Chapter I

Structured Foundation of Research Design

Introduction

All countries comprising of global human society have a common goal of maximising human welfare on this global planet. These different countries on global planet have different systems of economic development but their destination is common i.e. betterment of human beings. The maximum human welfare can be achieved by achieving high rate of economic growth, through the development of leading sectors of economy. The development of leading sectors needs huge volume of investments. The commercial banks as biggest financial intermediaries collect the scattered household savings, corporate savings and government savings. Thus commercial banks with the help of banking mechanism of ‘Multiple Credit Creation’ (MCC) generate loanable funds for investments into economy to break down the vicious circle of poverty and provide the big push for inclusive sustainable growth of economy with social justice. Therefore, Productivity and profitability of commercial banks are the nucleus of development.

Era of Private Sector Commercial Banking (1947 to 1954).

During the era of private sector banking, the banks were organizations of equity shareholders. Therefore, commercial banks were owned, managed and controlled by private sector. The assets
allocations branch expansion, customer mix and pricing of assets and liabilities were governed with considerations of

(i) Safety and security of public deposits
(ii) Cost
(iii) Liquidity of funds and
(iv) Return on capital employed in business

As a consequence these commercial banks were very conservative in granting of loans. The commercial banks used to provide high degree of consideration to the adequate value of security. The bank lending was more security oriented. At the same time, the bank management gave equally high consideration to the margin money.

Right from the beginning, we are having decentralized model of commercial banking. So, branch of a bank is a front line unit / organization of business. In fact the branch is a profit center.

During this period the commercial banks practiced a cautious approach in their branch expansion policy. These commercial banks followed restrictive branch expansion approach by restricting their operative business units i.e. branches in urban areas.

The another segment of commercial banks business was the customer mix. The commercial banks confined their target group of customers to the rich class of customers viz, industrialists, businessmen, professionals and upper class of society. The
commercial banks remained focus on adequate liquidity management.

Expanding the coverage of Public Sector Model of Growth of Banking Sector (1955 to 1960).

In Industrial Policy Resolution (IPR) 1948, government announced its major policy decisions viz. System Mix Approach (SMA) to economic development, ‘Public Sector’ as a leader of composite growth sectors of economy and guardian of weaker sections of community. Planning as a means to allocate scarce resources for optimum utilization and equal distribution of gains of development among masses and establishing the socialistic pattern of society.

In urban areas the commercial banks were working for classes rather than for masses. Therefore, the urban poor, self employed persons and small businessmen had no access to institutional credit. In rural area the farmers, artisans, landless labours and rural poor were dependent on non-institutional exploitative and high cost credit. The major portion of total credit was provided by money lenders in urban and rural areas. The All India Rural Credit Survey Committee, appointed by Reserve Bank of India, diagnosed the problem of non-institutional credit, and observed that, poverty and
social injustice to the masses were due to non-institutional, high cost and exploitative credit in India.

According to the estimate of All India Rural Credit Survey, non-institutional sources money lenders, land lords and traders accounted for 93 per cent of the total credit in 1951-52 and institutional and government sources provided only 7 per cent of total credit requirements\(^2\). So, on the recommendations of All India Rural Credit Survey Committee, the various research studies on institutional and non-institution credit, and formal think tanks in planning commission have recommended an urgent need to develop public sector commercial banks for providing institutional credit and services to the masses and function as a role model of social banking in our country. Therefore, an attempt is made to summarize in brief the development of public sector banks viz. State Bank of India and Its Associate Banks under the leadership of Reserve Bank India.

**Historical Development Survey of Public Sector Banks in India**

**State Bank of India (S.B.I.)**

The origin of State Bank of India is found in 2\(^{nd}\) June, 1806 with the establishment of Bank of Calcutta. On receiving its charter, the Bank of Calcutta was given a new name viz. Bank of Bengal in

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2nd January 1809. This joint stock bank was sponsored by the Government of Bengal. After some years, the Bank of Bombay was established in the year 15th April, 1840. The Bank of Madras was established in the year 1st July 1843. As a result of the presidency Act of 1st May 1876, these banks viz. Bank of Bengal, Bank of Bombay and Madras with common status were known as the Presidency Banks.

The merger of Bank of Bengal, Bank of Bombay and Bank of Madras in 1921 created the Imperial Bank of India. The Imperial Bank of India under this Act 1920 performed the functions as government’s bank, bankers bank as well as commercial bank.

Reserve Bank of India was established in 1935. As a result the status and functions of Imperial Bank of India were transferred to the ‘Central Bank of India’. On the recommendations of All India Rural Credit Survey, constituted by Reserve bank of India, our government passed the State Bank of India Act in 1955. Accordingly, State Bank came into existence as a first public sector bank in 1st July, 1955. The government passed the State Bank of India (Subsidiary) Act 1959. As a consequence the state associate banks became the subsidiaries of State Bank of India. Viz. State Bank of Bikaner, State Bank of Indore, Bank of Jaipur, Bank of Mysore, Bank of Patiala, Bank of Travancore and State Bank of Saurashtra. These banks are known as the Associate Banks of the State Bank of India.
State Bank of Bikaner and Jaipur

State Bank of Jaipur established in 1943.

State Bank of Bikaner established in 1944.

Both these banks were subsidiaries of S.B.I. under S.B.I.(Subsidiary Bank) Act 1959.

State Bank of Bikaner & Jaipur came into existence in 1963 by merger.

**State Bank of Hyderabad : (S.B.H.)**

It was established in 1942 as the Central Bank of Hyderabad, during the ruler Nizam Usman Ali Khan. It was known as ‘Hyderabad State Bank. Mercantile Bank of Hyderabad was founded by Raja Pannalal Pitti in 1935. State Bank of Hyderabad absorbed by merger with Mercentile Bank of Hyderabad in 1956. Hyderabad State Bank was renamed as State Bank of Hyderabad in 1956. After subsidiaries Bank Act was passed in 1959, S.B.H., was the first subsidiary of State Bank of India.

**State Bank of Indore (S.B.IN.) :**

State Bank of Mysore (S.B.M.) :

His Highness the Maharaja of Mysore under his patronage promoted Bank of Mysore Ltd. on 19th May 1913. But the Bank of Mysore commenced its business on 2nd October 1913. Under the State Bank of Subsidiary Act 1959 on 10th September, Bank of Mysore was renamed as State Bank of Mysore. State Bank of Mysore, Provided financial assistance to the weaker sections of community through DIRIRDp, Prime Minister Rosgar Yojana, and a new ASHRAYA housing scheme for weaker sections. It has further sponsored two Regional Rural Banks for financing the poorest among poor in rural areas. It has made innovative lending approach of financing on the basis of need and purpose rather than security to entrepreneurs. It has given a high priority to customer service.

State Bank of Patiala (S.B.P.) :

The Maharaja Bhupender Singh, the Maharaja of Patiala founded Patiala State Bank (S.B.P.) on 17th November 1917. The Patiala State Bank functioned as commercial bank as well as central bank of Patiala. The State Bank of Patiala became the subsidiary of State Bank of India on 1st April 1960 and Patiala State Bank was renamed as ‘State Bank of Patiala’.
**State Bank of Saurashtra (S.B.S.):**

Saurashtra, before 1947 was comprised of the princely states viz. Bhavnagar, Rajkot, Porbandar, Palitana and Vadia. The Bhavnagar Darbar Bank was established in 1902. In 1948, Saurashtra State was established. The Bhavnagar Darbar Bank became the State Bank of Saurashtra and under its Saurashtra State Bank Amalgamation ordinance, 1950, the Rajkot State Bank, Porbandar State Bank, Palitana Darbar Bank and Vadia State Bank were merged with State Bank of Saurashtra with their network of branches. The State Bank of Saurashtra became the subsidiary of State Bank of India, under the S.B.I., Subsidiary Banks Act 1959 in 1960.

**State Bank of Travancore (S. B.T.):**

The Maharaja of Travancore established the Travancore Bank Ltd. in 1945 at the initiative of Mr. C.P.Ramaswami Iyer. Sir K.P.Ramaswami Iyer was the Diwan of Travancore. The Travancore Bank Ltd performed treasury work, foreign exchange business and general banking business. Under the State Bank of India Subsidiary Banks Act 1959, it became the subsidiary of State Bank of India.

Since 1960 to 1967, State Bank of India and its Associate Banks have played the major role as public sector banks. These banks have shoulder the responsibilities of social banking in country. The private sector commercial banks were mainly engaged in banking business for profit. As a consequence, the private sector commercial banks had huge profits. The Reserve Bank of India (RBI) as the highest central monetary authority engaged in to the monetary management through monetary policy, focused on demand for money to promote growth with price stability. Reserve Bank of India was primarily performed the task of developing the banking structure according to the plan objectives and priorities of economic development. Reserve Bank of India as regulatory, supervisory and development apex financial institute basically monitored the State Bank of India and its Associate Banks and three tier co-operative credit structure for social banking. The private sector commercial banks were remained as profit hunters by ignoring their social responsibility toward the target group of weaker sections of community, priority sector, and plan priorities of the country.

Our government gave top priority to agriculture development in first plan. In second plan priority was given to industrial development. Thus in third plan government made huge plan investments in agriculture, industries and infrastructure through public sector. The public sector as a leader of economic development and social transformation made notable development of industries and infrastructure. But the role of public sector banks viz. State bank
of India and its Associate Banks were found inadequate in terms of demographic profile, geographical spread, volume of investments in agriculture, industries, infrastructure, social economic transformation of weaker sections of communities, development of priority sector, eradication of poverty and creating community assets in the country. Moreover, government felt that the private sector commercial banks had grown fat by ignoring their social responsibilities. In fact the private sector commercial banks had gains of profit due to massive plan investment resulted into up kick of economic development. In order to sensitised the private sector commercial banks, government imposed the ‘Social Responsibility Control’ (S.R.C.) on commercial banks, in 1968. The fabrics of Social Responsibility Control (SRC) on banks are as under.

(i) **Restructuring the composition of Board of Directors of Commercial Banks.**

The Board of Directors are the brain box of the bank. The Board of Directors frame the policies of branch expansion, assets allocation and liability management of the bank. In order to make banking policy oriented to our plan priorities, developmental needs, and socio-economic, fabrics of society, government directed the banks to include the representatives from agriculture, small scale industries, academicians etc.. Thus banking requirements of all sections of people can be incorporated in policy and practice of banks. Thus commercial banks have become an integral part of nation building and social transformer of the country.
(ii) **Time Bound Targets of Branch Expansion to the Banks.**

In our country we have the decentralized bank management structure. Every branch is a front line business unit of a bank. Accordingly, collection of savings through various deposits mix, deployment of funds through various assets allocations and services to the customers are the bank management functions performed at the branch of a bank. The population coverage per branch is an index of financial inclusion. Therefore, banks have been given the time bond targets of branch expansion in unbanked and under banked areas.

(iii) **Time Bound Targets of Allocation of credits to Agriculture, Small Scale Industries, Urban and Rural Poor.**

The commercial banks have been given the time bound targets to provide credit to the agriculture, small scale industries and urban and rural poor.

However, it was felt by the government that the banks response to ‘Social Responsibility Control’ was not satisfactory. Therefore, Late Prime Minister Indira Gandhi nationalized the 14 leading commercial banks in 1969, for expanding the coverage of public sector banks for accelerating the growth process, strengthening and deepening the financial infrastructure, acquiring control on commanding height of economy with focus on weaker
sections of community for social justice. On the eve of nationalisation of leading 14 commercial banks, Late Prime Minister Indira Gandhi stressed the need of public sector banks in the following words.

“Control over the commanding height is necessary in a poor country, where it is extremely difficult to mobilize adequate resources for development and to reduce inequalities between different regions. An institutions such as banking which touches or should touch upon the lives of millions has necessarily to be inspired by a larger social purpose and has to sub serve national priority areas which have hitherto been neglected.”

The statement of Late Prime Minister Mrs. Indira Gandhi revealed the significant role of public sector banks as an institutions of change leader of socio-economic fabrics of Indian economy in general and rural economy in particular.

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3. The Late Prime Minister of India, Mrs. Indira Gandhi in her broadcast announcing the nationalization of banks.
Therefore, the nationalization of commercial banks was mainly focused on the following spectrums of Indian economy.

(i) Nationalised banks should open their branches in unbanked and under banked areas on priority basis for reducing the population per branch.

(ii) To provide the liberal credit to agriculture sector.

(iii) To provide growing volume of credit to small scale industries for generating employment.

(iv) To provide the concessional credit to the urban and rural poor for obtaining the earning assets.

**Role Behaviour of Public Sector Banks in Promotion of growth process with Social Justice (1969 to 1990).**

The nationalisation of leading commercial banks increased the number of public sector banks along with State Bank of India (S.B.I.) and its Associate Banks. Now, the shift of ownerships of leading commercial banks from private sector to public sector, have helped the government to restructure the policy, strategy attitude of bank management of these banks according to the development needs of the economy with focus of institutional credit to weaker sections of community. It was also became possible for government with State Bank of India and its Associate Banks and large sized nationalized banks to introduce a break through in introducing a historical change of social banking. As a consequence, the Reserve Bank of India as a leader of promoting, developing and
controlling the financial institutions according to the growing needs of developing economy, took the policy initiative and directed the management of nationalized banks, for branch expansion, assets allocations, pricing of assets and liabilities and customer mix, with perspective of social banking. Thus the public sector banks in general and large sized nationalized banks in particular have made record in opening their branches in unbanked and under banked rural areas, allocation of total credit to priority sector, concessional finance to rural and urban poor, and converting conventional banking of classes into banking for masses. Thus, the public sector banks in general and large sized nationalized banks in particular achieved a phenomenal growth in size, volume of deposits, volume of credit and population coverage per branch during the post nationalization period.

Emerging Scenario of Economic Reforms, Banking Sector Reforms and Public Sector Banks in India (1991 to 2010).

In the year 1991, our government introduced the economic reforms, viz. Liberalisation, Privatisation and Globalisation (L P G). The Liberalisation implies, removing all controls, abolition of license raj and to unshackle the Indian economy from the cobwebs of unnecessary bureaucratic control. The model of growth founded on public sector has been dismantled. The private sector has been given increasing role to play in an emerging growth process of Indian economy and Indian economy is integrated to global economy. As a
result the market has become the nucleus center of determining the flow, volume and direction of investments, products and services. Thus, the market forces of demand and supply in a cut-throat competitive market scenario became the key forces determining the success in business. The foreign banks with innovative products and service marketing mix, and customer focus banking created challenges in a competitive market environment for Indian banks for business.

The commercial banks in general and public sector banks in particular had conventional products and services profile, labour intensive banking operations, absence of use of modern technology, lack of applications of marketing mix, strong dominance of trade unions on management, lack of attitude to work among bank employees, lack of work culture, ignorance of customer service, growing overdues, and deterioration of financial performance, productivity, and profitability of banks. So, in order to make our public sector banks market, customer, business, Productivity and Profitability conscious and also, to make them comparable and competitive with foreign banks, our government appointed, a high level committee, chaired by Mr. Narsimhan, a former Governor of the Reserve Bank of India, to examine all aspects concerning, to the structure, organization, functions and procedures of the financial system. The ‘Narsimham Committee submitted its report in November, 1991.
The Basic Task of Narsimham Committee.

The basic task of committee was to make recommendations which can improve financial health, efficiency, Productivity and Profitability of public sector banks, through increasing market orientation.

Aims of Narsimham Committee

(i) Ensuring a degree of operational flexibility.
(ii) Internal autonomy for the public sector banks in their decision making and
(iii) Greater degree of professionalism in banking operations.

Findings of Narsimham Committee

Narsimham Committee has observed the sunlight progress made by Public Sector banks during the post nationalization period. The Major findings of ‘Narsimham Committee’ are summarized as under.

1. The public sector banks have made record in their branch expansion in unbanked and under banked rural areas without consideration of potential viability of branches.
2. Increased number of branches with network of geographical spread created vex problems of supervision, audit, control, direction and internal inspection.
3. High growth of bank personnel and acceleration in promotion of staff, resulted into deterioration in the quality of human resources of public sector banks.

4. The trade unions in public sector banks became very powerful and they followed restrictive practices in promotion, transfer, discipline, work culture, and computerization. Higher salaries without corresponding increase in productivity resulted into growing inefficiency in banks.

5. Increased coverage of bank lending to agriculture, small scale industries, urban and rural poor, at low rate of interest, increased the average cost of lending through maintenance of multiplicity of small accounts, and growing problem of overdues.

6. Increase in the rural deposits and priority sector bank lending.

7. Increase in deposits and borrowal accounts.

8. R.B.I. raised SLR from 25 per cent to 30 per cent in November 1972, and further gradually to 38.5 per cent by 1991.

9. Accordingly to the R.B.I. Act 1934 every scheduled bank had to keep certain minimum cash reserves with R.B.I. Initially it was 5 per cent against demand deposits and 2 per cent against time deposits. The same Act was amended in 1962, where in R.B.I. was authorized to vary C.R.R. between 3 per cent to 15 per cent of total demand and time deposits. In 1991, RBI raised C.R.R. to maximum of 15 per cent on an average.
10. The banks had to keep 53.5 per cent of their aggregate deposits with R.B.I. The bank used to get from R.B.I. rate of interest of 3.5 per cent on cash reserves under C.R.R. and 5 per cent on incremental cash balances. Narsimham Committee found that banks were getting the rates of interest from R.B.I. were less than what they had to pay to their depositors for one year deposits.

11. Under the system of direct credit programme of loan melas and IRDP, there was deterioration in the quality of loans and mounting growth of overdues.

12. Banks were asked to lend money on the basis of purpose, need and business potentiality rather than security.

13. Banks were directed to provide credit as soft loans to the industrial sick units.

**Banking Sector Reforms (1992-2008)**

Our government accepted all the recommendations of Narsimham Committee and they have been implemented by Reserve Bank of India, in spite of opposition from banks’ unions.

1. Statutory Liquidity Ratio (SLR) has been reduced from 38.5 per cent to 25 per cent. According to the minimum requirement of section 24 of the Banking Regulation Act, 1949.

2. Reserve Bank of India (RBI) gradually reduced the Cash Reserve Ratio (C R R) from 15 per cent to 5.5 per cent.
3. Since 1991-92, Reserve Bank of India (RBI) has introduced the following changes in rates of interest.
(a) On domestic term deposits, the interest rates have been decontrolled.
(b) The Prime lending rates above advances of Rs.2 lakhs have been reduced of public sector banks.
(c) Above Rs. 2 lakh loans, the interest rates have been decontrolled.
(d) The banks have been given the freedom to fix their interest rates on deposits within given the maximum ceiling limit and minimum floor limit.

4. Reserve Bank of India has introduced the Prudential Norms of Accounting (PNOA), viz.
   (a) Classification of Assets.
   (b) Recognition of Income.
   (c) Provisioning

**Conceptual Accounting Frame Work of Assets.**

Before the introduction of Prudential Norms of Bank Accounting, the banks had the existing assets (Loans and Advances) and over dues. Now as per ‘Prudential Norms of Accounting’ (PNOA) the assets classification is restructured.
New Restructured Classification of Assets.

(i) Standard Assets.

(ii) Sub-Standard Assets.

(iii) Doubtful Assets.

(iv) Loss Assets.

(i) Standard Assets.

These are performing assets

(ii) Sub-Standard Assets.

Borrowers fail to pay regular installments but they have potentiality and possibility to revive in the short run period.

(iii) Doubtful Assets.

The banks face the problems in the recovery of loan amounts.

(iv) Loss Assets.

Bankers finds no sign of recovery of loan amount. Whenever a borrower fails to pay the installments of loan amount for the period exceeding 90 days, the amount of loan becomes non performing assets (NPA) and the bank has to make provision upto 100 per cent, less security held by the bank for sub – standard doubtful and loss assets.

5. Reserve Bank of India imposed the Capital Adequacy Norms (CAN) at 8 per cent on banks in April 1992, and all the public sector banks attained the capital to risk weighted assets ratio i.e. Capital Adequacy Norms at the end of March 1996.
6. On the recommendations of ‘Basle Committee’ a new capital structure viz two tiers capital structure for banks.
   
   (i) Tiers I consists of paid up capital, statutory reserves, share premium and capital reserves.
   
   (ii) Tiers II capital comprises of undisclosed reserves, revaluation reserves, general provisions and loss reserves.
   
7. The public sector banks have been authorized by amendment of ‘Banking Companies Act’ to raise their capital with the help of public issue, subject to the 51 per cent of paid up capital of central government.
   
8. Banks’ managements have been empowered to take decisions regarding opening of new branches as well as closing the non-viable branches in rural areas.
   
9. The new private sector banks are now allowed to operate with foreign institutional investors upto 20 per cent and from non-resident Indians (NRIs) upto 40 per cent.
   
10. The Reserve Bank of India (R.B.I.) has issued the guidelines for opening the Local Area Bank (LABs) and already issued the licenses to local area banks in private sector.
   
11. In order to help banks for quick recovery of their debt, the government of India passed the ‘Financial Institutions Act’ in 1993. The government under this financial Act of 1993, set up Recovery Tribunals in New Delhi, Jaipur, Ahmedabad, Kolkata, Bangalore, and Chennai. Attempts have been also
made to set up the ‘Assets Reconstruction Fund’ (ARCF), to take over the doubtful debts of banks.

12. Narsimham Committee has also recommended to restructure the banking system to increase the efficiency, productivity and profitability of banks. However, this recommendation of Narsimham Committee has been accepted by government in principle but yet it is not put into practice.

The brief analysis of propose model of restructuring the banking system is highlighted as under.

**New Model of Banking Structure.**

The Narsimham Committee Report on the ‘Indian Financial System’ has made wide ranging recommendations and these recommendations will certainly improve the health of the financial system. The committee has emphasized the need to improve the efficiency in the banking system; it has stressed the importance of enhancing the productivity and according to the Committee, the inculcation of competitiveness in the banking system will help to improve the profitability of the banking industry. No doubt, certain recommendations of the Committee such as capital adequacy, income recognition and provisioning for bad debts will have a far reaching implications which will help to bring about transparency in the balance-sheets of the banks in future.
New Banking Structure:

The committee has proposed a broad banking structure which would consist of (1) 3 to 4 Large Banks (including the State Bank of India) which could become international in character; (2) 8 to 10 National Banks with a net-work of branches throughout the country engaged in ‘Universal Banking’ (3) Local Banks whose operations would be generally confined to a specific region, and (4) Rural banks (including Regional Rural Banks) will be predominantly engaged in financing of agriculture and allied activities. This revamping of the banking structure is a step in the right direction.

International Character of Banks:

The evolving of 3 to 4 large banks to compete globally is very much imminent to-day. We have to compete globally as we want to earn profits through the business of trade and industry. We are embarking upon higher export growth to earn higher foreign exchange for the country. There is a need for the operations, of our banks abroad to capture not only our business which would grow in volume and value terms but our banks should also capture the trade and business of other countries who transact with us. Unless we develop international character of our banks to compete globally we would not be able to make higher profits for the banking industry. There are various new financial services which the foreign banks are able to capture by rendering efficient services and therefore, they are in a position to make larger profits. Non-fund business activities can
give more income to our banks which would improve our profitability. In order to capture such types of businesses emerged out of the growth of the new financial services, we must develop the needed expertise. To-day foreign banks are operating with efficiency by rendering new services by spread of their bank branches abroad. International Banks would thus be in a position to do this business abroad if they operate globally. Therefore, it is vital to improve the capital adequacy of these international banks either by merging few public sector banks or improving the capital base of the State bank of India. We need certainly 3 to 4 large international banks tomorrow to compete globally, in an environment of freedom and competition. The Committee has rightly struck a note for a change in the character and structure of the banking sector.

**Growth of National Bank :**

The development of 8 to 10 National banks is the need of the hour. The real sector growth envisaged at 8 to 9 per cent per annum by the planning commission would certainly require the growth of the banking system in a free and competitive environment. The Committee suggested that these 8 to 10 National Banks if developed with their network branches all over India and conduct ‘universal’ banking is an appropriate step to meet the future challenges of our development. Our regional trade is going to be certainly improved with the growth of industry. The character of National Banks would
be such that it would finance trade and industry across the boundaries of our sub-continent. The growth of such banks to render credit for all purpose and for all-times to come, adequately, timely and efficiently is the need of the present day to meet the competitive challenges that would be faced by them with the branches of the foreign banks operating in India since they have been given freedom as per the Committee Report to open up their branches without any RBI restrictions.

**Importance of Local Banks:**

While the character of international banks would be such as they would do business more globally and the operations of the national banks would be to cater to the needs of all types of business in India, the Local banks importance will be to develop regional trade and industry so that the local potentials are harnessed and developed to have regional balanced growth of the different areas. The needs of the different regions are going to be inherently different and therefore, these local banks will have to look at the needs of the local areas; of the specific regions where they will be operating. The development of local banks is a well-through out banking structure in a sense that these banks will be familiar with the local environment, industries needed to be developed locally and will be in a position to meet the credit needs of the specific region by redeploying the funds mobilized locally. The specialized type of training will be required for this type of bank personnel as variety of
gro-processing to sophisticated electronic industries that may be developed in future.

**Rural banking structure and credit delivery system:**

The induction of Regional Rural Banks (RRBs) in 1975 was with a specific purpose and their operations were confined to target groups who are weakest among the weaker sections of the community. RRBs and the rural branches of the commercial banks did fill in the credit gap left out by the rural credit structure. RRBs did reach to the remoter areas and also financed common man who was deprived of credit through institutional sources. We feel that the development of Rural Banks to meet the credit requirements of the agriculture and allied sectors for the growth of agriculture is very imperative as India lives in villages. We have over 5 lakh villages and their vast potentials are to be harnessed so that the people residing in these villages become productive and become effective partners in our developmental process. We need to develop agriculture from the present growth rate of 3 per cent to over 6 per cent per annum in future. If we want to develop our farm sector as well as non-farm sector the Rural Banks will play a major role. The credit needs of these two sectors can be very well taken care of by the growth of Rural Banks. The importance of these Rural Banks is that they will strengthen the credit delivery system much more effectively to-morrow than which is at present.
The banking experiment witnessed to-day is unique in character. It is most valued experience to all of us. However, we have to meet the diversified needs of our trade, industry, agriculture and other services sector in future in most challenging manner. This needs the restructuring our banking system as proposed by the Narasimham Committee, as it envisages that the developmental needs of this vast Indian sub-continent will be enormous. Specialization of services is very important for agriculture; for international business as well as for our internal trade and industry.

In an emerging scenario of economic reforms, banking sector reforms and Basel Committee’s Accord I and II, the public sector banks have transformed themselves from the public sector culture to competitive market culture by adopting new information technology, new products and services profiles, aggressive marketing, human resource bank management, customer care and customer focus services. The index of quantifying the competitive market culture of public sector banks are productivity and profitability.

State Bank of India and its Associate banks are the largest banks in our country. Therefore an attempt is made to investigate the productivity and profitability of State Bank of India and its Associate banks in India.
Objectives of Research Study

1. To examine the changing scenario of policy, statutory requirements and socio-economic development role of commercial banks in India.
2. To examine the conceptual framework of productivity and profitability of banks.
3. To analyse the trend behaviour of human resource productivity.
4. To quantity the branch productivity of banks.
5. To analyse the impact of human resource and branch productivity on profitability of banks.
6. To derive findings based on analysis of data and make useful thought provoking, policy potential and operationally viable suggestions.

Hypothesis:

(i) **In an emerging scenario of economic reforms, Banking sector reforms and Basel Committee’s Accords the public sector banks have shown a Transformation in their application of modern Technology, work culture, product profile, Marketing mix and customer focus banking by improving their human resource and branch productivity.**
(ii) In a given uniform statutory, regulatory and Supervision framework of Reserve Bank of India, The profitability of banks is determined by the Interest Spread, Non-Interest Expense Burden, Credit Deposit Ratio, Assets Management Efficiency (AME), Return on Assets, Ratio of Non-Performing Assets to Total Assets, Carrying Cost of Liabilities, Net Profit Margin, and Ratio of Total Expenses to Total Income.

(iii) The Productivity and Profitability are positively Correlated.

(iv) “Other things being equal the profitability of a Bank will be more if weightage of High Yielding Assets (HYA) in the total assets of the bank is higher and vice-versa.”

(v) “Other thing being equal the AME of bank is influenced by ROA and ROA is sensitively influenced by CDR, Spread as percentage to total assets, priority sector advances as percentage to total advances and net non-performing assets to net advances.”
Joint Null Hypothesis

(vi) \( \text{Ho} = \text{Non of the explanatory variables in the Model impacts the dependent variable.} \)

\[ \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0 \]

Joint Alternate Hypothesis

(vii) \( \text{H}_1 = \text{All the explanatory variables impact the Dependent variables} \)

\[ \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0 \]

(viii) “Other things being equal the carrying cost Of liabilities (CCL) of banks is measured through Liability Cost Indicator (L.C.I.). Therefore, any change in L.C.I. of banks bring direct and inverse change in the ‘Profit Margin’ of Banks.”

(ix) “Other things being equal the change in Deposits mix of banks bring direct and Positive change in the carrying cost of liabilities of banks.”
“Other things being equal the Net Profit Margin (N.P.M.) and Net Profit (N.P.) of Banks are positively correlated.”

“Other things being equal the trend behaviour of Net Profit margin (N.P.M.) of banks is determined by the simultaneous inverse trend behaviour of expenditure as percentage to total income of banks But total expenses as percentage to total income is determined by interest expenses, establishment expenses, Provisions and operating expenses as percentage to total expenses of banks.”

Model: \[ Y_t = a + \beta X_t + \epsilon_t \]

\[ Y_t = \text{N.P.M.} \]

\[ X_t = \text{Total expenses to total income.} \]

\[ \epsilon_t = \text{error} \]
Null Hypothesis

(xii) \( H_0 \) = There is no relationship between NPM and total expenses to total income (\( \beta = 0 \))

(xiii) \( H_1 \) = There is a relationship between NPM and Total Expenses to total income (\( \beta \neq 0 \))

Model : II

\[ X_t = \epsilon_1 + \epsilon_2 Z_1 + \epsilon_3 Z_2 + \epsilon_4 Z_3 + \epsilon_5 Z_4 + \epsilon_t \]

Where :

\( X_t \) = Total expenses to total income

\( Z_1 \) = Interest expenses to total expense

\( Z_2 \) = Operating expenses to total expense.

\( Z_3 \) = Establishment expenses to total expense.

\( Z_4 \) = Provisions to total expense.

(xiv) \( H_0 \) = The selected variables do not impact the
Total expenses to total income parameter

\[(E_2 + E_3 + E_4 + E_5 = 0)\]

\[(E_2 + E_3 + E_4 + E_5 \neq 0)\]

(xv) **H1** = The selected variables do influence the total

Expenses to total income parameter.

**Coverage of Research Study**

Every research exercise must specify its coverage of research probe. It means the research probe is limited to certain portion of universe, geographical area and time span of study.

The coverage of research study is confined to the State Bank of India (S.B.I.) and its Associate Banks as they are the pioneer, largest and leading public sector banks in our country. These banks have the highest volume of deposits, credit, rural and urban branches and population coverage. Therefore, this research study becomes a representative model study of productivity and profitability of commercial banks in India.

The time frame of research probe is limited to the period of post economic reforms and post banking sector reforms i.e. from 2000-2001 to 2009-2010. During this period the management of
Exhibit I
Structure of Coverage of Research Study

Body of Coverage of Research

Banking System

International Banking

Indian Banking System

Public Sector Banks

Private Banking

Rural Banks

Development Banks

Geographical Coverage

National

State

District

Time Frame of R Study

Ten Years

Five Years

Micro Credits

NABARD

Co-operative Banks

RRBs

SHG

Foriegn Banks

Indian Private

SBI & its associated Banks

Nationalized Banks
public sector banks have changed their attitude, outlook and work culture. These banks have switch over their banking operations to information technology. New products and service profiles, brand building, marketing mix, market segmentation, customer focus, customer care and customer service. The bank management has been sensitized for productivity and profitability performance conscious in a competitive market environment for business.

Another area of coverage of research investigation is the selection of geographical spread. This will depend upon the nature and purpose of research investigation. Any research exercise may be related to the entire global research, entire country (India), particular state or district. This research investigation covers the entire country (India).

The third facet of coverage of research study relates the time span i.e. the number years. This study is confined to ten years i.e. 2000-2001 to 2009-2010. The following exhibit gives the conceptual clarity of coverage of research study.

**Research Methodology**

The research study is classified into descriptive research, fundamental research and applied research.

The descriptive research is historical in nature. The research methodology of organising the historical events with the help of time series of data. The time series of trend analysis of events is the core research methodology used in it.
The fundamental research produces a benchmark research output. The fundamental research output is useful to the human society and it becomes a benchmark of applications. The degree of fundamental research is very high in life sciences. The fundamental research is generally conducted in National Research Institutes (NRI.s), as well as national institutes of various disciplines.

Applied research involves the identification of any problem of respective discipline and conducting the research investigation. The applied research is a problem focus research.

In fundamental and applied research, there are different spectrums of research methodology. The application of particular spectrum of research methodology depend upon the nature of research topic, type of data, universe, size of sample and geographical spread.

The research methodology comprising of different spectrums is used for processing the input data. The application of particular spectrum of research methodology will depend upon the type of data. The data is generally classified into quantitative data, qualitative data and financial data.

When the population coverage is very vast, then sampling technique of research methodology is applied. Sampling technique of research methodology is a most commonly used spectrum of research methodology. On the basis of standard criterias, the simple size is selected. The data input is collected from the representative
samples, with the help of structured questionnaires. Suppose, the population is of ‘N’ number and sample size selected n. Then we can put it as

\[ n < N \]

However, there is no uniformity about the size of sample among the research scholars. The determination of size of sample depend upon the nature of research inquiry, type, quality, quantity of data and objectives mix of research study.

**Legal Framework of Sampling**

The techniques of sampling is based on the foundation of the following.

(i) Law of Statistical Regularity (LSR), and

(ii) Law of Inertia of large Numbers (LILN)

**Law of Statistical Regularity (LSR):**

The law of Statistical Regularity (LSR) is based on the theory of probability. The sample selected at random from population represent the same characteristics of population. However, various research studies have shown a very little difference of outcome between sample and population e.g. Average height of the sample students of Bombay University come out to be 160 cm. But the average height by census method may be 161 cm.
Law of Inertia of Large Numbers (LILN):

The Law of Inertia of Large Numbers (L I L N) is founded on the law of Statistical Regularity (LSR). The L I LN is based on the assumption; ‘Other Things Being Equal”; larger the size of sample greater will be the probability of a accurate results. In other words, the size of sample and degree of accuracy of result are probably and positively correlated.

Methods of Sampling.

There are two methods of sampling viz. Probability Sampling Method ( P S M ), or Random Sampling Method ( R S M ) and Non-Probability Sampling Method ( N P S M ).

I Non-Probability Sampling Methods (NPSM)

(i) Judgement Sampling Method (JSM)

In this method the researcher selects the sample from universe. The selection of sample is based on the Judgement of sample from universe is based on sound criterias representing the universe. Suppose there is a class of 60 girls students. The 10 girls are the representative sample of researcher.

(ii) **Convenience Sampling**

The approach of selecting the sample is determined by the convenience of the researcher. For example, suppose the researcher wants to study the union management relationships in chemical industry. The researcher will select the chemical industry near his house.

(iii) **Quota Sampling**

For a given population, researcher can prepare the quotas by taking into consideration the criteria. From each quota he can select the respondents for interview. In each quota the selection of respondents depend upon his judgement.

II  **Probability Sampling Methods.**

1. **Simple Random Sampling**

In this method of sampling every unit of population has an equal opportunity of getting selected as sample. Every unit of population has an equal weightage but it all depends on chance only.

   a) **Lottery Method.**
This is a most common method of random sampling technique. In this method all the slips are put in a box. Every slip has an equal opportunity of being selected as sample. Thus determination of sample of universe depends on chance only.

b) Table of Random Numbers.

The random numbers are generally selected by designing a methodology. For example, universe size is less than 100. Ten numbers as sample are required from 0 to 80. Then, we may write 29, 52, 66, 41, 39, 92, 97, 92, 79, 69, 59, 11, 31, 70, 56, 24, 41, 67 and so on. We do not consider the number above 80. We identify ten numbers i.e. 29, 52, 66, 41, 39, 79, 59, 11 and 31.

The scholars viz. TIPPETT’s Fisher and YATES, KENDELL and BABINGION SMITH, RAND CORPORATION, and C.R.Rao, MITRA and MATHAI have prepared the bench mark tables of random numbers.

c) Stratified Sampling.

The universe/population is to be classified into each strata. With the help of simple random the sample is selected from each strata.
d) Systematic Sampling

In this technique, one item at random is identified as systematic sample and additional items are pre-determined by the sampling interval. The same can be illustrated with the help of a hypothetical example,

\[ K = \frac{N}{n} \]

\[ K = \text{Sampling interval.} \]

\[ N = \text{Universe Size.} \]

\[ n = \text{Sample size.} \]

We want to draw sample size \( n = 30 \)

Total population size \( N = 800 \)

Three Spectrums i.e. \( N_1 = 400, \ N_2 = 2400, \ N_3 = 1600 \)

Spectrum \( \ N_1 = 400 \)

\[ N_1 = nP_1 = 30 \ (400/800) = 15 \]

Spectrum $N_2 = 2400$

$N_2 = nP = 30 \left( \frac{2400}{800} \right) = 09$

Spectrum $N_3 = 1600$

$N_3 = nP = 30 \left( \frac{1600}{800} \right) = 06$

Multi Stage /Cluster Sampling

The process of cluster sampling is divided into three stages. For example, we want to draw a sample of 6000 households from the State of Maharashtra. In first stage, the state is divided into districts. Few districts will be selected at random. Second stage, the district will be divided into villages. By random method few will be selected. Finally by random method, number of households will be selected from selected villages.

Qualitative Data Analysis:

We have examined the research methodology for primary quantitative data analysis. In primary quantitative data analysis, the fundamental task in research methodology is to select the technique and method for determining the sample size of universe.

Whenever the input of research methodology is the qualitative data, viz. feelings, attitudes opinions, and emotions. Then its quantification needs tools and techniques of research methodology.
Exhibit II
Research Methodology
Techniques of Qualitative Data Analysis

- Paired Comparison
- Rank Order
- Constant Sum
- Q-Sort of Other
- Continuous Rating Scale
- Likert
- Semantic Differential
- Staple

Scaling Techniques

Comparative Scale

Non-Comparative Scale

Itemized Rating Scale
The research methodology of scaling techniques are used for quantifying the qualitative data drawn from the target group of respondents. The following exhibit shows the scaling techniques for quantifying the qualitative data.

**Financial Data**

Financial data is the main input of financial analysis. The financial data is collected from the various functional departments of an organization. The collected financial data is recorded in books of accounts statutorily prescribed. The financial data recorded in profit and loss Account and Balance sheet are audited by internal and external auditors of an organization. They are to be approved by competent authority. Such approved financial statements become the reliable and authorize sources of financial data for research.

The financial analysts, management accountants and research scholars are using the tool of research methodology viz. Ratio Analysis of Financial Management for financial analysis. The financial analysis and scholars of financial management have developed an integrated structure of ratio analysis.

For analyzing the financial data, an integrated structure of ratio analysis as a tool of research methodology, is given as under.
A Liquidity Ratios

(i) Current Ratio:

\[
C.R. = \frac{\text{Current Assets}}{\text{Current Liabilities}}
\]

(ii) Acid Test Ratio (ATR)

\[
A.T.R. = \frac{\text{Quick Assets}}{\text{Current Liabilities}}
\]


(iii) **Cash Ratio**

\[
\text{Cash Ratio (C.R.)} = \frac{\text{Cash and Bank Balances + Current Investment}}{\text{Current Liabilities}}
\]

**B Leverage Ratio**

(i) **Debt –Equity Ratio**

\[
\text{Debt –Equity Ratio (D.E.R.)} = \frac{\text{Debt}}{\text{Equity}}
\]

(ii) **Debt Asset Ratio**

\[
\text{Debt Asset Ratio (D.A.R.)} = \frac{\text{Debt}}{\text{Assets}}
\]

(iii) **Interest Coverage Ratio**

\[
\text{Interest Coverage Ratio (I.C.R.)} = \frac{\text{Profit Before Interest and Taxes}}{\text{Interest}}
\]

(iv) **Fixed Charges Coverage Ratio**

\[
\text{Fixed Charges Coverage Ratio (F.C.C.R.)} = \frac{\text{Profit Before Interest and Taxes + Lease Payment}}{\text{Interest + Lease Repayment + (Preference dividend + Installment of Principal) / (1 – t)}}
\]
(v) Debt Service Coverage Ratio

\[
\frac{\text{Profit after tax} + \text{Depreciation} + \text{Other Non Cash Charges} + \text{Interest on Term Loan} + \text{Leas} + \text{Rentals}}{\text{Interest on Term Loan} + \text{Lease Rentals} + \text{Repayment of Term Loan}}
\]

C. Turnover Ratios:

(i) Inventory Turnover

\[
\text{I.T.} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}
\]

(ii) Debtors Turnover

\[
\text{D.T.} = \frac{\text{Net Credit Sales}}{\text{Average Sundry Debtors}}
\]

(iii) Average Collection Period

\[
\text{A.C.P.} = \frac{\text{Average Sundry Debtors}}{\text{Average Daily Credit Sales}}
\]

(iv) Fixed Assets Turnover

\[
\text{F.A.T.} = \frac{\text{Net Sales}}{\text{Average Net Fixed Assets}}
\]
(v) Total Assets Turnover

\[
T.A.T. = \frac{\text{Net Sales}}{\text{Average Total Assets}}
\]

D. Profitability Ratios:

(i) Gross Profit Margin Ratio

\[
G.P.M.R. = \frac{\text{Gross Profit}}{\text{Net Sales}}
\]

(ii) Net Profit Margin Ratio

\[
N.P.M.R. = \frac{\text{Net Profit}}{\text{Net Sales}}
\]

(iii) Return on Assets

\[
R.O.A. = \frac{\text{Profit after Tax}}{\text{Average Total Assets}}
\]

(iv) Return on Capital Employed

\[
R.O.C.E = \frac{\text{Profit after Tax}}{\text{Average Total Assets}}
\]

(v) Return on Capital Employed

\[
R.O.E. = \frac{\text{Equity Earnings}}{\text{Average Equity}}
\]
E Valuation Ratios:

(i) Price Earning Ratio

\[
P.E.R. = \frac{\text{Market Price per Share}}{\text{Earnings Per Share}}
\]

(ii) Market Value to Book Value Ratio:

\[
\text{M.V.B.R.} = \frac{\text{Market Value per Share}}{\text{Book Value per Share}}
\]

When market value to book value ratio is equal to one, then return on equity (R O E), earnings price ratio and total yield are equal to one. This can be proved with the help of following.

\[
\text{R O E} = \frac{E_1}{B_0}
\]

\[
\text{E P R} = \frac{E_1}{M_0} = \frac{E_1}{B_0}
\]

\[
\text{Market Yield} = \frac{D_1 + (M_1 - M_0)}{M_0} = \frac{D_1 + (B_1 - B_0)}{B_0}
\]

\[
= \frac{D_1 + (B_0 + E_1 - D_1) - B_0}{B_0} = \frac{E_1}{B_0}
\]
Where:

\[ B_0 = \text{Book value per share at the beginning of the year.} \]
\[ E_1 = \text{Earnings per share for the year.} \]
\[ D_1 = \text{Dividends per share for the year.} \]
\[ R_1 = \text{Retained earnings per share for the year} = E_1 - D_1 \]
\[ B_1 = \text{Book Value per share at the end of the year} = B_0 + E_1 - D_1 \]
\[ M_0 = \text{Market Price per share at the beginning of the year} = B_0 \]
\[ M_1 = \text{Market Price per share at the end of the year} = B_1 \]

After highlighting the major spectrums of ratios. For analyzing the financial data of commercial organizations, an attempt is made to supplement it with the help of an exhibit III

The ratio analysis, a method of financial management will be used for analyzing the financial data of banks. The research methodology of financial model of profitability will be developed. Further in research methodology, an attempt will be made to correlate the productivity performance with profitability performance of banks.

In order to validate and support the ratio analysis of productivity and profitability of banks, the tools of statistics viz. Mean and Standard Deviation, Correlation Matrix and Regression Analysis and F Test will be applied. The following exhibit…….shows the method of selection of sample size, sources financial data, and techniques of financial data analysis.
Exhibit III
Integrated Structure of Ratio Analysis
(A tool of Analysis of Financial Data)
C. R_1 = Current Ratio
A. T. R. = Acid Test Ratio
C. R_2 = Cash Ratio
D. E. R. = Debt Equity Ratio
D. A. R. = Debt Asset Ratio
I. C. R. = Interst Coverage Ratio
F. C. C. R. = Fixed Charges Coverage Ratio
D. S. C. R. = Debt Service Coverage Ratio
I. T. = Inventory Turnover
D. T. = Debt Turnover
A. C. P. = Average Collection Period
F. A. T. = Fixed Assets Turnover
T. A. T. = Total Assets Turnover
G. P. M. R. = Gross Profit Margin Ratio
N. P. M. R. = Net Profit Margin Ratio
R. O. A. = Return on Assets
R. O. C. E. = Return On Capital Employed
R. O. E. = Return On Equity
P. E. R. = Price Earning Ratio
M. V. B. R. = Market Value to Book Value Ratio
Structure of Research Methodology

Sample Size → LILN → NPSM → JSM → SBI of Ass.

Sources of Financial Data → Financial Statements → RBI → IBA → SBI & Ass.

Ratio Analysis → H R P → B. P. → Output Tech → S → I I → I E → N I E → N I I

Statistical Tech. → M & S D. → C. M. → ANOVA → R Square → Regression → F Test → P. Model → AME → ROA → CDR → NPA → ABR → S D → F D → CD → P M → N P → T E → I E → E E → O E → T I → I I → N I I

Research Methodology
L. I. L. N. = Law of Intertia Large Number
N. P. S. M. = Non Probabilistic Sampling Method
J. S. M. = Judgement Sampling Method
S. B. I. = State Bank of India
R. B. I. = Reserve Bank of India
I. B. A. = Indian Banks’ Association
H. R. P. = Human Resource Productivity
B. P. = Branch Productivity
N. P. = Net Profit
A. M. E. = Assets Management Efficiency
L. M. = Liability Management
N. P. M. = Net Profit Margin
R. O. A. = Return On Assets
C. D. R. = Credit Deposit Ratio
N. P. A. = Non-performing Assets
A. B. R. = Assets Burden Ratio
S. D. = Savings Deposits
F. D. = Fixed Deposits
C. D. = Current Deposits
P. M. = Profit Margin
T. E. = Total Expenses
I. E. = Interest Expenses
E. E. = Establishment Expenses
O. E. = Other Expenses
T. I. = Total Income
I. I. = Interest Income
N. I. I. = Non Interest Income
S = Spread
B = Burden
N. I. E. = Non Interest Expenses
The same integrated structure of ratio analysis is not applicable for the analysis of financial data drawn from the financial statement of banks. The commercial banks are the service organizations. The banks are the financial intermediaries. The main business of commercial banks is to collect deposits from surplus holders and lend money out of it to the businessmen. The difference between interest earned on loans and advances minus interest paid to the depositors i.e. interest spread is the profit of the bank. The sources of financial data of banks are the balance sheets of banks, and financial statements of banks published by Reserve Bank of India (RBI) and Indian Banks Association (IBA).

In this research exercise, the Non-Probability Sampling (NPS) viz. Judgement Sampling Method (JSM) is used for selecting the sample size of commercial banks in India. This sampling technique is based on the law of Statistics viz. ‘Law of Inertia of Large Numbers (ILN). This law of ILN is based on the assumption, ‘Other Things Being Equal’ larger the size of sample greater will be the probability of accurate results.

**Chapterisation Scheme**

In order to achieve the objectives of research study and to test the hypothesis, the following integrated Chapterisation scheme is designed for research investigation.
Structured Foundation of Research Design.

The chapter one is on the Structured Foundation of Research Design. In introduction the role of banks in promoting the economic growth is examined. A historical development scenario of banks as financial intermediaries is exposed with public sector model of banks for social justice.

The core objectives of study have been identified. Then, the hypothesis for testing are framed. A detail survey of research methodology has been undertaken. Firstly, a detail study of Ratio Analysis’ is carried out. An attempt is made to examine the relevance of Ratio Analysis for analysing financial data. After the study of Ratio Analysis, the statistical methods are examined. Finally, we have identified the financial variables drawn from the balance sheet and developed their interpedent functional relationships for applying Ratio Analysis. The major focus is on developing the Model and testing with statistical methods, viz. Mean and Standard Deviation, Correlation, Regression, Valad Test, F Test, etc.

The Conceptual Framework of Productivity and Trend Analysis of productivity of banks.

The chapter two deals with the Conceptual Framework of Productivity and Trend Analysis of Productivity of banks. On the basis of survey of literature of productivity, a conceptual framework
of productivity of banks is evolved. Accordingly, the banks productivity is conceptualised into labour productivity and branch productivity (Plant Productivity).

The labour productivity or human resource productivity is quantified in terms of deposits per employee, credit per employee, net profit (N.P.) per employee and volume of business per employee.

The branch productivity (Plant Productivity) is measured in terms of deposits per branch, credit per branch, net profit per branch and volume of business per branch for the period under study.

The conceptualised labour productivity evolved through analysis of survey of literature of banks productivity is exhibited with the help of ‘Productivity Model of Banks’. This ‘Productivity Model of Banks’ shows the conceptual frame work of productivity of banks.

The ‘Productivity Model of Banks’, is applied for quantifying the labour productivity of banks as well as branch productivity of banks for the period under study. The trend analysis of human resource productivity of banks and trend analysis of branch productivity of banks are under taken at micro and macro levels for the period under study.
Impact Analysis of Productivity on Profitability of Banks.

The chapter three is structured on an Impact Analysis of Productivity on Profitability of Banks’. In this chapter an attempt is made to examine the impact of increase in productivity on profitability of banks. The mission and strategy of bank management is to increase the productivity, to increase output at the lowest cost to maximum profit. Therefore, a structured framework of identity of functional relationship between profit, revenue and cost is evolved. The identity one shows the difference between interest income minus interest expenses. It is symbolically represented as IIS. Identity two relates to non-interest expenses minus non interest income. It is shown as NIEB. The identity third indicates the total income minus total expenses as profit i.e. $IIS - NIEB = P$.

The above structured framework of relationship identity of profit, revenue and cost of bank is transformed into a ‘Mathematical Model of Profit of bank.’

Model of Bank Profit

$$P = \sum_{i=1}^{n} x_i y_i - \sum_{i=1}^{e} d_i t_i - \sum_{i=1}^{m} j_i k_i - \sum_{i=1}^{n} L_i p_i$$

The profitability of banks is calculated by correlating the profit to volume of business. The trend behaviour of profitability of banks is examined by correlating the IIS and NIEB to volume of business of banks for the period under study.
The trend behaviour of profitability of banks is further confirmed by ‘Return on Own Fund’ (ROF).

**Assets Management of Banks.**

The chapter four is designed on ‘Assets Management of Banks.’ The trend behaviour of profitability is examined with the help of earnings and expenses. The banks earn income by marketing their assets. So interest earning by their assets determine the total income. Therefore, the assets allocation policy of bank management and assets mix determine the earnings of banks. The assets utilisation and profitability of banks are positively correlated, subject to uniform expenditure control exercised by banks. So, profitability of banks is determined by ‘Assets Management Efficiency’ (AME) of banks. The AME of banks depend upon the constant evaluation and monitoring of assets mix which have direct influence on the earnings of banks from aggregate assets.

In order to quantify the AME of banks an assets utilisation indicator (AUI) is developed. The assets utilisation indicator shows the relationship of gross income of a bank from its assets to total assets. So, the assets utilisation indicator expresses the ratio of gross income of a bank to its total assets. Average out for the time frame study i.e.

\[
\text{G.R.} \\
\text{A M E} = \text{A U I} = \frac{\text{G.R.}}{\text{A.A.}} \times 100
\]
The assets utilisation indicator (AUI) is used for quantifying the assets management efficiency (AME) of banks. But bank management is interested in knowing the strong and weak variables of assets mix. This will help the bank management to improve its assets management efficiency by increasing earning on assets by redesigning its assets mix. For this purpose the model is refined to identify the gross income from each major category of assets of bank as under.

\[ \text{AME} = \text{AUI} = \frac{r_1}{a_1} W_1 + \frac{r_2}{a_2} W_2 + \frac{r_3}{a_3} W_3 + \frac{r_n}{a_n} W_n + \frac{\text{OI}}{\text{AA}} \]

The above model of AME shows the relative significance of each major spectrum of assets in total assets mix. The model of AME is further refined to reveal the earning from each specific component of spectrum of assets.

The AUI is used for quantifying the AME of banks at macro and micro levels for the period under study.

In order to explain the trend behaviour of assets utilisation indicator of banks an attempt is made to analyse the operational assets of banks for the selected period of time. For the purpose of analysis, the operational assets of banks are classified into two categories, viz.

(i) **Low Yielding Assets (LYS)**

(ii) **High Yielding Assets (HYA)**
Low Yielding Assets (LYS)

The low yielding assets are cash balances, reserves, investment in government securities and priority sector lending.

High Yielding Assets (HYA)

The yielding assets are loans and advances given to the businessmen. There is a positive relationship between high yielding assets and profitability. So, following hypothesis is framed for testing the relationship between HYA and Profitability of banks.

“Other things being equal the profitability of bank will be more, if weightage of HYA in total assets of bank is higher and vice-versa.”

In order to test the above hypothesis, an attempt is made to analyse the revenue earn from each asset in total assets and their impact on profitability.

The return on assets (ROA) parameter of assets management efficiency is examined to confirm the trend behaviour of assets utilisation indicator (AUI) of banks for the period under study. For this purpose, the following hypothesis is framed.
“Other things being equal the AME of bank is influenced by ROA and ROA is sensitively influenced by CDR, spread as percentage to total assets, priority sector advances as percentage to total advances and net non-performing assets to net advances.”

The assets management efficiency model is developed. In AME model, the ROA is an dependent variable while CDR, spread, priority sector advances and non-performing assets are considered as an independent variables. The AME model in terms of ROA is applied for testing the above hypothesis.

We have undertaken the statistical analysis for dependent and independent variables for the selected period of study. The statistical analysis is done with the help of Descriptive Statistics, Correlation and their functional relationship is expressed in a multi variant Regression Equation as under.

\[ Y_i = \beta_1 x_{1i} + \beta_3 x_{2i} + \beta_4 x_{3i} + \beta_5 x_{4i} + \epsilon_i \]

The model significance testing is conducted with ‘Wald Test’, where we tested the coefficients of the model. For conducting the ‘Wald Test’ we first laid down the Null Hypothesis as under.
Joint Null Hypothesis

Ho: None of the explanatory variables in the model impact the dependent variables.

\[ \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0 \]

Joint Alternate Hypothesis

H1: All the explanatory variables impact the dependent variable in the model.

\[ \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0 \]

Where:

- \( Y_t \) = ROA
- \( X_i \) = CDR
- \( X_2 \) = Spread
- \( X_3 \) = Net NPA to total advances
- \( X_4 \) = Priority sector advance to total advances
- \( E_t \) = Error term.

The model of regression analysis needs to be statistically tested to validate the significance of the analysis. We have applied the two different approaches to validate the model.
Liability Management of Banks.

As assets management efficiency (AME) determines the interest income, the liability management efficiency (LME) determines the interest expenses. The interest expenses are the major component in total expenses of banks. Therefore, an attempt is made to examine the liability management efficiency (LME) by analysing the carrying cost of liabilities and its effect on profitability of banks for the period under study.

The carrying cost of liabilities is dependent on the size of liabilities of banks. So, the following hypothesis is framed for testing.

“Other things remaining the same, changes in the ‘Size of Liabilities’ bring direct change in the carrying cost of liabilities of bank.”

For measuring the changes in the size of liabilities of Banks, we have developed an ‘Equity Multiplier (EM)’. The ‘Equity Multiplier’ measures the changes in the size of liabilities in relation to the equity base of banks. The equation of ‘Equity Multiplier’ is as under.
\[
\text{EM} = \frac{\text{TL}}{\text{E}}
\]

Where:

- \text{EM} = \text{Equity Multiplier}
- \text{TL} = \text{Total Liabilities}
- \text{E} = \text{Equity}

For measuring the effect of change in the size of liabilities of banks on their carrying cost of liabilities, the ‘Liability Cost Indicator (LCI)’ is developed. The Liability Cost Indicator (LCI) is derived through the following equation.

\[
\frac{\text{I.E.}}{\times 100} = \frac{\text{L.C.I}}{\text{T.L.}}
\]

Where:

- \text{L.C.I} = \text{Liability Cost Indicator}
- \text{I.E.} = \text{Interest Expenses}
- \text{T.L.} = \text{Total Liabilities.}

The liability cost indicator of banks measures the change in the carrying cost of liabilities of banks. Therefore, any change in LCI will affect the profit margin of banks. So, we have formulated the following hypothesis.
“Other things being equal the carrying Cost of liabilities of banks is measured Through LCI. Therefore, any change in LCI of banks bring direct and inverse Change in the profit margin of banks.”

An increase in Liability Cost Indicator implies an increase in the carrying cost of liabilities of banks. But carrying cost of liabilities of banks is determined by the composition of liabilities of banks. The deposits constitute more than 80 per cent in total composition of liabilities of banks. So, we will examine the change in carrying cost of liabilities measured through LCI by correlating the interest expenses to total deposits of banks.

In order to find out the main factor responsible for an increase in the liability cost indicator of banks, we will test the following hypothesis.

“Other thing being equal the change in deposit mix of banks bring direct and positive change in the carrying cost of liabilities of banks.”

In order to test the above hypothesis. We will analyse the current deposits as percentage to total deposits, saving deposits as percentage to total deposits and fixed deposits as percentage to total deposits.
Composite Model of Productivity and Profitability of Banks (A Composite Model of NPM of Expenditure Monitoring Approach)

The trend behaviour of composite productivity of banks is examined for the period under study. The impact of productivity on profitability is quantified with the help of profitability model. The behaviour of profitability of bank is examined with the help of AME and LME. The AME model explains the ROA and LME shows the carrying of liability of banks. Therefore, a composite ‘Net Profit Margin’ (NPM) is developed to analyse the influence of composite productivity on profitability of banks. The composite model of NPM is developed on the principle of marginal analysis. So, NPM shows the cost incurred by a bank per unit of its gross revenue. Accordingly, a high profits margin of a bank shows a low cost per unit of its total revenue. While low profit margin reveals that bank has incurred more than proportionate expenditure in relation to its total revenue. Therefore, a decline in the profit margin of bank results a simultaneous decline in the profitability of bank. The impact of composite productivity on profitability is examined with the help of following N.P.M. model of banks.

\[
\text{PM} = \frac{(\text{IE} + \text{SR} + \text{OR}) - (\text{IP} + \text{PE} + \text{RTI} + \text{SP} + \text{SR})}{(\text{IE} + \text{SR} + \text{OR})} \times 100
\]
The correlation between net profit margin and net profit performance of banks is examined with the help of testing the following hypothesis.

“Other things being equal the net profit margin (NPM) and Net profit of banks are positively correlated.”

The correlation between net profit margin and total income of bank is also examined for the time frame study.

In order to explain the trend behaviour of NPM of banks, the following hypothesis is constructed.

“Other things remaining the same, the trend behaviour of net profit margin (NPM) of banks is determined by the simultaneous inverse trend behaviour of expenditure as percentage to total income. But the expenditure as percentage to total income of banks is determined by interest expenses, establishment expenses, provisions and operating expenses as percentage to total expenses of banks.”
After testing the above hypothesis, the correlation between composite productivity, N.P.M. and total expenses to total income of banks are examined. Then, the expense analysis of banks is undertaken by expressing interest expenses as percentage to total expenses, establishment expenses as percentage to total expenses, provisions as percentage to total expenses and operating expenses to total expenses. The expense analysis will show the sensitive variable responsible for trend behaviour of total expenses of banks.

**Regression Analysis**

**Model : 1**

\[ Y_t = a + \beta X_t + \epsilon_t \]

\( Y_t = \) N.P.M.

\( X_t = \) Total expenses to total income.

\( \epsilon_t = \) error

To address the issue of NPM depends on total income, we begin with stating null hypothesis for the analysis as under.

**Ho =** There is no relationship between NPM and total expenses to total income.

\(( \beta = 0)\)
H1 = There is a relationship between NPM and Total expenses to total income.

\( (\beta \neq 0) \)

We carry out regression analysis to estimate OLS estimators.

Model : II

\[ X_t = \varepsilon_1 + \varepsilon_2 Z_1 + \varepsilon_3 Z_2 + \varepsilon_4 Z_3 + \varepsilon_5 Z_4 + \varepsilon_t \]

Where :

\( X_t \) = Total expenses to total income

\( Z_1 \) = Interest expenses to total expense

\( Z_2 \) = Operating expenses to total expense.

\( Z_3 \) = Establishment expenses to total expense.

\( Z_4 \) = Provisions to total expense.

For the purpose of model 2 analysis we have designed the following joint null hypothesis.

\( \textbf{Ho} = \) The selected variables do not impact the Total expenses to total income parameter

\[ \varepsilon_2 + \varepsilon_3 + \varepsilon_4 + \varepsilon_5 = 0 \]
**H1** = The selected variables do influence the total Expenses to total income parameter.

\[ \xi_2 + \xi_3 + \xi_4 + \xi_5 \neq 0 \]

The estimation results are tested by using F test with joint null hypothesis.

**Findings and Suggestions**

On the basis of survey of literature, interactions with research scholars, practical bankers, professionals, financial analysts, and analysis of data, the major findings have been summerised and thought provoking and policy potential suggestions with operational viability have been made.

**Limitation of Study**

Information technology in banks has a strong influence in productivity performance of an employee and branch. But operationally it is difficult to separate the effect of information technology on the productivity performance of an employee and branch. Therefore, the study has limitation of not showing a separate influence of technology on productivity performance of banks.

In measuring the productivity of bank employees, an output method is used. This method takes into account only the output per
employee but it does not consider the difference among employees in terms skill, experience, work culture, attitude and commitment to task.

In the same manner, the output method of quantifying branch productivity has limitation because all branches of banks are not same in size, location, volume of business, customer mix and personnel mix.

The study is focused on analyzing the impact of productivity performance on profitability of banks. But profitability of banks depend upon the competition among banks, business conditions, market conditions and economic conditions. Therefore, the study has the limitation of differences of set of variables influencing the productivity and profitability of banks.