After understanding Indian banking structure and the Global Financial Crisis of 2007-08, and after a review of literature related to both, this chapter now gives an outline of the entire study. After stating the background for the selection of the topic, it enumerates the objectives of the study, the hypotheses and the scope. It gives the details of the methodology adopted for the study and analytical tools used for the study. It also mentions how the study will be useful to the society at large and the limitations of the study.

3.1 SIGNIFICANCE OF THE STUDY

The global financial crisis (GFC) of 2007-08 that turned into an economic crisis is the first major financial crisis of the 21st century, and is the first truly global crisis. It has revealed the overarching ambitions of financial institutions. In search of higher yield, all kinds of complex financial instruments were created and traded in the name of financial innovation. The firms were highly leveraged, and in case of a problem they would certainly collapse together. The sub-prime loans just triggered off the global financial crisis and brought the world to the doorstep of financial doom. It affected the entire world economy. Starting with banks in the advanced economies, the contagion spread to other parts of the world and affected all sectors in varying degrees.

Indian economy too felt the tremors of this global financial crisis of 2007-08. It is believed that Indian commercial banks were resilient in the initial phase of the crisis. They were closely supervised by the central bank rules and regulations, were not overly exposed to sub-prime lending and could initially avoid the adverse effects of the crisis. But as the crisis deepened, they were affected to some extent. In the uncertain environment of faltering industrial growth, widening current account deficit, depleting foreign exchange reserves and depreciating rupee, banks and
financial institutions concerned about their balance sheets cut back on credit. The banking sector also faced profitability pressures due to higher funding costs, mark-to-market requirements on investment portfolios, deteriorating asset quality, and increasing non-performing assets (NPAs). However, strong economic growth in the past, low defaulter ratio, absence of complex financial products, regular intervention by central bank, proactive adjustment of monetary policy and close banking culture has favoured the banking industry in India in recent global financial turmoil. But there has been considerable divergence in the performance of the various banking institutions in the country as also among the public sector and private sector banks in India. What was the actual effect on various banks, especially public sector and private sector banks in India? How did the crisis affect their growth, soundness, liquidity, fund management, profitability and productivity?

Given this scenario, this research studies the impact of the global financial crisis on the financial performance of selected private and public sector banks in India. The performance has been analysed on the basis of financial parameters and from the viewpoint of the bank managers. Therefore, the topic for the research is, “Impact of Global Financial Crisis on the Financial Performance of selected Private and Public Sector Banks in India”.

3.2 OBJECTIVES OF THE STUDY

The current research has been undertaken with the following objectives.

(1) To study the growth of public sector and private sector banks in India in the post-independence period
(2) To study the impact of global financial crisis on the fund management of selected public sector and private sector banks in India
(3) To study the impact of global financial crisis on the financial performance of selected public sector and private sector banks in India
(4) To study the viewpoint of the bank managers on the impact of global financial crisis on the banking sector
(5) To make suggestions to improve the performance of banks
3.3 HYPOTHESES OF THE STUDY

On the basis of the objectives listed above, the hypotheses of the study are as follows.

(1) There is no significant difference between public sector and private sector banks as regards the growth parameters in the post-independence period.

(2) There is no significant difference between public sector and private sector banks as regards the impact of global financial crisis on their fund management.

(3) There is no significant difference between public sector and private sector banks as regards the impact of global financial crisis on their financial performance.

(4) There is no significant difference between view points of the bank managers of various public sector and private sector banks as regards the impact of global financial crisis on the banking sector in India.

3.4 SCOPE OF THE STUDY

In order to study the growth of commercial banks in India after independence up to 1969, parameters like total number of banks, total number of bank offices, amount of deposits with all banks and amount of credit by all banks have been examined. The growth of public sector and private sector banks from 1969 to 2015 has been studied by analysing information related to various parameters of growth like number of offices, amount of deposits, amount of credit and many others.

The impact of the global financial crisis on the fund management of selected public sector and private sector banks has been studied by analysing variables like deposits, investments, advances, gross NPA, net NPA and total assets of the sample banks for a 10 year period from 2005-06 to 2014-15. Ratios relating to soundness, liquidity and fund management have also been analysed for the study period.

Changes in various financial parameters like owned funds, interest income, other income, interest expenditure, operating expenses, net interest income, operating
profit and net profit of the sample banks have been analysed to understand the impact of the global financial crisis on the financial performance of these banks. Profitability and productivity ratios have been analysed for the 10 year study period from 2005-06 to 2014-15.

Bank managers’ views on the impact of global crisis on the banking sector has been understood by collecting primary data from them through a structured questionnaire. The view of the bank managers as regards deposits, advances, non-performing assets, management, customers and technology in the banks, and also about the impact of the global financial crisis on various aspects of banking has been collected. Further, opinions of the managers to improve banking services have also been solicited.

3.5 METHODOLOGY OF THE STUDY

The details of the methodology adopted for the study viz. sample selection, data collection and time period for the analysis are given below.

3.5.1 Sample Selection

149 scheduled commercial banks and 83 scheduled co-operative banks were operating in India on 31st March 2016. Commercial banks include 27 public sector banks (PSBs), 21 private sector banks (PVBs), 45 foreign banks operating in India and 56 regional rural banks. Co-operative banks include 52 urban co-operative banks and 31 state co-operative banks. (Chart 1.1)

The present study aims to understand the impact of the global financial crisis of 2007-08 on the fund management and the financial performance of selected public sector banks (PSBs) and private sector banks (PVBs) in India. The sample was selected on the basis of the data on 31st March 2013. 26 PSBs were operating on that date. This included 6 banks of the State Bank of India (SBI) group and 20 nationalised banks. 20 PVBs were functioning which constituted 7 new PVBs and 13 old PVBs.
All twenty six PSBs were ranked in the descending order of their business (i.e. deposits + advances) as on 31st March 2013. They were further divided into three groups. Three PSBs were selected randomly from the first group, three from the second group and two from the third group. Thus, eight PSBs of different sizes were selected.

The seven new PVBs were ranked in the descending order of their business as on 31st March 2013. Four banks were selected randomly from the top five. The thirteen old PVBs were also ranked in the descending order of their business as on 31st March 2013. Four banks were selected randomly from the top five. Thus, eight PVBs were selected as the sample banks, four new PVBs and four old PVBs.

Thus, on the basis of their business (i.e. deposits + advances) as on 31st March 2013, 8 banks from the public sector and 8 banks from the private sector were selected in such a way that the sample constituted of banks from all groups (SBI group, nationalized banks, new private banks and old private banks) and of all sizes with regard to their business. Accordingly, Table 3.1 shows the details of the banks taken as the sample banks for the purpose of performance evaluation.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the Bank</th>
<th>Deposits (₹ million)</th>
<th>Advances (₹ million)</th>
<th>Business (₹ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td><strong>Public Sector Banks (PSBs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>State Bank of India (SBI)</td>
<td>1,20,27,396</td>
<td>1,04,56,166</td>
<td>2,24,83,562</td>
</tr>
<tr>
<td>2</td>
<td>Bank of Baroda (BOB)</td>
<td>47,38,833</td>
<td>32,81,858</td>
<td>80,20,691</td>
</tr>
<tr>
<td>3</td>
<td>Bank of India (BOI)</td>
<td>38,18,396</td>
<td>28,93,675</td>
<td>67,12,071</td>
</tr>
<tr>
<td>4</td>
<td>Indian Overseas Bank (IOB)</td>
<td>20,21,353</td>
<td>16,03,641</td>
<td>36,24,994</td>
</tr>
<tr>
<td>5</td>
<td>Syndicate Bank (SYN)</td>
<td>18,53,559</td>
<td>14,75,690</td>
<td>33,29,249</td>
</tr>
<tr>
<td>6</td>
<td>Oriental Bank of Commerce (OBC)</td>
<td>17,58,975</td>
<td>12,89,551</td>
<td>30,48,526</td>
</tr>
<tr>
<td>7</td>
<td>Bank of Maharashtra (BOM)</td>
<td>9,43,369</td>
<td>7,54,708</td>
<td>16,98,077</td>
</tr>
<tr>
<td>8</td>
<td>Vijaya Bank (VIJ)</td>
<td>9,70,172</td>
<td>6,97,658</td>
<td>16,67,830</td>
</tr>
<tr>
<td>B</td>
<td><strong>Private Sector Banks (PVBs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td><strong>New Private Sector Banks (PVBs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>ICICI Bank (ICICI)</td>
<td>29,26,136</td>
<td>29,02,494</td>
<td>58,28,630</td>
</tr>
<tr>
<td>2</td>
<td>HDFC Bank (HDFC)</td>
<td>29,62,470</td>
<td>23,97,206</td>
<td>53,39,676</td>
</tr>
<tr>
<td>3</td>
<td>Axis Bank (AXIS)</td>
<td>25,26,136</td>
<td>19,69,660</td>
<td>44,95,796</td>
</tr>
<tr>
<td>4</td>
<td>Kotak Mahindra Bank (KMB)</td>
<td>5,10,288</td>
<td>4,84,690</td>
<td>9,94,978</td>
</tr>
<tr>
<td>B</td>
<td><strong>Old Private Sector Banks (PVBs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Jammu &amp; Kashmir Bank (JKB)</td>
<td>6,42,206</td>
<td>3,92,004</td>
<td>10,34,210</td>
</tr>
<tr>
<td>2</td>
<td>Federal Bank (FED)</td>
<td>5,76,149</td>
<td>4,40,967</td>
<td>10,17,116</td>
</tr>
<tr>
<td>3</td>
<td>ING Vysya Bank (IVB)</td>
<td>4,13,340</td>
<td>3,17,720</td>
<td>7,31,060</td>
</tr>
<tr>
<td>4</td>
<td>Karur Vysya Bank (KVB)</td>
<td>3,86,530</td>
<td>2,94,801</td>
<td>6,81,331</td>
</tr>
</tbody>
</table>

Source: A Profile of Banks 2012-13, RBI
3.5.2 Data Collection

The research uses secondary as well as primary data for analysis purpose.

Secondary data has been used for financial performance evaluation. Majority of the secondary data has been retrieved from various publications of the Reserve Bank of India viz. Statistical tables relating to banks in India, Basic Statistical Returns, Report on Trend and Progress of Banking in India and Report on Currency and Finance. Some data has been taken from the annual reports published by the banks and from the online data resource Capital Line.

Primary data has been collected from 35 bank managers (22 managers of PSBs and 13 managers of PVBs) of the selected banks from Ahmedabad city through interviews and questionnaires.

3.5.3 Time Period

The growth of commercial banks in India has been studied from 1947 to 1968. With nationalisation of some banks in 1969, the growth of PSBs and PVBs has been examined from 1969 to 2015.

The financial performance of the selected PSBs and PVBs has been analysed for a period of 10 years from 2005-06 to 2014-15 (mentioned hereafter as 2006 to 2015). Considering that the effect of the global financial crisis was felt most during the years 2007-08 and 2008-09, period up to 2008-09 has been considered as pre-crisis period (Pre GFC period from 2006 to 2009) and the period from 2009-10 onwards has been taken as the post-crisis period (Post GFC period from 2010 to 2015).
3.6 ANALYTICAL TOOLS

Identification of various banking growth, fund management and financial performance parameters, and ratio analysis have been used as the main tool to study the growth, fund management and financial performance of selected PSBs and PVBs in India. Calculation of various growth rates and ranking of banks have helped to identify the banks with higher growth and banks with better performance. Ratio analysis has been used to analyse the fund management and financial performance of the selected banks. Descriptive statistics has been used. Multiple regression analysis has been carried out to prepare a model to estimate net profit of PSBs and PVBs. The t-test has been applied to test the hypotheses and to check the statistical significance of the differences between PSBs and PVBs. The analysis has been carried out on MS Excel and IBM SPSS (Version 21). The SWOC analysis has enabled to identify the strengths, weaknesses, opportunities and challenges for the Indian banking sector.

3.6.1 Growth Rates

In order to study the growth of banks in India, various parameters of growth, fund management and financial performance have been identified, which are given below.

1. Number of Offices
2. Number of Employees
3. Owned Funds
4. Deposits
5. Investments
6. Advances
7. Gross NPA
8. Net NPA
9. Total Assets
10. Interest Income
11. Other Income
12. Interest Expenditure
13. Operating Expenses
In order to understand the growth of these parameters, various growth rates have been used such as simple growth rate, annual growth rate, average annual growth rate and compound annual growth rate. The details are as follows.

3.6.1 (1) Simple Growth Rate

In order to study the growth of commercial banks in India in the post-independence period from 1947 to 2005, growth rates of various growth parameters have been calculated for various time periods from a year (Year a) to another year (Year b) by using the following formula:

\[
\text{Simple Growth Rate (\%)} = \frac{\text{Parameter in Year } b - \text{Parameter in Year } a}{\text{Parameter in Year } a} \times 100
\]

3.6.1 (2) Annual Growth Rate (AGR)

The growth of public sector banks and private sector banks in India from 2005 to 2015 has been analysed by calculating the annual growth rates of various parameters for various years. Growth of various fund management parameters and financial performance parameters of selected public sector as well as private sector banks in India from 2006 to 2015 has also been examined by calculating the annual growth rates for various years as under:

Annual Growth Rate (\%)

\[
= \frac{\text{Parameter in Current year} - \text{Parameter in Previous year}}{\text{Parameter in Previous year}} \times 100
\]

3.6.1 (3) Average Annual Growth Rate (AAGR)

After calculating the annual growth rates for various years from 2005 to 2015, the AAGR of various parameters for the decade have been calculated as under:

Average Annual Growth Rate (\%) = \frac{\text{Total of Annual Growth Rates for various years}}{\text{Number of years}}
In order to understand the impact of the global financial crisis on various parameters, AAGR has also been calculated for the period before the GFC i.e. from 2006 to 2009 (Pre GFC) and for the period after the GFC i.e. from 2010 to 2015 (Post GFC).

3.6.1 (4) Compound Annual Growth Rate (CAGR)

The growth of public sector and private sector banks in India from 1980 to 2015 has been studied with reference to various parameters of growth by calculating the CAGR during various time periods. Growth of various fund management parameters and financial performance parameters of selected public sector as well as private sector banks in India from 2006 to 2015 has also been examined by calculating the CAGR. The CAGR has been calculated by using SPSS (Version 21) as under:

\[
\text{Compound Annual Growth Rate (\%) } = \frac{(\text{Value of b1 in output} - 1)}{100}
\]

3.6.2 Ratio Analysis

Financial ratios present the financial data of a bank in a new perspective by correlating two variables. Ratio analysis has been used to analyse the fund management and financial performance of the selected banks. Various soundness, liquidity, fund management, profitability and productivity ratios as published by RBI or as calculated have been considered for this purpose.

3.6.2 (1) Soundness Ratios

Safety and soundness ratios show the safety of depositors’ money with the bank and the soundness of the bank to be able to pay to the depositors when demanded and to recover from the advances. The following safety and soundness ratios have been considered.

1. Deposits to Total Liabilities Ratio (RDTL)
2. Secured Advances to Total Advances Ratio (RSATA)
3. Capital Adequacy Ratio (CAR)
(1) Deposits to Total Liabilities Ratio (RDTL)

This ratio shows the total deposits of the bank as a percentage of its total liabilities. The higher the ratio, the higher the proportion of deposits in the bank’s total liabilities. This suggests the soundness of the bank and also the trust that depositors have in the bank. However, it also means that some deposits may be demand deposits and so the bank may have to maintain sufficient liquidity to meet the demands from the depositors. A high ratio is preferable to a lower one.

\[
\text{Deposits to Total Liabilities Ratio} = \frac{\text{Total Deposits}}{\text{Total Liabilities}} \times 100
\]

(2) Secured Advances to Total Advances Ratio (RSATA)

This ratio shows the secured advances of the bank as a percentage of its total advances. These advances may be secured by tangible assets or by bank/government guarantees. If this ratio is high, it suggests the safety of the bank’s advances and thereby the bank is considered to be sound. A higher ratio is preferable as it shows the soundness of the bank.

\[
\text{Secured Advances to Total Advances Ratio} = \frac{\text{Advances secured by tangible assets + bank + government guarantees}}{\text{Total Advances}} \times 100
\]

(3) Capital Adequacy Ratio (CAR) / Capital to Risk Weighted Assets Ratio (CRAR)

This ratio shows the capital fund of the bank as a percentage of its risk weighted assets. The capital could be Tier I (core capital) or Tier II (less permanent) capital. Capital fund includes paid-up capital and reserves. Risk weighted assets are an aggregate of the book value of assets of the bank multiplied by the risk associated with such assets. A high capital adequacy ratio suggests that the bank is financially sound. The capital adequacy ratio should be minimum 9%.

\[
\text{Capital Adequacy Ratio} = \frac{\text{Capital Fund}}{\text{Risk Weighted Assets}} \times 100
\]
3.6.2 (2) Liquidity Ratios
Liquidity ratios show the liquidity level maintained by the bank and that required by the bank. An appropriate level of liquidity is necessary to meet the demand requirements of the depositors, and earn returns at the same time. The following liquidity ratios have been considered.

1. Cash Deposit Ratio (CASHDEP)
2. Credit Deposit Ratio (CREDEP)
3. Demand and Savings Deposits to Total Deposits Ratio (DSDTD)

(1) Cash Deposit Ratio (CASHDEP)
This ratio shows the cash balance of the bank as a percentage of its total deposits. Cash balance here includes cash in hand as well as cash with the RBI. A higher cash deposit ratio indicates better liquidity position of the bank and hence is preferable. But a very high ratio is indicative of idle funds with the bank and is not considered good. A low ratio is suggestive of low liquidity.

\[
\text{Cash Deposit Ratio} = \frac{\text{Cash in hand} + \text{Cash with RBI}}{\text{Total Deposits}} \times 100
\]

(2) Credit Deposit Ratio (CREDEP)
This ratio shows the total credit advanced by the bank as a percentage of its total deposits. A higher ratio indicates higher proportion of deposits given away as credit, which means better utilisation of funds. However, a very high credit against deposits is also not in the interest of the bank as it can endanger its liquidity. On the other hand, a very low ratio also suggests a very cautious approach of the bank which indicates improper fund management and excess liquidity.

\[
\text{Credit Deposit Ratio} = \frac{\text{Total Credit}}{\text{Total Deposits}} \times 100
\]

(3) Demand and Savings Deposits to Total Deposits Ratio (DSDTD)
This ratio shows the demand and savings deposits of the bank as a percentage of its total deposits. A high ratio suggests a high proportion of low cost deposits in the total
deposits, and results in better profitability. However, it would also mean that the bank would be required to have more liquid assets in order to be able to meet higher liquidity requirements of its deposit holders.

Demand and Savings Deposits to Total Deposits Ratio

\[
= \frac{\text{Demand Deposits} + \text{Savings Deposits}}{\text{Total Deposits}} \times 100
\]

3.6.2 (3) Fund Management Ratios

Fund Management ratios show how efficiently and effectively the bank manages its funds. Proper fund management is imperative to the existence of a bank as it affects liquidity, soundness and profitability of the bank. The following fund management ratios have been considered.

1. Investment Deposit Ratio (INVDEP)
2. Gross NPA to Gross Advances Ratio (GNPAGA)
3. Net NPA to Net Advances Ratio (NNPANA)

(1) Investment Deposit Ratio (INVDEP)

This ratio shows the total investments of the bank as a percentage of its total deposits. Investments include approved as well as non-approved investments. A higher ratio indicates that a higher proportion of deposits has been utilised in making investments, which could mean less advances by the bank. On the contrary, a lower ratio is suggestive of less investments, and probably more advances.

\[
\text{Investment Deposit Ratio} = \frac{\text{Total Investments}}{\text{Total Deposits}} \times 100
\]

(2) Gross NPA to Gross Advances Ratio (GNPAGA)

The advances on which a bank does not earn returns are classified by the bank as non-performing assets (NPA). The Gross NPA ratio shows the total NPA of the bank as a percentage of the total advances made by the bank. A high gross NPA ratio suggests improper fund management and lower profitability. On the other hand, a lower gross NPA ratio is better as it results in better profitability.
\[
\text{Gross NPA to Gross Advances Ratio} = \frac{\text{Gross NPA}}{\text{Gross Advances}} \times 100
\]

(3) Net NPA to Net Advances Ratio (NNPAN)A

The Net NPA ratio shows the net NPA of the bank as a percentage of the net advances made by the bank. Here, net NPA is derived by deducting provision for NPA from gross NPA, whereas net advances are calculated by deducting provision for NPA from the gross advances. A low net NPA ratio is better as it suggests proper fund management. A high ratio suggests a negative effect on the profitability of the bank.

\[
\text{Net NPA to Net Advances Ratio} = \frac{\text{Gross NPA} - \text{Provision for NPA}}{\text{Gross Advances} - \text{Provision for NPA}} \times 100
\]

3.6.2 (4) Profitability Ratios

Profitability ratios show the profitability of the bank, which is helpful to understand the efficiency of the management and the capacity of the bank to earn profits. The following profitability ratios have been considered.

1. Return on Assets (ROA)
2. Return on Equity (ROE)
3. Return on Advances (ROADV)
4. Return on Investments (ROINV)
5. Cost of Deposits (COD)
6. Cost of Borrowings (COB)
7. Cost of Funds (COF)
8. Operating Profits to Total Assets Ratio (ROPTA)
9. Net Interest Margin to Total Assets Ratio (RNIMTA)
10. Interest Income to Total Assets Ratio (RIITA)
11. Interest Income to Total Income Ratio (RIITI)
12. Other Income to Total Income Ratio (ROITI)
13. Wage Bills to Total Income Ratio (RWBTF)
14. Interest Expense to Total Expense Ratio (RIETE)
15. Operating Expenses to Total Expense Ratio (ROETE)
16. Wage Bills to Total Expense Ratio (RWBTE)
(1) Return on Assets (ROA)

This is an important ratio and shows the net profit of the bank as a percentage of its total assets. Here, the net profit is derived by deducting interest expense, operating expenses and provisions from the sum of interest income and other income. Total assets are the average total assets of the bank for a year and the previous year. A higher ratio means higher return on assets and thereby higher profitability, whereas a lower ratio indicates low profitability.

\[
\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} \times 100
\]

(2) Return on Equity (ROE)

This is also an important ratio as it shows the net profit of the bank as a percentage of its equity. Here, the net profit is derived by deducting interest expense, operating expenses and provisions from the sum of interest income and other income. Equity means the average of capital and all reserves and surplus viz. statutory reserve, capital reserves, share premium, investment fluctuation reserve, revenue reserves and balance of accumulated profits. A higher ratio is preferred as it shows higher return on equity and so higher profitability, whereas a lower ratio indicates low profitability.

\[
\text{Return on Equity} = \frac{\text{Net Profit}}{\text{Capital + Reserves & Surplus}} \times 100
\]

(3) Return on Advances (ROADV)

This ratio depicts interest/discount earned on all advances and bills as a percentage of average total advances made by the bank. Advances include term loans, cash credits, overdrafts, short term loans and bills discounted and purchased. A higher ratio means that the bank is earning a high return on its advances and so has higher profitability. A lower ratio on the contrary indicates lower returns and profitability.

\[
\text{Return on Advances} = \frac{\text{Interest/ Discount earned on Advances and Bills}}{\text{Advances}} \times 100
\]
(4) **Return on Investments (ROINV)**
This ratio shows interest earned on investments made by the bank as a percentage of its average total investments. Investments include investments in government securities, other approved securities, shares, debentures, bonds and subsidiaries/joint ventures. If the ratio is higher, it indicates higher earnings by way of interest from investments made, which leads to higher income and profits. A lower ratio means low earnings from investments made. A higher ratio is better for a bank.

\[
\text{Return on Investments} = \frac{\text{Interest earned on Investments}}{\text{Investments}} \times 100
\]

(5) **Cost of Deposits (COD)**
This ratio shows interest paid by the bank on its deposits as a percentage of its average total deposits. Deposits include demand deposits, savings bank deposits and term deposits. A lower ratio is preferable as it indicates low cost, which in turn leads to higher profits and thereby better profitability. A higher ratio means high cost of deposits, which leads to decreased profits.

\[
\text{Cost of Deposits} = \frac{\text{Interest paid on Deposits}}{\text{Deposits}} \times 100
\]

(6) **Cost of Borrowings (COB)**
This ratio shows interest paid by the bank on all its borrowings as a percentage of its average total borrowings. Borrowings include borrowings from RBI, other banks and institutions. A lower ratio indicates that the bank can borrow funds at lower rates of interest, which in turn means higher profitability. A higher ratio, on the other hand, indicates lower profitability. A lower ratio is therefore preferable.

\[
\text{Cost of Borrowings} = \frac{\text{Interest paid on Borrowings}}{\text{Borrowings}} \times 100
\]
(7) **Cost of Funds (COF)**

This ratio depicts the total interest cost of the bank’s funds, both deposits and borrowings. It shows the total interest paid by the bank as a percentage of its average total deposits and borrowings. As any other cost ratio, a lower cost of funds indicates that funds are available to the bank at low rates of interest which will improve its profitability. A higher ratio shows the otherwise. Hence, a lower cost of funds ratio is preferable.

\[
\text{Cost of Funds} = \frac{\text{Interest paid on Deposits} + \text{Interest paid on Borrowings}}{\text{Deposits} + \text{Borrowings}} \times 100
\]

(8) **Operating Profits to Total Assets Ratio (ROPTA)**

This ratio shows the operating profit of the bank as a percentage of its average total assets. Operating profit is derived as a difference between the total income (interest earned + other income) and the total expenditure (interest expended + operating expenses) of the bank. A high ratio indicates that the bank has a better capacity to meet its provisions and contingencies, and earn good profits. Hence a higher ratio which shows better profitability is preferable.

\[
\text{Operating Profits to Total Assets Ratio} = \frac{\text{Operating Profit}}{\text{Total Assets}} \times 100
\]

(9) **Net Interest Margin to Total Assets Ratio (RNIMTA)**

This ratio depicts the net interest margin as a percentage of the average total assets of the bank. The net interest margin is the difference between interest earned and interest paid. A high ratio indicates higher interest margin and therefore higher profitability, whereas a lower ratio shows lower profitability. A high ratio is preferable as the net interest margin is very important in banking business.

\[
\text{Net Interest Margin to Total Assets Ratio} = \frac{\text{Interest Income} - \text{Interest Expenditure}}{\text{Total Assets}} \times 100
\]
(10) **Interest Income to Total Assets Ratio (RIITA)**

This ratio shows the interest income of the bank as a percentage of its average total assets. Interest income includes interest on advances, discount on bills, income from investments and interest on balance with RBI and on inter-bank funds. A high ratio indicates higher interest income and thereby higher profitability, and a low ratio shows lower profitability.

\[
\text{Interest Income to Total Assets Ratio} = \frac{\text{Interest Income}}{\text{Total Assets}} \times 100
\]

(11) **Interest Income to Total Income Ratio (RIITI)**

This ratio shows the interest income of the bank as a percentage of its total income. Interest income includes interest on advances, discount on bills, income from investments and interest on balance with RBI and on inter-bank funds. Total income comprises of interest income and income from all other sources. RIITI shows the proportion of interest income in the total income of the bank. A high ratio suggests that interest income is the major income of the bank and that other incomes are a smaller part of the income.

\[
\text{Interest Income to Total Income Ratio} = \frac{\text{Interest Income}}{\text{Total Income}} \times 100
\]

(12) **Other Income to Total Income Ratio (ROITI)**

This ratio shows incomes other than interest as a percentage of the total income of the bank. Other income includes income from commission, exchange and brokerage, profit/loss on sale/revaluation of assets/investments and any other income. Total income comprises of interest income and income from all other sources. ROITI shows the proportion of other incomes in the total income of the bank. A high ratio means that the proportion of other incomes is more in the total income, and a low ratio suggests that other incomes are a small portion of the total income.

\[
\text{Other Income to Total Income Ratio} = \frac{\text{Other Income}}{\text{Total Income}} \times 100
\]
(13) Wage Bills to Total Income Ratio (RWBTI)
This ratio shows the wage bills as a percentage of the total income of the bank. Wage bills include all payments to and provisions made for the employees, which constitutes a major portion of operating expenses. A high ratio means that a high proportion of income is consumed in employee payments leaving a smaller portion to meet other expenses. A lower ratio, on the contrary, suggests that a larger portion of income is available for meeting expenses other than wage bills.

\[
\text{Wage Bills to Total Income Ratio} = \frac{\text{Payments to and Provisions for Employees}}{\text{Total Income}} \times 100
\]

(14) Interest Expense to Total Expense Ratio (RIETE)
This ratio shows the interest expense of the bank as a percentage of its total expenditure. Interest expense includes interest on deposits, on borrowings from RBI and on inter-bank borrowings. Total expenses comprise of interest expense and various operating expenses. RIETE shows the proportion of interest expense in the total expenses of the bank. A high ratio suggests that interest expense is the major expense of the bank and operating expenses are a smaller part of the expenditure.

\[
\text{Interest Expense to Total Expense Ratio} = \frac{\text{Interest Expense}}{\text{Total Expenses}} \times 100
\]

(15) Operating Expenses to Total Expense Ratio (ROETE)
This ratio shows operating expenses as a percentage of the total expenses of the bank. Operating expenses include all expenses incurred for the functioning of the bank, including wage bills. Total expenses comprise of interest expense and various operating expenses. ROETE shows the proportion of operating expenses in the total expenditure of the bank. A high ratio means that the proportion of operating expenses is more in the total expenses, and a low ratio suggests that operating expenses are a small portion of the total expenses.

\[
\text{Operating Expenses to Total Expense Ratio} = \frac{\text{Operating Expenses}}{\text{Total Expenses}} \times 100
\]
(16) **Wage Bills to Total Expense Ratio (RWBTE)**

This ratio shows the wage bills as a percentage of the total expenses of the bank. Wage bills include all payments to and provisions made for the employees, which constitutes a major portion of operating expenses. A high ratio means that the proportion of employee related expenses is high in the total expenses, and expenses other than wage bills are less in comparison.

\[
\text{Wage Bills to Total Expense Ratio} = \frac{\text{Payments to and Provisions for Employees}}{\text{Total Expense}} \times 100
\]

### 3.6.2 (5) **Productivity Ratios**

Productivity ratios show the productivity/efficiency of the employees of a bank, which can be measured on various parameters. The following ratios have been considered.

1. **Deposits per Employee (DPE)**
2. **Advances per Employee (APE)**
3. **Business per Employee (BPE)**
4. **Profit per Employee (PPE)**

#### (1) **Deposits per Employee (DPE)**

This ratio is calculated by dividing the total deposits of the bank by the number of employees of the bank. A high deposits per employee ratio indicates higher productivity of its employees, whereas a low ratio means low productivity.

\[
\text{Deposits per Employee} = \frac{\text{Total Deposits}}{\text{Number of Employees}}
\]

#### (2) **Advances per Employee (APE)**

This ratio is calculated by dividing the total advances of the bank by the number of employees of the bank. A high ratio is indicative of better employee productivity and a low ratio suggests the opposite.

\[
\text{Advances per Employee} = \frac{\text{Total Advances}}{\text{Number of Employees}}
\]
(3) **Business per Employee (BPE)**

The business of a bank is derived as the aggregate of its deposits and advances. Business per employee is calculated by dividing the business of the bank by the number of its employees. The higher this ratio, the higher the productivity of the employees of the bank. A lower ratio, however, suggests low productivity.

\[
\text{Business per Employee} = \frac{\text{Deposits} + \text{Advances}}{\text{Number of Employees}}
\]

(4) **Profit per Employee (PPE)**

The net profit of the bank derived after deducting the total expenditure from the total income of the bank, when divided by the number of employees gives the Profit per employee. A higher ratio indicates higher employee productivity and a lower ratio suggests low productivity.

\[
\text{Profit per Employee} = \frac{\text{Net Profit}}{\text{Number of Employees}}
\]

3.6.3 Descriptive Statistics

In order to study the growth of public sector and private sector banks in India from 1969 to 2015, descriptive statistics viz. mean and standard deviation have been used to compare the growth of these banks. In order to examine the impact of the global financial crisis on the fund management and financial performance of selected public sector and private sector banks also, descriptive statistics have been used to analyse and understand various ratios from 2006 to 2015. The mean and standard deviation (SD) for various ratios have been calculated using MS Excel. The co-efficient of variation (CV) has then been calculated as follows.

\[
\text{Coefficient of Variation (\%)} = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100
\]
In order to understand the impact of the global financial crisis on various ratios, the mean has also been calculated for the period before the GFC i.e. from 2006 to 2009 (Pre GFC) and for the period after the GFC i.e. from 2010 to 2015 (Post GFC).

The primary data collected from bank managers has also been analysed using descriptive statistics and simple percentages for responses received.

### 3.6.4 Ranking

Selected public sector and private sector banks in India have been given ranks – one overall rank and another sector specific rank. Thereafter, the mean of the ranks on the basis of overall ranks has also been calculated for each bank.

Selected banks have been given ranks on the basis of growth of fund management parameters and financial performance parameters taking into account the AAGR for the ten year study period from 2006 to 2015. The mean of the ranks has also been calculated on the basis of overall ranks to various banks, in order to identify the banks with the highest and the lowest growth during the study period.

Ranks have also been given to selected banks on the basis of ten year means of various soundness, liquidity, fund management, profitability and productivity ratios. The mean of the ranks calculated on the basis of overall ranks to various banks, has helped to identify the banks with the best fund management and financial performance during the ten year study period from 2006 to 2015.

### 3.6.5 t-test

The t-test has been applied using IBM SPSS to test the hypotheses of the study. The t-test has been used to check the statistical significance of the differences between public sector and private sector banks in India.
The t-test has been applied to determine whether there was a significant difference between public sector and private sector banks in India as regards the growth parameters during the period from 1980 to 1991, 1991 to 2005 and 2005 to 2015.

While studying the fund management and financial performance of the selected public sector and private sector banks for the ten year study period from 2006 to 2015, the t-test has been applied to understand the differences in the fund management, financial performance and ratios of the selected public sector and private sector banks during the pre GFC and post GFC periods.

The t-test has been applied to see whether there was a significant difference between the pre GFC and post GFC values for selected public sector banks and private sector banks. It has also been applied to check whether the differences between selected public sector and private sector banks in the post GFC period were significant or not.

The t-test has also been used to check whether there is any significant difference between the views of managers of PSBs and PVBs as regards the impact of the global financial crisis on their banks and also various aspects of banking.

3.6.6 Multiple Regression Analysis

Multiple regression analysis has been carried out in SPSS using the step-wise method to obtain regression models to estimate the Net Profit of public sector and private sector banks in the post-GFC period. The regression equation describing the relationship among one dependent variable (y) and four independent variables for fitting the model can be stated as follows:
\[ y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 \]

where \( y \) = estimated value of the dependent variable Net Profit
\( a \) = constant
\( x_1 \) = value of first independent variable Deposits
\( x_2 \) = value of second independent variable Advances
\( x_3 \) = value of third independent variable Investments
\( x_4 \) = value of fourth independent variable Net NPA
\( b_1, b_2, b_3, b_4 \) = coefficients of independent variables

### 3.6.7 SWOC Analysis

The SWOC analysis has been carried out to identify the strengths, weaknesses, opportunities and challenges for the Indian banking sector. The views of the bank managers have helped to identify the strengths and weaknesses of the Indian banking sector, as also the opportunities and challenges for the Indian banking in future. The analysis has helped to provide recommendations for strengthening the banking sector in the coming years.

### 3.7 CONTRIBUTION OF THE STUDY

The present study is expected to be useful not only to the concerned banks but also to the RBI and the government. Some of the expected contributions are given below.

1. The study will give useful inputs to the banks to help them in improving their fund management, financial performance and thereby their profitability. This will also lead to an increase in the net worth and benefit the investors, the owners.
2. It is hoped that the study would be useful to RBI to take steps to help the growth and development of the banking sector in the country, promote and
encourage a healthy competition amongst banks, and give a fillip to the economy.

(3) The study is expected to be useful to the government in framing rules and regulations to help the banking sector.

(4) The study is expected to be useful to academicians and researchers as it gives suggestions for further research.

3.8 LIMITATIONS OF THE STUDY

(1) The growth of commercial banks in India and that of PSBs and PVBs has been studied with regards to a few identified parameters.

(2) The present research is confined to studying the impact of the global financial crisis on the fund management and financial performance of selected PSBs and PVBs only. Generalization for universal application is therefore doubtful.

(3) The analysis of fund management and financial performance of selected banks is based on secondary data only.

(4) The impact of the global financial crisis on the fund management and financial performance of selected PSBs and PVBs has been examined by confining the analysis to a ten year period, from 2005-06 to 2014-15.

(5) The primary data regarding various aspects of banking has been collected only from 35 managers of various selected PSBs and PVBs from Ahmedabad city.

*****
ANNEXURE 3.1
Questionnaire for Bank Managers

Impact of Global Financial Crisis on the Financial Performance of selected Private and Public Sector Banks in India

Dear respondent,

I am pursuing PhD from the Gujarat University under the supervision of Dr R K Patel. This questionnaire has been designed to capture banking related data for my doctoral research. The information collected through this questionnaire will be kept highly confidential and will be used only for the purpose of academic research. I highly appreciate that you have spared your precious time for filling this questionnaire. Your suggestions and comments are highly valuable.

Thanks and regards,
Manisha Bhavsar

Part A: Personal Information

1 Name _______________________________________________________

2 Designation __________________________________________________

3 Name of the Bank _____________________________________________

4 Branch and city ______________________________________________

5 Educational qualifications_______________________________________

6 Age _______ years

7 Work experience (please tick in the applicable boxes)

<table>
<thead>
<tr>
<th>Experience</th>
<th>In banking</th>
<th>As a manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 10 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-20 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 30 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part B: Banking business related information

(A) Related to Deposits

8 What are the main reasons for customers keeping their deposits with your branch?

1. _____________________________________________________________
2. _____________________________________________________________
3. _____________________________________________________________

9 What steps do you take to mobilise deposits in your branch?

1. _____________________________________________________________
2. _____________________________________________________________
3. _____________________________________________________________

(B) Related to Advances and NPA

10 Which major factors do you consider while advancing business loans?

1. _____________________________________________________________
2. _____________________________________________________________
3. _____________________________________________________________
4. _____________________________________________________________
5. _____________________________________________________________

11 What type of Credit Appraisal System do you have before giving advances?

______________________________________________________________

12 Are you satisfied with the present Credit Appraisal System? (please tick any one)
Highly dissatisfied / Dissatisfied / Neutral / Satisfied / Highly satisfied

13 What type of monitoring system do you have after giving advances?

______________________________________________________________

14 Are you satisfied with the present Monitoring System? (please tick any one)
Highly dissatisfied / Dissatisfied / Neutral / Satisfied / Highly satisfied
15 How do you judge for enhancement of existing loans?
1. _______________________________________________________________
2. _______________________________________________________________
3. _______________________________________________________________

16 Which factors are responsible for NPAs in various banks?
1. _______________________________________________________________
2. _______________________________________________________________
3. _______________________________________________________________
4. _______________________________________________________________
5. _______________________________________________________________

17 What steps can be taken by banks to reduce their NPAs?
1. _______________________________________________________________
2. _______________________________________________________________
3. _______________________________________________________________

18 Do you face any political pressure while granting loans and recovery of loans?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granting loans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recovery of loans</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19 You are satisfied with the top management.

20 You are satisfied with the Internal Control System.

21 You are satisfied with your subordinates.
(D) **Customers and Technology**

Show your agreement on the following statements. (Please tick any one)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Your customers have good banking knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Your customers are good users of technology.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Increased use of latest technology helps to increase business.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(E) **Global Financial Crisis of 2007-08 (GFC)**

25. What was the impact of the GFC on deposits with your branch/bank?
   1. ______________________________________________________
   2. ______________________________________________________
   3. ______________________________________________________

26. What was the impact of the GFC on advances by your branch/bank?
   1. ______________________________________________________
   2. ______________________________________________________
   3. ______________________________________________________

27. What was the impact of the GFC on the profitability of your bank?
   1. ______________________________________________________
   2. ______________________________________________________
   3. ______________________________________________________

28. Do you think GFC had an impact on the Indian banking sector?  Yes / No
   If Yes, what was the impact?
   1. ______________________________________________________
   2. ______________________________________________________
   3. ______________________________________________________
If No, why no impact?
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________

29 What steps should RBI/government take during a financial crisis to help banks?
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________

30 What steps should banks take to remain financially strong during a financial crisis?
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________

(F) Opinion
31 Give your suggestions to improve the profitability of banks.
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________

32 Give your suggestions for better customer service.
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________

33 What would be the impact of demonetization on the banking sector?
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________
34 What changes do you see in banking in future?
1. 
2. 
3. 

35 What type of modifications should RBI make to strengthen the banking sector?
1. 
2. 
3. 

36 According to you, what are the Strengths of the Indian Banking Sector?
1. 
2. 
3. 

37 According to you, what are the Weaknesses of the Indian Banking Sector?
1. 
2. 
3. 

38 According to you, what are the Opportunities for the Indian Banking Sector?
1. 
2. 
3. 

39 According to you, what are the Challenges for the Indian Banking Sector?
1. 
2. 
3. 

*****