CHAPTER 2
LITERATURE REVIEW

2.1 Literature review with reference to Growth of Banking in India
2.2 Literature review with reference to Fund Management at Banks
2.3 Literature review with reference to Financial Performance of Banks
2.4 Literature review with reference to Profitability of Banks
2.5 Literature review with reference to Efficiency of Banks
2.6 Literature review with reference to Financial Crisis
2.7 Literature review with reference to Impact of Global Financial Crisis on the Banking Sectors of various Countries
2.8 Literature review with reference to Impact of Global Financial Crisis on India
2.9 Research Gap

References
CHAPTER 2
LITERATURE REVIEW

A literature review is a report of information found in the existing literature related to a selected area of research. A researcher goes through various scholarly works already done and available either online in the soft form or in the print form in journals, magazines, books, theses, etc. He reads them, analyses them, evaluates them and then summarises them, so as to get a theoretical base for his research. A literature review is important in the following ways.

- It provides a background for the proposed research and enables the researcher to learn from previous theory on the subject.
- It helps to identify information and ideas that may be relevant to the researcher.
- It provides valuable insights into key terms, definitions, assumptions, methodologies, models, opinions, suggestions, etc. on the basis of related work done.
- It provides suggestions about possible areas of research.
- It helps the researcher to carry on from where others have already reached.
- It ensures that the proposed research has not been done before.
- It demonstrates how the proposed research is linked to prior efforts.
- It identifies how the proposed research will add to the understanding and knowledge of the field and how it will fit into the existing body of knowledge.
- It helps to refine, refocus or even change the topic.
- It helps to justify the topic for the proposed research.

A variety of research has been done related to the banking sector and financial crisis. After reviewing some literature on these areas, the following topic was decided for the research.

“Impact of Global Financial Crisis on the Financial Performance of Selected Private and Public Sector Banks in India”
The entire literature review for this research has been divided into various sections as depicted in Chart 2.1.

**Chart 2.1: Classification of Literature Review**

- Growth of Banking in India
- Fund Management at Banks
- Financial Performance of Banks
- Profitability of Banks
- Efficiency of Banks
- Financial Crisis
- Impact of Global Financial Crisis on Banking Sectors of various Countries
- Impact of Global Financial Crisis on India
2.1 LITERATURE REVIEW WITH REFERENCE TO GROWTH OF BANKING IN INDIA

A few researchers have studied the growth of the banking sector in India. A review of their articles is given below.

Majumder, Majumder and Correa (2001) studied the Indian banking sector while it was undergoing major restructuring under the impact of deregulation and prudential regulation and the first wave of the information technology revolution. They presented a draft of future banking in areas like risk management, structure and technology on the basis of the past. They hinted that radical changes in the structure of the banking system as well as risk management skills will be required with the necessity to adopt new and advanced technology as internet banking. They mentioned some features/policies of advanced banking system worldwide, and also discussed how those could be implemented in India.

Ghosh (2010) examined the interconnection among credit growth (annual change in total outstanding loans), bank soundness (distance to default) and financial fragility (ratio of non-performing loans to total loans) using data on Indian banks for 1996 to 2008. The analysis indicated that higher credit growth amplifies bank fragility, and also that sounder banks increase loan supply. According to ownership, the results testified that credit growth had been rapid in public sector banks and new private banks. The study suggested that it is important to closely supervise rapidly growing banks to ensure that these banks have adequate risk management systems in place to contain the potential risks associated with rapid credit growth.

Gupta (2012) analyzed the growth of commercial banks (public and private sector banks) in India during the post reforms period from 1990-91 to 2007-08 in terms of population group-wise offices, deposits, credit and business. It was observed that both types of banks witnessed growth in all parameters, but the growth in private banks was larger than that in public sector banks. However, it was also found that the growth was more in urban areas and metros, as compared to rural and semi-urban areas.
Tripathy and Pradhan (2014) investigated short-run as well as long-run relationships and also causality relationships between banking sector development and the economic growth of India. The study provided a strong evidence that banking sector development caused economic growth in the Indian economy, especially in the post-independence period from 1960 to 2011. It was therefore suggested that economic growth (GDP growth) can be enhanced by promoting banking sector development in a country, i.e. by increasing domestic credit, private sector credit, money and quasi-money, total assets and total liabilities.

2.2 LITERATURE REVIEW WITH REFERENCE TO FUND MANAGEMENT AT BANKS

Fund management is important for banks as it leads to profits for a bank. Researchers have examined the fund management in Indian banks. A review of such literature is given below.

Ghosh (2007) examined the role that bank loan loss provisioning played as a part of the overall minimum capital regulatory framework using data on Indian banks for 1997 to 2005. The results indicated that loan loss provisions were utilised by banks for both income smoothing and capital management. It was also found that banks listed on recognised stock exchanges employed loan loss provisions for income smoothing more aggressively than unlisted ones. The study suggested that it is difficult to find a solution to the problem of inadequate provisioning policies due to complicated interaction of accounting, fiscal and prudential requirements. Systems should have a forward looking focus in order to deal with it.

Bhattacharya and Sinha Roy (2008) undertook a macro prudential analysis of credit risk of Indian public sector banks. They used recursive Vector Auto Regression for the monthly data for the period 1994 to 2003, to understand the effect of major macroeconomic variables on the asset quality and default rate of banks. The study signaled that the banks are likely to be under increased stress in view of the exchange rate volatility and rise in interest rates, and suggested that the authorities need to take
a balanced overview of financial stability in aggregate rather than focusing on price stability alone.

Bodla and Verma (2009) studied the implementation of the Credit Risk Management (CRM) framework by commercial banks in India by conducting a survey on a sample of 18 public sector banks and 8 private banks, and found that it is on the right track and is fully based on the RBI guidelines. Risk rating, proper credit administration, prudential limits and loan review were the important instruments of credit risk management. Most of the banks performed activities like industry study, periodic credit calls, periodic plant visits, developing MIS, risk scoring and annual review of accounts for credit risk management, but abstained from using derivative products as risk hedging tool.

Chakraborty and Mohapatra (2009) analysed the status of Asset Liability Management (ALM) approach in the Indian banking system – nationalised banks, SBI and its associates, private banks and foreign banks – for the period 1996 to 2004, using multivariate statistical technique canonical correlation. It was concluded that ownership and structure of banks affect the ALM procedure the most. Most Indian banks, unlike foreign banks, are liability-managed banks because they borrow from the money market to meet their maturing liabilities. SBI and its associates had the best asset-liability maturity pattern. Private banks are highly aggressive for profit generation, and use short term funds for long-term investments. Nationalised banks and SBI and its associates are excessively concerned about their liquidity, and use long term funds for long, medium and short term loans.

Uppal and Kaur (2009) conducted a cost-benefit analysis of bank funds for the period from 2000-01 to 2004-05 for five bank groups, viz. SBI and its associates, nationalized banks, foreign banks, old private banks and new private banks by using various ratios. The study concluded that public sector banks and private sector banks benefit by mobilizing funds through borrowings rather than deposits as the cost of borrowings is almost half the cost of deposits. In the case of utilization of funds, public sector banks benefit if they concentrate more on investments in different instruments rather than
disburse loans to their customers as return on investments is higher. However, foreign and private sector banks get more returns on advances, so they benefit if they advance loans rather than make investments. In case of public sector banks, cost of funds is higher due to government rules regarding rates of interest on deposits and low returns on advances are a result of NPAs which is again caused due to government interference. It was, therefore, suggested that banks should be given full autonomy for efficient management of funds.

Nandi and Choudhary (2011) studied the credit risk management framework of 40 scheduled commercial banks in India for a 6 year period and how banks assess the creditworthiness of their borrowers. Using multivariate discriminant analysis, an internal credit rating model was developed which would help the banks to predict future defaulters with accuracy, take necessary action and thus manage their credit risk in a better way. However, it was suggested that apart from risk rating, other instruments of credit risk management such as credit administration, prudential limits and loan review can also be added to the model.

Das, Vaish and Goel (2012) tried to establish a compliance between the theory of income smoothing and its practical implication. They studied the behaviour of 25 public sector and 10 private banks in India from 2001 to 2010 as regards using loan loss provision as a tool for income smoothing. It was found that Indian banks involve in income smoothing necessitated by regulatory requirements, stock prices and persistent performance. The loan loss provisions in public sector banks are higher than that of the private banks. The decision of loan loss provisions in public sector banks is affected by prior period earnings, dividend pay-out ratio and credit growth, whereas in private banks it is mainly due to prior period earnings. If a bank reports higher profit in the period t-1, the probability of loss provision is quite high in period t, suggesting income smoothing.

Murari (2012) determined the insolvency risk for 80 Indian banks using a popular insolvency risk measuring index Z-Index, which is based on two ratios, viz. Return on Assets and Capital to Assets, along with the probabilistic interpretation of their book
value bankruptcy. The Z-Index was calculated for 27 public sector banks, 22 private banks and 31 foreign banks for a 5 year period from 2005-06 to 2009-10. The results showed that the probability of book value bankruptcy is lower in case of public sector banks as compared to private and foreign banks. The overall financial health of Indian banks was found to be strong, which could also be seen in their resilience during the global financial crisis.

Subramanyam (2012) investigated the contagion i.e. negative effect of introducing fair value accounting for commercial banks in India for the period 2000 to 2010. It was found that NPA ratios of the banks increased significantly due to the introduction of fair value accounting of the banks’ assets. The study also suggested that the negative effect is more likely to spread to banks that are inherently weak.

Arora and Kumar (2014a) evaluated the strength of Credit Risk Management (CRM) framework in the Indian banking industry, and made a quantitative assessment of the overall CRM framework and its three major elements, viz. CRM organisation, CRM policy and strategy and CRM operations and systems. Responses of credit risk officials of 35 banks, public and private, were collected during 2007-08. The study identified two focus areas for commercial banks in India, viz. CRM operations and systems at the transaction level and CRM operations and systems at the portfolio level, particularly with regard to monitoring practices at the transaction level and risk assessment at the credit portfolio level.

Arora and Kumar (2014b) attempted to find the difference in the strength of overall Credit Risk Management (CRM) framework of private and public sector banks in India in quantitative terms and also identified the specific CRM elements leading to such differences in their respective frameworks. A mathematical evaluation tool, CRM Index Score, comprising quantitative assessment of the current set of CRM practices relating to the four basic elements of CRM framework, viz. organisation, policy and strategy, operations and systems at transaction level and operations and strategy at portfolio level, were deployed for making a comparative evaluation. The findings
indicated that on an average both public and private sector banks were on par in embracing benchmark CRM practices.

Satpathy, Behera and Digal (2015) examined the macroeconomic and bank specific microeconomic factors responsible for the rising NPA levels in the Indian banking sector. Historical annual data of 19 private and 26 public sector banks was analyzed using panel data model. The study showed that NPA levels are largely affected due to macroeconomic factors like trade balance with other countries, high government deficit and level of inflation but significantly adversely due to economic slowdown. Bank specific factors like restructuring activities, operating efficiency and credit growth also affect NPA levels.

2.3 LITERATURE REVIEW WITH REFERENCE TO FINANCIAL PERFORMANCE OF BANKS

Many researchers have studied or compared the financial performance of banks in India. A review of a few of their articles has been done and is given below.

Kumbhakar and Sarkar (2003) analyzed the relationship between deregulation and total factor productivity (TFP) growth in the Indian banking industry using a generalized shadow cost function approach. A disaggregated panel data analysis was done for 27 public and 23 private banks from 1985 to 1996 covering both pre and post regulation periods. It was found that significant decline in regulatory distortions and anticipated increase in TFP growth had not materialized following deregulation. While private sector banks had improved their performance mainly due to the freedom to expand output, public sector banks had not responded well to the deregulation measures.

Singla (2008) examined the profitability position of all 16 banks from the BANKEX index for a period of six years from 2000-01 to 2005-06 in order to understand the role of financial management in the growth of banking. During the study period, the financial position was found to be reasonable, debt equity ratio was adequate and
NPAs declined. However, ROI remained very low. The study revealed that with increasing competition, Indian banks have to be faster to sustain growth. Strong capital positions and balance sheets will help them to absorb economic shocks better. Tapping into the rural market, risk management and consolidation will help banks to be successful in the future.

Malhotra, Poteau and Singh (2011) analyzed the performance of 20 public sector banks and 15 private banks in terms of profitability, cost of intermediation, management efficiency and safety, from 2004-05 to 2008-09, i.e. pre-crisis and crisis time period. The analysis shows that the Indian banking sector remained relatively healthy during this period and the performance was not impacted negatively in a significant manner. Both public and private banks showed high capital adequacy ratios. However, the competition has intensified. While the net interest margin has improved, cost of intermediation is actually rising and banks are responding to the increased costs with higher efficiency levels.

Nayak and Nahak (2011) analyzed the performance of 27 public sector banks in India during the post liberalization period from 1999-2000 to 2008-09. Accounting ratios pertaining to financial and operational efficiencies were used to rank the banks and logit model was used to assess the health of Indian banks. State Bank of India was ranked as number one bank of India. Punjab National Bank, Canara Bank, Bank of India and Bank of Baroda competed for the number two place in different years. State Bank of Indore, State Bank of Saurashtra, State Bank of Bikaner and Jaipur, Vijaya Bank and United Bank of India continued to be at the bottom. The study showed that banking reforms have enhanced the efficiency and soundness of Indian banks, and improved the performance of many public sector banks in India.

Singh and Vyas (2011) investigated the impact of portfolio risk and other bank-level factors such as Capital to Risk-Weighted Assets Ratio (CRAR), Non-Interest Income (NII) and Net Interest Margin (NIM) on the performance (Return on Assets) of scheduled commercial banks in India through a panel data study for a 13 year period from 1996-97 to 2008-09. The study showed that portfolio risk plays an important role
in earning high returns. Capital adequacy also contributes in improving the profitability as cost of funds are reduced. NII and NIM also make a significant contribution in improving the profitability of banks. The study suggested that banks should play the role of supermarkets to satisfy all financial needs of the customers, and should try to earn non-risky non-interest income also in addition to regular interest income from advances and investments. This will ultimately increase the ROA of the banks.

Mahajan, Bhatia and Chander (2012) studied the Return on Assets (ROA) of 27 public sector banks for the years 2005-06 and 2009-10 using backward stepwise regression analysis. The measured ROA revealed that the public sector banks remained relatively healthy during the economic crisis and the performance of the banks was not impacted negatively in a significant manner. However, they need to compete better with other banks.

Patel (2012a) studied the key financial indicators of urban co-operative banks (UCBs) in India from 1967 to 2011 and analyzed the financial performance from 2005-06 to 2010-11. The study showed that the urban co-operative banking sector witnessed substantial growth especially in the post-reforms period. It was suggested that UCBs should have professional management for further improvement and development.

Patel (2012b) analyzed the financial performance of urban co-operative banks (UCBs) in Ahmedabad for the period from 1995-96 to 2004-05. The factor analysis brought out six factors important for a bank viz. establishment and interest expenses, profitability, financial management, operating and interest management, liquidity, and income sources. A discriminant analysis of the factor scores predicted two discriminant functions. The study suggested that UCBs should concentrate on fund management, human resources and customer service to become financially sound and more competitive in the liberalized market.

Selvakumar and Nagalakshmi (2012) studied the income and expenditure pattern of the various sectors of 83 scheduled commercial banks in India and analyzed their
profitability for the 12 year period from 1997-98 to 2008-09 in order to compare their earning quality ratios. The study revealed that the operations of scheduled commercial banks in India are satisfactory and their profitability is growing continuously. The study suggested that all banks – public, private and foreign – should make efforts to reduce operating expenses and should try to increase their income. They should tap the rural market too.

Bapat (2013) examined the relationship among the growth, profitability and productivity of 26 public sector banks from 2005-06 to 2011-12, from pre-crisis to post-crisis period. The banks remained relatively unscathed from the global financial crisis of 2007-08. In fact, the business of these banks grew at a CAGR of 18.7% during this period. The study concluded that change in growth rates did not significantly affect profitability (Return on Assets), but did affect productivity (business per employee and profit per employee).

Dash and Das (2013) compared the performance of 26 public sector banks with 26 private/foreign banks for the period from 2003-04 to 2007-08 under the CAMELS framework. The results show that private/foreign banks fared better than public sector banks on most of the CAMELS factors. Management soundness and Earnings and profitability contributed largely to the better performance of private/foreign banks. The results of the study suggest that in order to become more competitive, public sector banks have to adapt quickly to changing market conditions, improve credit lending policies, provide better customer service and improve employee motivation.

Sayed and Sayed (2013) evaluated the performance of top 4 private sector banks using the CAMELS model, i.e. capital adequacy, assets quality, management efficiency, earning quality, liquidity and sensitivity to market risk for a period of three years from 2008-09 to 2010-11. A comparative analysis of Axis Bank, HDFC Bank, ICICI Bank and Kotak Mahindra Bank showed that Kotak Mahindra Bank was at the top position. The analysis suggested that if banks want to succeed, not just survive, in the competitive scenario, they will have to improve profitability, efficiency and technology, while
achieving economies of scale through consolidation and exploring cost-effective solutions.

Sinha (2013) evaluated the performance of 26 public and 23 private banks for the period 2006-07 to 2010-11 using Seiford and Joe Zhu approach, which is a variant of the popular Banker-Charles-Cooper model. Two good outputs – total assets and other income, and one bad output - gross NPA were taken against one input – deposits. The study indicated that the new private banks performed the best, followed by old private banks, then nationalized banks and last the SBI group.

Chaudhuri and Ghosh (2014) applied a Multi-Criteria Decision Making based framework for performance evaluation of 15 public sector and 14 private banks to determine their relative ranking for the period 2007 to 2013. The results indicated that while the relative performance of private banks has not changed much, some public sector banks have improved over time. The stock market, however, does not attach much importance to various regulatory variables in the valuation of banks.

Gupta and Kaur (2014) compared the performance of 5 private and 5 public sector banks in India from 2008 to 2012. They analyzed the growth, performance and services provided by both in terms of loans, cash credits, advances outside India, non-performing assets, net profits, etc. State Bank of India performed the best among public sector banks, whereas HDFC Bank and ICICI Bank among private banks. Both sectors, however, performed equally well.

Kaur (2015) evaluated the financial performance of 5 public sector banks and 5 private sector banks for the period 2009 to 2014 using various ratios under the CAMEL model. Regression analysis was then applied taking returns on assets as the dependent variable and the ratios of the CAMEL model as independent variables, to identify the factors predominantly affecting the financial performance of banks. The results showed that profit per employee, total advances to total deposits ratio, debt-equity ratio, capital adequacy ratio and total investments to total assets ratio caused 96% of
the variance in the return on assets of the banks. However, profit per employee was the most important factor affecting the financial performance of the banks.

Kumari and Prasad (2015) evaluated and compared the financial performance of State Bank of India, Bank of Baroda, ICICI Bank and Axis Bank by comparing various ratios for the period 2009-10 to 2013-14. The study found that SBI and BOB performed better than ICICI and Axis. It was also concluded that people trust public sector banks more than the private banks. They are interested in investing their savings in public sector banks, but are likely to take advances from private sector banks.

Natarajan and Simon (2015) analysed the performance of nationalised banks using financial ratios and DEA from 2001 to 2012 wherein 2001-2006 represents the period before IT development and 2007-2012 after technology adoption. Cost efficiency improved due to technology. However, the study suggests that nationalised banks need to diversify their income sources using IT as a differentiator tool in the wake of growing competition.

Padake and Soni (2015) measured the performance of top 12 banks in India (public and private) that form the BSE Bankex for six years using the DuPont analysis. The findings revealed that the performance of the bank cannot be judged by profit or some ratios alone. The banks that made more profits were not really efficient. Highest profit is a mere reflection of more capital but there is no efficiency in utilizing all the capital.

Walia and Kaur (2015) analyzed the performance of four major banks in India, viz. Punjab National Bank, State Bank of India, ICICI Bank and HDFC Bank for the period 2009-10 to 2013-14. The performance was measured using different ratios and regression analysis was applied to investigate as to which factors predominantly affected the performance of the banks. HDFC Bank stood ahead of other banks in terms of performance. It was also found that NPA ratio as a percentage of loans, savings deposits as a percentage of total deposits, priority sector advances as a percentage of total advances and total income as a percentage of capital employed
are the factors that collectively explained 94.5% variance in the net profit as a percentage of total assets of the banks.

2.4 LITERATURE REVIEW WITH REFERENCE TO PROFITABILITY OF BANKS

Profits are necessary for the survival of any business. Banks also need to be profitable to sustain in the long run. A review of some literature on the profitability of banks in India has been presented below.

Bodla and Verma (2006) tried to identify the key determinants of profitability of public sector banks in India. They used step-wise multivariate regression model on financial data of all 27 public sector banks from 1991-92 to 2003-04. The study indicated that the variables like non-interest income, operating expenses, provisions and contingencies and spread have significant relationship with net profits.

Ramachandran and Kavitha (2009) studied the profitability performance of all Indian scheduled commercial banks viz. the SBI group, the nationalized banks and the private banks, for a period of 10 years from 1996-97 to 2005-06 using step-wise multiple regression analysis, in order to identify the crucial factors responsible for the profitability of the Indian scheduled commercial banks. The study suggested that profitability of banks can be increased by minimizing establishment expenses, generating more non-interest income, enhancing deposit mobilization, improving credit-deposit proportion, introducing innovative branch administration, controlling NPAs, monitoring important ratios, introducing modern marketing strategies and prudential disclosure of financial information.

Singh (2010) examined the impact of bank specific as well as macro-economic variables on the performance of the Indian banking industry. Linear regression analysis was applied to the data of 35 sample banks for the period 2003-04 to 2008-09. It was concluded that bank specific parameters like asset quality, expenses and other income generating activities affect bank profitability but size of the bank does not. So far as macroeconomic determinants are concerned, profitability of a bank is
significantly affected by the GDP of the country in which it is operating, but not by inflation.

Viswanathan, Ranganatham and Balasubramanian (2011) estimated the relative importance of advances, investments, deposits and other income in predicting profits. Data of 11 public sector banks, 10 private banks and 5 banks of SBI Group was studied for the period 1995 to 2009. A comparative assessment of two methods – Ordinary Least Square and Robust Regression based on Least Absolute Deviation was made, where the latter was better in terms of predictive accuracy.

Bhadury (2012) undertook a detailed study of the different aspects of other income component of various bank groups – 8 large public sector banks of SBI group, 10 private banks and 11 small and medium sized foreign banks – during post liberalization period from 1991 to 2010. Using panel-based dataset for different bank groups and applying linear regression analysis, it was concluded that expansion of other income generating activities is a profitable proposition for all banks, though not in the same proportion.

Gatsi (2012) investigated the impact of capital structure on the profitability of seven banks listed on the Ghana Stock Exchange for 11 years from 2000 to 2010. Ghanaian banks’ capital structure is hugely skewed towards debt as much as 80.23% debt against 17.77% equity. Of the debt, more than 81% is short term and less than 9% long term. The study concluded that profitability is positively affected by short term debt and negatively by long term debt.

2.5 LITERATURE REVIEW WITH REFERENCE TO EFFICIENCY OF BANKS

Many researchers have evaluated the efficiency of banks in India using various techniques. Such articles were reviewed and a summary is presented below.

Sathye (2003) measured the productive efficiency of three groups of banks in India, viz. 27 public sector banks, 33 private banks and 34 foreign banks, for the year 1997-
Sanjeev (2006a) evaluated the technical efficiency of all 27 public sector banks in India for a period of 5 years from 1997 to 2001 using the Data Envelopment Analysis (DEA). The results showed that judged on the parameters of solvency, earning capacity and profitability, Corporation Bank and State Bank of Bikaner and Jaipur were the most efficient whereas Indian Bank, the United Bank of India and UCO Bank were the worst performers. As a group, public sector banks showed a decline in the efficiency level over the study period. However, no conclusive relationship could be established between size of banks and its efficiency.

Sanjeev (2006b) evaluated the technical efficiency of 27 public sector banks, 29 private banks and 38 foreign banks operating in India during the post-reform period 1996-97 to 2000-01 using non-parametric linear programming based technique Data Envelopment Analysis. It was concluded that the efficiency and competitiveness of banks have improved over time, but foreign banks have outperformed both private sector and public sector banks. However, the efficiency of banks can be increased by controlling the level of NPAs.

Jaffry, Ghulam, Pascoe and Cox (2007) measured changes in productivity and technical efficiency levels within banking sectors of the Indian sub-continent, specifically India, Pakistan and Bangladesh, over the period 1993-2001, in the context of sweeping reforms across the sub-continent in the early 1990s. A Malmquist index of total factor productivity (TFP) change over the time period, along with a Tobit regression, was used to determine whether regulatory and financial reforms had the desired effect on the productivity and efficiency levels. And, it was found that technical efficiency
improved as a response to reforms and modernization of financial sectors in these countries.

Ray (2007) evaluated the size efficiency of Indian banks from 1997 to 2003. A 4-input 3-output production technology was conceptualized when inputs included borrowed funds, labour, capital and equity, whereas outputs were credit, investments and other income. The findings suggested widespread size inefficiency across banks and years. Large banks like State Bank of India were persistently found to be size inefficient, and breaking them up into smaller units could possibly result in greater output. The study suggested to examine and determine whether the large size was responsible for lower efficiency.

Kumar and Gulati (2008) analyzed the effect of size and group affiliation on the technical efficiency of 27 Indian public sector banks for the year 2004-05 using Data Envelopment Analysis. The empirical results suggested that small banks were more efficient than their larger counterparts. Moreover, banks affiliated to State Bank of India group were more efficient than the nationalized banks. Technical inefficiency was mainly due to managerial under performance.

Rao and Tiwari (2008) tried to identify the factors affecting the efficiency of public sector banks. Twenty three variables of 5 public sector banks from 2000-01 to 2004-05 were analyzed using product moment correlation. It was concluded that efficiency factors related to per branch and operations mainly influence the overall efficiency of these banks. These efficiency indicators are operating profit per branch, spread per branch, deposit per branch, advances per branch, interest income/average working funds, non-interest income/average working funds, operating expenses/operating income, cost of deposits, spread/average working funds, capital adequacy ratio.

Kalluru and Bhat (2009) examined the determinants of cost efficiency of commercial banks in India by employing the Stochastic Frontier Approach and the Tobit regression technique for the deregulation period from 1992 to 2006. Cost efficiency of banks in India decreased during the study period. Foreign banks were more efficient followed
by private banks and public sector banks. The earning capacity of banks is the main determinant factor of efficiency, followed by diversified and strategic non-interest income activities.

Sanjeev (2009) assessed the pattern of changes in the efficiency of all 27 public sector banks for the period 2002-03 to 2006-07 using Data Envelopment Analysis. Only one bank emerged as efficient throughout the study period i.e. the Bank of Maharashtra. There was no clear cut evidence of improvement in the efficiency levels of the various public sector banks over the years, which shows that some banks are gearing themselves to face the increased competition from private banks while a few others are not able to operate at the best of the levels.

Bodla and Verma (2010) examined the efficiency, benchmarks and targets for all 29 private banks operating in India for the period from 1998-99 to 2005-06 using Data Envelopment Analysis. It was concluded that HDFC Bank was the top performer, but private banks need to improve their efficiency level by decreasing the NPA level and improving deposits, advances and investments.

Kumar and Gulati (2010) examined the effect of ownership on the technical and scale efficiencies of Indian domestic banks. The efficiency scores for public and private banks during 2005-06 and 2006-07 were computed using Data Envelopment Analysis - a deterministic, non-parametric and linear programming based frontier technique. The results conveyed that ownership did not affect the efficiency of Indian domestic banks.

Kumar and Vincent (2011) used Data Envelopment Analysis (DEA) models to rank 19 public sector banks and 14 private banks based on their performance over 13 years of post-reform period (from 1994-95 to 2006-07) by using the progressive time-weighted means of variable benchmarking super-efficiency scores. The study was conducted using two inputs – total costs and total deposits, and two outputs – total loans and other earning assets. Public sector banks were relatively more consistent in their performance over the years as well as across the banks. Taking advantage of the
reform process and information technology in banking, public sector banks geared up, could generate surpluses and also became self-sufficient. The study suggested that the reform process had a positive effect on the Indian banking sector.

Sahoo and Mandal (2011) evaluated the performance of the 80 banks operating in India for 5 years during the post transition period i.e. 1997-98 to 2001-02. The intermediation approach of the Data Envelopment Analysis was used to measure the technical, cost, revenue, allocative and profit efficiencies of the banks. Borrowed funds, number of employees and fixed assets were taken as inputs. Investments, loan assets and non-interest fee based income were taken as outputs. The study showed that the reform process had a positive effect on the performance of the Indian banking sector.

Sekhri (2011) compared the efficiency and productivity of public sector banks with that of private banks and foreign banks from 2004-05 to 2008-09 using DEA and Malmquist Index. On the basis of Total Factor Productivity, foreign banks were the best followed by private banks due to high technical efficiency and use of advanced technology. The public sector banks performed better in pure efficiency change index which shows that they are more efficient in their operations and need to invest in technology to compete with private and foreign banks.

Chhikara and Rani (2012) analyzed the efficiency of 26 public sector banks in India during 2010-11 to measure the extent of technical, pure technical and scale efficiencies of public sector banks. The output variables were advances, investments, interest income and other income whereas input variables were deposits, capital and reserves and surplus and interest expended. State Bank of India was found to be the most efficient bank while Canara Bank the least efficient.

Dash and Charles (2012) calculated the technical efficiency scores for 49 banks operating in India – 20 public sector banks, 19 private banks and 10 foreign banks for a 5 year period from 2003-04 to 2007-08 using the DEA model. The study showed that foreign banks were slightly more efficient than public and private banks. Public and
private banks were almost equally efficient. It was suggested that public and private banks may need to pursue more aggressive loans and investment policies, but cautiously within the statutory regulatory framework.

Kodan, Chhikara, Mehra and Yadav (2012) studied the trend in productivity of commercial banks in India from 2005-06 to 2009-10 using time series data. It was found that the partial factor productivity of capital and labour and total factor productivity of public sector bank group were better than that of private and foreign bank groups. Public and private sector bank groups were operating under increasing return to scale while foreign bank group under decreasing return to scale. Moreover, public and private sector bank groups were labour intensive while foreign bank group capital intensive.

Noor and Ahmad (2012) evaluated the efficiency of 78 Islamic banks from 25 countries during 1992 to 2009 using the non-parametric DEA method. The study concluded that world Islamic banks exhibited high pure technical efficiency. Bank total efficiency was positively associated with profitability and negatively with loans intensity and capitalization. More efficient banks tend to be more profitable.

Sinha (2012) compared public sector banks operating in India for the period 2004-05 to 2009-10 in terms of priority sector lending using undesirable output model of Data Envelopment Analysis. Priority sector NPA was considered as an undesirable output.

Raina and Sharma (2013) examined the cost efficiency of 64 commercial banks during 2005-06 to 2010-11 using the non-parametric DEA approach, incorporating interest and non-interest income measures. The result suggested that there was substantial cost efficiency, primarily due to the regulatory environment. Levels of cost efficiency, however, improved during the post reforms period due to competition and technology.

Panandikar (2014) used multi criteria method TOPSIS to measure the metric efficiency ratings for 87 commercial banks in India – 27 public, 29 private and 31 foreign banks.
– from 2001-02 to 2012-13. Seven financial ratios were used. The findings revealed that the public sector, private sector and foreign banks do not differ in terms of average efficiency ratings but they differ from year to year.

Tandon and Malhotra (2014) examined the technical, pure technical and scale efficiencies of 44 banks operating in India – 19 public, 15 private and 10 foreign banks - for the period 2010 to 2012, using DEA. Pure technical efficiency of private, public and foreign banks in the post financial crisis period is robust at more than 90% for all categories of banks, which could be attributed to stringent RBI norms, adoption of improved risk management practices, stiff competition, superior role of information technology, focus on improved customer service quality. However, foreign banks have a greater scope for improvement in scale efficiency.

Kumar, Raman and Raman (2015) evaluated the efficiency of 48 Indian commercial banks - 26 public, 10 private and 12 foreign banks - for the year 2014 using the fuzzy DEA approach, i.e. fuzzy (imprecise) phenomena of loan income and investment income. The fuzzy DEA approach effectively characterizes uncertainty and also discriminates banks’ efficiency better.

Pandey and Singh (2015) attempted to calculate the bank productivity in India for 40 banks (26 public sector banks, 10 private banks and 4 foreign banks) during the period 2008 to 2013, the period of internet technology wave. Data Envelopment Analysis technique was used to calculate and decompose the Malmquist index of Total Factor Productivity (TFP) growth into technical change and change in scale efficiency. Branches, staff and deposits were taken as the three input measures, and loans and advances and profit as the two output measures. The results indicated that the TFP growth of the banks was greatly affected by the internet technology. It was suggested that banks must achieve most productive scale size to sustain in the long run.

Singh and Kaur (2016) examined the efficiency of 26 public sector and 20 private banks in India and also the relationship between efficiency and profitability of banks, for a 10 year period from 2004-05 to 2013-14 using data envelopment analysis. The results
revealed that private sector banks were relatively more efficient compared to public sector banks, and that efficiency of a bank directly affects its profitability. Inefficiency was a result of either improper size or managerial incompetence.

2.6 LITERATURE REVIEW WITH REFERENCE TO FINANCIAL CRISIS

Financial crises have been as old as economies themselves. Many financial crises have taken place in various countries since ancient times and have continued in present times. Many researchers in the West have done extensive research on financial crises that have taken place over centuries and also the Global Financial Crisis of 2007-08. A review of such articles is given below.

Mishkin (1992) provided a precise definition of a financial crisis: A financial crisis is a disruption to financial markets in which adverse selection and moral hazard problems become much worse, so that financial markets are unable to efficiently channel funds to those who have the most productive investment opportunities. As a result, a financial crisis can drive the economy away from an equilibrium with sharp declines in output, and may have effects more than those of bank panics. It is therefore required that the central bank expands its role as the lender of the last resort and uses the discount window to provide liquidity to sectors outside of the banking system.

Mishkin (1999a) provided an asymmetric information analysis of the East Asian crisis which began in July 1997 in countries like Thailand, Indonesia, Malaysia and Korea, and then the lessons learnt from the crisis. Accordingly, there is a strong rationale for an international lender of last resort, but this lending should be done appropriately. Capital flows do contribute to the crisis, but exchange controls may not be able to avoid future crises. Pegged exchange rate regimes are a dangerous strategy for EMEs and make financial crises more likely.

Mishkin (1999b) drew important lessons from the Tequila Crisis of 1994 and 1995 in Mexico that the dynamics of financial crises in emerging market economies (EMEs) differ from those in industrialised countries. Strong prudential supervision of the
banking system is essential to prevent financial crises. Financial liberalization must be managed carefully and in a phased manner. It is necessary to design appropriate policies for EMEs. Expansionary monetary policy is not a viable policy to promote recovery and the lender of last resort role of a central bank must be used more cautiously in EMEs.

Bordo and Meissner (2006) emphasized that exposure to foreign currency debt does not necessarily increase the risk of having a financial crisis. In the late 20th century, many advanced countries with very high levels of debt avoided crises. However, emerging markets with such debts fell victim to debt crises and had high financial instability. This shows that foreign currency debt is dangerous when mismanaged. Sound debt management, and development of sound monetary, fiscal and financial policies will allow countries to escape financial turmoil.

According to Bernanke (2008), the risk of financial instability in the USA and in many other countries during 2008 had implied the need to take extraordinary actions on the part of governments and central banks. Enactment of the Emergency Economic Stabilization Act, especially the Troubled Asset Relief Program, was an important step to deal with a systemic financial problem of historic dimensions. He added that timely government intervention, together with natural recuperative power of financial markets, would lay the groundwork for financial and economic recovery.

Reinhart and Rogoff (2008) compared the first major financial crisis of the twenty first century, the 2007 US sub-prime financial crisis, with 18 previous episodes of bank centred crises in advanced countries after World War II. It was similar to other crises in terms of financial liberalization, run-up of asset prices, debt accumulation, growth patterns and current account deficits. However, it was different too as US did not have the handicap of a fixed exchange rate system. The growth lapse as an aftermath of the crisis was also expected to be much less.

Acharya, Philippon, Richardson and Roubini (2009) have given an exhaustive view of the global financial crisis of 2007-2009. This crisis was a crisis of traditional banks and
that of the “shadow banking sector” i.e. of those financial institutions that mostly looked like banks. It propagated from the non-bank mortgage lenders to independent broker dealers to money market funds to corporations reliant on short term financing. After discussing the root causes of the crisis, the study also suggested the basic principles of regulation to reduce the likelihood of a systemic failure and the principles of a bailout when the crisis hits. However, such regulation would be effective only with reasonable co-ordination among different national regulators.

Reinhart and Rogoff (2009) conducted a historical analysis of the aftermath of systemic banking crises in advanced economies as well as in emerging markets. Three characteristics were common to all severe financial crises – first, deep and prolonged asset market collapses and equity price collapses; second, profound declines in output and employment; and third, explosive real debt of the government. However, the authorities now have more flexible monetary policy frameworks and central banks of various countries were more aggressive than earlier. But during a global crisis, defaults in emerging market economies tend to rise sharply when many countries are simultaneously experiencing domestic banking crises.

Bordo, Meissner and Stuckler (2010) studied the effects of foreign currency debt on currency and debt crises and its indirect effects on short-term growth and long-run output effects in both 1880-1913 and 1973-2003 for 45 countries. The study revealed that greater ratios of foreign currency debt to total debt were associated with increased risks of currency and debt crises, although it was also dependent on the size of the country’s reserve base and its policy credibility. Financial crises, driven by exposure to foreign currency, resulted in lower growth temporarily and significant permanent reduction in output in the long run.

Mishkin (2011) has given a detailed account of how a subprime crisis which started in 2007 in a small part of the financial system became a global crisis by late 2008 and early 2009. His article hints that the global financial system is much more interconnected than was previously recognised and excessive risk-taking that threatened the collapse of the world financial system was far more pervasive than was realized.
The most important task now is to understand how systemic risk arises and then to design policies to rein in this risk taking. The article also states that extraordinary actions by central banks and governments had been able to contain the global financial crisis, but unwinding these policies successfully would be very challenging.

Reinhart and Rogoff (2011) constructed a comprehensive new long term historical database of 70 countries for over two centuries for studying debt and banking crises, inflation, and currency crashes. Their study focused on some of the links between debt cycles and the recurrent pattern of banking and sovereign debt crises over the past two centuries. The study revealed that banking crises are normally preceded by rapidly rising private indebtedness. Moreover, banking crises increase the likelihood of a sovereign default. This could be a result of the recession that arises or an explosion in public debt after a banking crisis.

Qian, Reinhart and Rogoff (2011) tried to quantify and understand countries’ risks of recidivism for different types of financial crises and the duration of time that must pass before one can consider a country to have “graduated”. Graduation means emergence from frequent crisis suffering status, which is a long process. Countries do seem to graduate from external default crises and even inflation crises. However, no country has been able to graduate from banking crises, not even high income countries. The role of IMF programs and availability of IMF bridge loans have certainly increased countries’ resilience but is not a final cure.

Laeven and Valencia (2013) presented a comprehensive database on systemic banking crises during 2007-2011, complemented with dates for sovereign debt and currency crises during the same period, and information on costs and policy responses associated with banking crises. Comparison between the output losses across different crises suggested that sovereign debt crises are more costly than banking crises, which are more costly than currency crises. The study also proposed a new methodology to date banking crisis episodes, based on a combination of financial distress indicators and policy measures, which could be consistently applied across countries and over time.
Reinhart and Rogoff (2013) studied the historical frequency and duration of banking crises in advanced as well as developing countries using a dataset from the early 1800s to the present. Their study established that there were similarities in both the run-ups and the aftermath. Systemic banking crises were typically preceded by asset price bubbles, large capital inflows and credit booms, in rich and poor countries alike. With government revenues contracting, they weakened fiscal positions. Three years after a crisis, central government debt increased by about 86%. The fiscal burden of banking crises extended beyond the cost of bailouts.

Reinhart and Rogoff (2014) examined the output consequences of 100 crises spanning more than 150 years from 1857 to 2013, 63 in advanced economies and 37 in larger emerging markets. Their study revealed that it takes about 8 years on an average to reach the pre-crisis level of income, the median being 6.5 years. The per capita GDP declined by about 11.5% from peak to trough on an average, the median being 8.8%. 45% of the post-crisis episodes experienced double dips i.e. a renewed downturn in the recovery phase before reaching the prior peak. Even in the year 2013, the output in ten out of twelve countries (exceptions US and Germany) experiencing a systemic crisis starting in 2007-08 remained well below its pre-crisis peak. The study suggested that in order to speed up recovery, advanced economy governments may be required to adopt some approaches which are generally adopted by emerging markets.

Reinhart and Rogoff (2015) studied sovereign defaults by both advanced and emerging economies, debt forgiveness and its scale, and debt overhangs and their duration. They found that debt overhangs have a potential negative cumulative effect on growth. Even advanced economies have to resort to debt restructuring or conversion, high inflation, capital controls and other forms of financial repression to resolve significant past debt overhangs, just like emerging markets.
The Global Financial Crisis of 2007-08 has affected countries across the globe and their banks in varying degrees. A review of literature on the impact of the crisis on the banking system of various countries is presented below.

Leony and Romeu (2011) examined the impact of the global financial crisis on the Korean banking sector. They studied bank level data from 2000 to 2008 for 18 Korean banks, eight state owned and ten private. There was a significant credit expansion by public sector banks in 2007 in response to deteriorating international credit conditions. Private banks in Korea were well capitalized and complied with prudential norms but as their balance sheets deteriorated, they could not prevent reduction in credit. Smooth functioning of the wholesale funding markets, though with slightly higher costs, reflected strong policy support from the authorities during the crisis.

Ashamu and Abiola (2012) examined the impact of the global financial crisis on the Nigeria banking system. Nigerian markets, though not well integrated into the world market, had been facing serious destabilising effects since the emergence of the global crisis. The crisis caused serious depression in the capital market and drop in the quality of part of the credit extended by banks for trading in the capital market, tightening of liquidity due to foreign exchange outflows and withdrawals of foreign credits, potential exchange rate risks due to devaluation, credit crunch, increase in domestic interest rates, greater loan loss provisioning by banks, and lower profitability. It was recommended that the federal government should take proactive measures to conserve foreign reserves and inject liquidity into the banking system at an appropriate time.

Ding, Wu and Chang (2013) examined the changes in the performance of 42 banks from five Asian economies viz. Japan, South Korea, Hong Kong, Singapore and Taiwan, before and after government intervention during the global financial crisis which started in 2007. They used data for an eleven quarter period during 2007 and 2010 on
six financial performance indicators. The results indicated that the bank performance in terms of solvency, credit risk and profitability improved after government intervention in the 3rd quarter of 2008. However, the effects of government intervention also depended on the economy and whether the banks were internationalized.

Albertazzi and Bottero (2014) investigated the dynamics of foreign v/s domestic credit supply in Italy during the global financial crisis, which brought a sudden and unexpected deterioration of economic conditions and a sharp increase in credit risk. It was found that foreign lenders restricted credit supply more sharply than their domestic counterparts. One reason for such restriction could be the functional distance between a foreign bank’s headquarter and the Italian credit market. Though domestic banks exhibit a more stable lending supply, the presence of foreign lenders is always beneficial as it implies a diversified banking sector.

Basse, Reddemann, Riegler and Schulenburg (2014) examined the dividend policy of the European banking industry during the period 1998 to 2008 in order to understand whether dividend cuts and omissions to retain earnings during the global financial crisis will be viewed as a sign for future problems by investors. The results, however, suggested that during a severe financial crisis, European banks should definitely consider cutting or omitting dividends to improve their financial strength.

Chittedi (2014) examined the effects of contagion from the developed markets (the US, the UK and Japan), to the BRIC (Brazil, Russia, India and China) stock markets during the period from January 1996 to July 2011 using daily data by applying Dynamic Conditions Correlations model and Asymmetric Generalized Dynamic Condition Correlation approach. Results confirmed the existence of asymmetric contagion to emerging market economies. Stock market indices were observed to display a persistent and high correlation between them during and after high volatility periods. But when bad news hit stock markets, equity correlation among the BRIC and developed markets increased dramatically.
Godlewski (2014) investigated the impact of bank loan announcements on borrower value during the global financial crisis using a sample of 253 large loans to French borrowers from January 2000 to December 2009. Bank loan announcements during the crisis found a significant and negative reaction in the stock market, as they were perceived as bad news. However, larger loans to larger borrowers funded by syndicates with fewer local lenders were positively perceived by investors. Moreover, bank loan announcements for firms that were less financially constrained were perceived positively by the stock market.

Kosak, Li, Loncarski and Marinc (2014) analysed the bank data from 91 countries from 2000 to 2010 to understand the impact of the quality of bank capital on bank lending behaviour during the global financial crisis. The study revealed that high quality of bank capital (tier 1 capital and retail deposits) and prevalent government backing were crucial to continuous bank lending during the crisis period, especially in non-OECD and BRIC countries. Although higher use of tier 2 capital and interbank deposits could be important for increased lending during a normal period, this did not support lending activities during the crisis. The study also indicated that large banks had a competitive advantage against weakly capitalized banks during the global financial crisis.

Moradi-Motlagh and Babacan (2015) measured the efficiency levels of 8 Australian banks before, during and after the global financial crisis (from 2006 to 2012) by examining their pure technical and scale efficiencies using Data Envelopment Analysis. The results revealed that the crisis had an adverse effect on the pure technical efficiency of Australian banks. Additionally, it was found that small banks suffered from scale inefficiency and operated under increasing returns to scale, medium banks were scale efficient but large banks suffered from scale inefficiency and operated under decreasing returns to scale. The study, therefore, suggested that mergers between small banks may improve the scale efficiency level of the Australian banking sector rather than mergers between large banks.
2.8 LITERATURE REVIEW WITH REFERENCE TO IMPACT OF GLOBAL FINANCIAL CRISIS ON INDIA

Researchers have conducted studies to examine the effect of the Global Financial Crisis of 2007-08 on the Indian economy and on Indian banks. A review of such articles is given below.

D’Souza (2009) stated that though Indian banks had no direct exposure to the subprime mortgage assets, India was affected by the global financial crisis as the Indian economy was significantly integrated with the global economy in terms of trade and finance. The global crisis resulted into a reversal in capital flows to India and decrease in exports, which caused a slippage in the industrial sector and a deceleration in GDP growth rate reflecting the global economic slowdown. The fiscal and monetary stimulus provided as a response resulted into a very high fiscal deficit, record revenue deficit and aggressive reduction in monetary policy rates. Massive government borrowings adversely affected aggregate output. Fiscal stimulus lacked sustainability.

According to Gopinath (2009), the subprime crisis in the US housing mortgage sector turned into a global banking crisis, then a global financial crisis and later a global economic crisis. However, Indian banks, both in the public sector and in the private sector, were financially sound, well capitalized and well regulated. They were healthy in the midst of the global financial crisis due to stringent RBI regulations regarding capital adequacy, provisioning norms, liquidity risk management, statutory liquidity ratio, securitization of standard assets, off balance sheet exposures and regulation and supervision of NBFCs.

Kothari and Sharma (2009) studied the performance of 12 banking stocks listed on the National Stock Exchange comprising of 8 public sector and 4 private sector banks vis-à-vis S&P CNX Nifty during the period from July 2007 to June 2008. Market Adjusted Abnormal Return (MAAR) on weekly basis was applied. The banking stocks witnessed a heavy downfall in the volatile stock market, which could be attributed to factors such as very high inflation, hike in interest rates and CRR by the government to curb
inflation, US subprime crisis, etc. Bank specific factors such as mergers and acquisitions, quarterly results, rights issue, etc. did provide a little support on certain occasions. However, positive signals from strong domestic economic fundamentals enabled the Indian financial markets to sustain and overcome the phase of turbulence.

Deb and Chavali (2010) investigated the significance of trust and loyalty amongst bank customers prior to the global financial crisis and during the crisis. The results indicated that trust acts as a catalyst to customer loyalty. Prior to the financial crisis, failure on the part of the bank to handle communication properly invoked customer complaints, but did not affect price sensitivity, word-of-mouth and investor behaviour. During the crisis, however, inadequate communication resulted in complaining behaviour and made customers price sensitive. It was therefore suggested that banks should continue to focus on shared value, opportunistic behaviour and improved communication to reduce complaints and price sensitivity of customers.

Dhameja (2010) studied the global financial crisis of 2008, how it started and grew, its impact and steps taken the world over to control it. He mentioned that the crisis did not have a major direct impact on the Indian economy due to its highly regulated financial system and moderate dependence on exports. However, it did have a negative impact on the banks, businesses, industries, stock market, and foreign exchange reserves. Non-availability of credit and decrease in demand resulted into losses for corporates which led to layoffs and thereby an economic slowdown. The study mentioned that continuous reforms were required in the financial system internationally to avert such crisis, even during the period of plenty.

Suresh (2010) studied various aspects of the financial crisis of 2008 and its impact on Indian capital markets in the arena of financial innovations and global best practices and their policy implications. The study observed that financial stability in India had been achieved through perseverance of prudential policies which prevent institutions from excessive risk taking and financial markets from becoming extremely volatile and turbulent. Strong regulations helped in lessening the impact of the financial crisis. The
continued buoyancy of foreign direct investment suggest investor confidence in Indian capital markets.

Acharya and Kulkarni (2012) tried to find out the factor that saved the Indian banking sector during the global financial crisis of 2008. It was observed that private sector banks faced greater losses as compared against public sector banks, in spite of their superior pre-crisis risk-return profile. Investors too relocated their deposits, thus rewarding the public sector banks while penalising private sector banks with similar risk. In fact, it was access to implicit and explicit government guarantee rather than government ownership that helped public sector banks perform better. Private sector banks experienced a loss of confidence and capital (deposits) flew from riskier private banks to stable public sector banks because investors believed that public sector banks would be bailed out by the government in the event of a failure.

Patel and Nayak (2012) examined the impact of global financial crisis on the non-performing assets levels of scheduled commercial banks in India. Ratios were calculated for the period from 2001-02 to 2006-07 and from 2006-07 to 2010-11. The study revealed that assets quality of scheduled commercial banks improved after the global financial crisis and non-performing assets declined. It was suggested that proper credit assessment, risk management and strict legal framework would help to further bring down the non-performing assets levels in banks.

Eichengreen and Gupta (2013) analysed annual bank level data for 25 public sector banks, 19 private sector banks and 29 foreign banks for the period 2004 to 2012 to understand the effect of the global financial crisis on the Indian banks. A flight of deposits from private to public sector banks, especially to State Bank of India, was observed at the onset of the global financial crisis, due to the belief of the investors that SBI being the largest public bank enjoyed an implicit government guarantee. Other banks were destabilised and had to hold more capital and maintain more liquidity to reassure depositors. After the crisis, however, SBI and other public sector banks had slower deposit growth.
Mir (2013) explained the origin, causes and impact of the global financial crisis on the social and economic sectors at both global and national levels. Accordingly, boom and bust in housing market, high risk lending to sub-prime borrowers, securitization, speculation, faulty credit ratings, policies of governments and central banks, and debt levels of financial institutions led to the crisis. Developed as well as developing countries were affected by way of drop in GDP growth rates, stock market crashes, decrease in foreign investments, decrease in incomes and spending, increase in retrenchments and unemployment, reduced exports, falling remittances, decreasing tourism revenues, higher poverty, increasing crime rates, weaker health systems and the like. The impact on India had been lesser though. Indian government initiated various fiscal and monetary measures, but the results would take time to show.

Patel (2013) studied the impact of global financial crisis on the profitability of Indian scheduled commercial banks – public sector banks, old private sector banks, new private sector banks and foreign banks. Key profitability ratios from 2006-07 to 2010-11 were analysed and it was concluded that foreign banks were better than other bank groups as regards profitability. The study suggested that other bank groups need to increase their income and improve their asset quality.

Subramanian (2013) tried to understand the emerging concept of ‘shadow banking’ which was introduced to the global lexicon by the global financial crisis. The two-tier system of regulated traditional banking and unregulated shadow banking is a global scenario and is here to stay. In India, the shadow banking system consists of entities like non-banking financial companies, chit funds and private financiers which provide credit to people in areas not serviced by commercial banks. In order to have a more inclusive growth of the economy, there is a need to focus on the systemic growth of shadow banking by addressing the risk associated with it.

Singh and Makkar (2014) examined the relationship between the global financial crisis and stock returns volatility in the Indian banking sector using Bankex stock index as a proxy of stock prices of Indian commercial banks. The time series data of closing stock prices for nine years was collected on a daily basis from January 2004 to December
2012 and GARCH model was used to capture the volatility and stock price reaction to the crisis. The results revealed that Indian banking stocks were significantly affected by the news of recession in the US stock market. There was also a significant difference in the stock returns of banks and its volatility between pre-crisis and post-crisis periods. The study concluded that the global financial crisis had a significant impact on the stock returns of the Indian banking sector.

2.9 RESEARCH GAP

An extensive review of available literature on various aspects of the banking sector in India, and on financial crises that have taken place across the globe over centuries helped in identifying some of the research gaps mentioned below.

1. Some of the researchers have studied about the growth of the banking sector in India for different time periods. However, none of them have done a comprehensive study of the growth of commercial banks in the post-independence period and the growth of public sector and private sector banks in India in the post-nationalisation period. The present study fills this gap.

2. Some researchers have studied the fund management in Indian banks and also their soundness and liquidity. Others have studied the impact of the global financial crisis of 2007-08 on the Indian economy. But none of them have studied how this recent crisis has affected the fund management, soundness and liquidity of Indian public sector and private sector banks. The current study covers this gap.

3. Many Indian researchers have done extensive studies into the performance, profitability and efficiency of Indian banks for different time periods. Many researchers abroad have studied the global financial crisis of 2007-08 and its impact on various countries and their financial sectors. Some studies have also been conducted to understand the impact of this crisis on the Indian economy. However, not much work has been done to understand how the global financial crisis has impacted the financial performance, profitability and productivity of
Indian public sector and private sector banks. The present study attempts to analyse the same.

4. Much research has not been conducted to understand the management view on various aspects of banking in India and their view on the effect of the global financial crisis on the Indian banking sector. By attempting to understand the viewpoint of the managers of public sector and private sector banks, the current study fills this gap.

**Chart 2.2: Research Gap and the Current Study**

| Comprehensive study of the growth of public sector and private sector banks in India in the post-independence period | Study of the impact of global financial crisis on the fund management of public sector and private sector banks in India |
| Study of the impact of global financial crisis on the financial performance of public sector and private sector banks in India | Bank managers' viewpoint on the impact of global financial crisis on the banking sector in India |

How the current study fills up the Research Gap

The current study is an attempt to overcome the research gaps identified by the literature review. It studies the growth of the banking sector in India in the post-independence period. The study analyses the impact of the global financial crisis of 2007-08 on the fund management and financial performance of selected public sector and private sector banks. It also tries to understand the management view point on various aspects of banking and their view on the impact of the crisis on the Indian banking sector.

*****
REFERENCES


