CHAPTER 1

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1.1 Introduction

The Commercial Banks are the hallmark of the financial landscape in India that relates to more than 60% of the total assets of the Indian financial system (CFSA Report, 2009). India is a host to the 27 Public Sector Banks (State Bank of India and its six associates, 19 nationalised Banks and 1 Other Public Sector Bank – IDBI Bank Ltd.), 7 new Private Sector Banks, 15 old Private Sector Banks and 32 Foreign Banks which manages an asset base of Rs 60,25,141 crore (Report on the Trend and Progress of Banking in India, 2009 – 10). They serve the Indians with 7,34,594 employees, 61,301 offices and 60,153 Automated Teller Machines (A Profile of Banks, 2009 – 10; Report on the Trend and Progress of Banking in India, 2009 – 10).

Commercial banks in India initially were merely loan vendors and depositories. They granted loans, issued cheques, drafts and bills and stored individuals cash assets. They have switched over to a metamorphosis role. They no longer adhere to the concept of ‘space and time’ banking but have ‘anytime-anywhere’ banking that encompasses a business model of product origination, retail servicing and back office operations. The Commercial banks are into the kaleidoscopic scene of selling the basket of services sanctioned by the Reserve Bank of India to yield the highest expected future stream of profits. The basket of services range from remittances, web enabled services, core banking solutions to distribution of mutual fund and insurance products.

Commercial banks collect spare money from those who have it and lend it those who need it. Commercial banks are not only the custodians of savings but also a source of credit (Shetty, 1982). They have amassed deposits from the rural areas instilling in them the need to save and paving the way for capital formation in the economy. They lend to various sectors of the economy - agriculture, industries and businesses. Playing the role of intermediation and inclusion effectively, they advance credit to the neglected few whom they could not reach out earlier. They offer a way of daily life for the millions of people who want to start afresh in life through employment or
loans and advances for starting new businesses. They are a ray of hope to the people through their schemes of educational loans and housing loans to realize their dreams and raise the standard of living. Commercial banks are adept in meeting the financial needs of the Government. They support the Government in its developmental programmes and borrowing programmes too.

Commercial banks in India had 32,691 branches in the rural areas, 14,666 branches in the semi-urban areas, 10,994 in the urban areas and 9,181 in the metropolitan areas as on 31 March, 2001 and 32,528 branches in the rural areas, 20,771 in the semi-urban areas, 18,171 in the urban areas and 16,298 branches in the metropolitan areas as on 31 March, 2010 (Statistical Tables Relating to Banks in India, 2000 – 01 and 2009 – 10). The Commercial banks have opened a multitude of branches to reach out to the people and offer their services to them.

The Commercial Bank Deposits have been ascertained at 45.8% of the Gross Domestic Product for the year 2000 – 01 and 72.1% of the Gross Domestic Product for the year 2009 – 10 (Handbook of the Statistics of the Indian Economy, 2010 - 11). The Commercial banks role of instilling savings among the public had the outcome of Rs. 94,703 crore as bank deposits of the Household Sector as on 31 March, 2001 and Rs. 4,49,453 crore as bank deposits of the Household Sector as on 31 March, 2010 (Handbook of the Statistics of the Indian Economy, 2010 - 11). They had deposits worth Rs. 1,49,431.36 crore in the rural areas, Rs. 1,86,188 crore in the semi-urban areas, Rs. 2,17,832.75 crore in the urban areas and Rs. 4,05,981.19 crore in the metropolitan areas as on 31 March, 2001 and deposits worth Rs. 4,20,337.72 crore in the rural areas, Rs. 6,14,047.18 crore in the semi-urban areas, Rs. 9,44,992.24 crore in the urban areas and Rs. 25,81,651.91 crore in the metropolitan areas as on 31 March, 2010 (Handbook of the Statistics of the Indian Economy, 2010 - 11).

The Commercial banks had bank credit at 24.3% of the Gross Domestic Product for the year 2000 – 01 and 59.5% of the Gross Domestic Product for the year 2009 – 10 (Handbook of the Statistics of the Indian Economy, 2010 - 11). They had advanced credit to the extent of Rs 68,881.94 crore in the rural areas, Rs 71,105.88 crore in the semi-urban areas, Rs 95,302.89 crore in the urban areas and Rs 3,03,143.07 crore in the metropolitan areas as on 31 March, 2001 and Rs 38,9,149.55 crore in the rural
areas, Rs. 3,67,859.45 crore in the semi-urban areas, Rs. 5,93,615.08 crore in the urban areas and Rs. 19,98,545.24 crore in the metropolitan areas as on 31 March, 2010 (Handbook of the Statistics of the Indian Economy, 2010 - 11). They had lent Rs. 51,922 crore to the agricultural sector, Rs. 56,002 crore to the small scale industries and Rs. 1,62,837 crore to the medium and large scale industries as on 31 March, 2001 and Rs. 4,16,133 crore to the agricultural sector, Rs. 2,06,401 crore to the small scale industries and Rs. 11,05,051 crore to the medium and large scale industries as on 31 March, 2010 (Handbook of the Statistics of the Indian Economy, 2010 - 11).

Commercial banks have enabled firms and households to cope with the economic uncertainties by hedging, pooling, sharing and pricing risks, thereby facilitating the flow of funds from the ultimate lenders to the ultimate borrowers improving both the quantity and quality of real investments, thereby increasing in per capita income and raising the standard of living (Harker and Zenios, 2000). They make the maximum utilisation of financial resources and develop the economy.

Commercial banks are not just essential for India and the strength of its financial system but make more significant contributions to the economy. The Banking and Finance sector has contributed to the 5.4 percent of India's Gross Domestic Product for the year 2009 – 10. The sector is growing at a steady rate of almost 11.3 percent annually and has shown a progressive growth since the last two decades (Union Budget and Economic Survey, 2010 – 11). Banks have mitigated the intensity of booms and depressions prevailing in the market.

1.2 Need for the Study
The Scheduled Commercial Banks (that are listed in Schedule II of the RBI Act, 1934) have been studied under various phases of its transition. They are the Evolutionary Phase (Pre Independence Era), Foundation Phase (1950 – 1969), Rapid Expansion Phase (1970 – 1984), Consolidation Phase (1985 – 1990) and the Reforms Phase (1991 onwards) (Samal, 2001). The 2000 Millennium has been a boomerang for the banks with inflicting its various challenges and statutory requirements. There are various studies devoted to public sector banks, private banks and foreign banks.
But there is no complete study that centres on the evaluation of the financial performance of the nationalised banks during the period 2001 – 10.

Prior to the nationalization of banks, banking in India was ‘class banking’. The concentration of economic power in the hands of a few and disparities in lending credit to the priority sectors of agriculture, small industry and exports, weaker sections, backward areas and unbanked rural areas was predominant. The first nationalization was on 19 July, 1969 of 14 major scheduled commercial banks with more than Rs 50 crore deposits to correct the disparities and imbalances. Tyagi (2003) has stated the objective of first process of nationalisation as per the Banking Company (Acquisition and Transfer Undertaking) Act, 1970 as “…for the Acquisition and Transfer of Undertaking of certain Banking Companies having regard to their asset, resources, coverage and organisation in order to control the heights of the economy and to meet progressively and serve better the needs of the development of the development of the economy in conformity with the national policy and objective”. The next nationalization of banks was on 15 April, 1980 of 6 more Indian private sector banks each having a deposit base of Rs 200 crores. Tyagi (2003) has stated that the objective of the second process of nationalisation as per the Banking Companies (Acquisition and Transfer of Undertaking) Act, 1980 as, “acquisition of certain Banking Companies in order to further control the heights of the economy to meet progressively and serve better the needs of the development of the economy and to promote welfare of the people in conformity with the policy of the State”. It has to be verified whether the nationalized banks have been able to drum up the savings of the people towards productive purposes as intended by Mrs Indira Gandhi.

The banking system underwent a change due to the financial globalisation and liberalization imposed by the economic reforms of 1991. The Indian banks expanded their business overseas and diversified their business portfolio. They could tap the markets and funds easily. They were exposed to the market risks and were compelled to maintain and practice the best global banking practices (Majumdar, 2002; Subramanian and Velayudham, 1997).

There was an advent of Reforms in the Financial & Banking Sectors (the first phase in the year 1992 to 1995) and the second phase in 1998 proposed by the Narasimhan
Committee (1991 and 1998) to reshape and re-organize banking institutions with a vision to develop their performance with efficiency and confidence. The first phase of the banking sector reforms resulted in the gradual reduction of the cash reserve ratio which was originally 15% in 1991-92, withdrawal of multiple prescriptions of statutory liquidity ratio, interest rates deregulation, prudential regulation with respect to asset quality and capital adequacy, entry of private sector banks, off site surveillance and onsite inspection through the Camel model. The second phase of the banking sector reforms focused on increase in minimum capital adequacy ratio from 8% to 9% by March 31, 2000, recognition of market risks and prescribing the degree of risk weight for government securities by March 31, 2000, making a provision of 100% risk weight for foreign exchange and gold open limits from the year ended March 31, 1999, implementation of tighter asset classification, income recognition and provisioning norms, introduction of formal asset liability management system from April 1, 1999 and transparency in accounting and disclosure practices in the line of international standards. The above resulted in a decline in interest spread, decline in operating expenses, and improvement in the capital adequacy and increase in the non-interest income (Majumdar, 2002; Subramanian and Velayudham, 1997).

The relaxation of regulations has brought about a mix of players – public, private and foreign banks in the market place. There is a stiff competition among them to meet the expectations from existing and new customers by delivering new products and existing products delivered in an innovative and cost effective way (Jadhav, 1996; Rao, 2002; Gujral, 2003).

The advancements in technology have permeated to the banking sector too. They have ended the branch dominance due to the delivery of financial services in a variety of channels like ATM’s, telebanking, remote access and internet banking. The products and services of the banks are now technology enabled. They have reduced the costs with less human intervention. There is an element risk associated with the new process and product changes and innovations (Jadhav, 1996; Rao, 2002; Gujral, 2003).
The demographic shifts in terms of income levels and cultural shifts in terms of lifestyle assumptions are changing the profile of the Indian consumers. The needs and requirements of the customer are multiple and diverse. They are mobile, more informed and demanding than before with respect to the products and services. They are loyal to multiple banks not to a single one and the bargaining power is in their hands. Commercial Banks in India have to meet their wants and expectations through anytime anywhere delivery of financial services. They have to propose a business model of product origination, retail servicing and back office operations to operate with profits to propose return to the investors and to stabilize the financial health of the institution (Jadhav, 1996; Rao, 2002; Gujral, 2003; Sinor, 2004).

With the dynamics of the economy and financial markets, banks are exposed to various types of risks such as interest rate risk, liquidity risk, exchange risk, credit risk, reputation risk and operational risk. The banks need an adequate risk management system in place. There has been a total neglect of returns and earnings, neglect of bad debts, installing risk management systems and implementing them, confirming to new disclosure standards and keeping pace with the requirements of capital market and the corporate elite. The above changes have a practical impact on all aspects of the working of the banks – bank capital, asset shifts, liability shifts, and profitability trends (Report on Trend and Progress of Banking in India for various financial years, RBI Monthly Bulletins).

The banks are focusing on the non-interest income to generate more revenue. The third party products are on the rise. The off balance sheet items have left their impact too on the costs and revenues of the banks in the current future. There is high market competition with respect to the net-interest income of all the banks – be it the public sector, private sector and the foreign banks too (Sinor, 2004).

The indisputable premise is that complacency on the part of banks will intimidate their basic existence and survival. Hence an evaluation of the financial performance through the efficiency of the banks is a must. Financial performance study is important to prevent the occurrence of losses and irregularity that will endanger their operations in the long run.
1.3 Statement of the Problem
The liberalization policies, banking sector reforms, financial unification policies, intensified competition, rapid innovations in the new financial instruments, changing consumer demands and explosive growth of Information Technology have fuelled the changes in the banking sector in India. In such a landscape, the performance of banks should be scrutinized by scholars and thinkers.

Therefore the study has been defined as ‘Financial Performance Evaluation of Nationalised Banks in India’.

The statement of problem has been formulated to address the following research questions in the study –

- Describe the growth of the nationalised banks in India.
- Critically evaluate the financial performance of the nationalised banks in India.
- Classify the nationlised banks on the basis of the financial performance
- Mention the factors affecting the financial performance of the nationalised banks.
- List the differentiating characteristics of the nationalised banks classified on the basis of the financial performance.

1.4 Objectives of the Study
The objectives of the study are –

1. To examine the growth of the nationalised banks in India during the study period.
2. To evaluate the financial performance of the nationalized banks on the following parameters –
   - Capital Adequacy
   - Asset Quality
   - Management Performance
   - Earnings
   - Liquidity
   - Efficiency
• Effectiveness

3. To identify the bank-specific, industry-specific and macroeconomic determinants of the financial performance of the nationalized banks.

4. To highlight the differentiating characteristics between the groups of nationalised banks classified on the basis of the financial performance.

5. To provide feasible suggestions to the management of the banking institutions to improve their financial performance.

1.5 Research Methodology

Research Methodology provides the framework for conducting the study. It covers the aspects of the nature of research, units of the study, period of the study, data sources and data collection methods, the models, hypotheses formulated and tools and techniques used for evaluating the financial performance of the nationalized banks in India.

1.5.1 Nature of Research

The study is a census study that is empirical in nature. The study does not involve the selection of a sample and all the 19 nationalised banks operating during the study period are considered for the analysis.

1.5.2 Units of the Study

The 19 nationalised banks that form the units of the study are the Allahabad Bank, Andhra Bank, Bank of Baroda, Bank of India, Bank of Maharashtra, Canara Bank, Central Bank of India, Corporation Bank, Dena Bank, Indian Bank, Indian Overseas Bank, Oriental Bank of Commerce, Punjab and Sind Bank, Punjab National Bank, Syndicate Bank, UCO Bank, Union Bank of India, United Bank of India and Vijaya Bank.

1.5.3 Period of the Study

The study is for the ten year duration from the financial year 2000 – 01 to 2009 – 10. The financial year 2000 – 01 will be henceforth referred to as 2001 and likewise for the other financial years.
1.5.4 Sources of Data and Data Collection Methods
The data required for the study has been extracted purely from secondary sources. For the 19 nationalised banks under consideration, the data was collected from the distinctive sources specified below –

i. A Profile of Banks, a publication of the Reserve Bank of India for the various financial years from 2001 – 10.

ii. Report on the Trend and Progress of Banking in India, a publication of the Reserve Bank of India for the various financial years from 2001 – 10.

iii. Statistical Tables Relating to Banks in India, a publication of the Reserve Bank of India for the various financial years from 2001 – 10.

The data for the macroeconomy was extracted from a single secondary source –


The annual reports of the 19 nationalised banks for the various financial years from 2001 – 10 were perused and the Web sites of the nationalised banks on the World Wide Web were surfed too for the data collection.

A data collection schedule was prepared to ease in the data collection process for the information on the bank-specific, industry-specific and macroeconomic variables. The data was collected as per the data schedule (see Appendix I)

1.5.5 Research Models
To facilitate the evaluation of the financial performance of the nationalised banks in India, the Camel model and Efficiency-Effectiveness Model through Data Envelopment Analysis is used. The Camel model and Performance Model based on Data Envelopment Analysis are used to determine the Integrated Financial Performance. For the determination of the factors affecting the financial performance of the banks, a model is developed with bank-specific, industry-specific and macroeconomic determinants as the independent variables.
CAMEL Model
The Camel model relates to an evaluation of the safety and soundness of the banks on the parameters, of the Capital Adequacy, Asset Quality, Management, Earnings and Liquidity.

Capital Adequacy
The adequacy of capital is of concern not only to the regulators but also to the shareholders. Regulators view capital as a buffer to absorb unexpected losses and shareholders as an avenue to earn maximum value. The capital adequacy is measured by the Capital Adequacy Ratio and the Capital Adequacy Ratio – Tier I.

- **Capital Adequacy Ratio**
  The capital adequacy ratio is the percent of a bank’s capital to its risk weighted assets.

  \[
  \text{Capital Adequacy Ratio} = \frac{\text{Tier I Capital} + \text{Tier II Capital}}{\text{Risk Weighted Assets}}
  \]

- **Capital Adequacy Ratio Tier I**
  The Capital Adequacy Ratio – Tier I is the percent of the bank’s Tier I Capital to risk weighted assets

  \[
  \text{Capital Adequacy Ratio Tier I} = \frac{\text{Tier I Capital}}{\text{Risk Weighted Assets}}
  \]

Paid up capital, statutory reserves, disclosed free reserves, capital reserves representing surplus arising out of sale proceeds of assets make up Tier I capital. The Tier I capital is subject to a minimum of 50% of the total capital. Tier II capital encompasses undisclosed reserves, revaluation reserves, hybrid debt capital instruments, general provision or general loan-loss reserves and subordinated debt. The tier II capital cannot be more than 100 per cent of the Tier I capital. The denominator in both the Capital Adequacy Ratio and Capital Adequacy Ratio – Tier I reflects the assets of the bank weighted by the credit risk, market risk and operational risk.
The banks have to maintain the Capital Adequacy Ratio at 9% and the Capital Adequacy Ratio Tier I at 6% as per the Reserve Bank of India mandates. A higher Capital Adequacy Ratio and Capital Adequacy Ratio Tier I indicates that the bank is safe and sound and mitigate the credit risk, market risk and operational risk due to the on balance sheet activities and off balance sheet positions.

**Asset Quality**

The asset quality indicates the quantum of credit risk associated with the loan portfolio of a bank and the credit management by the bankers. The loans and advances of a bank are classified as standard, sub-standard, doubtful and loss assets. The asset quality is severe when the sub-standard, doubtful and loss assets are on the increase. The asset quality is estimated by the ratios of Priority Sector Advances to Total Advances, Secured Advances to Total Advances and Net NPA’s to Net Advances.

- **Priority Sector Advances to Total Advances**

  Priority Sector Advances to Total Advances is the percent of the Priority Sector Advances to Total Advances.

  \[
  \text{Priority Sector Advances to Total Advances} = \frac{\text{Priority Sector Advances}}{\text{Total Advances}}
  \]

  Priority Sector Advances to Total Advances accounts for the channeling of credit to the priority sectors of agriculture, micro and small enterprises, retail trade, microcredit, education and housing. All the domestic commercial banks are required to set their priority sector lending at 40% of the Adjusted Net Bank Credit (ANBC) or credit equivalent amount of Off-Balance Sheet Exposure, whichever is higher. A higher priority sector advances to total advances ratio signals allocation efficiency of granting credit to the most deserving and productive segments of the population. Also reinforces whether the banks are accomplishing the purpose of social banking for which they were nationalized.
• **Secured Advances to Total Advances**
  Secured Advances to Total Advances is the percent of the Secured Advances to Total Advances.

  \[
  \text{Secured Advances to Total Advances} = \frac{\text{Advances secured by Tangible Assets} + \text{Advances covered by Bank or Government Guarantee}}{\text{Total Advances}}
  \]

  Secured advances include the advances secured by any tangible asset and the advances covered by the bank or government guarantee. Since secured advances are risk free, the higher the secured advances, the lower the risk involved.

• **Net Non Performing Assets to Net Advances**
  Net Non Performing Assets to Net Advances is the percent of Net Non Performing Assets to Net Advances.

  \[
  \text{Net Non Performing Assets to Net Advances} = \frac{\text{Gross Non Performing Assets} - \text{Provisions}}{\text{Gross Advances} - \text{Provisions}}
  \]

  A higher ratio represents severe asset quality problems or credit administration practices that will cause a peril to the survival of the bank. The ratio should be less than 1%.

**Management**

The management of the banks – the Board of Directors and the Executive Officers are entrusted with the task to make sure that the banks are financially sound and to perform its operations for the progress of the society. The management is assessed by the ratios of Business per Employee, Profit per Employee, Return on Equity and Return on Advances.
• **Business per Employee**

The Business per Employee refers to the business of total deposits and advances generated by all the employees in a bank.

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

A higher ratio represents the high productivity of the employees in performing the core banking functions of deposit mobilization and lending credit and the bank ability in meeting the needs of the community.

• **Profit per Employee**

The Profit per Employee refers to the branch productivity in generating revenues to the bank.

\[
\text{Profit per Employee} = \frac{\text{Net Profits of the Bank}}{\text{Total Number of Branches}}
\]

A higher ratio signals the high profit earning capacity of the bank due to the competence and ability of the management.

• **Return on Equity**

The Return on Equity refers to the percentage of net profits available to the equity shareholders on their funds.

\[
\text{Return on Equity} = \frac{\text{Net Profits}}{\text{Capital + Reserves and Surplus}}
\]

A higher ratio represents a higher level of productivity of the shareholder funds employed in the bank.

• **Return on Advances**

The Return on Advances refers to percent of the interest earned by the banks from its advances and bills to the total advances.
Return on Advances = \(\frac{\text{Interest Earned on Advances and Bills}}{\text{Advances}}\)

A higher ratio represents the return generated by the bank from its lending activity.

**Earnings**

The rationale of earnings is to absorb the losses and plough it back as capital. Earnings prevent the banks erosion of capital and depletion of its assets. Earnings are a boost to the bank of its competitive advantageous position in the market. The earnings of banks are assessed by its Intermediation Cost to Total Assets, Burden to Total Assets, Operating Profits to Total Assets, Return on Assets, Interest Income to Total Assets, Net Interest Margin to Total Assets and the Non-Interest Income to Total Assets.

- **Intermediation Cost to Total Assets**
  Intermediation Cost refers to the Operating Expenses of the Bank. The ratio refers to the percent of Intermediation Cost to the Total Assets of the Bank.

  \[
  \text{Intermediation Cost to Total Assets} = \frac{\text{Operating Expenses}}{\text{Total Assets}}
  \]

  A lower ratio of the Intermediation Cost to Total Assets represents a higher level of operating efficiency of the bank.

- **Burden to Total Assets**
  Burden is defined as the total non-interest expenses (operating expenses) less total non-interest income. Burden to Total Assets refers to the percentage of Burden to the Total Assets of the Bank.

  \[
  \text{Burden to Total Assets} = \frac{\text{Non Interest Expenses} - \text{Non Interest Income}}{\text{Total Assets}}
  \]
A lower ratio of the Burden to the Total Assets indicates the capacity of the bank to control its operating expenses to generate the net Non Interest Income.

- **Operating Profits to Total Assets**
  Operating Profits is defined as the total earnings less total expenses excluding provisions and contingencies. The ratio of Operating Profits to Total Assets is the percent of operating profits to Total Assets.

  \[ \text{Operating Profits to Total Assets} = \frac{\text{Operating Profits}}{\text{Total Assets}} \]

  A higher ratio of Operating Profits to Total Assets represents the capacity of the bank to leverage its assets to generate operating profits per unit of rupee invested in the assets of the Bank.

- **Return on Assets**
  Return on Assets is an important measure of profitability of the bank. It establishes the relationship between the profits and assets of the banks.

  \[ \text{Return on Assets} = \frac{\text{Net Profits}}{\text{Total Assets}} \]

  The higher the ratio better is the level of profitability of the bank. It indicates the efficiency of the assets to earn net profits for the banks.

- **Interest Income to Total Assets**
  The ratio is a percent of interest income to total assets of the bank. The ratio denotes the ability of the bank to leverage its total assets to enhance the revenue from its core lending functions. The interest income is a function of deposit and lending rates.

  \[ \text{Interest Income to Total Assets} = \frac{\text{Interest Income}}{\text{Total Assets}} \]
Interest income comprises interest on advances, interest on deposits with the Reserve Bank of India and dividend income. A higher ratio indicates the higher level of income earned from lending operations.

- **Net Interest Income (Margin) to Total Assets**
  The ratio of Net Interest Income (Margin) to Total Assets is the most significant measure of the banks’ revenue from its core lending activities. Net Interest Income (Margin) is defined as the total interest earned less total interest paid.

  \[
  \text{Net Interest Income (margin) to Total Assets} = \frac{\text{Interest Earned} - \text{InterestPaid}}{\text{Total Assets}}
  \]

  A higher ratio indicates a higher level of bank income earned from its lending operations by leveraging the total assets of the bank.

- **Non-Interest Income to Total Assets.**
  The ratio of Non Interest Income to Total Assets measures the income earned from operations other than the lending activities as a percentage of Total Assets.

  The Non Interest Income is from selling of services and includes commission, exchange, brokerage; net profit and loss on sale of investments, land/buildings and other assets, exchange transactions, and income earned by way of dividends from companies/subsidiaries and/or joint ventures abroad or in India and also miscellaneous income.

  \[
  \text{Non – Interest Income to Total Assets} = \frac{\text{Other Income}}{\text{Total Assets}}
  \]

  A higher ratio indicates the ability of the bank to generate income from other than the main sources of lending and deposits.
Liquidity
Liquidity corresponds to the capability of the banks to fund assets and pay the obligations as they become due. It is critical for the growth of the banks on balance sheet activities and off-balance sheet positions. Liquidity if not met is a danger to the viability of the bank’s survival. It is appraised by the ratios of Cash Deposit Ratio and Credit Deposit Ratio.

- **Cash Deposit Ratio**
  The Cash Deposit Ratio considers the capacity of the bank to make the payments to the customer when their deposits are due. The cash in Cash Deposit Ratio includes the cash in hand and balances with the Reserve Bank of India. The deposits of the banks consist of Demand Deposits, Term Deposits and Savings Deposits.

\[
\text{Cash Deposit Ratio} = \frac{\text{Cash in Hand} + \text{Balances with Reserve Bank of India}}{\text{Total Deposits}}
\]

A higher Cash Deposit Ratio indicates that the bank has access to liquid funds to meet the present and the future customer needs.

- **Credit Deposit Ratio**
  The Credit Deposit Ratio measures the creation of loan assets from the deposits of the customers. It is the ratio of loans to deposits of the banks.

\[
\text{Credit Deposit Ratio} = \frac{\text{Loans}}{\text{Deposits}}
\]

A higher ratio indicates the easy access of the banks to grant credit to its customers.
**Ratio Rankings**

The 18 ratios of the parameters of Capital Adequacy, Asset Quality, Management, Earnings and Liquidity of the nationalised banks are averaged for the ten year period 2001 – 10. The averaged ratios are then ranked individually. The highest average value of the ratios of Capital Adequacy, Capital Adequacy Ratio Tier I, Priority Sector Advances to Total Advances, Secured Advances to Total Advances, Business per Employee, Profit per Employee, Return on Equity, Return on Advances, Interest Income to Total Assets, Net Interest Margin to Total Assets, Non Interest Income to Total Assets, Operating Profits to Total Assets, Return on Assets, Cash Deposit Ratio and Credit Deposit Ratio of the nationalised banks are assigned the rank ‘1’. The lowest average value of the ratios of Net Non Performing Assets to Net Advances, Intermediation Cost to Total Assets and Burden to Total Assets of the nationalised banks are assigned the rank ‘1’.

**Group Rankings**

The assigned ranks of the ratios under each parameter of Capital Adequacy, Asset Quality, Management, Earnings and Liquidity are averaged. The average of the group ranks are then ranked to arrive at the group rankings for the nationalised banks. The lowest average of the group rank is assigned the rank ‘1’.

**CAMEL Rankings**

The group rankings of Capital Adequacy, Asset Quality, Management, Earnings and Liquidity are averaged for each of the nationalised banks. The average of the group rankings are then ranked to arrive at the CAMEL Rankings for each of the nationalised banks.

**CAMEL Index**

The Camel performance index has been constructed by averaging the indices of the parameters of Capital Adequacy, Asset Quality, Management, Earnings and Liquidity. The index of each parameter is the average of the ratios of each bank under the parameter by the average of all the banks.
Efficiency, Effectiveness and Performance Analysis through Data Envelopment Analysis

The concepts of the Data Envelopment Analysis, its application in banking, the choice on inputs and outputs and the research model used for the study are described.

Concepts

The terms ‘Efficiency’ and ‘Effectiveness’ have dissimilar meanings and cannot be used interchangeably. The former refers to ‘doing things right’ and the latter as ‘doing the right things’ as differentiated by Peter F Drucker in 1977. Effectiveness is the extent to which the organisations accomplish the objectives determined by them. Efficiency is the rate at which the organizations employ the use of their resources to produce goods and render services in an optimal manner. Both Efficiency and Effectiveness enhance the performance of the organizations. This has been documented by Ho and Zhu (2004) and Mouzas (2006) in the literature.

Data Envelopment Analysis has grown to measure efficiency due to the initial work of Farrell (1957) and extended works of Charnes, Cooper and Rhodes (1978) and Banker, Charnes and Cooper (1984). Data Envelopment Analysis is a non-parametric technique that applies linear programming to evaluate the relative efficiency of the Decision Making Units and determines their inefficiencies. A Decision Making Unit produces a set of outputs from the resources held by it. Data Envelopment Analysis identifies the best practice Decision Making Unit, the unit that has an efficiency score of 1 and is on the efficiency frontier. Data Envelopment Analysis then measures the relative efficiency of other Decision Making Units in comparison to the best practice Decision Making Unit. Data Envelopment Analysis is a peer group comparison technique that allows for multiple inputs and outputs and predicts an improvement in the outputs and inputs in case of inefficiencies.

The Data Envelopment Analysis scores range from 0 to 1. The score of ‘1’ indicates that the Decision Making Unit is efficient and the score ‘0’ represents that the Decision Making Unit is inefficient. The Data Envelopment Analysis model can be an input oriented model or an output oriented model. The input oriented model determines the level of inputs that should be reduced proportionately to produce the same level of outputs. The output oriented model determines the level of outputs that
can be proportionally increased with the same level of inputs. The Data Envelopment Analysis CCR (Charnes, Cooper and Rhodes) model also allows for constant returns to scale and the BCC (Banker, Charnes and Cooper) allows for variable returns to scale.

**Application of Data Envelopment Analysis in Banking**

In Banking, the Decision Making Unit is a bank. Banks transforms the set of inputs such as deposits, capital and labour into outputs such as advances and investments. Efficiency and Effectiveness in Data Envelopment Analysis is the ratio of weighted outputs to weighted inputs. Efficiency refers to the complete reduction in the wastage of inputs to produce maximum outputs. Effectiveness refers to the extent in which banks achieve their goods and meet the demands of the customer, society and serve the nation. Data Envelopment Analysis, a non parametric technique has envisaged importance in recent times to identify the benchmark bank, comparing all the other banks with it, analysing the inefficiency in the input combinations and relatively assigning the efficiency scores to all the banks (Das, 1997; Saha and Ravishankar, 2000; Mohan and Ray, 2003). A value of 1 indicates that the bank is efficient and the value 0 that the bank is inefficient.

**Approaches for Selection of Inputs and Outputs**

Three approaches exist in literature with respect to the choice of inputs and outputs for the study. They are the production approach, intermediation approach and the risk management approach. The Production approach states that the banks are the provider of services to the customer such as lending credit, acceptance of customer’s deposits and maintenance of the customer’s accounts. The intermediation approach emphasises on the transformation process of conversion of deposits into loans. The risk management approach considers the level of risks taken by a bank to provide better returns to the shareholders and the customers.

**Data Envelopment Analysis Model Used for the Study**

The performance of the nationalised banks for the years 2001 – 10 is measured by two stage process of efficiency and effectiveness through the Data Envelopment Analysis as used by Kumar and Gulati (2009) and Ho and Zhu (2004) in their studies on the performance of banks. Intermediation Approach has been utilized to choose the
inputs and outputs for the study. The inputs for the efficiency stage are physical capital (fixed assets), labour (number of employees) and loanable funds (sum of deposits and borrowings). The outputs for the efficiency stage are Advances and Investments. The outputs of the efficiency stage will be the inputs for the effectiveness stage. The outputs of the effectiveness stage are net interest income and noninterest income.

The study has used the software of DEA Frontier 2007 developed by Joe Zhu. Efficiency and effectiveness scores of the individual banks have computed using the Input oriented CCR model allowing for constant returns to scale of the Data Envelopment Analysis technique. Performance scores are computed as the product of the efficiency and effectiveness scores. The banks are ranked in an ascending order for efficiency, effectiveness and performance in each of the ten year period from 2000 – 01 to 2009 – 10. Then the average scores are computed for efficiency, effectiveness and performance.

Efficiency-Effectiveness Matrix
The efficiency effectiveness matrix has two quadrants – problem child and super stars (Ho and Zhu, 2004). Problem child is that category where in they have an efficiency and effectiveness score less than 50%. Super stars is that category where in they have an efficiency and effectiveness score more than 50%.

Performance Index based on Data Envelopment Analysis
The Performance Index based on Data Envelopment Analysis has been constructed by averaging the indices of the efficiency and effectiveness. The index of efficiency is the average of each bank under efficiency by the average of all the banks. The index of effectiveness is the average of each bank under effectiveness by the average of all the banks.

Integrated Financial Performance
The Integrated Financial Performance of the nationalised banks in India arrived at by constructing the Integrated Financial Performance Index. The Integrated Financial Performance Index is the average of the Camel Index and the Performance Index based on Data Envelopment Analysis.
Modelling for the Determinants of Financial Performance

A model has been developed by the researcher for the identification of the determinants of financial performance of the nationalised banks in India during the period 2001 – 10. The Bank-specific, Industry-specific and the Macroeconomic variables are the independent variables and the performance index is the dependent variable in the model.

The model used to determine the predictors of the Efficiency, Effectiveness and Performance Scores based on Data Envelopment Analysis is –

\[ \text{Score} = f(\text{Bank-specific, Industry-specific, Macroeconomic Variables}) \]

The Score represents the scores of Efficiency, Effectiveness and Performance of the nationalised banks based on Data Envelopment Analysis which is the Dependent Variable. The Bank-specific, Industry-specific and the Macroeconomic Variables are the independent variables.

The Bank-specific variables are the ratios of Capital Adequacy Ratio, Capital Adequacy Ratio Tier I, Primary Sector Advances to Total Advances, Secured Advances to Total Advances, Net Non Performing Assets to Net Advances, Business per Employee, Profit per Employee, Return on Advances, Return on Equity, Net Interest Income to Total Assets, Interest Income to Total Assets, Non Interest Income to Total Assets, Intermediation Cost to Total Assets, Burden to Total Assets, Operating Profits to Total Assets, Return on Assets, Cash Deposit Ratio and the Credit Deposit Ratio.

The Industry-specific Variables are the Concentration measures of Herfindahl-Hirschman Index for the State Bank of India and its Associate Banks, Private Sector Banks and Foreign Banks with respect to the Assets, Net Interest Margin and Burden. They are the Herfindahl-Hirschman Index of Assets for the State Bank of India Group, Herfindahl-Hirschman Index of Assets for the Private Sector Banks, Herfindahl-Hirschman Index of Assets for the Foreign Banks, Herfindahl-Hirschman Index of Net Interest Margin of the State Bank of India Group, Herfindahl-Hirschman Index of Net Interest Margin of the Private Sector Banks and Herfindahl-Hirschman Index of Net Interest Margin of the Foreign Banks.
Index of Net Interest Margin for the Private Sector Banks, Herfindahl-Hirschman
Index of Net Interest Margin for the Foreign Banks, Herfindahl-Hirschman Index of
Burden for the State Bank of India Group, Herfindahl-Hirschman Index of Burden for
the Private Sector Banks and the Herfindahl-Hirschman Index of Burden for the
Foreign Banks.

The Macroeconomic Variables are the Gross Domestic Product at Factor Cost Growth
Rate, Savings Rate measured by Gross Domestic Savings Growth Rate, Investment
Rate measured by Gross Domestic Capital Formation Growth Rate, Index of
Industrial Production Growth Rate, Wholesale Price Index Annual Variation and the
Inflation Rate measured by the Consumer Price Index Annual Variation.

The model used to determine the factors of financial performance of the Nationalised
Banks is –

\[
\text{Integrated Performance Index} = f(\text{Bank-specific, Industry-specific, Macroeconomic Variables})
\]

The Integrated Performance Index measuring the financial performance of the
nationalised banks is the dependent variable. The Bank-specific, Industry-specific and
the Macro-Economic Variables are the independent variables.

The Bank-specific variables are the ratios of Capital Adequacy Ratio, Capital
Adequacy Ratio Tier I, Primary Sector Advances to Total Advances, Secured
Advances to Total Advances, Net Non Performing Assets to Net Advances, Business
per Employee, Profit per Employee, Return on Advances, Return on Equity, Net
Interest Income to Total Assets, Interest Income to Total Assets, Non Interest Income
to Total Assets, Intermediation Cost to Total Assets, Burden to Total Assets, Operating
Profits to Total Assets, Return on Assets, Cash Deposit Ratio and the
Credit Deposit Ratio. The scores of the Efficiency, Effectiveness and Performance
based on Data Envelopment Analysis are also included.

The Industry-specific Variables are the Concentration measures of Herfindahl-
Hirschman Index for the State Bank of India and its Associate Banks, Private Sector

The Macroeconomic Variables are the Gross Domestic Product at Factor Cost Growth Rate, Savings Rate measured by Gross Domestic Savings Growth Rate, Investment Rate measured by Gross Domestic Capital Formation Growth Rate, Index of Industrial Production Growth Rate, Wholesale Price Index Annual Variation and the Inflation Rate measured by the Consumer Price Index Annual Variation.

**Independent Bank-Specific Variables**

The concept of the Bank-specific variables is discussed in the Research Models based on Camel Analysis and Data Envelopment Analysis.

**Independent Industry-Specific Variables - Concentration Measures**

Bikker and Haaf (2000) have done an extensive review of literature on the measures of concentration banking. Concentration relates to the structural features of a market. It involves the performance of the banking industry with respect to the structure of the market. The study has used the Herfindahl-Hirschman Index, an important concentration measure.

The Herfindahl-Hirschman Index accounts the features of the complete distribution of bank sizes. It is the sum of the squares of bank sizes measured as market shares. The Herfindahl-Hirschman index considers the significance of larger banks by assigning them a higher weight than smaller banks, and it incorporates each bank individually to avoid the arbitrary cut-offs and insensitivity to the share distribution.
The formula to calculate Herfindahl-Hirschman Index is –

$$ HHI = \sum_{i=1}^{n} s_i^2 $$, $S$ is the square of the market share

There are no consistent results regarding the nature of relationship of Herfindahl-Hirschman Index for the State Bank of India and its Associate Banks, Private Sector Banks and Foreign Banks with respect to the Assets, Net Interest Margin and Burden with the financial performance of the banks.

**Independent Macro-Economic Variables**

The Gross Domestic Product Growth Rate reflects the growth of the economy. It is taken into consideration that the rate of growth of the economy will have an effect on the banking sector. Gross Domestic Product tends to have a positive relationship with the financial performance of the banks. When the rate of growth of the economy increases, the credit quality increases and the defaults will reduce.

The Gross Domestic Savings Rate is the difference between the Gross Domestic Product and the total consumption. It reflects the savings behavior in the economy. It is expected to have a positive relationship with the financial performance of the banks. When the savings rate increases, the deposits of the banks will increase resulting in an increase in the lending behavior of the banks and enhancement of the interest income.

The Gross Domestic Capital Formation is the investment made by the Government, enterprises and households in the economy. The investment rate is expected to have a positive relationship with the financial performance of the banks. When the investment rate increases, demand for the banks to meet the financial requirements increases that would lead to the outcome of better financial performance of the banks.

The Index of Industrial Production indicates the growth rate of industrial production in an economy over a period of time. The Index of Industrial Production is expected to have a positive relationship with the financial performance of the banks. When the Index of Industrial Production increases, demand for the banks to meet the financial
requirements would increase that would lead to the outcome of better financial performance of the banks.

The Wholesale Price Index represents price movements of the goods between corporations in the industry. The Wholesale Price Index is expected to have an inverse relationship with the financial performance of the banks. If the changes in the prices of the goods are not anticipated, then the costs of the banks will increase faster than their incomes if interest rates are not changed. Hence there is a negative relationship between the Wholesale Price Index and the financial performance of the banks.

The Consumer Price Index represents the price movements of the consumer goods and services purchased by households in the economy. The Consumer Price Index Annual Variation is a measure of the Inflation. It is expected to have an inverse relationship with the financial performance of the banks. If the changes in the prices of the goods are not anticipated, then the costs of the banks will increase faster than their incomes if interest rates are not changed. Hence there is a negative relationship between the Wholesale Price Index and the financial performance of the banks.

1.5.6 Research Hypotheses Development

The following research hypotheses are formulated for the purpose of the study –

H1: There is a significant difference between the Excellent, Good, Fair and Poor Nationalised Banks classified on the basis of the Camel analysis.

H2: There is a significant difference between the groups of Nationalised Banks classified on the basis of Efficiency.

H3: There is a significant difference between the groups of Nationalised Banks classified on the basis of Effectiveness.

H4: There is a significant difference between the groups of Nationalised Banks classified on the basis of Performance based on Data Envelopment Analysis.

H5: There is a significant effect of the Bank-specific, Industry-specific and Macro-Economic Variables on the Efficiency of the Nationalised Banks.

H6: There is a significant effect of the Bank-specific, Industry-specific and Macro-Economic Variables on the Effectiveness of the Nationalised Banks.

H7: There is a significant effect of the Bank-specific, Industry-specific and Macro-Economic Variables on the Performance of the Nationalised Banks.
H8: Size has no effect on the Efficiency, Effectiveness and Performance of the Nationalised Banks.

H9: There is a significant difference between the Excellent, Good, Fair and Poor Nationalised Banks classified on the basis of Financial Performance.

H10: There is a significant effect of the Bank-specific, Industry-specific and Macro-Economic Variables on the Financial Performance of the Nationalised Banks.

H11: There is no significant difference between the Camel model and Data Envelopment Analysis model of financial performance evaluation.

1.5.7 Tools and Techniques of Analysis

The statistical tools and techniques of analysis of the study are described in this section.

Descriptive Statistics

Descriptive Statistics has been utilized to summarise the quantitative characteristics of the nationalised banks. Measures such as Mean, Median, First Quartile, Third Quartile, Standard Deviation, Minimum and Maximum are used to describe the set of Nationalised Banks.

Multivariate Analysis of Variance

The general purpose of multivariate analysis of variance (MANOVA) is to determine whether multiple levels of independent variables on their own or in combination with one another have an effect on the dependent variables (Foster, Barkus and Yavorsky, 2006). Multivariate Analysis of Variance is used in the study to test whether the mean differences among the groups of banks on a combination of dependent variables are likely to have occurred by chance. The hypotheses in Multivariate Analysis of Variance are tested by comparing variances of within the independent variables and determine whether it is smaller than the degree of variance between the independent variables. If the within-subjects variance is smaller than the between-subjects variance it means the independent variables has had a significant effect on the dependent variables (Foster, Barkus and Yavorsky, 2006).
Factor Analysis
The specific goal of Factor Analysis is to summarise the patterns of correlations among observed variables and to reduce a large number of observed variables to a smaller number of factors (Tabachnick and Fidell, 2007). The Principal Component Analysis in Factor Analysis produces a set of components. The first component explains the largest variance in the set and the second component the next largest variance that has not been explained by the first component (Foster, Barkus and Yavorsky, 2006).

Cluster Analysis
Cluster Analysis is a statistical tool that is used to group the independent variables into homogenous groups or clusters that do not pre exist. It classifies cases to different clusters to have a strong homogeneity between the same cluster and heterogeneity among the different clusters. It is an exploratory tool of data analysis.

Discriminant Analysis
Discriminant Analysis aids in the prediction of group membership from a set of independent variables. Discriminant Analysis helps in the interpretation of the differences among the independent variables to understand the dimensions along which the groups differ (Tabachnick and Fidell, 2007). It also has the classification function which determines the accuracy of the cases already classified.

Logistic Regression Analysis
Logistic regression analysis predicts the values on one dependent variable from one or more independent variables when the dependent variable has been classified into mutually exclusive groups (Foster, Barkus and Yavorsky, 2006). Logistic Regression is more flexible than other techniques as the independent variables need not be normally distributed. Logistic Regression predicts the probability of the outcomes. In logistic regression, a regression equation is formed that predicts the log odds of being in one of the groups on the dependent variable (Foster, Barkus and Yavorsky, 2006).

Neural Networks Analysis
Multilayer Perceptron Neural Network model is the most popular methodology in the neural networking. Neural Networks look for patterns in training sets of data, learn
these patterns and develop the ability to correctly classify to make new patterns or new forecasts or new predictions (Osaimy, 2008). The neural network contains three types of layers - a layer of “input” units that is connected to a layer of “hidden” units, which is in turn is connected to a layer of “output” units.

**Multivariate Backward Regression Analysis**

When there is more than one independent variable in a multivariate regression model, the model is a multivariate multiple regression. Multivariate regression analysis helps to study the relationship between the dependent variable and two or more independent variables. Regression Analysis expresses the relative importance of the independent variables involved in the study.

**Kruskal Wallis Test**

Kruskal Wallis Test is a non-parametric test. Kruskal–Wallis Test helps in the testing of the hypothesis of equality of population medians among groups. It is similar to one-way analysis of variance with the data substituted by their ranks. It is an extended version of the Mann–Whitney U test which can be applied to 3 or more groups.

**1.5.8 Research Method**

The research method to evaluate the financial performance of the Nationalised banks involves the following steps –

i. Construction of the Camel Index and classification of the Nationalised Banks on the basis of the financial performance through Camel Rankings.

ii. Identification of the significant factors that affect the classification of banks on the basis of the Camel model through Multivariate Analysis of Variance, Factor Analysis, Cluster Analysis, Discriminant Analysis, Multinomial Logistic Regression Analysis and Neural Networks Analysis.

iii. Determination of the accuracy of the classification results of the Nationalised Banks on the basis of Camel model through Multiple Discriminant Analysis, Multinomial Logistic Regression and Neural Networks Analysis.

iv. Construction of the Performance Index based on Data Envelopment Analysis and classification of the Nationalised Banks on the basis of the Performance Scores.
v. Identification of the predictors of the efficiency, effectiveness and performance scores of the Nationalised Banks based on Data Envelopment Analysis through Multivariate Regression Analysis.

vi. Confirmation of significance of the classification of the Nationalised Banks on the basis of Data Envelopment Analysis scores through Kruskal-Wallis Test.

vii. Construction of the Integrated Financial Performance Index by averaging the Camel Index and the Performance Index based on Data Envelopment Analysis.

viii. Classification of Nationalised Banks on the basis of their integrated financial performance.

ix. Discover the significant factors that affect the classification of banks on the basis of the Integrated Financial Performance through Multivariate Analysis of Variance, Factor Analysis, Cluster Analysis, Multiple Discriminant Analysis, Multinomial Logistic Regression Analysis and Neural Networks Analysis.

x. Determination of the accuracy of the classification results on the basis of the integrated financial performance through Multiple Discriminant Analysis, Multinomial Logistic Regression and Neural Networks Analysis.

1.6 Scope of the Study

The study is an endeavour to evaluate the financial performance of the Nationalized Banks in India for a ten year period 2001 – 2010 through a census study. The study considers the consolidated overall financial performance of the Nationalised Banks. All the 19 nationalized banks except IDBI Bank Ltd. that is the lone bank in the category of ‘Other Public Sector Banks’ come under the purview of the units of the study.

The evaluation of the financial performance of the Nationalised Banks in India is done on the basis of Camel model, efficiency and effectiveness through the Data Envelopment Analysis. The study employs the quantitative parameters of capital adequacy, asset quality, management, earnings, liquidity, efficiency and effectiveness of the nationalised banks to achieve the objective of the financial performance evaluation.
The study considers the Bank-specific, Industry-specific, Macroeconomic variables to discover the determinants of the financial performance of the nationalised banks in India. The Bank-specific variables dealt in the study are the ratios of Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, Efficiency, Effectiveness and Performance of the Nationalised Banks. The Industry-specific variable is the Concentration measure, Herfindahl-Hirschman Index of Assets, Net Interest Margin and Burden for the State Bank of India and Associate Branches, Private Sector Banks and Foreign Banks in India. The Macroeconomic Variables considered in the study are the Gross Domestic Product at Factor Cost Growth Rate, Savings rate measured by the Gross Domestic Savings Growth Rate, Investment Rate measured by the Gross Domestic Capital Formation Growth Rate, Index of Industrial Production Growth Rate, Wholesale Price Index Annual Variation, Inflation Rate measured by the Consumer Price Index Annual Variation.

Multivariate Statistical Tests of Regression Analysis, Factor Analysis, Cluster Analysis, Neural Networks, Discriminant Analysis, Logistic Regression Analysis are performed to determine the significant relationship between the Bank-specific, Industry-specific and Macro Economic Variables.

1.7 Scheme of the Study

The study has been structured into five chapters. The first chapter is titled as ‘Introduction and Research Design of the Study’. The first chapter details an introductory opening on the importance of banking, need for the study, statement of the problem, objectives of the study, methodology adopted, research hypotheses formulated, scope of the study, scheme of the study and the limitations of the study.

The subsequent second chapter titled as ‘Review of Literature’ features the review of literature related to the financial performance of the banks.

The ensuing third chapter titled as ‘Profile of the Nationalised Banks, Concentration Banking and Macro Economic Variables’ offers an overview of the profile of the nationalised banks in India and its compounded annual growth rate. It also includes the concentration, Herfindahl-Hirschman Index for the Private Sector Banks, Foreign
Banks and State Bank of India and its Associate Banks. The descriptive profile of the Macroeconomic Variables is outlined.

The penultimate fourth chapter is titled ‘Data analysis and Interpretation on Financial Performance Evaluation of Nationalised Banks in India’. It is composed into three sections – Section 1 on ‘Evaluation of Financial Performance through Camel Analysis’, Section 2 on ‘Evaluation of Efficiency, Effectiveness and Performance through Data Envelopment Analysis’ and Section 3 on ‘Evaluation of the Integrated Financial Performance of the Nationalised Banks in India’. The Section 1 evaluates the financial performance of the nationalised banks on the parameters of Capital Adequacy, Asset Quality, Management, Earnings and Liquidity. The following Section 2 involves the evaluation of the nationalised banks through the Efficiency, Effectiveness and Performance scores of the Data Envelopment Analysis. The final Section 3 deals with the evaluation of the Integrated Financial Performance of the nationalised banks in India. The classification of nationlised banks on the basis of their financial performance and the significant relationship between the bank-specific, industry-specific, macroeconomic variables and the financial performance of the nationalised banks is presented in these 3 sections.

The final chapter titled as 'Findings, Suggestions and Conclusion’ outlines the findings of the study, concrete and valuable suggestions put forth to the banks and policy makers and draws the concluding remarks on the study undertaken.

1.8 Limitations of the Study

The study does not consider the financial data of the branches of the nationalised banks for the evaluation of the financial performance of the nationalised banks in India during the period 2001 – 10. The study too does not consider the qualitative parameters to evaluate the financial performance of the nationalised banks in India during the period 2001 – 10.

The study does not utilise the ‘CAMELS’ model to analyse the financial performance of the nationalised banks in India due to the lack of data availability with respect to the ‘S’ Component – the Systems and Control Component. As per the United States Model, ‘S’ is the market risk and as per the Reserve Bank of India prescribed model,
it reflects operational risk. There is lack of consistency in the interpretation of the ‘S’ parameter.

Data Envelopment Analysis will produce different efficiency and effectiveness scores if different inputs and outputs are used for the purpose of the study. The study has not considered different data envelopment analysis models with varying inputs and outputs.

1.9 Summary
The chapter has provided a broad overview about the structure and direction of the study on the financial performance evaluation of the nationalised banks in India. It has set the base for the study to be undertaken on the financial performance of the nationalised banks for the period 2001 – 2010.
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