



INTERNATIONAL JOURNAL OF TRENDS IN EMERGING RESEARCH AND DEVELOPMENT

INTERNATIONAL JOURNAL OF TRENDS IN EMERGING RESEARCH AND DEVELOPMENT

Volume 2; Issue 5; 2024; Page No. 157-163

Received: 01-06-2024
Accepted: 06-07-2024
Published: 08-09-2024

An Investigation into The Performance of Indian Commercial Banks

¹Shah Viral Dilipbhai and ²Dr. Hemant Kumar

¹Research Scholar, Department of Commerce, Maharaja Agrasen Himalayan Garhwal University, Uttarakhand, India

²Professor, Department of Commerce, Maharaja Agrasen Himalayan Garhwal University, Uttarakhand, India

DOI: <https://doi.org/10.5281/zenodo.20024922>

Corresponding Author: Shah Viral Dilipbhai

Abstract

This paper takes a closer look at how Indian commercial banks performed financially from 2015 to 2020, covering both public sector banks (PSBs) and private sector banks (PvSBs). By tapping into secondary data from the Reserve Bank of India (RBI), annual reports from selected banks, and the Centre for Monitoring Indian Economy (CMIE) database, the study utilizes the CAMEL framework-focusing on Capital Adequacy, Asset Quality, Management Efficiency, Earnings, and Liquidity-along with panel data regression techniques. The results show that the Indian banking sector faced notable challenges in asset quality, especially between 2016 and 2018, largely due to the Asset Quality Review (AQR) launched by the RBI. While private sector banks outperformed their public counterparts in terms of profitability and asset quality, public sector banks still held a significant position in the market. The study wraps up by highlighting that factors like capitalization, credit risk, bank size, and macroeconomic elements such as GDP growth are key players in determining how well banks perform in India.

Keywords: Indian commercial banks, CAMEL model, non-performing assets (NPA), Return on assets (ROA), Capital adequacy ratio (CAR), Public sector banks, Private sector banks, Panel data

1. Introduction

The banking sector plays a crucial role in any economy, acting as the main link between those who save and those who borrow, while also serving as a channel for implementing monetary policy. In India, commercial banks have long been at the heart of financial growth, helping to mobilize capital and provide credit to key areas like agriculture, small and medium enterprises, and infrastructure. Since the liberalization of the Indian economy in 1991, along with the reforms introduced by the Narasimham Committee in 1991 and 1998, the banking landscape has undergone significant changes. These reforms opened the door for private and foreign banks, deregulated interest rates, lowered statutory reserve ratios, and established risk-based capital norms in line with the Basel framework.

The years from 2015 to 2020 mark a particularly telling chapter in the history of Indian banking. After a period of aggressive lending-especially by public sector banks-non-

performing assets (NPAs) skyrocketed to alarming levels. The RBI's Asset Quality Review (AQR) in 2015 required banks to openly acknowledge stressed assets, leading to a noticeable spike in reported gross NPAs. By March 2018, the Gross NPA ratios for public sector banks had hit a staggering 14.58%, which severely affected their profitability, capital adequacy, and ability to lend. In contrast, private sector banks like HDFC Bank, ICICI Bank, and Axis Bank showed a greater ability to withstand these challenges and operate efficiently.

In light of this situation, this research delves into the performance of Indian commercial banks from various angles: capital adequacy, asset quality, management efficiency, earnings quality, and liquidity. The goal is to pinpoint the main factors influencing bank performance, compare how public and private sector banks stack up against each other, and draw meaningful conclusions that can guide regulators, investors, and bank management.

2. Literature Review

The body of research on bank performance in India has really grown over the past few decades, using a wide range of methods from classic ratio analysis to more sophisticated econometric techniques. Makkar and Singh (2013) ^[10] carried out an in-depth comparative study of 37 Indian commercial banks covering the years 2006–07 to 2010–11, utilizing the CAMELS rating system. Their research uncovered notable differences in capital adequacy, asset quality, and liquidity between public and private sector banks, with private banks consistently outperforming their public counterparts in terms of earnings and management efficiency.

Barua, Roy, and Raychaudhuri (2016) ^[4] took a closer look at the structure, conduct, and performance of Indian commercial banks through the lens of the structure-conduct-performance (SCP) framework. They discovered a negative correlation between market concentration and profitability, which led them to reject the SCP hypothesis in the Indian context. They identified capitalization, credit risk, leverage, and ownership structure as the key factors influencing bank profitability. Interestingly, their study found that the global financial crisis did not have a significant effect on the profitability of Indian banks.

Sarkar and Rakshit (2021) ^[20] explored what drives commercial bank performance in India from 2000 to 2017, using the generalized method of moments (GMM) for a panel of both public and private sector banks. Their findings confirmed that macroeconomic factors-particularly GDP growth, inflation, and lending interest rates-have a substantial impact on bank performance, as indicated by metrics like ROA, ROE, and net interest margin (NIM).

Almaqtari *et al.* (2019) ^[2] took a deep dive into what drives profitability in Indian commercial banks by analyzing panel data from 69 banks between 2008 and 2017. They discovered that factors like bank size, capital adequacy, deposits, asset quality, and GDP growth play a significant role in profitability. Interestingly, they also found that operating efficiency, as measured by the cost-to-income ratio, negatively impacts return on assets (ROA).

In another study, Bezawada and Adaelli (2020) ^[5] looked at corporate governance and board characteristics across 34 scheduled commercial banks from 2009 to 2018. Their research revealed that a larger board size and a higher proportion of independent directors positively influence ROA, while having more executive directors seems to hurt profitability.

Srinivasan and Britto (2017) ^[22] focused on the financial performance of selected commercial banks in India, concluding that private sector banks tend to have stronger capital buffers and lower non-performing assets (NPAs) compared to public sector banks, aligning with the efficiency hypothesis. Overall, the literature suggests that asset quality, indicated by the NPA ratio, is the most critical

factor affecting the performance of Indian banks in the post-2014 era.

3. Objectives of the Study

The principal objectives of this research are as follows:

1. To assess the financial performance of Indian commercial banks during the period 2015–2020 using the CAMEL framework.
2. To compare the performance of public sector banks and private sector banks across key performance indicators.
3. To identify the bank-specific and macroeconomic determinants of profitability (ROA and ROE) of Indian commercial banks.
4. To evaluate the impact of non-performing assets on the earnings and capital adequacy of the banking sector.
5. To derive policy implications for bank regulation, governance, and performance improvement.

4. Research Methodology

4.1 Data Sources and Sample

The research relies on secondary data gathered from a variety of trustworthy sources. Financial information for individual banks-including balance sheets, profit and loss statements, and essential financial ratios-has been extracted from the annual reports of the chosen banks as well as the Reserve Bank of India's publication "Statistical Tables Relating to Banks in India" (various editions from 2015 to 2020). Macroeconomic data comes from the World Bank's World Development Indicators (WDI) database. Additionally, bank-specific panel data is enhanced by the CMIE Prowess database.

This study examines a sample of 20 scheduled commercial banks-10 from the public sector and 10 from the private sector-selected based on their asset size and market capitalization as of 2015. The public sector group includes the State Bank of India (SBI), Punjab National Bank (PNB), Bank of Baroda (BoB), Canara Bank, Bank of India, Union Bank, Indian Bank, Central Bank of India, UCO Bank, and Indian Overseas Bank. Meanwhile, the private sector group features HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, Yes Bank, IndusInd Bank, Federal Bank, South Indian Bank, RBL Bank, and Karur Vysya Bank.

4.2 Analytical Framework

The CAMEL model, which stands for Capital Adequacy, Asset Quality, Management Efficiency, Earnings, and Liquidity, serves as the main analytical framework for this study. Each of these components is measured using specific financial ratios, as shown in Table 1 below. Alongside ratio analysis, the study also utilizes panel data regression techniques, particularly the Generalised Method of Moments (GMM) estimator, to address endogeneity and explore the factors influencing profitability.

Table 1: CAMEL Framework - Indicators and Proxy Ratios used in the Study

CAMEL Component	Indicator	Proxy Ratio
Capital Adequacy	Capital to Risk-Weighted Assets	CRAR (%)
Capital Adequacy	Debt-Equity Ratio	Total Debt / Equity
Asset Quality	Gross NPA Ratio	Gross NPA / Gross Advances (%)
Asset Quality	Net NPA Ratio	Net NPA / Net Advances (%)
Management Efficiency	Business per Employee	(Deposits + Advances) / No. of Employees
Management Efficiency	Profit per Employee	Net Profit / No. of Employees
Earnings	Return on Assets	Net Profit / Total Assets (%)
Earnings	Return on Equity	Net Profit / Shareholders' Equity (%)
Earnings	Net Interest Margin	Net Interest Income / Earning Assets (%)
Liquidity	Liquid Asset to Total Assets	Liquid Assets / Total Assets (%)
Liquidity	Credit-Deposit Ratio	Total Advances / Total Deposits (%)

4.3 Regression Model

The empirical model to identify determinants of bank profitability (measured as ROA) is specified as follows:

$$ROA_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 GNPA_{it} + \beta_3 SIZE_{it} + \beta_4 NIM_{it} + \beta_5 GDP_t + \beta_6 INF_t + \epsilon_{it}$$

In this context, 'i' represents the individual bank, 't' stands for the year, CAR refers to the capital adequacy ratio, GNPA indicates the gross NPA ratio, SIZE is the natural logarithm of total assets, NIM is the net interest margin, GDP is the real GDP growth rate, INF is the inflation rate

measured by the WPI, and ϵ is the error term.

5. Data Analysis and Findings

5.1 Capital Adequacy: Capital adequacy, which we measure using the Capital to Risk-Weighted Assets Ratio (CRAR), shows how well a bank can handle unexpected losses. According to the RBI, the minimum CRAR required under Basel III standards is set at 9% (or 10.5% if you include the capital conservation buffer). In Table 2, you can see the average CRAR for various public and private sector banks throughout the study period.

Table 2: Mean Capital Adequacy Ratio - PSBs vs. PvSBs (2015–2020).

Year	PSB Mean CRAR (%)	PvSB Mean CRAR (%)	SCB Average CRAR (%)
2015–16	12.1	15.6	13.3
2016–17	11.7	15.9	13.5
2017–18	11.3	16.2	13.8
2018–19	12.2	16.5	14.3
2019–20	13.1	17.1	14.8

Source: RBI Annual Report, various issues; authors' calculations.

Private sector banks have consistently kept their Capital to Risk-Weighted Assets Ratio (CRAR) significantly higher than that of public sector banks. The decline in capital adequacy for public sector banks (PSBs) during 2017–18 can be linked to increased provisioning needs that arose from the Asset Quality Review (AQR) which mandated the recognition of non-performing assets (NPAs). However, after the Government of India stepped in with a recapitalization effort-injecting around ₹2.11 lakh crore into PSBs between 2017 and 2019-the CRAR began to bounce back. By March 2020, the overall CRAR had climbed from 12.94% in March 2015 to about 14.8%, indicating a stronger

capital buffer in the system.

5.2 Asset Quality

Asset quality stands out as the most vital aspect of the banking sector's health during the period we studied. After the RBI's Asset Quality Review (AQR) in 2015, the Gross Non-Performing Asset (NPA) ratios for Indian banks took a significant hit, as it required the reclassification of many previously restructured loans to be marked as non-performing. By March 2018, public sector banks saw their Gross NPA ratio soar to a staggering 14.58%, signaling a serious crisis in credit quality.

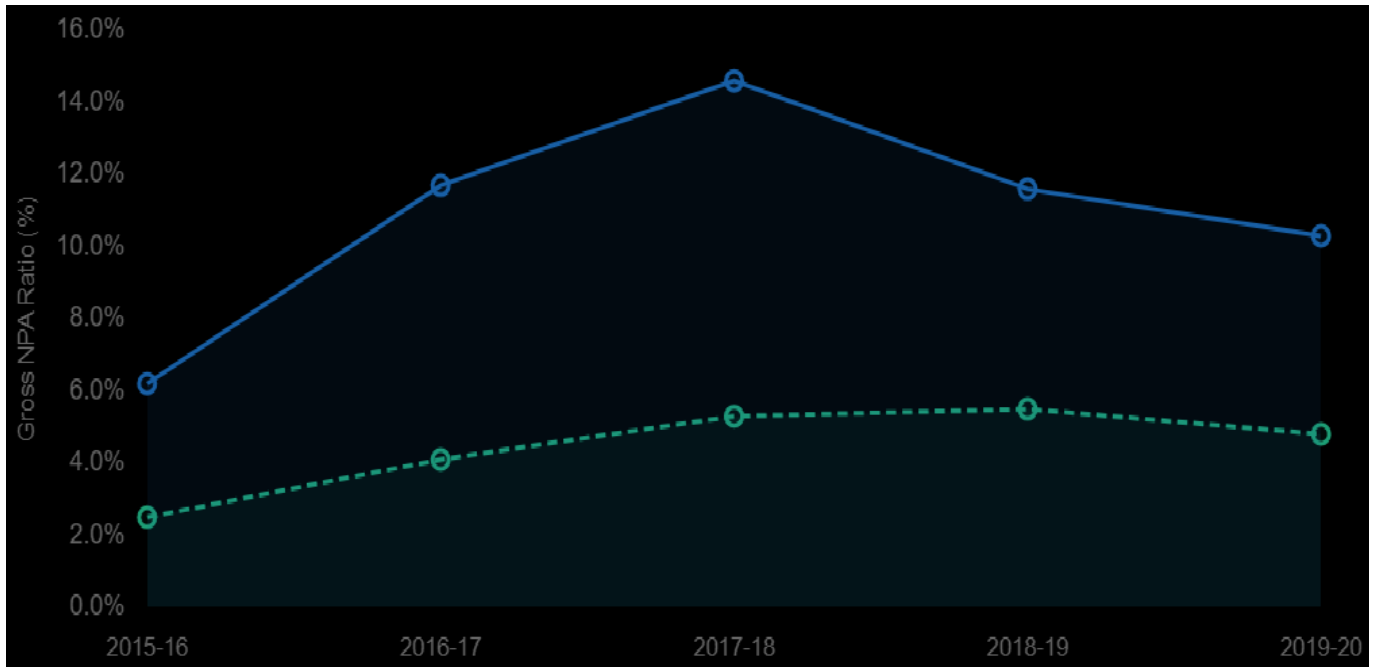


Fig 1: Gross NPA Ratio - PSBs vs. PvSBs (2015–2020). Source: RBI Financial Stability Reports

The NPA crisis mainly hit public sector banks, largely due to hefty exposures in the infrastructure and steel sectors, along with willful defaults and some gaps in credit assessment and monitoring after loans were disbursed. On the other hand, private sector banks saw a slight rise in NPAs-partly because of stress in ICICI Bank's corporate loan portfolio-but they still boasted much better asset quality compared to their public sector peers. The launch of the Insolvency and Bankruptcy Code (IBC) in 2016, along with updates to the SARFAESI Act and the bolstering of Debt Recovery Tribunals, created solid frameworks for tackling NPAs, leading to a steady improvement starting in 2019.

5.3 Earnings Performance

Earnings quality is evaluated using metrics like Return on Assets (ROA) and Return on Equity (ROE). The NPA crisis took a significant toll on the profitability of public sector banks, with several institutions-including Punjab National Bank, Central Bank of India, and Indian Overseas Bank-reporting negative ROA for several years from 2016 to 2019. You can find the comparative earnings profile in Table 3.

Table 3: Return on Assets and Return on Equity - PSBs vs. PvSBs (2015–2020).

Year	PSB ROA (%)	PvSB ROA (%)	PSB ROE (%)	PvSB ROE (%)
2015–16	-0.20	1.52	-2.50	13.80
2016–17	-0.19	1.48	-2.40	13.10
2017–18	-0.22	1.45	-2.74	12.80
2018–19	0.03	1.50	0.35	13.50
2019–20	0.18	1.53	2.10	13.90

Source: RBI Statistical Tables; annual reports of sampled banks.

The stark difference in profitability between public and private sector banks from 2015 to 2018 really highlights the structural benefits that private banks enjoy. They tend to

have more cautious credit origination standards, better technology adoption, stronger risk management practices, and more effective corporate governance. The rebound in profitability for public sector banks starting in 2018-19 can be attributed to the delayed effects of government recapitalization, resolutions driven by the Insolvency and Bankruptcy Code (IBC), and improved provisioning coverage.

5.4 Management Efficiency

When we talk about management efficiency, we look at metrics like business per employee and profit per employee. Private sector banks show significantly better staff productivity ratios, thanks to their greater investments in technology, branch optimization, and digital service channels. An independent sample t-test on the profit per employee ratio reveals a statistically significant difference ($p < 0.05$) between public and private sector banks, which aligns with the research findings of Suresh and Pradhan (2023) [24]. During the study period, private sector banks averaged around ₹18.4 crore in business per employee, while public sector banks averaged about ₹12.6 crore, showcasing the operational efficiency edge that private banks have.

5.5 Liquidity

Indian commercial banks have to follow the mandatory Statutory Liquidity Ratio (SLR) and Cash Reserve Ratio (CRR) requirements set by the RBI. Throughout the study period, the SLR was gradually lowered from 21.5% to 18.0%, which boosted the loanable resources available to banks. The ratio of liquid assets to total assets remained generally sufficient across the banking sector. Between 2015 and 2020, the credit-deposit (CD) ratio for scheduled commercial banks stayed around 72–75%, showing a reasonable use of resources while still keeping liquidity buffers intact. However, public sector banks tended to have higher SLR investments compared to their private sector

counterparts, largely due to their cautious approach in light of rising non-performing assets (NPAs).

5.6 Regression Results: Determinants of ROA

The panel GMM regression results are summarized in Table 4. Here, the dependent variable is Return on Assets (ROA). The model uses the first-difference GMM estimator (Arellano-Bond) to account for dynamic endogeneity.

Table 4: Panel GMM Regression Results - Determinants of ROA (2015–2020). *** $p < 0.01$, ** $p < 0.05$, NS = not significant. Sargan test of over-identifying restrictions: $p = 0.43$. AR(2) test: $p = 0.31$.

Variable	Coefficient	Std. Error	Significance
Lagged ROA (ROA _{t-1})	0.412	0.087	***
Capital Adequacy Ratio (CAR)	0.183	0.041	***
Gross NPA Ratio (GNPA)	-0.276	0.053	***
Bank Size (ln Total Assets)	-0.094	0.039	**
Net Interest Margin (NIM)	0.318	0.062	***
GDP Growth Rate	0.097	0.031	***
Inflation (WPI)	-0.041	0.028	NS
Constant	-0.891	0.312	***

The findings present some noteworthy insights. Capital adequacy (CAR) has a strong positive and statistically significant effect on ROA, supporting the idea that banks

with solid capital are generally more profitable, as noted by Albuлесcu (2015)^[1] and Sarkar and Rakshit (2021)^[19]. On the flip side, the gross NPA ratio negatively impacts ROA, reinforcing the common belief that a decline in credit quality is a major hurdle for profitability in Indian banks. Specifically, a 1% rise in the gross NPA ratio corresponds to a 0.276% drop in ROA, assuming other factors remain unchanged.

When it comes to bank size, measured by the natural logarithm of total assets, the negative coefficient suggests that larger banks may face diseconomies of scale-likely due to the bureaucratic inefficiencies often found in big public sector banks-aligning with the research of Barua *et al.* (2016)^[4] and Almaqtari *et al.* (2019)^[2]. The net interest margin shows a significant positive relationship, indicating that banks with a larger gap between lending and borrowing rates tend to achieve better asset returns. Additionally, GDP growth positively influences ROA, highlighting the pro-cyclical nature of banking profitability in India. However, inflation doesn't seem to have a statistically significant impact in this context.

5.7 Comparative Performance Summary

Table 5: Summary Comparative CAMEL Assessment - PSBs vs. PvSBs (2015–2020).

CAMEL Dimension	Public Sector Banks	Private Sector Banks	Overall Assessment
Capital Adequacy	Adequate, recovering	Strong, consistent	PvSBs superior
Asset Quality	Severely stressed (2016–18)	Moderate stress	PvSBs superior
Management Efficiency	Lower staff productivity	Higher staff productivity	PvSBs superior
Earnings	Negative ROA (2015–18)	Consistently positive ROA	PvSBs significantly superior
Liquidity	Adequate; higher SLR	Adequate; better CD ratio	PvSBs marginally superior

6. Discussion

This study sheds light on the structural weaknesses in the Indian banking system during the period examined. The non-performing asset (NPA) crisis, while a widespread issue, was particularly severe in public sector banks. This situation reflects their historical loan portfolios tied to capital-heavy sectors like infrastructure, power, and steel, along with the political factors influencing credit distribution. The Asset Quality Review (AQR) of 2015, though painful in the short term, was essential for restoring the health of bank balance sheets. As noted by Barua *et al.* (2016)^[4], the ownership structure-especially the government's majority stake in public sector banks-plays a crucial role in the profitability differences seen between the two types of banks.

Throughout the study period, private sector banks consistently showed a significantly higher Capital to Risk-Weighted Assets Ratio (CRAR), which highlights their effective capital management and better access to equity markets. This advantage in capitalization led to lower risk costs and improved credit discipline. The impressive earnings of private banks-evidenced by a steady return on

assets (ROA) of around 1.5%-can be attributed not just to superior asset quality but also to wider net interest margins, enhanced cost efficiency driven by technology, and more innovative strategies for diversifying fee income.

The positive link between GDP growth and bank profitability emphasizes the cyclical nature of earnings in Indian banks. From 2015 to 2020, GDP growth slowed from about 8% in 2016-17 to roughly 4% in 2019-20, with the last year particularly affected by the COVID-19 pandemic and the resulting drop in demand. This economic slowdown added to the existing stress already evident in bank balance sheets.

Corporate governance has become a key player in the financial landscape. According to Bezawada and Adaelli (2020)^[5], having a well-composed board-especially with a good number of independent directors-can really boost return on assets (ROA) and help lower non-performing assets (NPAs) in Indian banks. This insight is particularly important for policymakers, as public sector banks (PSBs) have often struggled with limited board independence due to government appointments and political meddling in lending decisions.

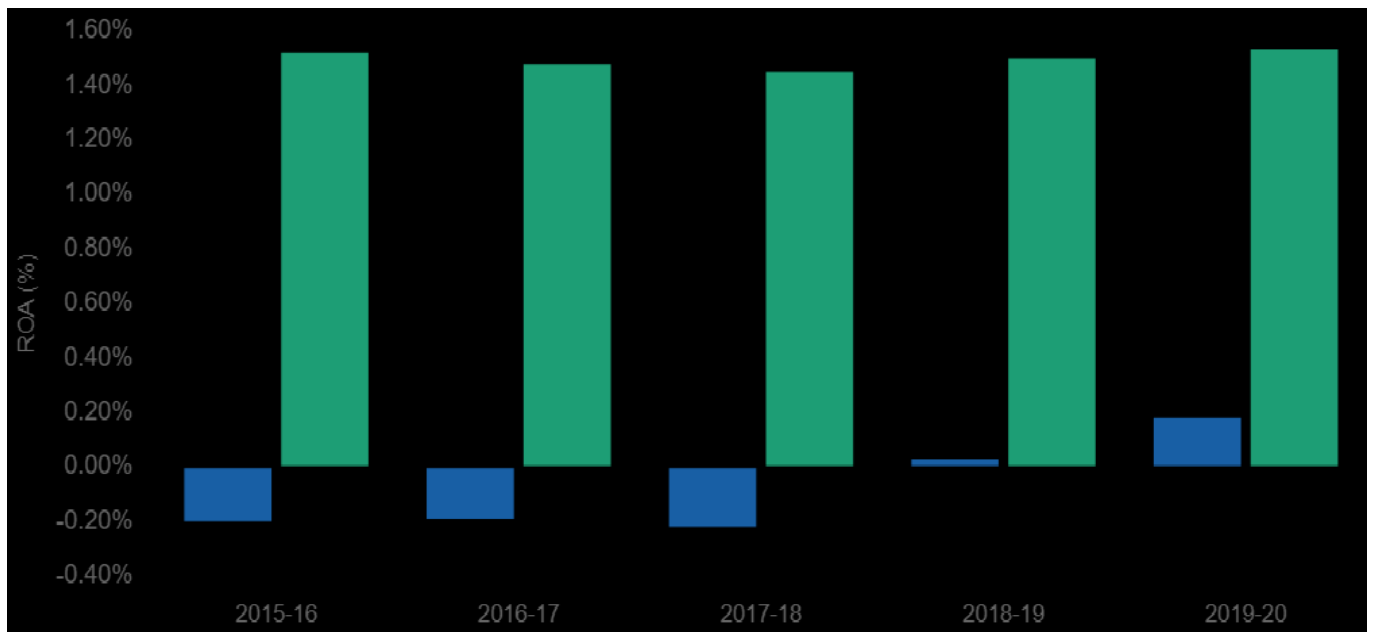


Fig 2: ROA % (2015–2020).

7. Conclusion and Policy Recommendations

This study looked into how Indian commercial banks performed between 2015 and 2020, using the CAMEL framework and panel data regression. Here are the main takeaways.

First off, the Indian banking sector went through a tough time from 2015 to 2018, mainly due to a decline in asset quality among public sector banks. The Asset Quality Review turned out to be essential and ultimately helpful, even though it revealed the extent of the accumulated credit losses. Secondly, private sector banks showed much better performance across all CAMEL metrics, thanks to stronger governance, more cautious credit standards, and improved operational efficiency. Thirdly, factors like capital adequacy, gross NPA ratio, net interest margin, and GDP growth are the key drivers of bank profitability, with the NPA ratio being the most significant negative factor. Lastly, the government's 4R strategy-recognition, resolution, recapitalization, and reform-played a role in the gradual recovery of public sector banks from 2018-19 onward.

Based on these insights, let's dive into some policy recommendations. Regulators should focus on bolstering the IBC ecosystem to accelerate the resolution of large NPAs and cut down recovery times. Public sector banks need to boost board independence by minimizing the sway of government-nominated directors, in line with the P.J. Nayak Committee's suggestions from 2014. We should also fast-track the implementation of the Expected Credit Loss (ECL) provisioning norms that the RBI has proposed for 2022, as this will help build more proactive capital buffers. Additionally, public sector banks ought to prioritize investing in digital transformation to close the efficiency gap with their private sector peers. Lastly, it's essential to establish robust credit risk management frameworks, particularly early warning systems and sector concentration limits, to prevent future NPA cycles.

8. Limitations and Scope for Future Research

This study does have some limitations worth mentioning.

For starters, the panel only includes 20 banks, leaving out cooperative banks and regional rural banks, which play a crucial role in the Indian financial landscape. Additionally, the study wraps up in 2020, meaning it misses out on the full effects of the COVID-19 pandemic on bank performance. Looking ahead, future research could broaden the scope to include foreign banks, investigate how the rise of digital banking affects bank efficiency through Data Envelopment Analysis (DEA), and delve into how FinTech competition influences the interest margin dynamics of Indian commercial banks

9. References

1. Albuлесcu CT. Banks' profitability and financial soundness indicators: a macro-level investigation in emerging countries. *Procedia Economics & Finance*. 2015;23:203–209.
2. Almaqtari FA, Al-Homaidi EA, Tabash MI, Farhan NH. The determinants of profitability of Indian commercial banks: a panel data approach. *International Journal of Finance & Economics*. 2019;24(1):168–185.
3. Al-Homaidi EA, Tabash MI, Farhan NH, Almaqtari FA. Bank-specific and macro-economic determinants of profitability of Indian commercial banks: a panel data approach. *Cogent Economics & Finance*. 2018;6(1):1548072.
4. Barua R, Roy M, Raychaudhuri A. Structure, conduct and performance analysis of Indian commercial banks. *South Asian Journal of Management*. 2016;23(3):30–49. doi:10.1177/2277978716671042.
5. Bezawada B, Adaelli SR. Corporate governance, board characteristics and performance of Indian banks: an empirical study. *International Journal of Economics & Financial Issues*. 2020;10(3):83–87.
6. Charnes A, Clark CT, Cooper WW, Golany B. A developmental study of data envelopment analysis in measuring the efficiency of maintenance units in the US Air Force. *Annals of Operations Research*. 1984;2(1):95–112.

7. Dietrich A, Wanzenried G. The determinants of commercial banking profitability in low-, middle-, and high-income countries. *Quarterly Review of Economics & Finance*. 2014;54(3):337–354.
8. Goddard J, Molyneux P, Wilson JOS. The profitability of European banks: a cross-sectional and dynamic panel analysis. *The Manchester School*. 2004;72(3):363–381.
9. Kumar M, Charles V, Mishra CS. Evaluating the performance of Indian banking sector using DEA during post-reform and global financial crisis. *Journal of Business Economics & Management*. 2016;17(1):156–172.
10. Makkar A, Singh S. Analysis of the financial performance of Indian commercial banks: a comparative study. *Indian Journal of Finance*. 2013;7(5):41–49.
11. Government of India, Ministry of Finance. Report on banking sector reforms (Narasimham Committee). New Delhi: Government of India; 1998.
12. Pasiouras F, Kosmidou K. Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business & Finance*. 2007;21(2):222–237.
13. Petria N, Capraru B, Ihnatov I. Determinants of banks' profitability: evidence from EU 27 banking systems. *Procedia Economics & Finance*. 2015;20:518–524.
14. Reserve Bank of India. Financial stability report. Mumbai: RBI Publications; 2016–2020.
15. Reserve Bank of India. Statistical tables relating to banks in India. Mumbai: RBI; 2015–2020. Available from: <https://rbi.org.in>
16. Reserve Bank of India. Annual report 2015–16. Mumbai: RBI Publications; 2016.
17. Reserve Bank of India. Report on trend and progress of banking in India 2018–19. Mumbai: RBI Publications; 2019.
18. Sangami M, Nazir T. Analysing financial performance of commercial banks in India: application of CAMEL model. *Pakistan Journal of Commerce & Social Sciences*. 2010;4(1):40–55.
19. Sarkar S, Rakshit D. Factors influencing the performance of commercial banks: a dynamic panel study on India. *FIIB Business Review*. 2021. doi:10.1177/23197145211021564.
20. Sarkar J, Sarkar S. Bank ownership, board characteristics and performance: evidence from commercial banks in India. Mumbai: Indira Gandhi Institute of Development Research; c2016. (Working paper 2016-016).
21. Sharma M, Kumar K. Impact of financial reforms on the profitability of Indian commercial banks. *Journal of Finance & Economics*. 2013;1(3):52–60.
22. Srinivasan P, Britto J. Analysis of financial performance of selected commercial banks in India. *Theoretical Economics Letters*. 2017;7(7):2134–2151.
23. Subbarayan A, Jothikumar J. Bank-specific, industry-specific and macroeconomic determinants of profitability of public sector banks in India: 2010–2016. *International Journal of Agricultural & Statistical Sciences*. 2017;13(2):655–662.
24. Suresh K, Pradhan SK. Evaluation of financial performance of banking sector in India. *Journal of Law & Sustainable Development*. 2023;11(4):e0894.
25. World Bank. World development indicators: India GDP growth rate. Washington (DC): World Bank; 2015–2020. Available from: <https://data.worldbank.org>

Creative Commons (CC) License

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY 4.0) license. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.