CHAPTER: 1

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The banking system plays an integral role in the modern economic world. It is one of the important pillars of the financial system and has a significant contribution in the success or failure of an economy. Researchers confirm that countries with a well-developed banking system grow faster as compared to the weaker ones. The financial health and strength of an economy hinges on the efficiency of the financial system and successively on a sound and solvent banking system. To state Pathak (2014), "a sound banking system efficiently deploys mobilized savings in productive sectors and a solvent banking system ensures that the bank is capable of meeting its obligation to the depositors". Banking system promotes and mobilize savings and allocates it among the different sectors in the economy to ensure optimum utilization of funds. The banking sector encourages trade and helps to increase the aggregate rate of investment in an economy. It also plays a significant role in the transmission of monetary policy for achieving economic growth.

Banks are one of the oldest financial intermediaries in the financial system, established with the prime objective of earning profits. As compared to other financial institutions, banks are unique in nature on account of their role in acceptance of deposits and granting of loans. In the process of accepting deposits and granting loans, depositors earn interest against the money deposited with the bank which stimulates them to save more and increases the volume of savings. Subsequently, these savings are invested to produce new capital assets that trigger economic growth.

In the new operating landscape, banks are increasingly focusing on adopting an integrated approach to risk management. Banks across the globe are undergoing consequential changes. A faster rate of economic growth has been possible on account of blending of technology with banking operations. Banks today provide various financial and non-financial services to their customers through their branches as well as virtual platforms. Banks are equally important for domestic and international payment systems. A well operating payment system is a pre-requisite for an efficiently performing economy. Any breakdown in the payment systems is likely to disrupt trade and in return may significantly affect economic growth.

Banks occupy a significant position in the organized money market with an extensive branch network and enormous volume of deposits. The banking network has been widened to accelerate public convenience and enhance growth and development.

The term *'Bank'* has its origin from some of the European countries. The Germans referred to it as 'Banck' which meant joint stock funding. The French termed it as 'Banque', the Italians stated it as 'Banco', while the ancient Romans called it 'Bancu', which meant 'bench' or 'money exchange table' as lenders used to display coins of different countries in big heaps on benches or tables for the purpose of lending or exchange. Traditionally, banking activities initiated in the Paleolithic age with the advent of the barter system. Over time, people felt the need for a common commercial tool for exchange and trading. Gold was the commonly accepted medium of exchange by the people then. During travel, merchants needed a place to safeguard their gold coins. Hence, they approached goldsmiths to store their surplus gold in their safety vaults which in modern banking are referred to as locker facilities. Goldsmiths observed that the money was lying idle in the safety vaults. They resorted to lending gold to people in exchange for a certain sum of interest. They also shared a part of interest earnings with the traders as an incentive to encourage them to deposit more gold coins. This paved a way for savings account or deposit schemes, which is considered as one of the safest and the most preferred saving option till date. This led to the inception of modern banks, which perform all these activities as part of their regular business.

The world's first bank, 'Bank of Venice' was set up as a public institution in 1157 A.D. However, the bank ceased its operations after the French invasion in 1797. Banco Dei Medici was the largest and most respected bank in Europe. It was instituted by the Medici family in Italy in 1397 but it faced economic troubles and became debt-ridden losing control on banking activities. The bank closed its branches and was liquidated in the year 1494. Italy had its first modern bank in 1406 named Banco Di San Giorgio. It was the oldest chartered bank in Europe and the world but became non-operational in 1805. Banca Monte Dei Paschi came up in Italy in 1472 and is the oldest surviving bank in the world today. The first bank in India was the Bank of Hindustan established in 1770. However, the bank failed and ceased its operations in 1832. Since then, banks in India have grown in size and spread. There has been major transformation in banking with banks alchemizing from a basic financial unit to channels of full-fledged modern banking services to meet the needs of economy and society.

This is the introductory chapter of the study and is divided into *seven sections*. *Section 1.1* explores the evolution and history of banking in India. *Section 1.2* covers the theories of banking. *Section 1.3* presents the rationale of the study. *Section 1.4* states the objectives of the study. The study approach is detailed in *section 1.5*. The methodology adopted for exploring the objectives of the study is explained in *section 1.6*. Lastly, *section 1.7* briefly discusses each chapter of the study.

1.1 Evolution and History of Banking in India

The story of banking has evolved over ages. In the very early times, India had a system of banking regulated by the Dharmasastras (codes of ethics) and the Arthasastras (codes of political economy). Over time, the banking system progressed to adapt to the country's growing needs. As early as the Vedic period, the banking system started with just money lending activity (Nanavati, 1944). The great Hindu Jurist Manu, in his book 'Manu Smriti' (circa 200 B.C.) gave references about deposits, pledges, policy of loans, and rate of interest. Even Kautilya in his book 'Kautilya's Arthasastra' written in the 4th century B.C., has made reference to banking transactions, creditors, lenders, and interest on commodities loaned as a form of revenue for the state. During the same period, an instrument of credit was created to finance trade between different parts of the country. There are evidences of existence of 'Hundis' or internal bills of exchange used for transferring funds from one place to another in 12th century B.C. These references testify to the existence of banking in India in olden times.

During the Mogul period, metallic money was issued in different parts of the country; it paved the way for indigenous bankers to develop the very profitable business of money changing. The indigenous bankers who carried out this business were appointed as mini officers, revenue collectors, bankers, and money changers by the government in various parts of the empire. They started exchanging money that was in circulation in one part of the country with money in circulation in another part of the country, making a good margin in the process. They also carried out trade with foreign countries in the Indian and Pacific oceans. However, the indigenous bankers were not able to develop the system of obtaining deposits from the public to any considerable extent.

In the 17th century, the East India Company came to India and found a well-established indigenous banking system. Nevertheless, the East India Company could not take any advantage of indigenous bankers mainly due to their ignorance of local language and limited

experience of financing trade. East India Company established its 'Agency Houses' with no capital of their own and were dependent totally on deposits. The British agency houses were primarily commercial undertakings conducting banking business to meet the needs of the Company, the members of the services, and the European merchants in India. Systematic efforts were made in England after the Napoleonic Wars to complete a chain of Empire banks. In due course of time, a number of British banks were established in India too to finance foreign trade. The East India Company, a trading concern with agency houses created by its civil servants and military officers had gained control over the Indian trade and started its own system of banking. As a combined result of the operations of East India Company, the British agency houses, and the British sponsored foreign exchange banks resulted in indigenous bankers losing their pre-eminent position in financing trade and other activities. The business and power of indigenous bankers began to decline with growth in modern Indian trading banks, limiting the former's role in financial operations (Nanavati, 1944). The continuous wars and chaos resulted in the breakup of the Mogul empire and further weakened the indigenous banking system to a great extent. In 1835, a uniform currency was established throughout the country which added to their losses in the money changing business. The decline of indigenous banking and gradual expansion of British trade in India led to the establishment of banks on western lines. Though indigenous bankers lost their business to modern Indian trading banks in the urban areas, they still had a vast scope to penetrate the rural areas as money lenders to small traders, artisans, agriculturists, and small industries.

The agency houses under the East India Company used to perform three important functions, primarily receive deposits, pay drafts, and discount bills. This paved the way for establishment of joint-stock banks. The first joint-stock bank established in India under the European direction was the Bank of Hindustan in the year 1770. Several other joint-stock banks were established during the period of 1829 to 1832. The roots of commercial banking in India can be traced back to the early 19th century when the East India Company made some sincere efforts to establish three presidency banks. The Bank of Calcutta was the first presidency bank established in the year 1806, later renamed as Bank of Bengal in 1809. This was followed by the establishment of the Bank of Bombay in 1840 and the Bank of Madras in 1843. The government subscribed 20 percent of its shares to each of the presidency banks but the bulk share came from private shareholders, mainly the Europeans. Presidency banks were given a monopoly of government banking. After 1823, these banks were given the right to issue currency notes to a limited extent but was later taken back by the government after

the enactment of the Paper Currency Act, 1861 (RBI, 2008). This was a crisis period as many of the agency houses failed on account of wild speculation, mismanagement, and unwarranted expenditures by prodigal officials managing the houses. Between 1800 and 1858, more than 40 banks were established but only 12 of them survived (Vaswani, 1968). The Act of 1860 introduced the concept of limited liability in Indian banking. The legislation permitted for the formation of joint-stock banks on limited liability basis. A large number of banks were established without any careful planning and formalized objectives. British agency houses also established 30 banks. Most of them failed in a short span destroying public confidence in banks.

The Allahabad Bank was established under the British management in the year 1865, followed by the Alliance Bank of Shimla in 1875. The first Indian joint-stock bank with limited liability was Oudh (Awadh) Commercial Bank established in the year 1881. Subsequently, Punjab National Bank was established in 1895 with headquarter in Lahore. It was the first bank fully managed by Indians and is one of the nationalized banks that still continues to operate in India. The period of 1860 to 1900 was characterized by very slow growth in banking business triggered by uncertainties of exchange.

After the turn of the century, the Swadeshi movement in the country gave considerable impetus to Indian joint-stock banks which multiplied in size and strength. Although the banks grew in number, there was no significant development in customer service and customer satisfaction. A banking crisis happened in 1913-14 that wiped out a large number of weak banks. By the end of 1913, there were 56 reporting commercial banks in India comprising of three classes of banks, namely the 3 presidency banks, 41 joint-stock banks, and 12 exchange banks or foreign banks (RBI, 2008). In 1921, three presidency banks were merged to form the Imperial Bank of India. Imperial Bank was given a special subsidy to open one hundred branches in the country over a span of five years. By virtue of privilege and position, the Imperial Bank although a commercial bank served as the equivalent of a central bank in matters of credit (Nanavati, 1944). The 20th century was witness to two world wars between 1914 and 1945 that rocked the globe. Indian banking sector was witnessing bank failures which escalated over this phase. The reasons for bank failures were wrong policies followed by management, undesirable and wasteful competition among banks for speculative purposes, indiscriminate lending against undesirable securities, and combining banking functions with

trade and industry. Time and history have shown that a weak banking system leads to the collapse of the entire economy.

Prior to independence of India, the commercial banks were privately managed and owned on regional basis. These banks could not play much role in the planned and systematic development of the nation. The savings account facility offered by the postal department was considered safer to that of commercial banks. The savings procured by commercial banks could not be channelized for economic development of the country. Majority of the funds were given to large and medium traders, while the needs of rural population and small traders were ignored. One of the serious drawbacks of the Indian banking system in this period was the absence of worthwhile control over the banking activities of commercial banks. The establishment of the Reserve Bank of India as the central bank of the country on 1st April 1935 under the Reserve Bank of India Act 1934, was a concrete step towards bridging this gap.

The partition of the country in 1947 further aggravated the apprehensions in the Indian banking system. Bank advances declined on account of communal disturbances. Banks that had their head office and branches in west Punjab were severely affected. They were not able to transfer their assets to India. On the eve of independence, there were 648 commercial banks with 2987 offices. The deposits of these banks amounted to Rs. 1000 crores and advances to Rs. 475 crores (Agarwal, 2019). In 1949, Banking Act was passed for regulation and supervision of banks. It gave extensive power to the Reserve Bank of India to regulate, supervise, and develop the banking system. The act was later renamed as the Banking Regulation Act in 1966. The Banking Regulation Act, 1949 defines Banking as "accepting, for the purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise, and withdrawable, by cheque, draft, and order or otherwise." The Banking Regulation Act also defines Banking Company as "any company which transacts the business of banking [in India]" (RBI, 2021a). The Reserve Bank of India was vested with responsibilities relating to licensing of banks, branch expansion in rural areas, management of sufficient liquidity, and methods of working in banks. In addition, the central bank was entrusted with the responsibility of amalgamation, reconstruction, and liquidation of weak banks.

As banks are subject to extensive competition, they are forced to allocate their resources more efficiently without deviating from the rules laid by the regulator. Fundamentally,

banking is all about confidence and trust. The bank is liable to honour its obligations. A breach of this trust could trigger a potential bank failure and bring down the most solvent of banks. The central banking policies have been designed to limit bank failures and to ensure safety and soundness in the banking system. In order to strengthen the banking system, capital adequacy norms were introduced to ensure uniform standards of capital structure. In 1974, Basel Committee on Bank Supervision (BCBS) was established with an objective to enhance financial stability and better understanding of key supervisory issues by improving the quality of banking supervision globally. The committee is headquartered at the Bank for International Settlements in Basel, Switzerland. It sets out the minimum capital requirements for financial institutions with the goal of minimizing credit risk. The committee also serves as a forum for regular cooperation between its member countries on banking supervisory matters. The committee has established a series of international standards for bank regulation. It published the accords on capital adequacy which are commonly known as Basel I, Basel II, and Basel III. These accords are continuously updated keeping in view the market conditions and past market trends worldwide.

In April 1992, the Reserve Bank of India decided to introduce a risk asset ratio system for banks in India as a capital adequacy measure in line with the capital adequacy norms prescribed by the Basel Committee on Banking Supervision. Since 1997, India is one amongst the 16 non-member countries that were consulted in the drafting of the Basel Core Principles. In 1998, India became a member of the Core Principles Liaison Group (BIS, 2012). Subsequently, it even became a member of the Core Principles Working Group on Capital of BCBS. Time to time, the Reserve Bank of India implemented the Basel accords in the Indian banking sector to make banking regulations and compliance processes at par with the other world banking systems, in order to make Indian banks strong enough to absorb any financial risks. In fact, very recently in October 2021, Reserve Bank of India issued a draft framework for implementation of Basel III capital framework for other financial institutions as well, namely the EXIM Bank, NABARD, NHB, and SIDBI (RBI, 2021b).

1.2 Theories of Banking

For over a century now, there has been an ongoing debate on the role and functions of banks. Researchers have failed to incorporate banking in economic theories, which remains to be a significant gap to this date. Macroeconomic feedback of banking activity has also been

neglected in finance research. Banks are important financial intermediaries in the monetary transmission process. A sound and stable banking system is a key requisite for financial stability and overall economic growth. Nonetheless, there is little consensus as to what constitutes a workable and productive theory of the banking firm (Klein, 1971).

A number of banking theories have evolved since the 20th century. The most popular ones that find support from a large community of researchers are credit creation theory, fractional reserve theory, and financial intermediation theory. *Credit Creation Theory* is the oldest and most prominent theory backed by Macleod (1856), Withers (1909), Schumpeter (1912), Davenport (1913), Cassel (1923), and Hawtrey (1923). This theory dominated the banking space till 1930. According to this theory, banks do not necessarily need to collect deposits first, in order to issue loans (Freimanis and Šenfelde, 2019). Banks can independently create money from its lending and other business activities. Davenport (1913) claimed that banks do not loan money, they loan credit. They create this credit and charge interest for its use. The credit creation theory does not present banks as financial intermediaries in aggregate or individually. Proponents of this theory pointed out that bank credit creation and economic growth are associated. Credit advanced by commercial banks to different segments of the society increases the volume of money in circulation that helps to increase production, bring price stability, and boost economic growth. A leading study by Werner (2016) reinforced the credit creation theory of banking.

After 1930, researchers argued that credit created by banks does not have much importance, as these deposits would not stay with banks forever. This gave birth to the *Fractional Reserve Theory*. The advocates of fractional reserve theory are Crick (1927), Aschheim (1959), Solomon (1959), Smith (1966), and Guttentag and Lindsay (1968). The theory states that individually each bank is a financial intermediary but the banking system in aggregate creates money through the process of multiple deposit expansion. A prior deposit from customers is a necessary requirement for a bank to be able to extend loans. Werner (2014) also emphasized that the banking system is unique since banks unlike any other financial intermediaries can collectively create money based on the fractional reserve or money multiplier model of banking. Rangarajan and Dholakia (1979) also stated that the banking system is a fractional reserve system. The cash demand of depositors is only a fraction of their deposits and hence banks can keep only a part of deposits in the form of cash and lend out the rest. This theory continued to lead macroeconomic thinking till 1970.

The contemporary theorists paved the way for *Financial Intermediation Theory* that became the focal point in the post-seventies period. Studies by Sealey and Lindley (1977), Baltensperger (1980), Diamond (1984), Gorton and Pennacchi (1990), Bernanke and Gertler (1995), Rajan (1998), Allen and Gale (2004), Casu and Girardone (2006), and Dewatripont, Rochet and Tirole (2010) explain banks' role in the economy on the basis of financial intermediation theory. Dewatripont, Rochet, and Tirole (2010) believed that banks create liquidity by borrowing from depositors for a short period and lending to borrowers for a longer duration. Financial intermediation theory was already reflected in the influential work of Keynes in 1936 on 'The General Theory of Employment, Investment and Money'. Keynes (1936) stated that for investment in the economy, savings need to be gathered first. Gurley and Shaw (1955, 1960) introduced a theory of the role of financial institutions in a growing economy. They revealed that banks and non-financial institutions largely share the functions of financial intermediaries. Riorden (1993) also suggested that banks serve as financial intermediaries between borrowers and lenders. More precisely, banks borrow from depositors and lend to investors. Kashyap, Rajan, and Stein (2002) also professed that banks are pure financial intermediaries. This theory considers banks as financial intermediaries, individually as well as collectively.

The theory of financial intermediation defines the role of commercial banks with a focus on risk management. This new approach of financial institutions has shifted banks' focus from the traditional economic activity of borrowing and lending to that of a financial intermediary carrying out various other financial transactions [Allen and Santomero (1998); Seth, Katti, and Phani (2022)].

Despite varying opinions of researchers and economists on the three theories, they differ in their accounting treatment of bank lending as well as in their policy implications. Bank performance studies under banking processes have largely focused on the financial intermediation theory.

1.3 Rationale of the Study

Over the past seven decades, the Indian banking industry has undergone a paradigm shift in terms of its content, structure, scope, functions, and governance. Since the inception of economic planning in India, the banks have traversed a long journey. The banking sector has witnessed tremendous changes and challenges. It is probably one of the few large banking

systems in the world which have been robust enough to withstand even the global financial crisis.

The India banking story has moved on from commercial to social banking, from class to mass banking, from cash to card banking, and from traditional to digital banking. The total number of commercial banks (including RRBs) in existence has gone up from 89 in 1956 to 143 in 2018. The number of bank branches has increased from mere 4,067 in 1956 to 1,52,275 in 2018. The average population served per bank branch has improved from 98,000 in 1956 to 8,700 in 2018. Deposits of commercial banks as percentage of national income have multiplied manifold from 10 percent in 1956 to over 74 percent in 2018. Over these seven decades, the banking business has augmented remarkably. From providing plain vanilla banking services, banks have gradually transformed themselves into universal banks. Availability of ample opportunities and options, varied banking products and instruments, improved services and facilities have been complementing the growth phase of the country. Participating in this growth curve will definitely provide a launch pad for greater business expansion to all bank groups operating in the economy.

The banking landscape has undergone major evolution with the adoption of nationalization, restructuring, consolidation, deregulation, liberalization, and digitalization measures in the financial sphere of the country. Two rounds of nationalization, first in July 1969 and then in April 1980 have steered 20 major commercial banks into the ambit of the public sector. As a result, public sector banks have come to occupy a central position in the banking industry. This brought 80 percent of the banking sector under government ownership and control. Branch network expanded significantly, resulting into wide banking coverage and penetration. The public sector banks spearheaded the banking space of the nation for nearly two decades.

Indeed, nationalization stands as a landmark in the history of commercial banking in India. Yet, it had its own share of issues. After nationalization, government-owned banks dominated the banking sector which led to problems like excessive bureaucratization, red-tapism, and disruptive tactics of trade unions of bank employees. Until the early nineties, the banking sector suffered from lack of competition, low capital base, low productivity, and high intermediation cost. The role of technology was limited and service quality was almost missing. Banks did not follow proper risk management systems and their prudential standards were weak. All these resulted in poor asset quality and low profitability in the sector. This

scenario called for a need to introduce corrective measures. Reforms became imperative as despite the impressive quantitative growth, there was an alarming deterioration in the health and integrity of the Indian financial system.

With the introduction of economic and financial reforms in 1990s, the financial sector underwent a major revival. Quite a few new private sector banks and foreign banks made entry into the banking space, infusing competition into the sector. However, the impact of reforms could be discernibly felt only by the turn of the decade. The sector became aggressively competitive and recorded unprecedented growth for the next 10 years. This was a decade of rising competition, technology upgradation, automation of banking processes, digitalization, and improved productivity and profitability for the banking sector. The banking industry recorded a CAGR of 18 percent in total assets alongside an average GDP growth rate of 7 percent during 2000s. The ratio of bank business to GDP has doubled from 64 percent in 2000 to 135 percent in 2010. The revenue generated by the industry multiplied four times from US $ 11.8 billion in 2001 to US $ 46.9 billion in 2010. It also recorded a nine-fold growth in its profit after tax during the same period. Overall, the sector has been exhibiting a growth in its efficiency and earnings.

The financial crisis that hit the globe in 2008 had distressing effects on the western economies. Although the Indian banking system remained fairly insulated from the impact of the crisis and the subsequent global economic slowdown, the growth trajectory of many banks in the Indian banking sector witnessed a change thereafter. Commercial banks being the backbone of the Indian banking system, it becomes pertinent to examine the performance of these banks over the decade following the financial crisis. A continuous performance evaluation is imperative in order to understand banks' inherent strengths and weaknesses. Performance evaluation of banks is essential to induce competitiveness and to facilitate banks for survival and growth in a dynamic environment. Competition enhances innovation, health, stability, and accessibility for banks. Bank performance evaluation is also important for its stakeholders such as regulators, investors, depositors, and bankers.

A brief review of important financial performance indicators such as Return on Equity (ROE), Net Interest Margin (NIM), and Gross Non-Performing Assets (GNPA) for public, private, and foreign banks for the period 2006 to 2018 brings forth certain important observations. Public sector banks are found to exhibit a drastic fall in their performance with return on equity and net interest margin dipping below that of the private and foreign banks.

Public sector banks witnessed a fall in NIM from 4.4 percent to 2.3 percent between 2006 and 2018. During the same period, NIM of private sector banks and foreign banks increased over the range of 2.5 percent to 3.3 percent. ROE of public sector banks has declined from 16 percent in 2006 to (-)11.4 percent in 2018. Private sector banks and foreign banks have also experienced a fall in ROE, but they were better off in comparison to the government banks. ROE of private sector banks declined from 13.7 percent to 5.45 percent while that of foreign banks has fallen from 16 percent to 8.7 percent. The GNPA for public sector banks has escalated from a mere 2.6 percent in 2006 to as high as 11.6 percent by 2018. In contrast, private sector banks and foreign banks have managed to control their GNPA at 5.2 percent and 3 percent, respectively.

The pattern of NIM, ROE, and GNPA over these years has raised certain pertinent questions. What could be the reasons for the dismal performance of public sector banks? Are public sector banks bound by stringent regulation and controls by the government? Do these banks lack the support of requisite technology? Has the entry of new banks in the post-reform phase and the resulting competition triggered a fall in bank performance? Is it stress on their quality of assets or are banks unable to manage their costs and NPAs? The past couple of years has been a watershed for all bank groups in general and for the public sector banks in particular. As the nationalized banks constitute nearly 75 percent share in the banking business in India, their performance effectiveness becomes a matter of serious concern for the banking sector, government, as well as monetary authorities.

There has been a great deal of debate in the country about the profitability of Indian commercial banks, in particular the nationalized banks. It is believed that if weakening trends in the profitability of public sector banks are not reversed, the financial viability of these banks may be at stake. Public sector banks constitute an integral component of the banking system in India and are the most important channel for financial intermediation. Hence, any weakness in these banks could have serious implications for the banking system and prove detrimental for the financial sector as well as for the economy. It is therefore critical to find answers to issues pertaining to the commercial banks in the country. Are nationalized banks lagging behind in financial performance as compared to private and foreign competitors? What determines the profitability of banks? Is it asset quality, or efficiency, or liquidity of banks? Do banks adhere to proper risk management systems and prudential standards? Does size of bank and technology upgradation have a significant impact on bank profitability?

How well do the banks respond to macroeconomic factors? This study attempts to examine these issues in a scientific manner and undertake a comprehensive performance evaluation of commercial banks in India to further improvements in the banking sector and facilitate better policy formulation.

1.4 Objectives

The broad aim of this research endeavour is to analyse the performance of the Indian banking industry. The main objective is to empirically examine the performance of commercial banks in India for the period 2001-02 to 2018-19.

The specific objectives of the present study are:

i. To evaluate the progress of Indian banking industry over different phases of time.

ii. To analyse the trends in financial performance of commercial banks and bank groups in India.

iii. To identify the factors affecting the profitability of banks i.e. study of determinants of bank profitability.

iv. To examine the nature and sensitivity of profitability of banks to its determinants.

v. To derive relevant policy inferences and suggest policy options based on the above empirical analysis.

1.5 Study Approach

The present study examines the performance of commercial banks in India. An empirical approach is adopted to explore the objectives of the study in a systematic manner. This is carried out in four parts. First, the progress of Indian banking industry is observed. The second is performance evaluation of commercial banks in India. The third is an analysis of determinants of profitability of commercial banks in India. The last being the banking stability assessment for the purpose of drawing inferences and policy suggestions.

To begin with, the study tries to map the journey and growth of Indian banking industry after the country's independence. An attempt is made to review the important milestones witnessed by the industry over the past seven decades and more in order to understand the specific events that have shaped the latter. In addition, a comprehensive assessment of growth and progress indicators of scheduled commercial banks in India is undertaken for the time period 1969 to 2018.

In the next step, an in-depth evaluation of financial performance of scheduled commercial banks in India is attempted. The performance indicators of commercial banks and bank groups are measured, assessed, and compared to understand their inherent strengths and weaknesses. For this purpose, trend analysis and comparative analysis of financial performance of selected banks and bank groups is engaged for the time period 2001-02 to 2018-19.

Profitability of the banking sector has been of great interest to policy makers. Hence, the study tries to identify important determinants of bank profitability in the next step. The emphasis is on assessment of possible impact of financial, non-financial, and macroeconomic factors on the profitability of banks and examination of nature and magnitude of their relationship.

In the last part, the study attempts to examine the financial stability of Indian banking industry for the post crisis period. The banking stability assessment is undertaken for selected banks in the study to understand and identify the critical dimensions enhancing banking stability or causing risks.

The empirical results obtained from analysis are interpreted and discussed to derive relevant policy inferences and recommendations.

1.6 Methodology

The current section highlights the research methodology employed to fulfil the broad and specific objectives of the study.

1.6.1 Methods and Techniques

The objectives of the study have been dealt with under three main analysis: *Performance Analysis, Determinant Analysis, and Banking Stability Assessment.* Various statistical and econometric techniques are employed to carry out these analysis. Financial Ratio Analysis is engaged to evaluate the financial performance of scheduled commercial banks and bank groups. Panel regression analysis is employed to identify the factors influencing bank profitability. The banking stability map and index are constructed to assess changes in dimensional risks affecting the financial stability of the banking industry.

The methods adopted in the study are discussed in detail below:

Financial Ratio Analysis

The financial ratio analysis is undertaken to identify the strengths and weaknesses of banks. It throws light on the financial health of the bank. Financial ratios are developed by establishing an appropriate relationship between items of the balance sheet, profit and loss account, and other bank statements. Financial ratios of banks are compared to understand if a bank is performing better or worse in relation to the industry average. Selected financial ratios based on different parameters such as capital adequacy, profitability, efficiency, productivity, asset quality, resource utilization, liquidity, and solvency are estimated to examine and assess the performance of individual banks as well as bank groups in the study. Financial ratio analysis for evaluating bank performance is carried out in two parts:

- Trend Analysis (Banks and Bank Groups); and
- Comparative Analysis (Bank Groups)

Trend analysis is carried out to examine the trends in financial ratios for each bank and bank groups in the study. Trend of time-series data is a deterministic function of time, where future prediction is possible. The trend in financial variables is observed by using the linear trend model as well as log-linear trend model.

Linear Trend Model

The linear trend model is employed to determine the upward or downward trend in financial ratios engaged in the study. It reveals an absolute change in financial ratio over time. The model is stated as:

Financial Ratio = *f* (Time)

$FR = \beta_1 + \beta_2 t + u_t$

where, FR = alternative financial ratios

In the above model, a positive slope coefficient β_2 demonstrates an upward trend in the financial ratio indicating an absolute rise in an average of the financial ratio over the period, whereas a negative coefficient implies that there is a downward trend in the ratio suggesting an absolute decline in an average of the financial ratio over time.

Log-linear Trend Model

The log-linear trend model is used to find the rate of growth in financial ratios. The model shows a relative change in financial ratio over an absolute change in time. The log-linear trend model is estimated as:

ln (Financial Ratio) = *f* (Time)

$\ln (FR) = \beta_1 + \beta_2 t + u_t$

where, ln (FR) = natural log of alternative financial ratios

The model is like any other linear model in which parameters β_1 and β_2 are linear. The only difference is that the regressand financial ratio (FR) is in the logarithmic form and the regressor time (t) is linear. This model has the regressand in logarithmic form and is called the log-lin model or semi-log model. A positive slope coefficient β_2 in the log-linear function indicates a positive growth rate in financial ratio. In contrast, if β_2 is negative, there is a negative growth rate in the ratio.

In addition to the above models, descriptive statistics for financial ratios such as compound annual growth rate (CAGR), mean, maximum, and minimum values have also been considered for the discussion of bank performance results.

A comparative performance analysis of bank groups is carried out to assess their relative performance on basis of different financial parameters taken in the study. This analysis requires the null hypothesis to be stated as - *H_o: There is no significant difference between the financial performance of bank groups*. The analysis is conducted in two steps. The first step involves employing *one-way ANOVA* technique to find the significant difference in performance between bank groups. The one-way ANOVA technique compares the mean

values of financial variable for the bank groups. The calculated F-ratio is compared to a critical F-value for rejecting or accepting the null hypothesis, to establish whether or not there is *any significant difference* between and within the bank groups. F-ratio is tested at 5% level of significance.

In case of significant difference, posteriori test called *Post Hoc Test (Tukey HSD test)* is employed in the next step. This test validates the results of one-way ANOVA and is carried out for determining whether and which bank group performs *significantly better* amongst competing bank groups. The test provides evidence of a statistical significant difference between each pair of bank groups to determine which bank group in the pair performs relatively better. The mean difference of bank group pairs obtained is examined at 5% level of significance. If the significance value is less than or equal to 0.05, it indicates a significant difference between the pairs of bank groups, as the case may be. The mean difference of bank groups pair will indicate which group is better between the two. A positive mean difference implies that the first bank group in the pair has a greater mean as compared to the other, suggesting that the first bank group performs relatively better than the other on a specific parameter. A negative mean difference specifies that the second bank group in the pair has a greater mean as compared to the former, indicating that the second bank group performs relatively better.

Panel Regression Analysis

The study attempts to identify the impact of financial, non-financial, and macroeconomic variables on bank profitability. The determinant analysis for bank profitability is carried out for bank groups (public, private, and foreign bank groups) as well for the scheduled commercial banking sector (represented by all banks selected in the study). Two models have been established for the determinant analysis, namely

- Linear Regression Model
- Double-Log Regression Model

Linear regression models are estimated for each of the public, private, and foreign bank groups. To examine the effect of determinants of bank profitability and measure elasticity, *double-log regression models* are estimated for the scheduled commercial banking sector that is inclusive of all selected banks in the study.

Linear Regression Function

$$\mathbf{PROF_i = f\ (CRAR^{+},\ ln\ TA^{-},\ CIR^{-},\ GNPA^{-},\ BPE^{+},\ LAR^{-},\ PROF_{-1}^{+},\ \Delta BR^{+},\ GDP^{+},\ INF^{+})} \quad \textit{... (1)}$$

where, i = 1, 2, 3
$PROF_1$ refers to Bank Profitability defined as Return on Assets (ROA)
$PROF_2$ refers to Bank Profitability defined as Return on Equity (ROE)
$PROF_3$ refers to Bank Profitability defined as Net Interest Margin (NIM)

To identify the factors that influence or determine bank profitability and to study their relationship, linear regression function (1) is estimated for public sector, private sector, and foreign bank groups, for each of the profitability indicators – ROA, ROE, and NIM.

Double-Log Regression Function

$$\mathbf{\ln PROF_3 = f\ (\ln CRAR^{+},\ \ln TA^{-},\ \ln CIR^{-},\ \ln GNPA^{-},\ \ln BPE^{+},\ \ln LAR^{-},\ \ln PROF_{-1}^{+},\ \ln BR^{+},\ \ln GDP^{+},\ \ln INF^{+})} \quad \textit{...(2)}$$

$$\mathbf{\ln PROF_3 = f\ (\ln CRAR^{+},\ \ln TA^{-},\ \ln CIR^{-},\ \ln GNPA^{-},\ \ln BPE^{+},\ \ln LAR^{-},\ \ln PROF_{-1}^{+},\ \ln BR^{+},\ \ln ATM^{+},\ \ln GDP^{+},\ \ln INF^{+})} \quad \textit{...(3)}$$

where, $PROF_3$ refers to Bank Profitability defined as Net Interest Margin (NIM)

The double-log regression function is estimated to study the direction and magnitude of relationship between bank profitability and the determinants as it yields the value of elasticity. In this case, the bank profitability indicator is NIM alone. Two double-log functions have been developed - '*Without the number of ATMs'* (function 2) and '*With the number of ATMs'* (function 3). The objective of including number of ATMs in the model is to examine the magnitude of association between bank profitability and technology adopted by scheduled commercial banking sector so as to understand the impact of technology on bank performance.

Both the linear and double-log regression models are estimated using *Least Square Panel Regression Analysis*. The panel dataset for the study is examined using two models – Fixed Effect Model and Random Effect Model to assess the unobserved effect of panel data with consistent cross-section units for the given time period. The study considers both the models while estimating the stated functions for panel regression analysis.

In order to identify the consistent and appropriate model between fixed effect model and random effect model, the basic assumption is tested for random effect model. The basic assumption for random effect model states that the unobserved individual specific effect and explanatory variables are uncorrelated (H_o). To check whether the assumption is satisfied, Hausman test is used. Rejection of null hypothesis implies that fixed effect model is the consistent and appropriate model.

The estimation and analysis of stated models using Least Square Panel Regression Analysis involves the following steps:

In the *first step*, the fixed effect and random effect dynamic regression models are estimated for linear and double-log regression equations. The least square panel regression is estimated in a linear functional form for public sector, private sector, and foreign bank groups. The same is estimated in double-log functional form for scheduled commercial banking sector (inclusive of banks selected in the study) to assess the magnitude of relationship and elasticity.

In the *second step*, the results of fixed effect model and random effect model are tested for cross-section dependency in residuals.

In the *third step*, the results of fixed effect model and random effect model are compared using Hausman test to identify the consistent and appropriate model.

Lastly, the consistent model is discussed in conjunction with other diagnostic tests and statistical output for interpretation and drawing of conclusions so as to determine the factors that influence bank profitability and to assess the nature and magnitude of relationship between bank profitability and its determinants.

Banking Stability Assessment

An assessment of financial stability of scheduled commercial banks in India (aggregate of fifteen banks taken in the study) is conducted using the *banking stability map and index* for the post global financial crisis period. The index is used to assess the changes in dimensional risks or vulnerabilities faced by the banking sector. An overall assessment of stability of the banking sector is conducted using the stability map. The banking stability assessment is based on five critical dimensions or indices, namely – banks' soundness, operating efficiency, asset

quality, liquidity, and profitability, as measured by financial ratios. Based on individual dimensions, a single point reference is computed in the form of Banking Stability Index (BSI), which is a simple average of the complementary of five sub-indices or dimensions. The stability map based on the five critical dimensions as stated above, explains the change in the risk dimensions of banking sector with respect to its position as on a past date.

The indices are normalized to take the values between 0 (minimum) to 1 (maximum), as a relative measure of performance of the banking sector in the given period. If an index pertaining to a particular risk dimension shows a shift to higher value compared to its value in the past and thereby increases its distance from the centre of stability map, it would mean that the risk or vulnerability in that dimension has increased.

1.6.2 Bank Selection

The present study analyses the performance of scheduled commercial banks in India, namely the public sector banks, private sector banks, and foreign banks. Fifteen banks are selected for analysis from the three bank groups; five from each group. The study adopts the criterion of the 'size of total assets' of banks to select the fifteen banks. Accordingly, five banks with the biggest size of total assets are selected from each bank group for empirical analysis.

1.6.3 Time Period of the Study

A long time period of over 70 years right from 1947 to the very recent period is considered for exploring the important milestones in the Indian banking industry. The growth and progress of scheduled commercial banks in India is examined for a period of five decades post nationalization of banks from 1969 to 2018. Financial reforms were initiated in India in 1993 but the actual impact of reforms on the banking industry was felt only by the turn of the century. Hence, bank performance analysis and determinant analysis of bank profitability are carried out for the period 2001-02 to 2018-19. The banking stability assessment has been conducted for the post global financial crisis period from 2008-09 to 2018-19. In a few cases, the length of data fluctuates for a year or two due to unavailability of data.

1.6.4 Sources of Data

Secondary data have been engaged for analysing the performance of Indian commercial banks. The data required for the study have been sourced from various issues of the Reserve Bank of India publications such as Basic Statistical Returns of Scheduled Commercial Banks in India, Handbook of Statistics on Indian Economy, Reports on Trends and Progress of Banking in India, and Statistical Tables Relating to Banks in India. Additionally, various reputed national and international data sources have also been used in the study, namely the World Bank database, CMIE ProwessIQ, and Annual Reports of banks.

1.7 Brief Discussion on Chapters

In the pursuit of finding answers to the questions raised in the study and to achieve the objectives stated in the study, the thesis has been spread over six chapters. A brief discussion of each chapter is presented here.

Chapter 1: Introduction

This is the introductory chapter of the thesis. It begins with an exploration of the evolution and history of banking in India, followed by a discussion on the prominent theories of banking, the rationale of the study, statement of objectives, study approach and research methodology adopted for the study. The chapter ends with a brief discussion on each chapter of the study.

Chapter 2: Review of Literature

The study reviews empirical research on bank performance with emphasis on the methodology adopted in different studies. A detailed review of literature has been presented in this chapter keeping the broad aims of the research in view. The survey of literature has been discussed from two perspectives – the Indian experience and international experience. This is followed by a brief summary of reviewed literature.

Chapter 3: Progress of Indian Banking Industry

The progress of Indian banking industry is approached in two ways. First, the important landmarks or milestones witnessed by the banking industry are reviewed over the post-independence era. The issues and challenges faced by the banking industry due to regulatory changes in the sector, process of bank nationalization, banking sector reforms, and effects of global crisis are discussed over four conspicuous milestones – Post Independence (1947 to 1968), Post Nationalization (1969 to 1992), Post Reform (1993 to 2006), and Post Global Crisis (2007 onwards). Second, a comprehensive evaluation of growth and progress of scheduled commercial banks in the country is undertaken for a period of five decades post bank nationalization. This period has been divided into shorter phases, namely Nationalization Phase, Technology Upgradation Phase, Deregulation Phase, and Digitalization Phase to map the changes in progress indicators of commercial banks.

Chapter 4: Performance of Commercial Banks in India

This chapter focuses on the main objective of the study to evaluate the performance of scheduled commercial banks in India. Financial ratios based on different parameters such as capital adequacy, profitability, efficiency, productivity, asset quality, resource utilization, liquidity, and solvency are measured, assessed, and compared to analyse the performance of selected banks and bank groups in the study. The performance analysis involves an examination of the trend behaviour of financial ratios of banks and bank groups over time. A comparative performance analysis of bank groups is also engaged to assess their relative performance.

Chapter 5: Determinants of Bank Profitability

The last two decades have been challenging for the Indian banking industry with Indian banks witnessing major issues of bad loans and bank frauds leading to decline in profitability and bank failures. Sustainable bank profitability can be one of the driving forces of capital accumulation and contribute to economic growth. Hence, it becomes crucial for banks to identify the factors which could enhance profitability or deplete profitability causing possible risks. The present chapter carefully investigates and examines the impact of determinants on bank profitability for bank groups (public, private, and foreign bank groups) as well as for the scheduled commercial banking sector (represented by selected banks in the study). The aim is

to assess the possible impact of financial, non-financial, and macroeconomic factors on the profitability of scheduled commercial banks in India. Determinant analysis is carried out by building econometric models so as to examine the nature and magnitude of relationship between bank profitability and its determinants.

Chapter 6: Conclusion

Financial stability in the economy is imperative as it reflects a sound financial system, which in turn reinforces trust in the system and prevents adverse events that might destabilize the economy. RBI recognises financial stability as an integral element of macroeconomic policy framework and has adopted a multiple indicator approach for monetary and financial sector management. In this chapter, an attempt is made to perform banking stability assessment for selected banks in the study to understand and assess the changes in dimensional risks or vulnerabilities faced by the banking sector. Further, this chapter summarizes and concludes the findings of the entire research endeavour to draw relevant policy inferences, suggestions, and recommendations to advance improvements in the Indian banking industry. The chapter ends with a discussion on the limitations of the study and scope for future research.

Appendix

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