.38	2.99	11.06	0.28	77.76	0.04
	-	-	-	-	-	-		-	-	-	-	-	-	UFJB	1.85	0.05	9.62	5.36	16.91	0.01
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2003																				
Public sector banks							Private sector banks							Foreign banks						
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.11	0.83	8.27	5.62	0.14	5.9	BoP	2.92	0.74	8.24	5.94	2.45	0.3	ABN	3.47	1.56	7.91	4.01	1.8	0.86
SBBJ	2.5	1.13	7.97	4.92	0.28	4.07	BoR	2.59	1.12	7.71	4.76	1.73	0.65	Abu-DB	0.79	0.17	9.64	8.78	0.01	15.85
SBH	1.73	1.15	7.91	5.05	0.07	17.47	BOB	1.93	1.17	7.21	4.73	0.65	1.81	AEB	6.33	-0.9	10.05	6.62	1.51	-0.6
SBInd	2.18	1.76	8.67	5.44	0.15	11.45	CSB	2.66	1.17	8.98	6.67	0.27	4.27	ADB	2.6	0.36	4.61	1.24	46.3	0.01
SBM	2.89	1.02	9.15	5.74	0.32	3.22	CB	4.73	-0.75	10.97	7.95	4.5	-0.17	ABB	2.23	2.73	4.65	0.77	40.02	0.07
SBP	1.86	1.51	8.28	4.58	0.12	13.01	CUB	1.52	1.27	8.88	6.36	0.91	1.39	BI	7.27	2.11	4.48	1.08	85.89	0.02
SBS	2.28	0.85	8.32	5.38	2.89	0.29	DCB	2.23	0.78	8.14	6.52	0.64	1.23	BM	4.31	0.15	9.8	5.45	17.27	0.01
SBT	1.93	0.9	8.32	5.58	0.26	3.42	DB	2.84	0.71	8.98	6.46	1.52	0.47	BA	1.5	1.73	7.25	4.66	0	4.25
Allah B	3.27	0.59	9.16	5.92	1.24	0.48	Federal	1.82	0.86	9.11	6.33	0.18	4.83	BB	1.71	1.06	8.19	6.46	8.45	0.13
Andh B	2.44	1.63	8.89	5.84	1.62	1.01	GB	2.24	0.59	9.39	7.91	0.83	0.71	BC	1.55	0.27	6.86	3.8	21.3	0.01
BoB	2.16	1.01	7.98	5.23	0.39	2.63	GTB	2.31	-3.56	7.04	6.75	1.58	-2.25	NSB	1.36	0.78	9.67	6.83	5.79	0.13
BoI	2.15	1.11	7.74	5.08	0.64	1.74	HDFC	1.95	1.27	6.65	3.92	0.93	1.37	BT	4.31	2.43	8.97	4.09	8.41	0.29
BoM	2.07	0.89	8.35	5.64	1.33	0.67	ICICI	1.88	1.13	8.77	7.44	0.9	1.25	BarB	2.67	3.95	3.89	2.76	35.58	0.11
Can B	2.13	1.24	8.11	5.39	0.5	2.49	Indus B	1.19	0.91	7.5	5.64	2.21	0.41	BNPP	4.01	-0.53	9.11	6.26	2.31	-0.23
CBI	2.67	0.54	8.88	5.56	1.97	0.27	J&K B	1.55	2.01	8.5	5.36	0.29	7.01	CCB	3.72	2.12	11.17	4.2	27.74	0.08
Cor B	1.79	1.58	8	4.99	0.55	2.9	KarnaB	1.52	1.19	8.76	7.09	0.44	2.72	CHB	2.44	2.47	10.38	3.24	22.59	0.11
DB	2.54	0.57	8.79	5.97	1.03	0.55	KVB	1.68	2.02	8.34	5.61	0.27	7.62	CityB	3.32	1.55	7.84	4.08	0.66	2.34
Ind B	2.13	0.53	7.16	4.84	12.93	0.04	LVB	2.26	1.07	8.48	6.34	0.36	2.97	CL	2.55	0.59	8.44	7.16	12.72	0.05
IOB	2.3	1.01	8.47	5.5	1.08	0.94	LKB	2.28	1.24	8.37	6.95	3.05	0.41	DBS	2.36	2.01	10.58	5.11	14.75	0.14
OBC	1.71	1.34	9.69	6.15	0.57	2.37	Nai B	2.81	0.99	8.77	5.07	1.95	0.51	DB (Asia)	2.8	2.92	5.68	3.03	6.72	0.43
PSB	2.85	0.03	8.86	6.2	1.68	0.02	R B	2.57	1.3	8.77	6.08	1.57	0.82	H&SB	2.94	0.72	7.08	4.2	3.42	0.21
PNB	2.39	0.98	8.68	5.06	0.31	3.17	S B	2.82	0.65	7.65	5.46	1.12	0.58	ING	10.55	-12.92	9.82	7.81	29.63	-0.44
Syn B	3.15	1	8.35	4.84	1.37	0.73	S I B	1.86	0.95	8.59	6.28	0.47	2.02	JPMCB	2.72	3.1	4.78	1.25	27.28	0.11
Union	1.7	0.41	8.43	5.5	0.9	0.45	T M B	1.97	1.35	9.99	6.4	0.01	227.71	KTB	4.25	-0.72	6.9	0.34	64.77	-0.01
United	4.2	2.28	8.73	5.77	7.46	0.31	U W B	2.1	0.46	7.99	6	0.5	0.92	MB	2.04	3.24	12.16	8.74	13.23	0.24
UCO B	1.7	0.87	8	5.47	1.72	0.51	UTI B	1.65	0.98	7.47	5.82	1.17	0.83	MCB	2.65	0.3	8.4	5.74	22.7	0.01
Vijaya	2.92	1.03	8.76	5.38	1.75	0.59	IDBI	2.61	0.9	7.54	5	1.77	0.51	OIB	1.36	-1.83	4.11	5.83	25.65	-0.07
	-	-	-	-	-	-	SBIC	1.5	-1.45	8.3	6.16	16.98	-0.09	Societe	2.98	-1.58	5.63	3.66	24.33	-0.07
	-	-	-	-	-	-	INGV	2.87	0.74	7.8	5.93	0.2	3.82	Sonali	6.06	1.23	4	2.9	0.54	2.3
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	1.98	2.92	7.8	3.93	1.76	1.66
	-	-	-	-	-	-		-	-	-	-	-	-	SBM	1.21	1.05	6.1	3.61	20.77	0.05
	-	-	-	-	-	-		-	-	-	-	-	-	SB	2.29	-7.05	10.23	4.89	21.71	-0.32
	-	-	-	-	-	-		-	-	-	-	-	-	TDB	4.04	1.45	8.54	0.02	76.38	0.02
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2004																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.27	0.9	7.47	4.73	0.13	6.99	BoP	3.26	0.76	7.02	4.38	2.17	0.35	ABN	4.43	1.84	7.18	2.94	1.59	1.15
SBBJ	2.6	1.49	7.77	4.23	0.25	6.03	BoR	2.15	0.82	5.95	3.7	1.27	0.64	Abu-DB	0.56	0.49	8.35	7.52	0.01	48.3
SBH	1.74	1.24	7.22	4.48	0.06	22.1	BOB	2.13	1.25	7.05	4.02	0.56	2.23	AEB	7.27	-0.69	8.99	5.25	1.83	-0.38
SBInd	2.16	1.73	8.02	4.54	0.13	12.93	CSB	2.73	1.31	8.29	5.45	0.25	5.31	ADB	1.39	1.17	4.05	1.06	22.83	0.05
SBM	2.69	1.28	7.68	4.38	0.26	4.9	CB	5.1	-2.96	9.41	5.74	1.6	-1.85	ABB	2.3	4.08	4.78	0.77	48.81	0.08
SBP	1.67	1.6	7.02	3.96	0.09	17.39	CUB	1.41	1.79	8.65	5.64	0.75	2.38	BI	2.96	-0.19	3.62	0.72	70.82	0
SBS	2	1.38	7.62	4.47	2.45	0.56	DCB	2.41	0.32	6.54	4.76	0.73	0.44	BA	0.26	0.02	0.78	0.63	0	4.15
SBT	1.88	1.02	7.25	4.4	0.21	4.89	DB	2.48	0.71	7.82	4.98	1.31	0.55	BB	0.45	0.1	1.5	0.91	8.5	0.01
Allah B	2.76	1.34	7.69	4.56	1	1.34	Federal	1.87	0.9	7.89	5.1	0.14	6.26	BC	16	8.93	70.16	48.26	18.96	0.47
Andh B	2.44	1.72	8.25	4.87	1.48	1.16	GB	2.26	0.62	8.29	7.15	0.82	0.75	NSB	1.32	2.65	2.49	0.66	4.35	0.61
BoB	2.12	1.14	7.22	4.2	0.35	3.28	GTB	2.21	-11.28	4.92	6.04	1.68	-6.69	BarB	6.32	-0.95	12.87	7.2	19.01	-0.05
BoI	2.06	1.19	6.83	4.24	0.58	2.07	HDFC	1.91	1.2	6.02	2.86	0.67	1.79	BNPP	0.51	0.12	1.95	1.28	6.67	0.02
BoM	1.74	0.95	6.84	4.44	1.34	0.71	ICICI	2.05	1.31	7.1	5.6	0.77	1.69	CCB	2.95	3.27	8.02	1.68	28	0.12
Can B	1.91	1.34	7.04	4.34	0.41	3.26	Indus B	1.44	1.74	6.54	4.44	1.92	0.9	CHB	4.6948	2.6584	1.06009	4.2959	16.06	16.55
CBI	2.46	0.98	7.99	4.64	1.77	0.55	J&K B	1.38	1.92	7.17	4.25	0.23	8.42	CityB	0.11	0.03	0.36	0.29	0.57	0.06
Cor B	1.97	1.73	7.55	4.24	0.49	3.51	KarnaB	1.46	1.26	8.02	6	0.38	3.29	CL	0.5	-0.58	2.14	0.98	13.22	-0.04
DB	2.25	1.04	7.83	5.16	0.93	1.11	KVB	2.21	2.27	9.11	4.93	0.25	8.96	DBS	28.23	44.76	49.4	37.49	30.43	1.47
Ind B	2.71	1.04	6.81	3.96	11.68	0.09	LVB	2.08	1.07	7.48	5.3	0.3	3.57	DB (Asia)	7.26	4.58	16.45	8.41	3.4	1.35
IOB	2.14	1.08	7.93	4.55	1.15	0.94	LKB	2.06	1.01	6.39	5.09	2.18	0.46	H&SB	0.01	0	0.01	0.01	2.82	0.00E+00
OBC	1.57	1.67	8.05	4.5	0.47	3.56	Nai B	2.99	1.43	8.2	4.33	1.76	0.81	ING	22.68	15.68	36.46	8.85	66.24	0.24
PSB	3.99	0.06	8.52	5.23	1.62	0.04	R B	2.48	1.04	7.99	5.26	2.26	0.46	JPMCB	0.32	0.11	0.48	0.04	24.39	0
PNB	2.32	1.08	7.6	4.06	0.26	4.18	S B	2.75	0.61	6.77	4.14	1.12	0.55	KTB	7.68	10.63	60.21	45.73	62.68	0.17
Syn B	2.44	0.92	6.53	3.51	1	0.92	S I B	2.09	0.91	7.35	5.19	0.39	2.36	MB	2.23	2.06	5.84	1.98	14.08	0.15
Union	1.49	0.75	7.74	4.77	0.79	0.95	T M B	2.23	1.59	10.56	6.33	0.01	288.14	MCB	1.93	-0.71	7.22	7.86	49.25	-0.01
United	4.2	2.76	8.02	5	7.01	0.39	U W B	1.71	0.43	6.48	4.77	0.42	1.04	OIB	2.79	2.83	5.59	2.99	27.77	0.1
UCO B	1.54	0.72	7.07	4.34	1.83	0.39	UTI B	1.74	1.15	6.57	4.23	0.96	1.2	Societe	105.56	81.25	343.69	145.84	19.67	4.13
Vijaya	2.07	1.71	8.06	4.58	1.8	0.95	IDBI	1.97	1.02	5.67	3.12	1.65	0.62	Sonali	13.21	16.2	83.1	46.59	0.56	28.7
	-	-	-	-	-	-	SBIC	1.63	3.68	8.08	5.32	20.44	0.18	SCB	0.04	-0.21	0.13	0.04	1.5	-0.14
	-	-	-	-	-	-	KMB	2.4	1.35	4.96	2.03	1.02	1.32	SBM	1.37	1.36	3.81	0.52	19.2	0.07
	-	-	-	-	-	-	INGV	2.62	0.45	7	5.15	0.17	2.6		-	-	-	-	-	-
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2005																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.19	0.94	7.05	4.02	0.11	8.18	BoP	3.76	-1.25	6.7	3.95	2.14	-0.58	ABN	3.68	1.27	5.89	2.17	1.1	1.16
SBBJ	2.66	0.88	7.44	3.73	0.21	4.11	BoR	2.13	0.38	5.71	3.37	1.18	0.33	Abu-DB	2.43	-2.57	7.68	7.07	0.01	-251
SBH	1.92	0.72	6.66	3.9	0.05	14.55	BOB	2.18	0.62	6.8	3.54	0.49	1.27	AEB	9.66	0.55	8.93	5	3.41	0.16
SBInd	1.94	0.79	6.57	3.6	0.1	7.61	CSB	2.57	0.24	8.3	5.01	0.24	1	ADB	1.14	1	3.95	1.48	17.19	0.06
SBM	2.89	1.25	7.05	3.76	0.22	5.73	CB	4.75	0.54	7.5	3.65	2.2	0.25	ABB	2.78	3.59	4.37	0.76	54.02	0.07
SBP	1.52	0.91	6.77	3.67	0.08	11.6	CUB	1.79	1.33	8.32	5.14	0.69	1.93	BI	2.31	-0.7	2.87	0.56	59.38	-0.01
SBS	1.69	0.27	7.53	4.15	2.09	0.13	DCB	3.54	-3.5	6.51	5.01	1.41	-2.49	BA	1.66	1.46	4.68	2.32	11.96	0.12
SBT	1.74	0.86	6.96	3.85	0.17	4.94	DB	2.62	-0.82	7.27	4.5	1.21	-0.67	BB	2.2	-3.77	5.71	3.63	9.72	-0.39
Allah B	2.06	1.2	7.06	4.03	0.77	1.56	Federal	1.87	0.54	7.08	4.09	0.39	1.37	BC	1.33	1.19	4.68	2.93	21.04	0.06
Andh B	2.53	1.59	6.95	3.68	1.22	1.3	GB	2.23	-2.55	7.77	6.4	0.78	-3.27	NSB	1.03	-0.35	4.75	3.21	4.05	-0.09
BoB	2.09	0.71	6.79	3.65	0.31	2.3	HDFC	2.11	1.29	6.02	2.56	0.6	2.15	BoT	3.62	1.13	6.1	1.69	52.6	0.02
BoI	2.03	0.36	6.35	4	0.51	0.7	ICICI	1.97	1.2	5.61	3.92	0.65	1.85	BarB	2.76	5.5	2.76	0.75	8.79	0.63
BoM	2.19	0.54	7.2	4.52	1.31	0.41	Indus B	1.7	1.35	7.26	4.6	1.86	0.72	BNPP	3.28	0.5	5.99	3.08	6.79	0.07
Can B	1.91	1.01	6.86	4.01	0.37	2.71	J&K B	1.32	0.47	6.33	3.89	0.2	2.37	CB	2.82	-0.84	6.22	5.2	14.94	-0.06
CBI	2.46	0.52	7.59	4.13	1.64	0.32	KarnaB	1.58	1.17	6.71	4.18	0.97	1.21	CCB	3.88	-7.69	7.82	2.85	39.92	-0.19
Cor B	1.88	1.19	6.63	3.3	0.42	2.8	KVB	2.16	1.34	7.49	4.24	0.23	5.86	CHB	1.58	2.07	4.53	1.03	12.38	0.17
DB	2.29	0.25	7.18	4.32	1.19	0.21	LVB	2.23	0.08	7.36	4.73	0.28	0.29	CityB	3.62	1.77	6.52	2.22	0.5	3.58
Ind B	2.08	0.93	6.54	3.57	10.43	0.09	LKB	2.35	-0.97	7.79	5.52	3.77	-0.26	DBS	1.31	0.64	2.45	0.6	37.05	0.02
IOB	2.28	1.28	7.78	4.12	1.07	1.2	Nai B	2.42	1.08	7	3.47	1.43	0.76	DB (Asia)	2.56	0.72	3.63	2.84	6.63	0.11
OBC	1.47	1.41	6.61	3.79	0.36	3.95	RB	2.56	-1.08	7.54	4.45	2.23	-0.49	H&SB	2.43	1.28	5.83	2.31	4.9	0.26
PSB	3.63	-0.45	7.94	4.3	1.55	-0.29	SB	2.75	-1.36	7.06	4.01	1.1	-1.24	JPMCB	2.06	3.58	3.06	1.24	12.83	0.28
PNB	2.36	1.12	6.7	3.53	0.25	4.47	SIB	1.97	0.09	7.48	4.77	0.5	0.18	KTB	3.19	0.03	4.91	0.75	47.28	0
Syn B	2.43	0.77	7.21	3.96	0.91	0.85	TMB	2.22	1.47	9.13	5.01	0	294.04	MB	1.09	1.11	8.58	7.31	14.39	0.08
Union	1.52	0.48	6.86	4.01	0.64	0.75	UWB	1.82	-1.39	6.87	4.8	0.42	-3.3	MCB	1.79	2.13	3.79	1.28	31.7	0.07
United	4.32	2.47	7.33	4.18	6.22	0.4	UTI B	1.54	0.89	5.1	3.16	0.73	1.22	OIB	1.18	-3.14	4.05	3.36	34.99	-0.09
UCO B	1.29	0.55	6.5	3.92	1.46	0.38	SBIC	1.61	-2.1	5.42	3.47	20.97	-0.1	Societe	1.86	1.71	4.2	2.23	33.49	0.05
Vijaya	1.87	1.3	7.14	3.78	1.48	0.88	IDBI	0.56	0.38	3.26	3.03	0.89	0.43	Sonali	9.22	4.33	4.39	2.49	0.61	7.05
	-	-	-	-	-	-	KMB	3.45	1.3	6.45	2.99	1.89	0.69	SCB	2.26	1.62	6.7	2.98	1.39	1.17
	-	-	-	-	-	-	INGV	2.46	-0.25	6.45	4.13	0.15	-1.68	SBM	4.61	1.65	5.5	3.11	8.54	0.07
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2006																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.37	0.89	7.28	4.13	0.11	8.37	BoR	2.59	0.15	5.48	3.22	1.09	0.14	ABN	3.18	1.03	5.85	2.8	0.72	1.43
SBBJ	2.76	0.53	7.14	3.54	0.18	2.9	BOB	2.32	0.15	6.76	3.9	0.42	0.35	Abu-DB	2.03	0.66	16.16	14.66	0.03	22.85
SBH	2.01	1.05	6.77	4.07	0.04	24.75	CSB	3.15	0.13	7.65	4.57	0.22	0.57	AEB	8.24	1.45	7.09	4.23	4.04	0.36
SBInd	1.92	0.67	6.39	3.77	0.08	7.95	CB	4.44	0.77	7.09	3.57	1.24	0.62	ADB	1.12	1.21	5.71	3.32	17.73	0.07
SBM	2.63	1.12	6.96	3.8	0.19	6.02	CUB	1.7	1.37	7.91	4.52	0.58	2.35	ABB	3.38	4.25	5.56	0.56	54.8	0.08
SBP	1.48	0.74	5.97	3.55	0.06	12.25	DCB	4.01	-2.28	7.41	5.4	2.03	-1.12	BII	2.27	-0.98	3.39	0.79	62.28	-0.02
SBS	1.87	0.36	7.12	4.22	1.9	0.19	DB	2.87	0.33	7.37	4.45	1.13	0.3	BA	1.88	2.41	5.8	2.45	10.96	0.22
SBT	1.98	0.81	7.21	4.22	0.16	5.17	Federal	1.77	1.09	6.96	4.05	0.41	2.63	BB&K	2.77	-1.6	6.92	4.76	13.95	-0.11
Allah B	1.87	1.28	6.81	3.96	0.81	1.58	GB	1.85	-4.8	5.54	4.62	1.23	-3.89	BC	1.43	0.24	5.48	2.32	21.46	0.01
Andh B	2.11	1.19	6.58	3.7	1.19	1	HDFC	2.3	1.18	6.09	2.62	0.43	2.78	NSB	0.91	0.86	4.97	3.5	3.66	0.23
BoB	2.1	0.73	6.22	3.42	0.32	2.26	ICICI	1.99	1.01	5.69	3.82	0.49	2.05	BarB	2.25	0.02	4.21	1.59	60.56	0
BoI	1.88	0.62	6.26	3.92	0.43	1.44	Indus B	1.8	0.21	6.74	4.95	1.65	0.13	BoT	2.72	6.4	3.45	1.48	15.04	0.43
BoM	2.11	0.16	7.93	4.81	1.38	0.12	J&K B	1.31	0.67	6.45	3.94	0.18	3.65	BNPP	2.79	0.51	5.98	3.03	9.24	0.06
Can B	1.77	1.01	6.56	3.86	0.31	3.28	KarnaB	1.37	1.18	6.81	4.36	0.81	1.45	CB	2.81	4.07	6.93	5.58	31.76	0.13
CBI	2.3	0.34	7.21	4.02	1.51	0.23	KVB	1.94	1.5	7.23	4.08	0.2	7.53	CCB	2.24	-1.72	5.22	1.71	27.82	-0.06
Cor B	1.84	1.1	6.48	3.46	0.35	3.1	LVB	2.04	0.46	6.55	4.4	0.4	1.15	CityB	3.36	1.55	6.74	2.21	1.1	1.41
DB	2.11	0.27	6.63	3.91	1.08	0.25	LKB	2.66	0.14	7.08	4.99	3.63	0.04	DBS	1.23	0.5	4.86	1.9	16.44	0.03
Ind B	2.27	1.06	7.06	3.89	1.56	0.68	Nai B	2.77	0.92	6.97	3.05	2.27	0.41	DB (Asia)	3.87	1.04	5.01	3.06	5.91	0.18
IOB	2.13	1.32	7.42	3.94	0.92	1.44	RB	2.39	0.06	7.18	4.11	2.91	0.02	H&SB	2.74	1.37	5.88	2.21	3.65	0.38
OBC	1.64	0.95	6.99	4.27	0.43	2.22	SB	4.93	-18.87	7.46	4.61	1.82	-10.37	JPMCB	1.48	2.53	4.37	1.79	14.63	0.17
PSB	2.54	0.57	6.82	3.51	3.9	0.15	SIB	2.09	0.47	7.03	4.17	0.65	0.72	KTB	4.2	5.37	5.81	0.87	46.35	0.12
PNB	2.08	0.99	6.6	3.39	0.22	4.56	TMB	2.13	1.66	8.98	4.95	0	361.46	MB	4.55	4.23	23.06	20.87	54.6	0.08
Syn B	2.35	0.88	6.63	3.55	0.85	1.03	UWB	2.52	-1.49	6.78	4.48	1.32	-1.13	MCB	1.67	0.88	4.41	2.09	63.43	0.01
Union	1.32	0.22	6.58	3.92	0.57	0.39	SBIC	1.45	1.09	6.84	3.59	18.9	0.06	OIB	1.3	-0.89	3.95	3.22	36.42	-0.02
United	4.22	2.03	7.1	4.03	4.61	0.44	IDBI	0.97	0.63	6.08	5.65	0.82	0.77	Societe	1.68	0.95	5.12	2.86	16.47	0.06
UCO B	1.32	0.33	7.04	4.51	1.29	0.26	KMB	3.81	1.16	7.06	3.33	3.04	0.38	Sonali	10.97	1.7	4.42	2.63	0.67	2.55
Vijaya	1.98	0.4	7.33	4.25	1.37	0.29	AB	1.64	0.98	5.81	3.64	0.56	1.74	SCB	2.49	1.88	6.34	2.47	1.1	1.71
	-	-	-	-	-	-	INGV	3.09	0.05	7.29	4.42	0.54	0.1	SBM	1.09	0.68	8.84	5.5	18.6	0.04
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2007																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	2.09	0.8	6.97	4.14	0.09	8.63	BoR	2.07	0.91	6.27	3.63	0.89	1.03	ABN	1.35	0.98	8.6	1.45	5.18	10.42
SBBJ	2.18	0.89	7.26	4.16	0.14	6.12	CSB	2.59	0.36	7.85	4.74	0.2	1.77	Abu-DB	0.07	0.01	0.16	0.11	0.59	0.01
SBH	1.65	1.03	7.11	4.35	0.04	29.3	CB	3.82	0.66	6.86	3.78	0.85	0.77	AEB	42.79	6.52	36.46	21.02	0.03	258.7
SBInd	1.67	0.77	6.96	4.58	0.07	10.85	CUB	1.68	1.34	7.46	4.34	0.47	2.85	ADB	0.14	0.26	1.03	0.61	3.65	0.07
SBM	2.09	0.93	6.73	4.07	0.13	6.92	DCB	3.26	0.14	6.59	4.32	2.81	0.05	ABB	0.67	0.38	0.73	0.09	18.49	0.02
SBP	1.39	0.77	6.68	4.34	0.05	14.81	DB	2.54	0.47	7.15	4.34	0.93	0.5	BI	2.46	4.73	4.73	1.33	69.04	0.07
SBS	1.73	0.46	7.1	4.65	1.67	0.28	Federal	1.62	1.17	7.24	4.32	0.34	3.42	BA	2.21	3.1	6.81	2.86	10.4	0.3
SBT	1.7	0.86	7.45	4.47	0.13	6.53	HDFC	2.65	1.25	7.55	3.48	0.35	3.57	BB&K	2.28	-1.73	6.4	3.68	12.43	-0.14
Allah B	1.52	1.11	7.22	4.63	0.66	1.68	ICICI	1.94	0.9	6.67	4.75	0.36	2.49	BC	1.62	1.23	6.18	2.41	22.98	0.05
Andh B	1.96	1.13	6.97	3.99	1.02	1.11	Indus B	1.64	0.33	7.17	5.87	1.53	0.21	NSB	0.91	1.72	5.99	4.07	8.27	0.21
BoB	1.78	0.72	6.44	3.79	0.26	2.81	J&K B	1.3	0.96	6.63	3.95	0.17	5.66	BoT	1.74	2.11	5.3	1.98	11.92	0.18
BoI	1.84	0.79	6.48	4.05	0.34	2.3	KarnaB	1.46	1.09	7.74	5.16	0.75	1.46	BarB	4.1	2.92	4.4	2.27	36.41	0.08
BoM	1.91	0.7	6.98	4.17	1.1	0.63	KVB	1.74	1.44	7.83	4.7	0.45	3.23	BNPP	3.07	1.51	7.2	4.1	12.62	0.12
Can B	1.55	0.86	6.85	4.42	0.25	3.47	LVB	1.75	0.3	7.37	5.13	0.82	0.37	BC	2.39	2.71	5.08	2.88	17.99	0.15
CBI	1.81	0.54	6.7	4.04	1.21	0.44	LKB	2.61	-0.61	8.65	6.59	4.32	-0.14	CCB	2.19	0.35	6.2	3.67	24.48	0.01
Cor B	1.52	1.02	6.51	3.89	0.27	3.74	Nai B	1.99	1.04	7.21	3.25	1.76	0.59	CityB	2.79	1.36	6.61	2.56	2.42	0.56
DB	1.94	0.64	6.74	4.02	0.91	0.7	RB	2.81	0.26	6.93	3.7	10.17	0.03	DBS	1.22	1.22	6.3	3.99	15.68	0.08
Ind B	2.22	1.35	7.63	4.3	1.48	0.92	SIB	1.6	0.76	7.15	4.46	0.52	1.48	DB (Asia)	4.2	1.23	5.49	2.64	6.85	0.18
IOB	1.69	1.23	7.09	3.98	0.66	1.85	TMB	2.08	1.49	9	4.83	0	377.79	H&SB	2.88	1.54	6.39	2.21	4.14	0.37
OBC	1.35	0.79	6.99	4.7	0.34	2.32	SBIC	1.41	1.13	5.15	3.4	14.98	0.08	JPMCB	1.13	1.71	4.48	2.04	16.6	0.1
PSB	2.38	0.99	7.86	4.37	3.38	0.29	IDBI	0.75	0.61	6.11	5.48	0.7	0.87	KTB	2.83	1.53	6.35	1.14	38.3	0.04
PNB	2.05	0.95	7.1	3.71	0.19	4.88	KMB	3.08	0.71	6.8	3.51	1.64	0.43	MB	5.14	9.36	6.94	0.62	43.81	0.21
Syn B	1.55	0.8	6.77	4.36	0.58	1.37	AB	1.66	0.9	6.23	4.09	0.38	2.34	MCB	1.84	1.3	4.76	1.63	36.89	0.04
Union	1.16	0.31	7.19	4.47	0.49	0.63	INGV	2.63	0.46	7.27	4.46	0.47	0.98	OIB	1.47	-0.62	4.49	3.24	40.11	-0.02
United	3.49	2	6.74	3.96	3.62	0.55		-	-	-	-	-	-	SinB	1.78	1.2	5.09	1.24	34.01	0.04
UCO B	1.04	0.36	7.1	4.84	1.07	0.33		-	-	-	-	-	-	Societe	1.7	0.77	5.9	4.08	10.42	0.07
Vijaya	1.54	0.78	6.66	4.13	1.02	0.76		-	-	-	-	-	-	Sonali	7.61	1.53	3.43	1.78	0.5	3.05
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	2.38	2.32	6.86	2.8	0.9	2.58
	-	-	-	-	-	-		-	-	-	-	-	-	SBM	1.25	1.53	7.09	4.81	16.22	0.09
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2008																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	1.75	0.93	6.78	4.43	0.09	10.66	Axis	1.97	0.98	6.39	4.03	0.33	2.99	AB	3.78	3.65	5.65	0.55	46.91	0.08
SBBJ	1.82	0.77	7.42	5.13	0.12	6.3	BoR	1.71	0.73	6.64	4.66	0.85	0.86	ABN	3.57	0.77	8.3	3.99	0.46	1.66
SBH	1.3	0.9	7.15	5.34	0.03	32.29	CSB	2.54	0.61	8.07	5.32	0.21	2.91	Abu-DB	4.63	5.02	11.22	4.62	0.03	144.7
SBInd	1.47	0.8	7.6	5.65	0.06	13.37	CB	3.63	0.44	8.12	5.54	0.82	0.53	ADB	0.8	1.36	5.17	2.92	23.48	0.06
SBM	1.87	0.96	7.54	5.24	0.11	8.86	CUB	1.5	1.38	8.11	5.39	0.44	3.18	BI	5.71	8.77	2.72	0.2	92.1	0.1
SBP	1.2	0.7	7.3	5.79	0.47	1.51	DCB	3.14	0.51	7.42	5.12	2.3	0.22	BA	2.06	3.76	6.33	2.01	12.13	0.31
SBS	1.84	0.24	7.29	5.59	2.29	0.11	DB	2.39	0.71	7.75	5.29	0.79	0.89	BB	2.29	3.62	6.59	3.53	10.99	0.33
SBT	1.56	0.88	7.82	5.64	0.11	7.72	Federal	1.44	1.13	7.74	5.07	0.53	2.15	BC	1.66	2.33	6.94	1.93	23.55	0.1
Allah B	1.4	1.18	7.44	5.42	0.54	2.18	HDFC	2.81	1.19	7.6	3.67	0.27	4.49	NSB	0.57	1.44	5.03	3.66	5.17	0.28
Andh B	1.61	1.02	7.44	5.07	0.86	1.19	ICICI	2.04	1.04	7.7	5.87	0.37	2.84	BT	0.87	2.4	6.1	2.2	21.11	0.11
BoB	1.69	0.8	6.58	4.4	0.2	3.93	Indus B	1.73	0.32	8.08	6.79	1.38	0.23	BarB	5.35	0.05	4.83	2.5	35.6	0
BoI	1.48	1.12	6.91	4.54	0.29	3.82	INGV	2.39	0.61	6.58	4.63	0.4	1.53	BNPP	2.35	1.72	6.06	3.34	11.46	0.15
BoM	1.74	0.68	7.15	4.8	0.89	0.76	J&K B	1.23	1.1	7.43	4.96	0.15	7.42	BC	2.36	2.78	6.06	3.13	13.05	0.21
Can B	1.55	0.87	7.87	5.91	0.23	3.82	KarnaB	1.58	1.25	8.07	5.7	0.63	1.99	CCB	2.37	1.62	6.92	4.05	22.6	0.07
CBI	1.41	0.44	6.36	4.66	0.97	0.46	KVB	1.48	1.43	7.59	5.25	0.37	3.86	CityB	2.6	2.15	7.11	2.76	3.1	0.69
Cor B	1.34	1.1	6.78	4.61	0.22	5.12	KMB	3.6	1.04	8.95	4.63	1.22	0.85	DBS	0.97	0.72	6.98	4.33	10.48	0.07
DB	1.68	0.93	6.92	4.7	0.74	1.25	LVB	1.79	0.39	7.76	5.86	0.75	0.52	DB (Asia)	4.27	1.56	5.85	2.17	13.38	0.12
IDBI	0.73	0.56	6.15	5.63	0.55	1.01	Nai B	1.57	1.32	8.19	4.52	1.46	0.9	H&SB	2.83	1.57	6.56	2.66	4.03	0.39
Ind B	1.99	1.43	7.39	4.48	1.18	1.22	RB	2.02	1.15	7.28	3.55	7.1	0.16	JPMCB	1.58	3.07	5.57	2.51	21.3	0.14
IOB	1.46	1.18	7.6	5.19	0.53	2.21	SBIC	1.38	1.93	6.56	5.39	15.02	0.13	KTB	2.02	1.56	6.09	1.88	28.12	0.06
OBC	1.19	0.39	7.53	5.68	0.28	1.41	SIB	1.45	0.89	7.56	5.35	0.53	1.68	MB	4.87	7.77	6.77	0.21	41.3	0.19
PSB	1.81	1.24	7.17	4.63	2.4	0.51	TMB	1.9	1.43	8.58	5.63	0	452.64	MCB	2.09	1.67	6.1	2.76	28.09	0.06
PNB	1.77	1.03	7.17	4.39	0.16	6.5	YesB	2.01	1.18	7.68	5.74	1.74	0.68	OIB	1.52	2.02	3.79	3.13	41.07	0.05
Syn B	1.4	0.79	7.38	5.45	0.49	1.62		-	-	-	-	-	-	SinB	1.86	1.86	6.81	2.08	23.84	0.08
UCO B	1.45	0.46	7.25	5.59	0.89	0.52		-	-	-	-	-	-	Societe	1.93	1.28	7.03	5.26	9.48	0.14
Union	1.28	1.12	7.43	5.13	0.41	2.75		-	-	-	-	-	-	Sonali	9.14	1.66	3.8	1.69	0.55	3
United	1.66	0.59	6.55	4.88	2.82	0.21		-	-	-	-	-	-	SCB	2.79	2.32	6.64	2.9	0.92	2.52
Vijaya	1.25	0.64	6.92	5.44	0.77	0.83		-	-	-	-	-	-		-	-	-	-	-	-
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2009																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	1.62	0.95	6.61	4.45	0.07	14.37	Axis	1.93	1.23	7.34	4.84	0.24	5.06	AB	5.12	4.69	5.61	0.89	45.62	0.1
SBBJ	1.7	0.87	8.22	5.84	0.11	8.07	BoR	1.83	0.68	8.03	5.8	0.94	0.73	ABN	4.67	0.06	9.72	4.48	0.53	0.11
SBH	1.22	0.8	7.44	5.53	0.02	35.7	CSB	2.65	0.53	7.91	5.55	0.27	1.97	Abu-DB	2.01	2.49	7.29	3.05	9.65	0.26
SBInd	1.39	0.84	8.2	5.98	0.05	15.94	CUB	1.51	1.32	8.7	6.07	0.35	3.82	AEB	30.78	-8.62	6.36	6.67	39.52	-0.22
SBM	1.64	0.83	8.02	5.95	0.09	9.36	DCB	4.07	-1.48	10.86	7.54	2.93	-0.51	ADB	0.88	1.61	4.75	2.08	19.03	0.08
SBP	1.14	0.76	8.33	6.71	0.39	1.93	DB	2	1.02	7.24	5.08	1.14	0.9	BI	0.73	1.69	0.3	0.2	92.44	0.02
SBT	1.62	1.23	8.34	5.74	0.1	12.16	Federal	1.47	1.29	8.53	5.15	0.44	2.93	BA	1.78	3.42	6.16	1.54	10.01	0.34
Allah B	1.43	0.79	7.54	5.33	0.46	1.72	HDFC	3.02	1.22	8.91	4.86	0.23	5.28	BB	2.77	2.85	7.96	4.09	9.57	0.3
Andh B	1.61	0.95	7.85	5.47	0.71	1.35	ICICI	1.86	0.99	8.2	5.99	0.39	2.57	BC	1.7	10.43	7.3	1.71	20.14	0.52
BoB	1.57	0.98	6.64	4.38	0.16	6.09	Indus B	1.98	0.54	8.36	6.7	1.29	0.42	NSB	0.84	2.19	7.79	5.3	5.21	0.42
BoI	1.37	1.33	7.25	4.81	0.23	5.72	INGV	2.42	0.59	7.03	4.99	0.32	1.84	BT	0.9	1.49	6.94	3.83	16.25	0.09
BoM	1.63	0.64	7.27	5.14	0.73	0.87	J&K B	1.25	1.09	7.93	5.27	0.13	8.45	BarB	4.31	0.15	9.84	4.73	22.76	0.01
Can B	1.4	0.94	7.79	5.65	0.19	5.05	KarnaB	1.52	1.17	8.39	6.32	0.53	2.19	BNPP	1.97	1.73	6.47	2.77	10.88	0.16
CBI	1.26	0.39	7.08	5.57	0.89	0.43	KVB	1.51	1.38	8.48	6.07	0.32	4.37	BC	1.51	2.35	5.24	2.63	10.58	0.22
Cor B	1.15	1.03	6.98	5.04	0.17	6.22	KMB	4.17	0.96	10.68	5.39	1.2	0.8	CCB	4.42	2.91	9.57	3.31	56.69	0.05
DB	1.59	0.87	7.11	4.92	0.59	1.47	LVB	1.82	0.6	7.91	6.06	0.59	1.03	CityB	2.46	2.06	6.5	2.31	2.47	0.84
IDBI	0.78	0.5	6.75	5.98	0.42	1.18	Nai B	1.6	1.48	8.57	4.77	1.23	1.2	DBS	1.31	2.06	6.44	3.93	7.58	0.27
Ind B	1.68	1.48	8.12	5.02	0.99	1.5	RB	1.95	1.79	8.07	4.36	6.13	0.29	DB (Asia)	4.63	1.72	7.54	2.36	14.55	0.12
IOB	1.6	1.1	7.96	5.59	0.45	2.43	SBIC	1.31	1.51	7.4	4.94	13.69	0.11	H&SB	2.32	1.36	6.69	2.81	4.75	0.29
OBC	1.23	0.8	7.87	6.09	0.22	3.61	SIB	1.61	0.96	8.28	5.71	0.55	1.72	JPMCB	1.31	4.21	4.9	2.19	18.09	0.23
PSB	1.67	1.06	7.85	5.4	0.93	1.14	TMB	1.87	1.37	8.93	5.88	0	536.5	KTB	2.11	1.22	6.75	2.99	23.54	0
PNB	1.7	1.25	7.83	4.98	0.13	9.8	YesB	1.83	1.33	8.75	6.52	1.3	1.02	MB	5.47	4.95	4.84	0.15	43.93	0.05
Syn B	1.32	0.7	7.35	5.36	0.4	1.75		-	-	-	-	-	-	MCB	1.66	1.96	5.91	2.66	29.51	0.11
UCO B	1.31	0.5	7.27	5.8	1.12	0.45		-	-	-	-	-	-	OIB	1.54	0.75	3.69	2.34	40.32	0.07
Union	1.38	1.07	7.39	5.02	0.31	3.42		-	-	-	-	-	-	SinB	1.23	1.86	6.17	2.48	16.29	0.02
United	1.57	0.3	6.95	5.08	2.87	0.1		-	-	-	-	-	-	Societe	3.04	1.83	7.07	3.71	13.82	0.11
Vijaya	1.48	0.42	8.4	6.59	1.5	0.28		-	-	-	-	-	-	Sonali	6.35	1.94	2.56	1.21	0.37	0.13
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	2.56	1.96	5.79	2.55	0.69	5.2
	-	-	-	-	-	-		-	-	-	-	-	-	SBM	0.99	0.9	7.1	4.87	18.41	2.82
	-	-	-	-	-	-		-	-	-	-	-	-	UBS AG	2.72	2.4	6.39	2.01	0.76	0.05
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2010																				
Public sector banks							Private sector banks							Foreign banks						
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	1.93	0.87	6.74	4.49	0.06	14.44	BoR	2.85	-0.59	7.86	5.92	0.93	-0.63	AB	7.62	5.36	3.75	0.49	42.03	0.13
SBBJ	1.64	0.84	7.35	5.11	0.09	9.1	CSB	2.46	0.02	7.52	5.92	0.25	0.09	ABN	1.94	1.13	6.08	2.97	9.37	0.12
SBH	1.11	0.93	7.17	5.06	0.02	39.65	CUB	1.43	1.32	8.28	5.87	0.35	3.82	Abu-DB	21.93	-3.43	4.35	2.19	32.81	-0.1
SBInd	1.44	0.87	7.74	5.45	0.05	17.59	DB	2.38	0.29	6.61	4.87	0.79	0.36	ADB	1.53	-0.27	4.87	1.14	22.79	-0.01
SBM	1.6	0.98	7.84	5.11	0.08	12.38	Federal	1.55	1.06	8.41	5.18	0.39	2.72	BI	0.31	0.62	1.17	0.2	92.22	0.01
SBP	1.18	0.72	7.85	5.84	0.39	1.87	INGV	2.39	0.71	6.59	4.14	0.35	2.02	BA	1.81	2.6	4.22	1.38	7.31	0.36
SBT	1.61	1.15	7.36	5.01	0.08	13.69	J&K B	1.36	1.2	7.18	4.55	0.11	10.57	BB	2.41	0.35	5.81	3.8	8.37	0.04
Allah B	1.33	0.99	6.88	4.7	0.37	2.7	KarnaB	1.43	0.62	7.31	6.32	0.5	1.25	BC	1.92	3	6.17	2.04	20.52	0.15
Andh B	1.49	1.16	7.05	4.62	0.54	2.16	KVB	1.59	1.53	8.01	5.44	0.25	6.17	NSB	0.6	2.63	5.61	2.39	4.83	0.55
BoB	1.37	1.1	6	3.87	0.13	8.37	LVB	1.78	0.29	8.67	6.3	0.93	0.31	BT	0.91	1.31	4.58	2.26	33.54	0.04
BoI	1.33	0.63	6.5	4.41	0.19	3.31	Nai B	1.56	1.51	7.79	4.54	1.56	0.96	BarB	3.66	-2.6	7.79	3.28	24.65	-0.11
BoM	1.51	0.62	6.66	4.84	0.61	1.02	RB	1.86	0.92	6.91	4.09	5.02	0.18	BNPP	2.53	1.92	6.22	1.52	11.37	0.17
Can B	1.31	1.14	7.08	4.94	0.15	7.37	SBIC	1.55	0.49	6.27	5.1	15.58	0.03	CCB	5.08	1.34	6.94	1.22	45.16	0.03
CBI	1.22	0.58	6.6	5.21	0.97	0.6	SIB	1.43	0.92	7.58	5.36	0.44	2.07	CityB	2.47	0.9	6.36	2.11	3.92	0.23
Cor B	1.13	1.05	6.26	4.55	0.13	8.16	TMB	1.7	1.36	8.23	5.48	0	659.04	CAB	1.14	1.11	4.67	1.43	15.77	0.07
DB	1.47	0.89	6.96	5.05	0.5	1.78	Axis	2.05	1.39	6.44	3.67	0.22	6.21	DBS	0.89	1.44	4.69	1.69	5.08	0.28
IDBI	0.78	0.44	6.53	5.57	0.31	1.42	DCB	3.27	-1.28	7.48	5.17	3.26	-0.39	DB (Asia)	3.38	1.58	5.57	1.07	12.82	0.12
Ind B	1.71	1.53	7.61	4.49	0.82	1.87	HDFC	2.67	1.33	7.27	3.5	0.21	6.44	FRB	17.68	-12.26	1.86	0.32	58.22	-0.21
IOB	1.88	0.54	7.82	5.4	0.42	1.3	ICICI	1.61	1.11	7.07	4.84	0.31	3.61	H&SB	2.16	0.9	5.71	2.12	4.98	0.18
OBC	1.23	0.83	7.46	5.35	0.18	4.53	Indus B	2.08	0.99	7.65	5.15	1.16	0.85	JPMCB	1.36	0.09	3.65	1.5	16.55	0.01
PSB	1.27	0.9	6.94	4.85	0.68	1.33	KMB	3.18	1.5	8.7	3.73	0.93	1.61	KTB	2.55	0.51	5.16	2.39	23.4	0.02
PNB	1.61	1.32	7.22	4.36	0.11	12.39	YesB	1.37	1.31	6.51	4.35	0.93	1.41	MB	5.84	2.98	3.66	0.08	33.79	0.09
Syn B	1.46	0.58	7.23	5.26	0.38	1.56		-	-	-	-	-	-	MCB	2.14	0.95	4.57	2.35	29.94	0.03
UCO B	1.15	0.74	6.94	5.24	1.24	0.6		-	-	-	-	-	-	OIB	1.71	2.3	3.75	2.21	41.35	0.06
Union	1.29	1.06	6.82	4.67	0.26	4.11		-	-	-	-	-	-	RBS	4.18	-0.44	8.93	3	0.71	-0.62
United	1.39	0.42	6.82	5.01	1.13	0.37		-	-	-	-	-	-	SinB	1.25	2.28	6.51	2.09	15.85	0.14
Vijaya	1.53	0.72	7.41	5.34	1.33	0.54		-	-	-	-	-	-	Societe	2.63	0.19	4.59	1.87	11.4	0.02
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	9.39	1.63	2.7	1.68	1.44	1.13
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	0.87	0.66	5.04	3.14	23.22	3.15
	-	-	-	-	-	-		-	-	-	-	-	-	UBS AG	1.15	-0.64	7	5.72	18.52	-0.03
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2011																			
Public sector banks							Private sector banks							Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	1.88	0.68	6.65	3.99	0.05	13.01	CSB	2.94	0.12	7.75	5.23	0.32	0.39	AB	7.23	4.53	3.4	0.23	31.54	0.14
SBBJ	2.02	0.88	7.62	4.81	0.08	11.02	CUB	1.48	1.47	8.35	5.47	0.28	5.31	Abu-DB	1.54	0.87	4.51	2.57	6.67	0.13
SBH	1.42	1.09	7.36	4.69	0.02	56.2	DB	2.41	0.18	6.35	4.49	0.6	0.31	AE	23.93	1.5	3.58	2.19	35.52	0.04
SBM	1.76	0.96	7.84	4.7	0.09	10.7	Federal	1.62	1.14	7.87	4.48	0.33	3.43	ADB	1.32	-1.6	3.17	0.81	17.75	-0.09
SBP	1.64	0.8	7.97	5.1	0.36	2.22	INGV	2.63	0.82	6.91	4.33	0.31	2.63	BI	0.54	1.4	2.18	0.2	91.6	0.02
SBT	1.55	1.03	7.37	4.98	0.07	14.55	J&K B	1.5	1.22	7.35	4.3	0.1	12.69	BA	2.95	3.47	5.96	1.62	8.1	0.43
Allah B	1.55	0.94	7.28	4.62	0.31	2.99	KarnaB	1.73	0.65	7.48	5.55	0.59	1.09	BB	2.32	1.92	6.97	3.18	7.83	0.24
Andh B	1.57	1.16	7.61	4.66	0.51	2.26	KVB	1.53	1.47	7.86	5.14	0.41	3.55	BC	1.89	3.69	6.78	1.95	19.37	0.19
BoB	1.29	1.18	6.11	3.65	0.11	10.8	LVB	1.72	0.76	8.01	5.26	0.73	1.04	NSB	0.57	2.04	4.9	2.53	3.87	0.53
BoI	1.44	0.71	6.19	3.97	0.16	4.55	Nai B	1.7	1.39	7.8	4.28	2.05	0.68	BT	0.99	1.46	4.51	0.97	34.4	0.04
BoM	2.15	0.43	7.28	4.7	1.4	0.31	RB	2.93	0.38	5.86	2.91	6.66	0.06	BarB	3.19	0.42	7.04	3.49	22.01	0.02
Can B	1.31	1.2	6.86	4.53	0.13	9.09	SBIC	1.56	0.63	5.46	3.92	15.03	0.04	BNPP	2.58	1.76	6.04	2.25	10	0.18
CBI	1.91	0.6	7.26	4.72	1.93	0.31	SIB	1.41	0.89	7.45	5.04	0.34	2.59	CCB	3.94	1.39	7.16	2.03	37.86	0.04
Cor B	1.14	0.98	6.37	4.32	0.1	9.54	TMB	1.85	1.56	8.51	5.13	0	8.9607	CityB	2.43	1.28	5.64	1.99	3.36	0.38
DB	1.52	0.86	7.11	4.62	0.47	1.83	Axis	1.97	1.4	6.24	3.54	0.17	8.25	CWBA	14.33	-8.93	4.41	0.01	84.02	-0.11
IDBI	0.89	0.65	7.34	5.63	0.39	1.68	DCB	2.92	0.29	7.27	4.71	2.72	0.11	CAB	1.25	0.63	4.88	2.31	15.2	0.04
Ind B	1.58	1.41	7.69	4.37	0.68	2.07	HDFC	2.58	1.42	7.19	3.38	0.17	8.44	DBS	1.15	0.54	4.49	2.49	4.01	0.13
IOB	1.44	0.6	6.77	4.42	0.35	1.73	ICICI	1.63	1.27	6.39	4.17	0.28	4.47	DB (Asia)	3.92	2.2	6.56	1.61	12.66	0.17
OBC	1.17	0.93	7.49	4.9	0.18	5.15	Indus B	2.21	1.27	7.87	4.85	1.02	1.24	FRB	6.97	-1.19	4.74	2.04	54.94	-0.02
PSB	1.44	0.77	7.2	4.92	0.62	1.24	KMB	3.05	1.61	8.46	4.05	0.72	2.22	H&SB	2.4	1.68	5.7	2.04	4.94	0.34
PNB	1.68	1.17	7.13	4.01	0.08	13.99	YesB	1.15	1.23	6.85	4.74	0.59	2.09	JPMCB	1.37	3.24	4.94	1.65	16.37	0.2
Syn B	1.63	0.67	7.32	4.52	0.37	1.83		-	-	-	-	-	-	JSCV	7.33	-1	5.76	0.02	92.6	-0.01
UCO B	1.27	0.55	6.96	4.61	1.5	0.37		-	-	-	-	-	-	KTB	2.19	1.53	5.63	1.73	21.14	0.07
Union	1.67	0.88	6.97	4.34	0.27	3.28		-	-	-	-	-	-	MB	4.11	4.78	3.29	0.09	29.52	0.16
United	1.44	0.58	7.04	4.63	1.27	0.46		-	-	-	-	-	-	MCB	1.37	1.85	3.92	0.96	77.28	0.02
Vijaya	1.75	0.64	7.15	4.77	2.05	0.31		-	-	-	-	-	-	OIB	1.8	2.9	3.69	2.09	39.93	0.07
	-	-	-	-	-	-		-	-	-	-	-	-	RBS	4.55	0.82	8.24	3.34	0.77	1.07
	-	-	-	-	-	-		-	-	-	-	-	-	SinB	1.31	1.82	6.4	2.16	25.4	0.07
	-	-	-	-	-	-		-	-	-	-	-	-	Societe	1.88	0.7	6.08	3.74	9.01	0.08
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	10.98	0.43	3.08	1.91	1.55	0.28
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	2.43	1.93	5.95	2.2	0.63	3.05
	-	-	-	-	-	-		-	-	-	-	-	-	UBS AG	1.79	1.03	3.3	1.02	34.04	0.03
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2012																				
Public sector banks							Private sector banks							Foreign banks						
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	35.94	0.88	146.87	87.18	0.93	15.72	CSB	2.48	0.24	8.93	6.38	0.26	4.66	AB	8.21	7.05	4.45	0.52	32.31	12.96
SBM	0.88	0.99	4.29	2.95	0.06	18.59	CUB	1.52	1.71	9.25	6.52	0.22	24.91	Abu-DB	1.44	1.87	6.23	3.3	17.8	7.28
SBP	0.1	1.15	0.61	0.43	0	21.98	DB	3.33	-0.73	9.5	7.81	0.58	-14.7	AE	22.61	0.2	3.67	3.78	28.95	0.64
SBH	2.87	0.67	17.63	12.06	0.08	9.62	Federal	1.62	1.41	9.17	5.95	0.28	14.37	ADB	1.23	1.2	3.82	1.73	14.01	6.57
SBT	1.25	0.93	7	5.07	0.3	17.95	INGV	2.36	1.09	8.21	5.64	0.32	13.82	ANZBG	3.54	0.05	3.02	1.3	18.72	0.15
SBB&J	1.55	0.65	7.32	4.73	0.06	13.93	J&K B	1.33	1.56	8.02	4.97	0.08	21.22	BA	2.51	3.62	6.88	2.62	6.09	13.89
Allaha B	1.47	1.02	8.49	5.66	0.27	19.64	KarnaB	1.56	0.73	8.54	6.52	0.52	9.79	BB&K	1.56	2.14	6.39	2.43	17.05	10.98
Andh B	1.45	1.19	9.1	6.09	0.45	19.25	KVB	1.44	1.56	8.69	6.25	0.28	20.81	BC	1.44	3.08	6.6	1.59	41.46	6.04
BoB	1.15	1.24	6.63	4.33	0.09	20.64	LVB	1.82	0.73	9.4	7.1	0.6	11.56	NSB	0.7	2.24	5.98	3.39	3.29	17.96
BoI	1.28	0.72	7.41	5.24	0.15	14	Nai B	1.83	1.75	8.63	5.08	1.7	17.74	BT	1.16	2.26	5.33	1.48	22.32	7.02
BoM	1.8	0.55	7.92	5.15	1.29	9.91	RB	1.93	1.38	6.45	3.86	2.98	5.9	BarB	2.34	-0.91	5.67	2.72	23.06	-3.3
Can B	1.25	0.95	8.25	6.19	0.12	15.36	SIB	1.53	1.12	8.88	6.35	0.28	19.99	BNPP	3.05	0.73	7.18	3.44	9.12	3.95
CBI	1.63	0.26	8.33	6.08	1.02	4.57	TMB	1.72	1.75	9.27	6.07	0	20.89	CCB	4.06	-0.02	10.01	4.11	44.33	-0.06
Cor B	1.09	1.06	7.96	6.04	0.09	19.54	Axis	2.1	1.68	7.7	4.89	0.14	20.29	CityB	2.18	1.64	6.05	2.25	2.92	12.42
DB	1.32	1.08	7.77	5.37	0.4	19.75	DCB	2.82	0.68	8.26	5.64	2.77	7.43	CWBA	11.71	-2.99	6.42	0.22	73.92	-3.62
IDBI	0.9	0.83	8.05	6.48	0.44	11.95	HDFC	2.75	1.77	8.25	4.44	0.14	18.69	CAB	1.34	4.92	5.9	3.36	12.75	17.29
Ind B	1.55	1.31	8.65	5.52	0.59	17.19	ICICI	1.61	1.5	6.86	4.66	0.24	11.2	CSAG	2.21	6.38	4.06	0.36	45.76	7.33
IOB	1.44	0.52	8.14	5.86	0.36	9.88	Indus B	2.33	1.57	9.3	6.35	0.81	18.26	DBS	1.13	1.12	4.94	2.87	4.01	15.12
OBC	1.3	0.67	8.91	6.53	0.16	9.91	KMB	2.79	1.83	9.41	5.59	0.56	14.65	DB (Asia)	3.69	2.58	8.38	2.06	12.69	13.75
PSB	1.59	0.65	8.88	6.82	0.47	11.21	YesB	1.27	1.57	8.57	6.37	0.48	23.07	FRB	7.06	-0.03	7.21	3.04	46.91	-0.06
PNB	1.53	1.19	7.96	5.03	0.09	19.8		-	-	-	-	-	-	H&SB	2.21	1.97	5.73	2.3	4.12	13.88
Syn B	1.54	0.81	8.37	5.58	0.33	16.32		-	-	-	-	-	-	ICBC	1.95	2.05	4.76	1.37	87.75	2.13
UCO B	1.14	0.69	8.11	5.94	1.38	13.83		-	-	-	-	-	-	JPMCB	1.01	2.9	5.76	2.14	14.99	11.02
Union	1.52	0.79	8.02	5.43	0.25	13.05		-	-	-	-	-	-	JSCV	8.15	0.76	9.98	0.17	91.94	0.81
United	1.36	0.7	7.8	5.37	1.14	11.93		-	-	-	-	-	-	KTB	1.75	2.12	6.62	2.46	18.38	7.71
Vijaya	1.25	0.66	8.34	6.35	1.77	11.54		-	-	-	-	-	-	MB	5.96	5.76	2.69	0.05	25.06	9.23
	-	-	-	-	-	-		-	-	-	-	-	-	MCB	1.24	4	5.36	0.3	56.72	5.32
	-	-	-	-	-	-		-	-	-	-	-	-	RBS	5.47	0.4	3.93	0.02	93.25	0.27
	-	-	-	-	-	-		-	-	-	-	-	-	SinB	1.34	2.52	8.31	3.58	20.29	8.66
	-	-	-	-	-	-		-	-	-	-	-	-	Societe	1.65	1.17	7.14	4.06	22.88	5.21
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	11.26	2.23	5.18	1.8	1.35	13.79
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	2.25	1.49	6.53	3.03	0.56	12.76
	-	-	-	-	-	-		-	-	-	-	-	-	SBMAU	1.19	0.81	8.78	6.01	18.75	3.45
	-	-	-	-	-	-		-	-	-	-	-	-	UBS AG	1.51	0.78	5.37	1.82	28.05	1.59
Source: A Profile of Banks, RBI.																				

Bank Wise details of selected parameter in 2013																				
Public sector banks							Private sector banks								Foreign banks					
Name	OC	ROA	II	IE	C	ROE		OC	ROA	II	IE	C	ROE	**Name**	OC	ROA	II	IE	C	ROE
SBI	34.04	0.91	139.11	87.57	0.8	15.43	CSB	2.44	0.25	9.7	7.21	0.31	4.94	AB	5.09	5.03	3.48	0.66	18.66	11.24
SBM	0.81	0.96	4.38	3.03	0.05	16.36	CUB	1.63	1.58	9.53	6.81	0.21	22.33	Abu-DB	1.5	1.4	7.18	4.24	13.25	5.72
SBP	0.1	0.99	0.61	0.45	0	17.7	DB	2.46	0.02	9.46	7.46	0.62	0.35	AE	22.05	-3.23	3.49	4.62	29.63	-10.5
SBH	3.13	0.66	18.51	12.69	0.07	10	Federal	1.66	1.35	8.68	5.9	0.24	13.89	ADB	1.72	1.31	5.63	2.11	15.78	6.39
SBT	1.32	0.68	7.95	5.99	0.27	13.17	INGV	2.32	1.26	8.87	6.06	0.28	14.24	ANZBG	2.52	0.1	5.73	3.31	23.04	0.5
SBB&J	1.55	0.66	7.38	4.86	0.05	14.94	J&K B	1.38	1.7	8.55	5.33	0.07	23.56	BA	2.34	2.57	7.24	3.11	5.34	10.96
Allaha B	1.45	0.64	8.53	6.15	0.24	10.84	KarnaB	1.6	0.89	9.06	6.89	0.45	12.76	BB&K	1.64	1.48	8.11	3.61	17.36	6.24
Andh B	1.39	0.99	8.82	6.26	0.38	16.19	KVB	1.63	1.35	9.08	6.6	0.23	19	BC	1.75	4.26	7.82	1.81	37.18	8.07
BoB	1.09	0.9	6.43	4.36	0.08	15.07	LVB	1.91	0.54	9.97	7.75	0.55	9.28	NSB	0.6	2.24	5.75	3.27	2.62	17.45
BoI	1.18	0.65	7.05	5.06	0.13	12.25	Nai B	1.85	1.3	9.09	5.7	1.56	13.31	BT	1.28	2.06	6.24	2.22	20.37	8.2
BoM	1.54	0.74	8.22	5.63	1.07	13.66	RB	1.75	1.06	6.78	4.8	1.95	6.73	BarB	2.11	-0.27	6.14	3.99	21.36	-1.02
Can B	1.25	0.77	8.26	6.35	0.11	12.08	SIB	1.54	1.17	8.91	6.33	0.27	19.41	BNPP	2.89	1.7	6.32	2.93	7.82	8.56
CBI	1.58	0.44	8.15	6.01	0.99	7.31	TMB	1.77	2	10.43	6.8	0	24.08	CCB	4.64	-3.26	8.82	2.86	37.11	-7.87
Cor B	1.03	0.88	7.93	6.16	0.08	16.08	Axis	2.03	1.7	7.98	5.14	0.14	18.53	CityB	2.25	2.12	6.95	2.91	2.92	16.3
DB	1.15	0.86	7.85	5.74	0.31	15.83	DCB	2.44	1.06	8.12	5.6	2.22	10.95	CWBA	8.58	-2.56	5.72	0.76	55.64	-3.66
IDBI	0.97	0.72	7.77	6.1	0.41	9.26	HDFC	2.81	1.9	8.76	4.81	0.12	20.34	CAB	1.56	3.21	7.15	3.69	16.22	8.85
Ind B	1.69	1.02	8.53	5.75	0.51	13.89	ICICI	1.68	1.7	7.47	4.88	0.21	13.1	CSAG	1.52	3.28	6.36	2.81	33.24	7.17
IOB	1.39	0.24	8.45	6.3	0.38	4.47	Indus B	2.4	1.63	9.53	6.48	0.71	17.15	DBS	1.2	0.72	6.29	3.77	3.59	10.36
OBC	1.33	0.71	8.82	6.48	0.15	10.74	KMB	2.64	1.81	9.61	5.78	0.45	15.6	DB (Asia)	2.74	2.98	6.68	1.75	10.1	14.46
PSB	1.39	0.44	9.12	7.08	0.44	7.66	YesB	1.35	1.57	8.37	6.13	0.36	24.81	FRB	9.65	-6.09	6.71	2.5	35.8	-17.86
PNB	1.71	1	8.75	5.65	0.09	15.7		-	-	-	-	-	-	H&SB	2.32	1.81	6.62	2.83	4.24	12.84
Syn B	1.48	1.07	7.96	5.42	0.28	20.47		-	-	-	-	-	-	ICBC	3	2.45	7.42	0.95	58.47	3.47
UCO B	1.1	0.33	8.43	6.13	1.3	6.76		-	-	-	-	-	-	JPMCB	0.84	3.07	6.1	2.93	12.26	12.42
Union	1.45	0.79	8.06	5.64	0.23	13.52		-	-	-	-	-	-	JSCV	7.79	2.01	10.23	0.23	84.43	2.36
United	1.31	0.38	8.07	5.9	1.02	6.84		-	-	-	-	-	-	KTB	1.56	1.82	6.98	3.28	15.05	7.85
Vijaya	1.23	0.59	8.16	6.46	1.53	10.83		-	-	-	-	-	-	MB	4.46	5.61	3.97	0.04	19.63	10.12
	-	-	-	-	-	-		-	-	-	-	-	-	MCB	1.02	3.9	5.57	0.79	39.94	4.94
	-	-	-	-	-	-		-	-	-	-	-	-	RBS	6.78	1.42	8.45	1.11	70.41	2.01
	-	-	-	-	-	-		-	-	-	-	-	-	SinB	1.27	1.78	8.29	4.24	14.33	7.99
	-	-	-	-	-	-		-	-	-	-	-	-	Societe	2.37	1.22	7.66	3.75	22.33	4.35
	-	-	-	-	-	-		-	-	-	-	-	-	Sonali	9.64	3.37	5.89	1.96	1.07	21.14
	-	-	-	-	-	-		-	-	-	-	-	-	SCB	2.42	2.43	7.58	3.4	2.28	17.78
	-	-	-	-	-	-		-	-	-	-	-	-	SBMAU	1.11	2.53	9.92	5.35	34.57	7.07
	-	-	-	-	-	-		-	-	-	-	-	-	UBS AG	1.42	1.33	6.26	1.85	27.99	4.29
Source: A Profile of Banks, RBI.																				

Data of public sector Banks in 2013 for SEM Analysis (Ratios)													
Name	C/TA	R & S /TA	BO/TA	INV/TA	OC/TA	OP/TA	NET I I/TA	PPE	NIM	ROE	ROA	CRAR	Net NPA
SBI	0.043671	6.269689	10.80169	22.40542	1.869701	1.984452	2.83039	0.65	3.06	15.43	0.91	12.92	2.1
State Bank of Bikaner & Jaipur	0.081379	5.45719	6.791697	23.42089	1.2844	1.547372	2.13935	0.6	3.24	16.36	0.96	12.16	2.27
State Bank of Hyderabad	0.015285	5.593038	4.003877	24.96214	1.168667	1.189978	1.801025	0.83	3.08	17.7	0.99	12.36	1.61
State Bank of Mysore	0.069609	6.374418	5.732619	24.95002	3.131061	4.14738	5.827364	0.4	2.88	10	0.66	11.79	2.69
State Bank of Patiala	0.271578	4.649629	8.14422	22.06962	1.317542	1.244581	1.96056	0.46	2.37	13.17	0.68	11.12	1.62
State Bank of Travancore	0.049223	4.247913	8.611203	26.80221	1.554647	1.686269	2.525908	0.5	2.27	14.94	0.66	11.7	1.46
Allahabad Bank	0.24465	5.310139	4.940765	28.52913	1.447401	1.656382	2.381134	0.53	2.51	10.84	0.64	11.03	3.19
Andhra Bank	0.382505	5.387327	7.600399	25.72295	1.392492	1.89147	2.56803	0.9	2.77	16.19	0.99	11.76	2.45
Bank of Baroda	0.07722	5.765831	4.857902	22.18714	1.086879	1.644785	2.068099	1	2.28	15.07	0.9	13.3	1.28
Bank of India	0.131815	5.152753	7.814271	20.90429	1.177965	1.647913	1.993802	0.64	2.16	12.25	0.65	11.02	2.06
Bank of Maharashtra	1.06838	4.401348	11.01085	26.87435	1.536175	1.837237	2.59361	0.56	2.92	13.66	0.74	12.59	0.52
Canara Bank	0.107435	5.925849	4.919065	29.37674	1.247021	1.428424	1.91079	0.7	2	12.08	0.77	12.4	2.18
Central Bank of India	0.992655	4.718354	6.827112	27.07789	1.578454	1.183234	2.139862	0.28	2.3	7.31	0.44	11.49	2.9
Corporation Bank	0.079042	4.865947	6.668035	30.06814	1.032246	1.569977	1.770967	0.97	1.92	16.08	0.88	12.33	1.19
Dena Bank	0.30862	4.77255	7.416846	30.27414	1.145712	1.532875	2.100751	0.73	2.37	15.83	0.86	11.03	1.39
IDBI Bank	0.412897	6.166432	20.38889	30.61045	0.971098	1.691088	1.664692	1.22	1.75	9.26	0.72	13.13	1.58
Indian Bank	0.509634	6.84346	1.75811	25.67518	1.689507	1.880144	2.778668	0.84	2.97	13.89	1.02	13.08	2.26
Indian Overseas Bank	0.377714	5.122826	9.532936	25.10353	1.392895	1.56015	2.146647	0.2	2.26	4.47	0.24	11.85	2.5
Oriental Bank of Commerce	0.145393	6.220216	3.826311	29.17564	1.327971	1.838939	2.342434	0.7	2.49	10.74	0.71	12.04	2.27
Punjab & Sind Bank	0.56413	5.156819	3.15627	161.4061	1.390817	1.166531	2.039069	0.4	2.14	7.66	0.44	12.91	2.16
Punjab National Bank	0.073819	6.749833	8.273711	4.707367	1.705052	2.277704	3.102362	0.81	3.17	15.7	1	12.72	2.35
Syndicate Bank	0.279841	4.620349	5.956519	21.21942	1.477671	1.603553	2.535348	0.81	2.74	20.47	1.07	12.59	0.76
UCO Bank	1.296543	3.577523	4.778421	26.29979	1.095688	1.689945	2.306301	0.27	2.42	6.76	0.33	14.15	3.17
Union Bank of India	0.22696	5.319168	7.630744	25.91874	1.446863	1.790126	2.418643	0.7	2.63	13.52	0.79	11.45	1.61
United Bank of India	1.024909	4.108534	4.312434	29.19633	1.312131	1.788508	2.170133	0.25	2.3	6.84	0.38	11.66	2.87
Vijaya Bank	1.527728	3.480841	5.759323	28.18931	1.228129	1.010977	1.692169	0.5	1.82	10.83	0.59	11.32	1.3
Source: A Profile of Banks, RBI.													

Data of Private Sector Banks in 2013 for SEM Analysis (Ratios)													
Name	C/TA	R & S /TA	BO/TA	INV/TA	OC/TA	OP/TA	NET I I/TA	PPE	NIM	ROE	ROA	CRAR	Net NPA
Catholic Syrian	0.307634	5.254734	1.464013	24.23697	2.436105	0.748893	2.490437	0.12	2.64	4.94	0.25	12.29	1.12
City Union Bank	0.206292	6.93386	2.074674	22.92195	1.628578	2.27792	2.715747	0.9	3.02	22.33	1.58	13.98	0.63
Dhanalakshmi	0.615797	4.927096	11.52068	33.89775	2.455226	0.371938	2.000072	0.01	1.94	0.35	0.02	11.06	3.36
Federal	0.240818	8.71729	7.300534	29.77441	1.660108	2.05434	2.779326	0.9	3	13.89	1.35	14.73	0.98
ING Vysya Bank	0.282477	8.154985	11.87405	33.33224	2.321086	1.810294	2.805801	0.63	3.02	14.24	1.26	13.24	0.03
Jammu & Kashmir	0.067602	6.713101	1.498398	35.87945	1.378526	2.523999	3.228176	1.1	3.51	23.56	1.7	12.83	0.14
Karnataka Bank	0.453687	6.426514	3.804327	32.34689	1.603799	1.52987	2.176206	0.5	2.32	12.76	0.89	13.22	1.51
Karur Vysya Bank	0.229387	6.37233	8.557709	29.60908	1.630957	1.816264	2.47896	0.82	2.75	19	1.35	14.41	0.37
Lakshmi Vilas	0.551886	5.189424	2.716976	24.47826	1.912638	1.421318	2.218864	0.29	2.32	9.28	0.54	12.32	2.43
Nainital Bank	1.563188	7.716357	0.171372	23.98277	1.854983	2.241727	3.395012	0.7	3.54	13.31	1.3	14.43	0
Ratnakar Bank	1.950877	10.44325	21.1156	42.97792	1.753398	1.208788	1.986362	0.5	2.55	6.73	1.06	17.11	0.11
South Indian	0.268903	5.768451	2.579777	25.15012	1.540717	1.704187	2.572146	0.8	2.84	19.41	1.17	13.91	0.78
Tamilnad Mercantile	0.001267	8.536457	1.058085	22.58163	1.766993	2.912056	3.628986	1.39	3.91	24.08	2	15.01	0.66
Axis bank	0.13742	9.584165	12.90551	33.39713	2.03024	2.731701	2.838349	1.5	3.09	18.53	1.7	17	0.36
Development cridit bank	2.217434	6.675356	13.52626	29.77888	2.440863	1.118027	2.521545	0.5	2.85	10.95	1.06	13.61	0.75
HDFC Bank	0.118876	8.927168	8.244809	27.88027	2.806696	2.854531	3.949498	1	4.28	20.34	1.9	16.8	0.2
ICICI Banking	0.214905	12.2118	27.07581	31.92908	1.679022	2.458892	2.583185	1.4	2.7	13.1	1.7	18.74	0.77
IndusInd Bank	0.713306	9.695457	12.90418	26.81099	2.395968	2.509327	3.045978	0.92	3.41	17.15	1.63	15.36	0.31
Kotak Mahindra	0.446031	10.86247	24.38726	34.49889	2.640223	2.576777	3.830276	1	4.29	15.6	1.81	16.05	0.64
YES bank	0.361842	5.498259	21.11124	43.3645	1.346564	2.161061	2.238858	2.1	2.57	24.81	1.57	18.3	0.01
Source: A Profile of Banks, RBI.													

Data of Foreign Banks in 2013 for SEM Analysis (Ratios)													
Name	C/TA	R & S /TA	BO/TA	INV/TA	OC/TA	OP/TA	NET I I/TA	PPE	NIM	ROE	ROA	CRAR	Net NPA
Abu-dhabi Commercial	13.24948	6.74075	33.85639	14.20198	1.495909	1.850043	2.942972	3.57	3.37	5.72	1.4	66.82	0
American Express	29.63153	0.303126	18.56153	15.38855	22.05338	-1.23612	-1.12983	-1.12	-1.23	-10.5	-3.23	18.17	1.87
Bank of America	5.344116	19.14943	30.98806	47.91155	2.336051	4.365654	4.132971	12.07	4.4	10.96	2.57	18.4	0
Bank of Bahrain	17.35891	7.347778	13.3339	27.86675	1.635694	3.759527	4.496018	1.8	4.46	6.24	1.48	34.7	3.16
Bank of Cylon	37.18073	19.62496	2.71581	16.10087	1.745878	5.916586	6.013579	4.5	6.35	8.07	4.26	71.45	0
Nova Scotia	2.620831	10.21369	42.1109	34.81643	0.604697	3.604452	2.479184	14.7	2.76	17.45	2.24	11.95	0.45
Bank of Tokyo	20.37061	5.468008	40.04481	33.87735	1.279666	4.058477	4.021264	8.2	4.33	8.2	2.06	44.53	0
Barclays Bank	21.35514	1.185832	49.89077	56.23324	2.11253	1.073147	2.147108	-1.13	2.23	-1.02	-0.27	19.09	1.74
Citibank	2.916164	10.62112	24.81364	34.33265	2.254851	3.334138	4.033307	5.02	4.03	16.3	2.12	15.9	1.47
China trust Bank	37.11316	-0.09238	15.26559	27.64434	4.642032	2.540416	5.95843	-3.1	6.49	-7.87	-3.26	35.12	9.71
Deutsche Bank	10.10412	9.38423	20.03536	26.18072	2.743231	4.499116	4.929814	6.17	5.78	14.46	2.98	14.08	0.13
Hong Kong & Shanghai Bank	4.237716	10.07494	16.68149	42.55301	2.321363	3.10077	3.79814	4.04	3.74	12.84	1.81	17.1	0.33
Societe Generale	22.32881	4.626805	26.30768	35.71226	2.371591	1.86519	3.912811	3.58	3.96	4.35	1.22	29.35	0
Standard Chartered Bank	2.27609	13.71708	15.14913	25.67436	2.424974	4.106114	4.187027	4.11	4.15	17.78	2.43	13	1.63
State Bank of Mauritius	34.56941	6.608259	16.13692	31.25509	1.113828	4.828851	4.570769	6.8	4.66	7.07	2.53	55.01	1.88
BNP Paribas	7.819342	8.862555	25.91802	33.36745	2.892045	2.560878	3.391355	5.6	3.65	8.56	1.7	13.82	0
J P Morgan Chase Bank	12.26351	10.44224	31.0919	69.81736	0.843351	4.543123	3.168583	27.68	3.49	12.42	3.07	26.89	0
Mizuho Corporate Bank	39.93834	7.127583	28.9144	18.15021	1.018039	5.021974	4.780584	9.99	5.61	4.94	3.9	48.11	1.59
Shinhan	14.32731	8.823648	14.85301	23.88289	1.269764	3.562619	4.051923	4.89	4.75	7.99	1.78	34.48	0
DBS Bank	3.587247	3.611075	41.38587	44.62822	1.199024	1.630879	2.51375	3.51	2.65	10.36	0.72	12.99	2.37
Source: A Profile of Banks, RBI													

Efficiency scores and Data of public sector Banks in 2013 for SEM Analysis (Ratios)									
Name	$E_{OTE(O)}$	$E_{PTE(O)}$	$E_{SE(O)}$	c dummy	Dummy* Assets	lnTA	$E_{OTE(I)}$	$E_{PTE(I)}$	$E_{SE(I)}$
SBI	-1.15817	20.72327	-1.15817	1	16.56679	16.56679	-1.15817	20.72327	-1.15817
State Bank of Bikaner & Jaipur	-1.15817	1.90983	-0.9694	0	0	13.66488	-1.15817	1.823621	-0.9544
State Bank of Hyderabad	-1.08797	1.658228	-0.8473	0	0	14.12357	-1.08797	1.60704	-0.83305
State Bank of Mysore	-1.1692	1.614246	-0.92471	0	0	13.4185	-1.1692	1.516347	-0.90025
State Bank of Patiala	-1.15817	1.680721	-0.92471	0	0	13.89756	-1.15817	1.614246	-0.91
State Bank of Travcore	-1.23104	1.599868	-0.98955	0	0	13.83118	-1.23104	1.529957	-0.9694
Allahabad Bank	-1.21964	1.550597	-0.96439	0	0	14.53029	-1.21964	1.476214	-0.94446
Andhra Bank	-1.09329	1.774368	-0.88086	0	0	14.19599	-1.09329	1.726779	-0.87122
Bank of Baroda	-1.51635	20.72327	-1.51635	1	15.51504	15.51504	-1.51635	20.72327	-1.51635
Bank of India	-1.33096	2.376273	-1.21397	1	15.32536	15.32536	-1.33096	2.363483	-1.21397
Bank of Maharashtra	-1.25985	1.592731	-1.02014	0	0	13.97211	-1.25985	1.523137	-0.9997
Canara Bank	-1.25985	1.463058	-0.9845	0	0	15.2322	-1.25985	1.424226	-0.97442
Central Bank of India	-1.21964	1.60704	-0.97442	0	0	14.80181	-1.21964	1.578557	-0.9694
Corporation Bank	-1.24251	1.411485	-0.9544	0	0	14.47532	-1.24251	1.373841	-0.94446
Dena Bank	-1.34921	1.628762	-1.11468	0	0	13.94162	-1.34921	1.550597	-1.09861
IDBI Bank	-1.04597	1.823621	-0.83779	1	14.98728	14.98728	-1.04597	1.807009	-0.83779
Indian Bank	-1.1692	1.782457	-0.95939	0	0	14.303	-1.1692	1.695912	-0.94446
Indian Overseas Bank	-1.18029	1.87469	-0.98955	1	14.71019	14.71019	-1.18029	1.848918	-0.9845
Oriental Bank of Commerce	-1.1692	1.437067	-0.88086	1	14.51214	14.51214	-1.1692	1.343104	-0.85206
Punjab & Sind Bank	-1.15268	1.141746	-0.77222	0	0	13.59832	-1.15268	1.072121	-0.7446
Punjab National Bank	-1.23676	2.483824	-1.13087	1	15.38178	15.38178	-1.23676	2.469836	-1.13087
Syndicate Bank	-1.23104	2.164327	-1.08797	0	0	14.58155	-1.23104	2.132267	-1.08268
UCO Bank	-1.25405	1.60704	-1.0099	0	0	14.50189	-1.25405	1.578557	-1.00479
Union Bank of India	-1.25985	2.526809	-1.16368	1	14.9529	14.9529	-1.25985	2.497979	-1.15817
United Bank of India	-1.33096	1.437067	-1.05117	0	0	13.95192	-1.33096	1.373841	-1.0356
Vijaya Bank	-1.23676	1.072121	-0.83779	0	0	13.91971	-1.23676	1.020141	-0.81889
Source: Author's own calculation									

Efficiency scores and Data of Private Sector Banks in 2013 for SEM Analysis (Ratios)									
Name	$E_{OTE(O)}$	$E_{PTE(O)}$	$E_{SE(O)}$	c dummy	Dummy* Assets	lnTA	$E_{OTE(I)}$	$E_{PTE(I)}$	$E_{SE(I)}$
Catholic Syrian	-1.1692	0.468379	-0.46416	0	0	11.82189	-1.1692	0.048009	-0.14827
City Union Bank	-1.1363	0.781485	-0.6015	0	0	12.34484	-1.1363	0.502301	-0.44731
Dhanalakshmi	-0.96439	0.540806	-0.25335	0	0	11.83642	-0.96439	0.172426	0.036004
Federal	-1.01501	1.529957	-0.74002	1	13.47372	13.47372	-1.01501	1.443525	-0.71724
ING Vysya Bank	-1.06686	1.469622	-0.77685	1	13.21469	13.2147	-1.06686	1.355332	-0.74002
Jammu & Kashmir	-1.31291	0.954404	-0.87604	0	0	13.48344	-1.31291	0.866419	-0.84254
Karnataka Bank	-1.20831	0.730888	-0.66329	0	0	12.93667	-1.20831	0.579707	-0.58406
Karur Vysya Bank	-1.16368	1.082676	-0.75837	0	0	13.0548	-1.16368	0.944462	-0.70367
Lakshmi Vilas	-1.08797	0.601503	-0.44731	0	0	12.08202	-1.08797	0.281851	-0.23305
Nainital Bank	-1.20831	-0.12818	-0.036	0	0	10.67316	-1.20831	-1.0099	1.832002
Ratnakar Bank	-1.20831	0.212799	-0.34333	0	0	11.77247	-1.20831	-0.57103	0.562367
South Indian	-1.20831	1.15817	-0.83779	0	0	13.11826	-1.20831	1.020141	-0.78613
Tamilnad Mercantile	-1.06162	1.087974	-0.64552	0	0	12.37515	-1.06162	0.828322	-0.53222
Axis bank	-1.18586	2.208385	-1.05117	0	0	15.04093	-1.18586	2.15355	-1.04078
Development cridit bank	-1.02014	0.388826	-0.22494	0	0	11.63327	-1.02014	-0.08004	0.204712
HDFC Bank	-1.02528	20.72327	-1.02528	1	15.20263	15.20263	-1.02528	20.72327	-1.02528
ICICI Banking	-0.81418	20.72327	-0.81418	1	15.49596	15.49596	-0.81418	20.72327	-0.81418
IndusInd Bank	-0.86642	1.658228	-0.61026	0	0	13.50499	-0.86642	1.564513	-0.58406
Kotak Mahindra	-0.51083	20.72327	-0.51083	1	13.6375	13.6375	-0.51083	20.72327	-0.51083
YES bank	-0.8473	1.650806	-0.58406	0	0	13.80651	-0.8473	1.417843	-0.51937
Source: Author's own calculation.									

Efficiency scores and Data of Foreign Banks in 2013 for SEM Analysis (Ratios)									
Name	$E_{OTE(O)}$	$E_{PTE(O)}$	$E_{SE(O)}$	c dummy	Dummy* Assets	lnTA	$E_{OTE(I)}$	$E_{PTE(I)}$	$E_{SE(I)}$
Abu-dhabi Commercial	-0.91979	-0.90512	4.70149	0	0	9.703694	-0.91979	-0.56237	1.295046
American Express	0.208755	0.339216	2.863259	0	0	10.14258	0.208755	0.663294	1.636074
Bank of America	-0.25335	2.903111	-0.15632	0	0	12.12471	-0.25335	2.682732	-0.13621
Bank of Bahrain	-1.02014	-1.02014	20.72327	0	0	9.365376	-1.02014	-0.67669	1.295046
Bank of Cylon	-0.37224	20.72327	-0.37224	0	0	8.036897	-0.37224	20.72327	-0.37224
Nova Scotia	-0.70367	1.650806	-0.43053	0	0	11.84279	-0.70367	1.009897	-0.19259
Bank of Tokyo	-0.28593	20.72327	-0.28593	0	0	11.78809	-0.28593	20.72327	-0.28593
Barclays Bank	0.245221	20.72327	0.245221	0	0	12.41235	0.245221	20.72327	0.245221
Citibank	-0.93951	20.72327	-0.93951	0	0	14.06534	-0.93951	20.72327	-0.93951
China trust Commercial Bank	0.31867	2.987364	0.438913	0	0	8.373323	0.31867	3.623315	0.384674
Deutsche Bank	-0.69465	20.72327	-0.69465	0	0	12.91146	-0.69465	20.72327	-0.69465
Hong Kong & Shanghai Bank	-1.15817	2.277543	-1.03043	0	0	13.87539	-1.15817	2.100997	-1.00479
Societe Generale	-0.38467	0.124159	1.163676	0	0	10.367	-0.38467	-0.3351	3.547151
Standard Chartered Bank	-0.89053	20.72327	-0.89053	0	0	13.99581	-0.89053	20.72327	-0.89053
State Bank of Mauritius	-0.49379	-0.38883	2.733942	0	0	9.597234	-0.49379	-0.29002	2.040656
BNP Paribas	-0.69015	1.147205	-0.24116	0	0	11.8262	-0.69015	0.726333	-0.016
J P Morgan Chase Bank	-0.77685	1.430633	-0.44311	0	0	12.4427	-0.77685	1.242506	-0.37638
Mizuho Corporate Bank	20.72327	20.72327	20.72327	0	0	11.24145	20.72327	20.72327	20.72327
Shinhan	-0.72179	-0.41381	1.536806	0	0	10.11573	-0.72179	-0.57971	2.338303
DBS Bank	-0.73089	1.758327	-0.48531	0	0	12.91677	-0.73089	1.489479	-0.40963
Source: Author's own calculation									