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CHAPTER: 6

CONCLUSION

The main objective of this study is to empirically examine the performance of commercial banks in India. An evaluation of bank performance has been carried out in four parts. In the first part, progress of the Indian banking industry has been reviewed over the post-independence period. The performance analysis of banks and bank groups based on examination of trend behaviour of financial ratios and comparative analysis of bank groups has been engaged in the second part. The determinant analysis for identifying important factors influencing bank profitability has been accomplished in the third part. In the last part, an assessment of banking stability has been conducted for selected banks in the study to assess the changes in dimensional risks for the Indian banking industry. The first three parts have been presented in previous chapters, while banking stability assessment is undertaken in the current chapter in *section 6.1*. The summary, findings, and conclusion of each chapter in the study are stated in *section 6.2*. The inferences, suggestions, and policy recommendations are presented in *section 6.3*. The limitations of the study and scope for future research are discussed in the last *section 6.4*.

6.1 Banking Stability Assessment

A country's financial system includes its banks, non-banking financial corporations, securities markets, insurance companies, market infrastructures, and central bank, as well as other regulatory and supervisory authorities. These institutions and markets provide a framework for carrying out economic transactions. The financial institutions help to channelize savings into investments thereby supporting economic growth (IMF, 2021). Financial instability can affect the macroeconomic environment and have substantial consequences for economic activity, price stability, and the monetary policy transmission process (BIS, 2011). 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 such as a bank run that might destabilize the economy.

A stable financial system is capable of efficiently allocating resources, assessing and managing financial risks, maintaining employment levels, and eliminating relative price movements of real or financial assets that might affect monetary stability in the economy. A financial system is in the range of stability when it dissipates financial imbalances that arise endogenously or as a result of significant adverse and unforeseen events. Financial stability is about resilience of financial systems to stress and promote economic growth (World Bank, 2020). Maintaining stability of the financial system is a long-standing responsibility of the central bank of the country. Central banks are the ultimate source of liquidity for the economy and appropriate liquidity provision is crucial to financial stability. Macroprudential regulations by central banks can help mitigate risks to the financial system for preserving financial stability.

Financial crises have been observed to be deeper with a prolonged recovery period and have a devastating effect on global growth and welfare (RBI, 2011). The global financial crisis has revealed to the world that even with macroeconomic stability, financial instability is a distinct policy parameter. The crisis exposed vulnerability of financial systems and has asserted a trade-off between price stability and financial stability. Arguments by BIS and RBI support that central bank need to have a substantive responsibility for financial stability despite managing some critical trade-offs (BIS, 2011; RBI, 2011). The crisis has induced countries to adopt forceful and coordinated policies to stabilize markets and to ease credit risk concerns, but uncertainties towards growth prospects and financial instability still persist.

India's response to the global crisis was different to those of many developed economies. The financial system in India remained resilient despite some volatility. There was very little stress on the balance sheet of banks and non-banking financial institutions. Indian banks remained well capitalized with higher core capital and sustainable financial leverage. However, the spill-over effects of crisis were visible in terms of sluggish credit growth as banks restricted credit flow to industries, lower interest income, rise in non-performing assets, and fall in profitability. The Reserve Bank of India (RBI) recognised financial stability as a fundamental element of macroeconomic policy framework and adopted a multiple indicator approach for monetary and financial sector management. In an attempt at institutionalizing the implicit focus and making financial stability as an integral driver of the policy framework, the RBI released its first Financial Stability Report (FSR) on 25th March, 2010. The emphasis of this FSR was on reviewing the nature, magnitude, and implication of

risks that have bearing on the macroeconomic environment, financial institutions, market, and infrastructure. The FSR was an assessment of the health of India's financial sector and was meant to enhance transparency and augment confidence in the financial system. RBI expected the FSR to emerge as one of the key instruments for directing pre-emptive policy responses to incipient risks in the financial system (RBI, 2010; 2011).

In the second FSR published by RBI on 30th December 2010, the Banking Stability Index (BSI) was introduced to assess changes in the dimensional risks or vulnerabilities being faced by the banking sector. The BSI is based on five critical dimensions or indices, namely – banks' soundness, operating efficiency, asset quality, liquidity and profitability. Each dimension is measured using a financial indicator or ratio. Based on individual dimensions, a single point reference is computed in the form of banking stability index. This index is a simple average of the complementary of five sub-indices or dimensions. The index for each dimension for a particular period is calculated as Financial ratio on a given date or period (–) minimum value in the period / maximum value in the period (–) minimum value in the period. The indices serve as a relative measure of performance of the banking sector in the given period and are normalized to take the values between 0 (minimum) to 1 (maximum). 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, it would mean that the risk or vulnerability in that dimension has increased. The overall assessment of stability of the banking sector is conducted using a Stability Map. 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. In the FSR issued by RBI on 14th June 2011, the methodology for computation of banking stability index was further enhanced by including additional indicators or ratios for each of the five dimensions.

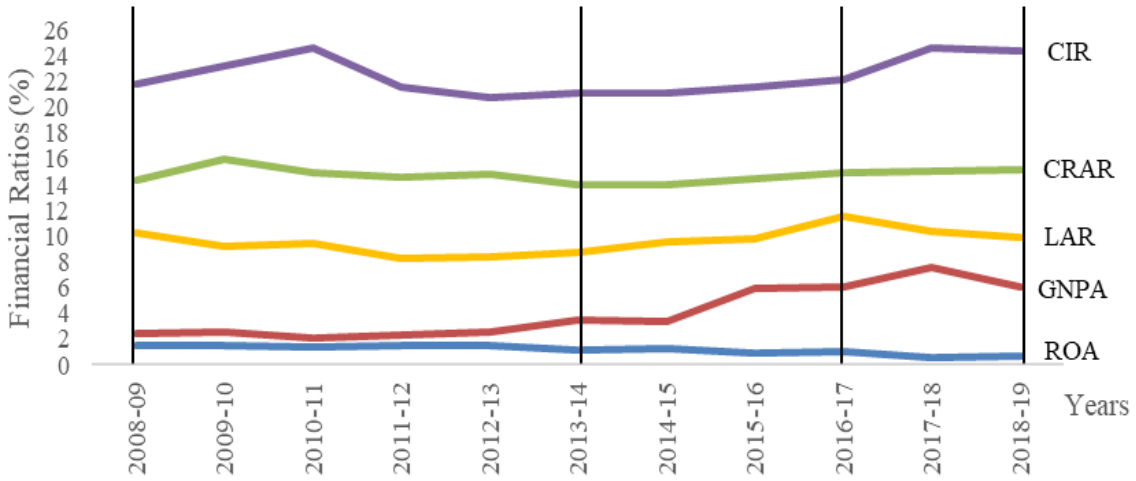
In the present study, an attempt is made to review the financial stability of Indian banking industry, in particular the commercial banks, to understand and identify the critical dimensions (indices) enhancing banking stability or causing risks. For this purpose, the methodology for constructing the banking stability map and index is based on the second FSR of December 30th, 2010 as discussed above.

Measuring Banking Stability of Scheduled Commercial Banks in India

A financial stability assessment is carried out for scheduled commercial banks in India for the post global financial crisis period from 2008-09 to 2018-19 using the banking stability map and index. An aggregate of fifteen banks selected in the study, five from each of the public, private and foreign bank groups are representative of scheduled commercial banks for the stability analysis (for bank selection criteria refer Chapter 4, Section 4.1). The banking stability analysis is based on five dimensions or indices, measured by the stated financial ratios: *soundness* - capital adequacy ratio (CRAR), *operating efficiency* - operating cost to income ratio (CIR), *asset quality* - gross non-performing assets to gross advances ratio (GNPA), *liquidity* - liquid assets to total assets ratio (LAR), and *profitability* - return on assets (ROA). The stability analysis helps to explain any changes in the risk dimensions of the banks with respect to its position as on a past date. The data for stability analysis has been sourced from the Reserve Bank of India reports on Statistical Tables Relating to Banks in India.

For constructing the banking stability map, four points of time have been identified over the post crisis period, which are: 2008-09, 2013-14, 2016-17, and 2018-19. These points of time have been marked subject to trends in the five financial ratios or critical dimensions for the fifteen banks sampled in the study (here, financial ratios are taken as average of these fifteen banks). The same has been displayed in Chart 6.1, followed by a brief discussion.

Chart: 6.1 Banking Stability Dimensions: Points of Time



The financial crisis engulfed the world economy in the year 2008-09. Although banks in India were relatively cushioned, the crisis did have adverse impact on credit growth of banks, interest income, and eventually profitability. Gross non-performing assets ratio and cost to income ratio started trending upwards with fall in liquidity position of banks. Hence, *the year 2008-09 has been selected as the first point of time* for constructing the banking stability map for scheduled commercial banks in India. The effect of crisis became prominent after 2013-14. Gross non-performing assets ratio of banks started increasing in 2012 and escalated further with fluctuations after 2013-14. Asset quality was a major cause of concern for banks in India, that led to vulnerabilities in the Indian banking sector. Besides, profitability of banks continued to remain low against an increase in liquidity and operating efficiency of banks. To assess bank stability, *the year 2013-14 is treated as the second point of time.* After 2016-17, there was a significant decline in business of scheduled commercial banks in India majorly on account of public sector banks. Increase in gross non-performing assets was the result of reclassification of assets and restructuring of advances to a certain extent. Public sector banks reported lowest capital adequacy among the bank groups. Deterioration in asset quality and falling profitability along with poor operational efficiency of public, private as well as foreign bank groups indicated inherent weaknesses in their functioning. Therefore, *the third point of time taken for analysis is the year 2016-17.* The credit growth of scheduled commercial banks in India picked up amidst a sluggish deposit growth after 2017-18, largely driven by private sector banks. Soundness of banks as measured by capital adequacy ratio improved after recapitalization of public sector banks by RBI. Despite poor liquidity, banks witnessed a fall in gross non-performing assets and higher profits than before. Banks exhibited an increase in operational efficiency with falling cost to income ratio. The year *2018-19 is last in the analysis period of the study and hence it has been taken as the fourth point of time*.

To assess financial stability of banks, the details of banking stability dimensions, measurement ratios, and the financial ratio to risk relationship have been stated in Table 6.1. Table 6.2 presents the computation of banking stability index for the banks taken in the study. This is followed by illustrations of banking stability map and index in Charts 6.2 and 6.3, respectively.

Table: 6.1 Risk Dimensions of Banking Stability

Sr. No.	Dimension	Ratio	Ratio to Risk Relationship	Interpretation
1.	Soundness	Capital Adequacy Ratio (CRAR)	Negative	Increase in the index of CRAR will tend to reduce the risk
2.	Operating Efficiency	Operating Cost to Total Income Ratio (CIR)	Positive	Increase in the index of CIR will tend to increase the risk
3.	Asset Quality	Gross Non-Performing Assets to Gross Advances Ratio (GNPA)	Positive	Increase in the index of GNPA will tend to increase the risk
4.	Liquidity	Liquid Assets to Total Assets Ratio (LAR)	Negative	Increase in the index of LAR will tend to reduce the risk
5.	Profitability	Return on Assets (ROA)	Negative	Increase in the index of ROA will tend to reduce the risk

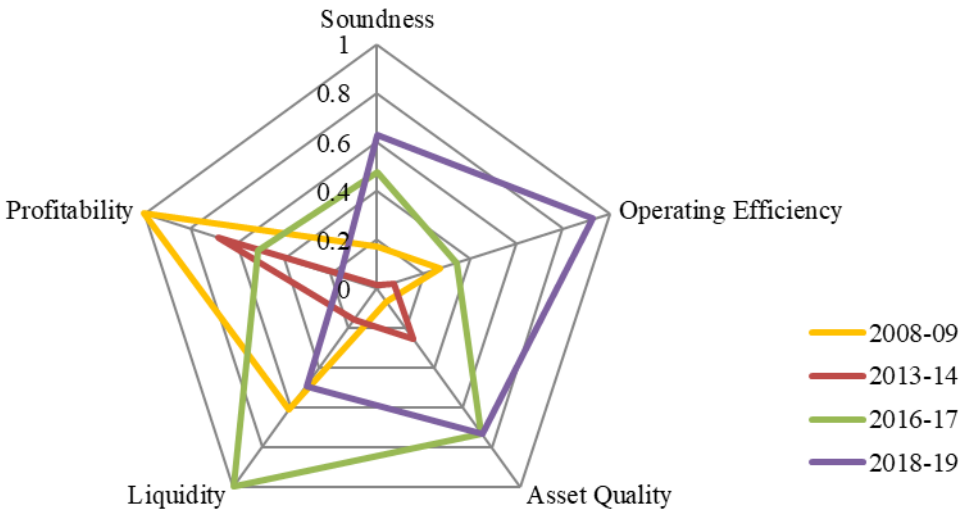
Table: 6.2 Computation of Banking Stability Index: Scheduled Commercial Banks

Ratio	Years										
	2008/09	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**
CRAR	**0.17**	1.00	0.51	0.32	0.41	**0.01**	0.00	0.26	**0.48**	0.56	**0.63**
CIR	**0.27**	0.63	1.00	0.20	0.00	**0.07**	0.08	0.19	**0.34**	1.00	**0.93**
GNPA	**0.07**	0.10	0.00	0.05	0.10	**0.25**	0.25	0.70	**0.73**	1.00	**0.73**
LAR	**0.61**	0.29	0.35	0.00	0.06	**0.15**	0.39	0.46	**1.00**	0.63	**0.49**
ROA	**1.00**	0.92	0.90	0.93	1.00	**0.68**	0.80	0.44	**0.51**	0.00	**0.16**
BSI	***0.42***	*0.59*	*0.55*	*0.30*	*0.31*	***0.23***	*0.30*	*0.41*	***0.61***	*0.64*	***0.59***

Note: Ratios refer to the stated dimensions: CRAR – Soundness, CIR – Operating Efficiency, GNPA – Asset Quality, LAR – Liquidity, and ROA – Profitability

The **Banking Stability Map** reveals the impact of changes in dimensional risks on financial stability of banks. The interpretation of banking stability map and the risk dimensions is based on the nature of relationship between ratio and risk as stated in Table 6.1. A higher index value for Soundness (CRAR), Liquidity (LAR), and Profitability (ROA) as compared to their past value would mean an increase in distance from the centre of the map, signifying lower dimensional risks for banks. Alternatively, higher index values for Operating Efficiency (CIR) and Asset Quality (GNPA) would indicate an increase in distance from the centre of the map but would trigger higher dimensional risks for banks.

Chart: 6.2 Banking Stability Map



The important observations from the stability map are:

- The index value for each of the five banking stability dimensions for each point of time is compared to that for the preceding point of time. A comparison of index values for 2013-14 with 2008-09 shows a weakening in soundness indicator of banks. Despite a decline in capital adequacy ratio, banks continued to maintain ratio higher than the regulatory requirements. Asset quality of banks deteriorated, profitability and liquidity declined in 2013-14 as compared to 2008-09, implying increasing dimensional risks for banks in India. Operating efficiency is the only dimension enhancing banking stability.

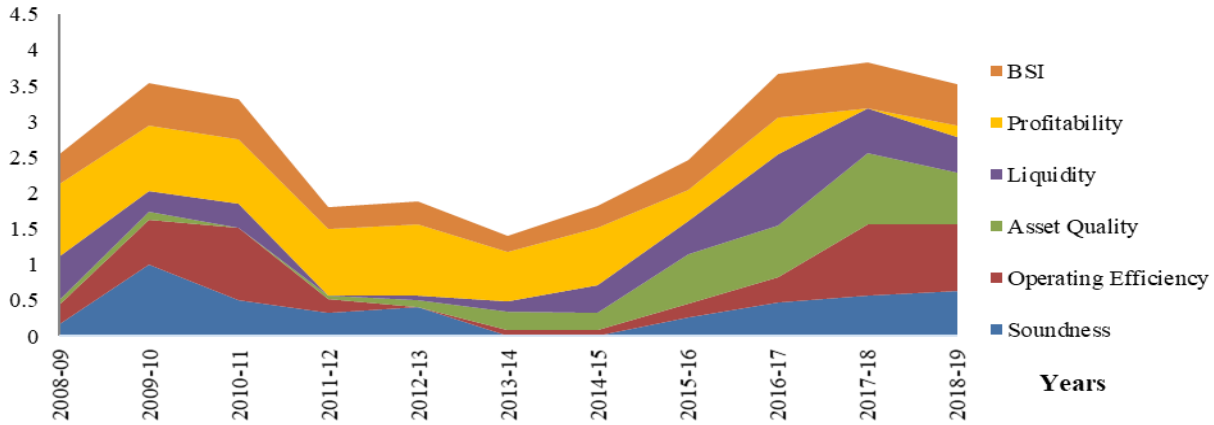
- The changes in index values of operating efficiency, asset quality, and profitability in 2016-17 as compared to 2013-14, have triggered dimensional risks for banks adversely impacting their financial stability. Banks witnessed a major improvement in CRAR and LAR over the two points of time, thereby reducing the risks affecting soundness and liquidity of banks.

- The banking stability map indicates that relatively the dimensional risks increased in 2018-19 as compared to the previous period 2016-17. The changes in index values of profitability, operating efficiency, and liquidity led to increase in risks for banks. Weak profitability has been a major concern for banks since lower profits could

prevent banks from building cushion against unexpected losses and expose them to adverse shocks. A high index value of GNPA continued to be a problem for banks with risks of asset quality dimension. The soundness of banks increased between the two points of time supporting banking stability.

Based on individual indices, a single point reference in the form of **Banking Stability Index** has been devised. This index is computed for the period 2008-09 to 2018-19. For each year, banking stability index has been calculated as a simple average of the five sub-indices chosen for banking stability analysis (refer Table 6.2). Higher value of banking stability index signifies lower dimensional risks for banks and higher financial stability in the banking sector. Alternatively, a lower index would mean increase in dimensional risks and lower financial stability in the sector.

Chart: 6.3 Banking Stability Index



The banking stability index reveals high fluctuations for the banks in the study. The index represents the combined impact of all major risk dimensions. It shows an increase in vulnerabilities in the banking industry after 2010-11. Increase in dimensional risks on account of deteriorating soundness, asset quality, liquidity, and profitability have all contributed to fall in banking stability, which was the lowest in 2013-14. The banking stability indicator started improving afterwards with decline in dimensional risks on liquidity and soundness alongside a marginal increase in profitability. In 2017-18, banking stability index value was the highest at 0.64 indicating higher financial stability for banks in the study. In the final year of analysis period 2018-19, the financial stability indicator for banks declined to some extent. Although banks' soundness, operating efficiency, asset quality, and profitability improved, their liquidity position had worsened.

It is observed that for major part of the post crisis period, scheduled commercial banks have witnessed a deterioration in their asset quality with rising non-performing assets (NPA). Financial stability in banks can be achieved by lifting off the dead weight of NPA from banks' balance sheets. Although there is no defined limit of NPA for banks, bad loans within 3 percent are considered manageable as per international standards (Financial Express, 2021; Naha, 2021). IMF's data for 2019 has ranked India as the 33rd highest amongst 137 nations in a global list of countries with bad debts. A comparison of gross non-performing assets (GNPA) of Indian banking industry with the BRICS bloc exposes the vulnerability of Indian banks. Russia has the highest GNPA at 10.7 percent. India is close behind Russia with 10.3 percent GNPA. Brazil and South Africa have less than 4 percent GNPA while China reports the lowest GNPA of 1.75 percent among BRICS nations. Developed economies like Canada, Republic of Korea, Switzerland, United States, Australia, and Luxembourg have managed very low GNPA of less than 1 percent (IMF, 2019). India's position on the global platform clearly highlights its poor NPA management and bad asset quality of its banking industry.

Any global, national, regional or industry related financial or economic watershed could result in erosion of profit margins of companies and create stress on their balance sheets. This in turn delays repayment of interest and loans or ends in non-repayment. An increase in NPA reduces profitability of banks due to increase in operating costs and decline in their interest margins (Berger and Young, 1997; Masood and Ashraf, 2012). Studies have also revealed that banks with high level of NPA generally incur carrying costs or NPA management costs, thereby reducing the profitability of banks (Batra, 2003). Also, a rise in NPA is likely to adversely impact the profitability of banks on account of huge amount of provisioning requirements out of operating profits, which acts as a drain on bank profitability (Das and Uppal, 2021). A high level of NPA indicates a high probability of credit default that could hamper the overall efficiency and effectiveness of banks. It also significantly diminishes the availability of credit in the economy, creating a problem for banks and for the policy makers by distressing the economic growth of the country (Deloitte, 2020).

Indian banks have been struggling with rising bad debts and mounting burden of higher loan loss provisions. Bank specific issues and other general concerns have often triggered NPA for banking industry in the country. Mismanagement by banks, lack of due diligence, liberal credit policies, evergreening of assets, misutilisation of borrowed funds, and poor credit appraisal system are some of the internal factors that have contributed towards higher bad

loans. Public sector banks in particular are troubled with problems of high NPAs. The government banks have a widespread network of bank branches across the country and cater to the rural masses by means of priority sector lending. Natural calamities and rural debt waivers often declared by the government have worsened the levels of NPA for these banks. Failure of poverty alleviation programs, wilful defaults, and ineffective recovery tribunals are some other critical reasons for increasing NPA of banks. Moreover, public sector banks have a high risk exposure as compared to the private banks.

The Government of India and RBI have taken important steps to tackle the problem of mounting NPA in banks. On the recommendation of Narasimham Committee, Debt Recovery Tribunals were established in 1993 to reduce the burden of bad debts. Subsequently, RBI has issued various instructions aimed at the resolution of stressed assets in the economy, including introduction of certain specific schemes at different points of time such as Credit Information Bureau (2000), Lok Adalat (2001), Prompt Corrective Action Framework (2002), SARFAESI Act (2002), Corporate Debt Restructuring (2005), 5:25 Rule (2014), and Joint Lenders Forum (2014). The government adopted the '4R' strategy of Recognition, Resolution, Recapitalization, and Reforms to deal with the NPA challenge in Indian banking industry. Since 2015, various initiatives such as Mission Indradhanush (2015), Strategic Debt Restructuring (2015), Asset Quality Review (2015), Insolvency and Bankruptcy Code Act (2016), and Bad Banks also known as National Asset Reconstruction Company Limited (2021) were introduced. The mergers of weak public sector banks in 2020 has been one of the biggest step taken by the authorities to reduce NPA levels in banks.

6.2 Summary, Findings and Conclusion

The summary, findings, and conclusion of each chapter in the thesis are reported in this section.

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

An extensive review of related literature on bank performance of commercial banks reveals that there is a wide array of empirical research being carried out on bank performance across the globe. Although these studies differ in their specific objectives, researchers have attempted to evaluate bank performance for different countries, for bank groups and individual banks, over different time periods, using diverse methodologies and techniques. Performance of banks is measured based on two broad approaches, namely structural approach and non-structural approach. Majority of the performance studies reviewed have focused on the financial performance and efficiency of banks considering the non-structural approach. Researchers have investigated the performance of banks on broad parameters of profitability, productivity, liquidity, efficiency, competition, capital structure, and capital adequacy.

Indian studies have largely analysed the performance of banks by employing financial ratio analysis, CAMEL/S methodology, and data envelopment analysis. Among the international studies, developing nations have been found to focus on ratio analysis and CAMEL/S model. The developed countries, on the other hand, have adopted multiple regression analysis, data envelopment analysis, and stochastic frontier analysis for examining bank performance. Few Indian and international studies have also assessed bank performance with the help of DuPont analysis and sequential decomposition models.

A bouquet of variables has been identified and estimated for analysing the performance of banks. The financial variables commonly examined by studies are return on assets, return on equity, net interest margin, business per employee, profit per employee, credit-deposit ratio, total deposit to total assets, total advances to total assets, NPAs to advances, NPAs to assets, interest income to total assets, non-interest income to total assets, earning per share, and market concentration. The macroeconomic variables like inflation rate, exchange rate, interest rate, and GDP growth have also been considered by some studies. In few cases, physical parameters like number of bank branches and number of ATMs have also been assessed.

Despite many similarities, the studies reviewed are either aggregative, case studies, or the coverage is too small in terms of the number of banks, and the time period covered. The studies have focused on limited variables either in combination or as singular parameters. The outcomes of the studies are bound to differ as they relate to different countries, different banks, different time periods, and use different methodologies.

After an elaborative coverage of literature review on bank performance, the present study identified few research gaps. Majority of the studies have focused upon financial ratio analysis for examining performance of banks. Many studies have assessed bank performance using CAMEL/S methodology. Quite a few researchers have approached the subject of bank performance from the efficiency perspective. They have explored productive or operational efficiency of banks by employing data envelopment analysis. Some studies have tried to identify the factors influencing bank performance by estimating multivariate regressions. Indian studies have largely used multiple regression analysis with either time-series or cross-section dataset but very few have engaged panel regression analysis to identify important determinants of bank performance or profitability.

Chapter: 3 Progress of Indian Banking Industry

The Indian banking industry has traversed a long journey and witnessed important landmarks after the country's independence. This timeline of more than seven decades has been examined over four milestones to review the specific events that have been shaping the banking industry, which are: *Post Independence (1947 to 1968), Post Nationalization (1969 to 1992), Post Reforms (1993 to 2006), and Post Global Crisis (2007 onwards).*

Several regulatory changes were introduced in the banking industry beginning with the enactment of Banking Regulation Act in 1949. The act was institutionalized with an objective to fulfil social developmental goals and to reform the working of commercial banks. The process of bank nationalization in 1969 and 1980 brought 20 commercial banks in the ambit of the public sector, which led to an increase in dominance of government-owned banks with 90 percent share in total deposits of the banking sector. Despite the benefits of nationalization, these banks faced issues relating to falling profitability and rising bad loans. The nationalized banks were highly regulated and controlled by the government, that restricted their functional and operational autonomy. The banking sector reforms of 1993 steered a liberalized and deregulated era in the Indian banking industry. Measures were taken

to strengthen the banking sector by instituting financial reforms. Several improvements were initiated by way of reduction in pre-emptive rates, deregulation of interest rates, implementation of prudential norms, and grant of functional autonomy to public sector banks. Competition in banking industry was intensified by allowing entry of new banks in the sector. The new generation banks encouraged healthy competition, use of advanced technology, banking automation, and adoption of advanced banking practices in the banking industry. The reform measures brought improvement in the financial health of the sector but the impact of reforms was realized by the end of the decade. The banking sector became aggressive, competitive, and recorded unprecedented growth.

By 2007 end, economic and financial crisis surfaced the world economy. The crisis exposed the vulnerability of financial systems across the globe. Although it had a slowdown effect on the Indian economy, the banking sector exhibited incredible resilience and remained mostly shielded from the adverse impacts of crisis. However, credit growth slackened, resulting in fall in interest income and profitability of banks. Public sector banks were the worst hit and exhibited a drastic fall in their financial performance. To counter these problems, the government and RBI took prompt actions by way of monetary policy relaxation and fiscal stimulus to reduce interest rates and boost domestic demand. Over the past decade, banks have evolved phenomenally taking a significant leap into the world of new age banking.

The study has also mapped the growth and progress of scheduled commercial banks in India since the time of nationalization of banks. The overall period of five decades from 1969 to 2018 has been divided into shorter time periods or phases: *1969 to 1985 as 'Nationalization Phase'; 1987 to 1997 as 'Technology Upgradation Phase'; 1993 to 2005 as 'Deregulation Phase'; and 2000 to 2018 as 'Digitalization Phase'*. The study has evaluated the progress made by scheduled commercial banks over these distinct phases on the basis of progress indicators.

Bank nationalization resulted in higher number of SCBs in India, increase in rural reach of banks through rapid branch expansion and extension in credit to priority sectors. By the end of the technology upgradation phase, government banks were well-equipped with AELPMs, computers, and adequately trained bank staff for computer application in banking services. The period from 1993 to 2005 was one of liberalization and deregulation in the banking sector. The banking reform measures led to reduction in CRR and SLR, increase in priority sector advances, rapid expansion in deposits and credit of SCBs, rise in credit-deposit ratio,

and significant improvement in deposits of SCBs as a percentage of national income. The period after 2000s is observed as a phase of universal digitization in the Indian economy. To meet the demands of a new digital system, RBI took serious efforts to build a robust and secure payment and settlement systems in India. Demonetization initiative by the government was a progressive move that paved way for expansion of the digital India drive and shift towards a cashless economy. There was greater focus on electronic transactions with increasing use of credit and debit cards, net banking, and other online payment systems. By the end of the digitalization phase, there were more than 2,00,000 ATMs in the country, the amount transacted through RTGS was over Rs. 13,56,800 billion, the total value of transactions using credit and debit cards was around Rs. 12,000 billion, and more than 40,68,000 POS terminals were installed. Digitalization in the banking sector had a multiplying effect on banking activities and banking business. The industry witnessed expansion in credit-deposit ratio and in the ratio of total deposits to national income.

Over the past five decades of bank nationalization, SCBs have progressed in leaps and bounds. Bank branch network has spread geographically. Banks have penetrated rural areas and are participating in the process of broadening and deepening of financial inclusion in the country. The business generated by SCBs in terms of deposits and credit advanced has expanded considerably, signifying people's choice for an organized system of banking. SCBs record a CAGR of 11% in total banking business. The share of SCBs in priority sector advances has increased, indicating their willingness towards serving the needs of this socially important segment. The first two decades of this new millennium have been dotted by major disruptions in the industry with digitalization and fintech adoption initiatives revolutionizing the entire banking space. These technologies have opened new possibilities for Indian banks with a competitive advantage in the global market.

Chapter: 4 Performance of Commercial Banks in India

A detail evaluation of financial performance of scheduled commercial banks in India has been carried out by employing financial ratio analysis. 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. A comparison of

financial ratios of banks is undertaken to determine whether a bank performs better or worse in relation to the industry average.

Performance analysis has been conducted for selected banks. Five banks from each bank group with the biggest size of total assets have been selected from public sector banks, private sector banks, and foreign banks. The financial ratio analysis has been carried out in two parts. In the first part, trend behaviour of financial ratios of banks and bank groups is examined using trend analysis. In the second part, a comparative performance analysis of bank groups is engaged to assess their relative performance. The time period for analysis ranges from 2001-02 to 2018-19.

Linear and log-linear trends have been estimated along with other descriptive statistics for determining the trend and growth in financial ratios. Important highlights from the empirical results for trend analysis are listed below:

Public Sector Banks

- Public sector banks have maintained sufficient capital adequacy ratio (CRAR) in the range of 11.9% to 13.1%, as prescribed by the RBI.

- Profitability of public sector banks has been poor over the analysis period. These banks have reported a fall in their return on asset (ROA), return on equity (ROE), and net interest margin (NIM) primarily after 2013. Post global financial crisis, there was a false sense of security in the banking industry that it was immune to global shocks, which led to unplanned lending resulting in mounting bad loans and falling profits.

- Public sector banks have reported falling trends in their operating cost to income ratio (CIR), indicating higher cost efficiency by banks.

- A rising trend in productivity of public sector banks as measured by business per employee (BPE), business per branch (BPB), and profit per employee (PPE) has been observed over the analysis period. However, a sharp decline in PPE was witnessed by public sector banks after 2013.

- The Indian banking system became risk averse and adopted conservative regulatory policies in the aftermath of global financial crisis. The government and RBI took prompt actions to recover the financial system from the impact of global crisis. The

financial system was flooded with money, policy rates were brought down to historic low, and banks were allowed to restructure their bad loans. Despite corrective measures, crisis had its distressing effects on the banking industry, that was realised after a gap of almost five years. Asset quality became a matter of major concern for public sector banks as gross non-performing assets (GNPA) escalated to double-digit figures after 2013.

Business generated by public sector banks underwent expansion despite accumulation of bad debts. Serious issues in working and policies of public sector banks have been key factors contributing towards rising debts of these banks. Besides, the government banks followed liberal credit policies with deficiency in credit sanction processes. These issues coupled with MIS misuse, mismanagement, aggressive lending, under-reporting of NPA, and lack of systematic credit assessment mechanism have led to poor asset quality of these banks. Rising GNPA has been found to trigger a fall in NIM and profitability of public sector banks.

- Resource utilization as measured by credit-deposit ratio (CDR) is found to be in the range of 65% to 75% for public sector banks and is comparable to the industry average.

- Public sector banks have managed high liquidity in terms of current ratio (CR). Except for SBI, other banks in the study have an average CR in the range of 2.04 to 3.83. These banks have maintained higher current assets to current liabilities than the preferred 1.33:1 ratio. High CR implies idle current assets with banks that could have been used in business to generate profits. As public sector banks generate lower profits or even suffer losses, these excess current assets could have been channelized and deployed in profit generating assets. The liquid asset ratio (LAR) of public sector banks is in the range of 0.09 to 0.14 and are comparable to other bank groups.

- Public sector banks have maintained debt-equity ratio (DER) in the range of 17:1 to 22:1. This is much higher than the RBI recommended ratio of 3:1. Higher DER indicates potential financial risk on long-term solvency of banks. It implies over-dependency of public sector banks on borrowed funds in relation to own funds. As borrowed funds come with high cost it affects banks' profits.

Private Sector Banks

- Private sector banks have maintained high capital adequacy ratio in the range of 13.8% to 16.7%, which is way above the RBI stipulated norm of 11.5%. High CRAR means that banks are adequately stocked with capital to deal with unexpected losses in future and are less likely to become insolvent.

- Profitability (ROA, ROE, NIM) has been on a rising trend for the private sector banks for most part of the analysis period. Yet, a distinctive decline in ROA and ROE were visible after 2013. Average NIM of these banks range between 2.3% to 4.1%.

- AXIS and IND banks have exhibited a positive growth in cost to income ratio (CIR) and are cost inefficient. The rest of the private sector banks - HDFC, ICICI, and YES banks have turned out to be cost efficient.

- Productivity of private sector banks has been rising (BPE, BPB, PPE) over the analysis period. However, these banks started reporting falling trends in PPE after 2013 as profits of private sector banks declined during the same period.

- Private sector banks did not face the NPA issue till the financial crisis. There was a steep rise in GNPA of these banks in 2009 and after 2013. Although private sector banks were challenged by a rise in their GNPA levels, they adopted strict loan recovery policies to manage their asset quality.

- Amongst the private sector banks, ICICI and YES banks have adopted aggressive lending strategies with high average CDR of 98.8% and 84.8%, respectively. Resource utilization by other banks in the group is in the range of 71% to 78%, comparable to the industry average of 75%.

- The average current ratio (CR) of private sector banks is in the range of 1.06 to 1.57, which is quite in the acceptable limit of 1.33:1. AXIS and IND banks have reported high average CR of 2.48 and 2.11, respectively alongside a declining trend growth. However, the escalation in CR of these banks is witnessed primarily over the post crisis period. After the crisis shock, banks became averse to lending and started sitting on surplus liquidity. This could have possibly hindered credit growth of banks and eventually hit profitability, as also noted in falling ROA and ROE for private sector banks. An overall falling trend in liquid asset ratio (LAR) has been observed for

private sector banks, indicating shrinkage in the proportion of liquid assets as compared to total assets.

- The debt-equity ratio (DER) of private sector banks is in the range of 10:1 to 15:1, as against the RBI advocated ratio of 3:1. Solvency status of private sector banks as revealed by their DER indicates higher long-term financial risk. Higher DER leads to higher operating costs and fall in cost efficiency. AXIS and IND banks have been found to be cost inefficient for the assessment period.

Foreign Banks

- Foreign banks have maintained the highest capital adequacy ratio in the industry. Very high CRAR indicates idle funds with these banks that could have been used for business expansion and profit generation.

- Profitability (ROA, ROE, NIM) of foreign banks has been falling for majority banks for most part of the analysis period albeit with fluctuations. Prominent dips in profitability for foreign banks is observed after the financial crisis, in the years 2009 and 2013.

- Amongst the foreign banks; CITI, HSBC and DEUT banks have been found to be cost efficient with falling operating cost to income ratio (CIR). STCH and DBS banks are cost inefficient with positive trend in CIR.

- Foreign banks have reported rising productivity (BPE, BPB, PPE) for the assessment period. However, DBS bank exhibited a declining trend as well as negative CAGR in profit per employee (PPE).

- Foreign bank group has witnessed an overall falling trend in GNPA accompanied with fluctuations. CITI and HSBC banks have also experienced an improvement in their quality of assets. However, the asset quality of some banks as STCH, DEUT and DBS has taken a hit with noticeable jump in their GNPA post crisis. During this period, foreign banks have reported a decline in their net interest margin and profitability.

- Foreign banks have actively engaged in lending. The average credit-deposit ratio (CDR) of foreign bank group is 79%, which overshoots the industry average of 75%. Despite intense lending by foreign banks, their GNPA levels are relatively low. This

is because foreign banks adopt proper evaluation of proposed loan projects with a continuous assessment of advances, and follow strict policies for recovery of outstanding loans. STCH and DBS banks are exceptions with double-digit GNPA after 2013.

- Foreign banks have witnessed an overall falling trend in liquidity. However, an increase in current ratio (CR) and liquid asset ratio (LAR) is noticed post crisis. Foreign banks have been observed to maintain smaller amount of current balances, with current ratio below the industry benchmark of 1.33. Yet, average LAR of foreign bank group is comparable to that of other bank groups.

- Foreign banks have a high debt-equity ratio (DER) in the range of 6:1 to 9:1 on average. This is way above the ideal ratio of 3:1 recommended by RBI. High DER led to increase in costs and results in cost inefficiency for banks. STCH and DBS banks have been found to witness high DER alongside a high CIR.

ANOVA and Post Hoc tests have been carried out for determining which bank group is significantly different and which performs better amongst competing bank groups. The important observations drawn from the results of comparative performance analysis of bank groups are stated below:

- A significant difference between the three bank groups was found from ANOVA test results for all financial ratios examined in the study.

- The inference of post hoc test results is that foreign bank group has relatively higher CRAR, ROA, NIM, BPE, BPB, PPE, CDR and LAR. Also, this bank group has lower GNPA levels in relation to public and private sector bank groups. On the basis of the mean difference of these financial ratios for the three bank groups, the foreign bank group ranks first.

- The public sector bank group has a relatively higher CR and DER as compared to the other two bank groups. CIR is relatively lower for this bank group. Hence, public sector bank group ranks first on these three financial ratios.

- Private sector bank group is ranked first in case of ROE as it has a relatively higher ROE as compared to public sector and foreign bank groups.

The findings and conclusions from performance evaluation of scheduled commercial banks in India as conducted in the study have been summarized below:

- Public sector banks have high productivity, adequate capitalization and have maintained higher liquidity. These banks have appropriately utilized their resources and are cost efficient. However, they have the highest debt-equity ratio amongst bank groups that indicates higher long-term financial risk on solvency of these banks. Poor asset quality and low profitability are the major concerns of government banks.

- Private sector banks have reported rising productivity and profitability with better asset quality. These banks have managed sufficient liquidity and capital adequacy. However, high debt-equity ratio signals a possible financial distress for banks. Besides, private sector banks are found to be cost inefficient and resort to aggressive lending strategies with increasing credit-deposit ratio.

- Foreign banks have the highest profitability, productivity, and resource utilization capacity amongst the three bank groups. Also, these banks have relatively lower non-performing assets. However, foreign banks are over capitalized, have high debt-equity ratio indicating long-term financial risk and are cost inefficient with high operating cost to income ratio.

- Concerns in scheduled commercial banks were particularly noticeable after the onset of global financial crisis. Banks have reported an increase in non-performing assets, this had two impacts. Higher NPAs required higher loan loss provisions and hence limited fund availability had a negative impact on credit advancement, earnings, and profitability of banks. Besides, crisis made the banks risk averse and they started maintaining higher liquidity, which could have been used in business to generate profits. High NPAs and liquidity indicate possible adverse impact on bank profitability.

- Post crisis, scheduled commercial banks have been found to maintain higher debt-equity ratio than suggested by RBI. High debt-equity ratio adversely affects the financial viability and cost efficiency of banks. It also signals that banks could be under financial stress impacting their ability to pay off future debts.

Chapter: 5 Determinants of Bank Profitability

The objective of the present chapter is to identify important determinants of bank profitability. 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. Determinants of bank profitability have been examined for public, private, and foreign bank groups (five banks in each group); and also for the scheduled commercial banking sector (represented by all fifteen banks taken in the study).

On the basis of a comprehensive review of literature, the indicators of bank profitability (dependent variables) and the factors determining bank profitability (explanatory variables) have been identified for analysis. Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) are the measures of bank profitability. To assess the impact of financial, non-financial, and macroeconomic variables on bank profitability, the following variables are engaged in analysis: capital adequacy ratio, log of total assets, cost to income ratio, gross non-performing asset ratio, business per employee, liquid asset ratio and previous year profitability of bank are the financial variables. Number of bank branches and number of ATMs are non-financial variables, while economic growth rate and rate of inflation are the macroeconomic variables.

Least-square panel regression has been engaged for determinant analysis for the time period 2001-02 to 2018-19. Linear and double-log regression models are estimated to arrive at fixed effect and random effect models. To identify the consistent or appropriate model between the two, Hausman test is used. The fixed effect model has been found to be the consistent model for all the regressions estimated for analysis.

Important findings from the empirical results are:

- Capital adequacy ratio (CRAR) and bank profitability share a positive significant relationship for public sector banks, private sector banks, and scheduled commercial banking sector. This is consistent with the results of Staikouras and Wood (2004), Ongore and Kusa (2013), San and Heng (2013), Căpraru and Ihnatov (2014), Al-Homaidi et al. (2018), Kohlscheen, Murcia and Contreras (2018), and Mohanty and Krishnankutty (2018). These studies provide evidence that highly capitalized banks tend to be more profitable. The elasticity of bank profitability with respect to CRAR

is 0.09 percent. The regression results for foreign banks in the present study arrive at a negative association between CRAR and bank profitability. This is in accordance with Heffernan and Fu (2008), Dietrich and Wanzanried (2009), and Mbekomize and Mapharing (2017). These studies found that banks with high capital adequacy ratio suffer from falling profitability.

- Total assets (Log TA) is found to be a significant determinant of bank profitability. It has a negative influence on bank profitability for all the bank groups (public, private, and foreign banks) and for the scheduled commercial banking sector. Ghosh (2013), Căpraru and Ihnatov (2014), Kohlscheen, Murcia and Contreras (2018), Mohanty and Krishnankutty (2018), and Xu, Hu and Das (2019) also found a significant negative impact of total assets on bank profitability. They found that banks with larger asset size are less profitable, while small and medium sized banks exhibit higher overall performance and profitability. A 1 percent increase in total assets leads to a decline in bank profitability by 0.25 percent for scheduled commercial banks.

- Cost to income ratio (CIR) has a negative yet significant impact on ROA and ROE for public, private, and foreign banks. Studies by Heffernan and Fu (2008), Alexiou and Sofoklis (2009), Dietrich and Wanzanried (2009), San and Heng (2013), Căpraru and Ihnatov (2014), Ozili (2015), Patria, Căpraru and Ihnatov (2015), Topak and Talu (2016), Mbekomize and Mapharing (2017), Kohlscheen, Murcia and Contreras (2018), and Xu, Hu and Das (2019) have arrived at similar conclusion. They suggest higher operating costs to trigger a fall in profitability of banks. The regressions where profitability is measured as NIM, CIR is seen to have a positive influence on bank profitability. However, this positive association between NIM and CIR is insignificant. A positive elasticity of 0.12 percent has been observed for scheduled commercial banks. Only one study by Francis (2013) concludes a similar relationship between cost to income ratio and bank profitability.

- Higher gross non-performing assets (GNPA) tend to reduce profitability of banks. A significant fall in profitability in response to rising GNPA is observed for the bank groups in the study, in particular for ROA and ROE. Similar association between GNPA and bank profitability have been reported by Ayele (2012), Bhatia, Mahajan and Chander (2012), Ongore and Kusa (2013), Swamy (2013), Căpraru and Ihnatov (2014), Eze (2014), Patria, Căpraru and Ihnatov (2015), and Alyousfi, Saha and Rus

(2017). The studies suggest that high non-performing assets adversely affect the profitability of bank. Lower the gross non-performing asset ratio, better is the bank's health. An argument by Le and Ngo (2020) study states that a high level of GNPA may cause banks to increase their net interest margins to compensate for default risk and to maintain their profitability. In the present study, bank profitability as measured by NIM is found to share a significant negative relationship for scheduled commercial banking sector. However, bank profitability is relatively inelastic to GNPA with a value of 0.04 percent.

- Bhatia, Mahajan and Chander (2012), and Mahajan (2019) support a positive association between business per employee (BPE) and bank profitability. The studies infer that positive relationship between BPE and bank profitability highlights the efficiency of human resources in relation to the core business of banks. Conversely, studies by Badola and Verma (2006), Maiti and Jana (2017), and Boateng (2019) arrived at a negative effect of BPE on profitability of banks. In the present study, BPE has a positive impact on profitability of public sector banks and foreign banks, confirming to its a priori sign. Although the private sector banks and scheduled commercial banking sector have witnessed a negative association between BPE and profitability, it is very insignificant. NIM responds negligibly to changes in BPE with an elasticity value as low as 0.01 percent.

- Liquid asset ratio (LAR) is largely found to have a negative impact on bank profitability. This determinant has turned out to be statistically significant in case of public sector banks and the scheduled commercial banking sector. However, the elasticity value between LAR and profitability is low at 0.03 percent. Studies like Bourke (1989), Molyneux and Thorton (1992), Pasiouras and Kosmidou (2007), Alshatti (2016), Alyousfi, Saha and Rus (2017), and Kawshala and Panditharanthan (2017) also support the negative influence of LAR on bank profitability indicators. The studies suggest that holding of higher amount of liquid assets would involve opportunity cost of higher returns, while insufficient liquidity would drain out profitability of banks.

- Current year profitability of banks (PROF) responds positively to previous year profitability ($PROF_{-1}$). A 1 percent increase in previous year profitability of scheduled commercial banks brings about a 0.60 percent increase in current year profitability.

Flamini, McDonald and Schumacher (2009), Ponca (2012), Djalilov and Piesse (2016), Sinha and Sharma (2016), Tan (2016), Kohlscheen, Murcia and Contreras (2018), and Le and Ngo (2020) also confirm the positive association between current year and previous year bank profitability.

- The non-financial explanatory variables taken in the study are number of bank branches and number of ATMs. Number of bank branches is found to have a significant and positive impact on bank profitability of scheduled commercial banking sector. Profitability responds positively by 0.04 percent to 1 percent change in number of bank branches. Studies by Al-Homaidi et al. (2018) and Almaqtari et al. (2018) also support a positive association between number of bank branches and profitability of banks. However, the present study has arrived at a negative but then insignificant relationship between bank branches and profitability in certain cases of bank groups.

  Number of ATMs is found to have a positive and significant influence on profitability of banks. This outcome is consistent with the results of Le and Ngo (2020). Although relatively inelastic, bank profitability increases by 0.07 percent to 1 percent increase in number of ATMs.

- In case of macroeconomic variables, economic growth rate (GDP) has been found to be relatively an insignificant variable in explaining bank profitability. The impact of economic growth rate on profitability has been found to be positive in some cases, as for private sector banks and foreign banks. This confirms to the hypothesized sign in the study. The studies that suggest a positive association between bank profitability and economic growth rate are Heffernan and Fu (2008), Dietrich and Wanzanried (2009), Alper and Anbar (2011), Ayele (2012), Naseem et al. (2012), Swamy (2013), Sinha and Sharma (2016), Ozili (2015), Nessibi (2016), Kohlscheen, Murcia and Contreras (2018), Xu, Hu and Das (2019), Al-Homaidi et al. (2018), and Le and Ngo (2020). Majority of these studies also fail to confirm a significant impact of economic growth rate on bank profitability.

  The inflation rate (INF) and bank profitability relationship has turned out to be positive and insignificant for major part of the determinant analysis. However, in the case of public sector banks, inflation rate is found to influence profitability (NIM) positively and significantly. This positive association confirms to the expected sign in

the study and is consistent with the literature reviewed, to name some of them, Athanasoglou, Delis and Staikouras (2006), Alexiou and Sofoklis (2009), Alper and Anbar (2011), Naseem et al. (2012), San and Heng (2013), Nessibi (2016), Mbekomize and Mapharing (2017), Al-Homaidi et al. (2018), Mohanty and Krishnankutty (2018), and Le and Ngo (2020).

Profitability of scheduled commercial banks is quite insensitive to changes in economic growth rate as well as to inflation rate with an elasticity of as low as 0.03 percent and 0.04 percent, respectively. Besides, the nature of relationship between macroeconomic variables and bank profitability is found to be contrary to the proposed hypothesis and are also insignificant.

The results of the determinant analysis in the present study suggest that financial variables such as CRAR, Log TA, CIR, GNPA and LAR have a significant impact on bank profitability besides confirming to their a priori signs. BPE and $PROF_{-1}$ are found to be insignificant determinants although they are consistent with their hypothesized relationship with PROF. The non-financial variables, ΔBR and ATM have a significant and positive influence on bank profitability and confirm to their expected signs. Overall, the macroeconomic variables have not been witnessed to be significant in explaining bank profitability.

The results for the 'With ATM' model for scheduled commercial banking sector reveals that all the explanatory variables share a relatively inelastic ($e<1$) relationship with bank profitability ranging between 0.01 and 0.60. Profitability for scheduled commercial banks in India is not very sensitive to changes in the financial variables, non-financial variables, and macroeconomic variables taken in the study. Yet, financial variables and non-financial variables do bring about noticeable and significant changes in profitability of banks.

6.3 Inferences, Suggestions and Policy Recommendations

Based on the empirical findings of the study, the following inferences, suggestions, and policy recommendations are discussed for quantitative and qualitative development of the Indian banking industry.

- The empirical results from bank performance analysis in the present study reveal that scheduled commercial banks in India have witnessed rising concerns over the post financial crisis period. Banks have reported rising non-performing assets, falling profitability, higher liquidity, poor credit advancement and earnings, lower cost efficiency, and high dependency on borrowed funds as compared to owned funds.

- The Indian commercial banks are adequately capitalized and sound with CRAR above the Basel standards. However, foreign banks have maintained the highest capital adequacy ratio, indicating excess funds lying idle with these banks. Foreign banks can use these funds for business expansion and profit generation, besides contribute to supply of funds for different sectors of the economy.

- After the global financial crisis, domestic banks in India have been found to have suffered from issues of declining profitability. The most important factor responsible for falling profitability of domestic banks is their deteriorating asset quality. Banks need to adopt strict credit policies, proper evaluation of proposed loan projects, and subsequent monitoring to reduce the probability of assets turning into bad debts.

- Cost efficiency plays an important role in the performance of banks. Public and private sector banks are largely cost efficient exhibiting declining operating costs to income. Foreign banks have higher cost to income ratio than the overall average of Indian banks of 20%. Rising cost inefficiency leads to falling profits. Hence, banks need to focus on reducing their operating cost and also on offering other banking services that are non-fund fee-based services that can enhance the revenue generating capabilities of banks.

- Indian commercial banks have reported increasing productivity in terms of high business per employee and business per branch. However, the period of economic slowdown after financial crisis has witnessed a fall in profit per employee of public and private sector banks. During this phase, non-performing assets were on a rise and profits were falling for these banks. For enhancing business and profits, banks need to invest their deposits in income generating assets.

- Public and private sector banks faced problems of non-performing assets after 2011. Public sector banks have been the worst hit by NPA crisis. Poor asset quality have led to fall in profitability for these banks. Increasing non-performing assets also calls for

higher provisioning requirements. Although banks expanded their business significantly, they were crippled by the burden of bad loans. Banks require a continuous credit assessment and risk management mechanism. Banks need to necessitate organizational restructuring, improvement in managerial efficiency, and skill upgradation of employees for proper assessment of credit worthiness of borrowers. Effective management information system needs to be implemented to monitor early warning signals about the sanctioned loan projects. It is also important for the banking system to be equipped with prudential norms to minimize problems of NPA.

- Resource utilization by public and private sector banks is within the preferred range of 65-75%. However, foreign banks have very high credit-deposit ratios as they resort to aggressive lending strategy. Although banks with such aggressive financing approach have often faced bad debt issues, the foreign banks have been able to manage lower non-performing assets. Banks need to maintain credit-deposit ratio within the preferred industry range to avoid future problems of capital inadequacy and NPA.

- Risks for the Indian banking industry have magnified on account of poor liquidity management by banks coupled with falling profitability, deteriorating asset quality and cost efficiency. Public sector banks have maintained higher liquidity than the industry benchmark. Private sector banks have managed their current ratio within the preferred range of 1.33, while foreign banks have retained very low liquidity. Banks with high liquidity may stock idle funds and lose the opportunity to expand their business and profits. On the other hand, banks with very low liquidity are subject to chances of possible liquidity crisis. Aggressive lending by foreign banks leave fewer resources for spare liquid reserves. Banks need to adopt proper asset-liability management and assessment to enhance their business without the threat of becoming illiquid.

- Solvency or financial leverage is very critical to banks as it affects the long-term financial viability of banks. The industry average for debt-equity ratio is much higher than the RBI recommended ratio of 3:1. Banks need to reduce their dependency on borrowed funds to keep a check on their long-term financial risks.

- The determinant analysis reveals that financial and non-financial variables have a significant impact on profitability of scheduled commercial banks in India. However, macroeconomic variables are insignificant determinants of bank profitability.

  Financial variables such as capital adequacy ratio, log of total assets, cost to income ratio, gross non-performing asset ratio, and liquid asset ratio significantly influence bank profitability. Adequately capitalized banks tend to be more profitable, while banks with bigger size of total assets, higher operating costs, mounting bad debts, and large proportion of liquid assets tend to witness a fall in their profitability. An increase in the non-financial variables such as number of bank branches and number of ATMs tend to significantly increase bank profitability.

- Banks need to maintain adequate capital adequacy to ensure financial soundness. Appropriate size of total assets and liquid assets have to be managed by banks to augment profitability. The study suggests that it is imperative for banks to lower their operating costs and non-performing assets to improve profitability.

- Bank expansion by way of increase in branch network ensures wider and deeper geographical penetration, better business, and higher profits. Banks can also play a crucial role in reaching the last mile and achieving the objectives of financial inclusion, bringing about balanced development, and accelerating economic growth. As banks need to build a low-cost operating model to enhance profitability, they can have lean branches with fewer staff and more number of touch-point kiosks.

- The assessment of banking stability over the post crisis period highlights asset quality, profitability, and operating efficiency as the three major risk dimensions and triggers of financial instability in commercial banks. Banks need to focus on improving these parameters for sound, sustainable, and healthy growth.

- Technology needs to be harnessed satisfactorily in banking operations as effective deployment of technology by banks can contribute in business expansion and increase in customers. Efficient technology can lower the costs and facilitate off-site banking. Banks need to offer customized, flexible and varied options of banking products and services to meet the needs of economy and society.

- In the era of new age banking, major disruptions have underpinned the banking industry with increasing digitalization and fintech adoption. Banks are experimenting beyond the basics of digital banking and universal banking services. Using artificial intelligence, machine learning, automation, and analytics; banks need to aim at speeding bank processes, blend human-centric banking services, augment technology-driven customer engagement, and deliver personalized financial wellness to rebuild trust with customers.

- Data analytics has a huge potential for banks towards achieving their goals of higher profitability, productivity, and improved asset quality. It helps banks to establish customer identity, manage credit risk effectively, detect and prevent frauds and to maintain customer relationship. It also helps banks to manage their asset quality by analysing credit worthiness of customers using the available data from credit bureaus.

- Regulators need to take steps to support the growth of banking sector by constituting expert groups for recovering loans and ensuring lower NPA for banks. As a policy recommendation, the study suggests enhanced supervision by regulators for credit and liquidity risk management by banks.

- Regulation should be extended to include policies relating to consumer protection, data management, and privacy. Regulators should provide for customized solutions and data driven design for establishing regulations on minimum technology standards and security practices for fintech apps and digital lending.

- There is a need to improve the awareness and spread of financial literacy with collaborative efforts of various stakeholders and regulators, to create an empowering ecosystem enabling people to achieve and sustain improved standard of living for meaningful inclusion of financial services.

- Regulators must take special care to foster the use of digital technology in a transparent way that minimises the possible behavioural biases of consumers and investors. Regulators need to conceptualize an adaptive, outcome-focused regulatory framework with a responsive and iterative approach in the long run.

6.4 Limitations of the Study and Scope for Future Research

The present study has engaged a detailed analysis of performance of scheduled commercial banks in India. Nonetheless, there are certain limitations of the study. Financial performance of commercial banks has been exclusively examined in the study while it could also be valuable to assess the social performance of banks. The analysis has been carried out for over a sufficiently long period of time covering almost two decades of post-reform period. An evaluation of bank performance could be taken up for segregated time periods for better understanding of the impact of crisis in banking industry. The study has considered five banks from each of the bank group for performance analysis. It would be of interest to conduct a performance assessment of all the banks in the industry for wider policy inferences.

The empirical findings of the study are restricted to bank performance analysis of commercial banks in India. For a global banking outlook, the study could be extended to include a cross-border bank performance analysis. Financial technology is paramount in banking sphere in the age of modern banking. Hence, a deeper investigation of the role and impact of technology on bank performance could be pursued for future research.

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