E-ISSN No : 2581-6195 | Volume : 7 | Issue : 7 | July 2024

ANALYSING THE IMPACT OF CAPITAL STRUCTURE ON THE PROFITABILITY OF PUBLIC SECTOR BANKS IN INDIA

Rami Hiral Ashok Bhai[1], Sneha R. Vyas[2]

ABSTRACT

Capital structure refers to the composition of a company's funding, primarily through debt and equity, which it uses to finance its operations and growth. In the banking industry, capital structure plays a crucial role in determining a bank's ability to absorb losses, manage risks, and comply with regulatory requirements. A well-optimized capital structure can lower the cost of capital, enhance profitability, and ensure long-term financial stability. Banks need to balance the benefits of debt, such as tax shields and lower cost compared to equity, with the potential risks of financial distress and bankruptcy. Effective capital management is vital for maintaining investor confidence, meeting regulatory capital adequacy standards, and supporting sustainable growth in the competitive banking environment. This study investigates the relationship between capital structure and profitability in three major public sector banks: State Bank of India (SBI), Bank of Baroda (BoB), and Bank of India (BoI). Using financial data spanning from 2018-19 to 2022-23, the research examines key financial metrics, including the net profit margin, net interest income to total funds ratio, and capital adequacy ratio, to discern patterns and impacts. The study reveals that while a robust capital adequacy ratio positively influences net profit margins, its impact on net interest income efficiency is less direct, indicating the multifaceted nature of financial performance determinants in the banking sector.

KEYWORDS: Capital Structure, Profitability, Public Sector Banks, State Bank of India, Bank of Baroda, Bank of India

[1] Ph.D. Research Scholar, Shri Govind Guru University, Godhra
[2] Shri Sarvajanik Commerce College, Godhara, Shri Govind Guru University, Godhra

HOW TO CITE THIS ARTICLE:
Rami Hiral Ashok Bhai, Sneha R. Vyas (2024). Analysing the Impact of Capital Structure on the Profitability of Public Sector Banks in India, International Educational Journal of Science and Engineering (IEJSE), Vol: 7, Issue: 7, 08-12

INTRODUCTION

Public sector banks (PSBs) in India play a pivotal role in the country's financial system and economic development. These banks are majority-owned by the government and are integral to implementing the state's economic policies and financial inclusion initiatives. Their primary objective is not just profit-making but also serving the broader socio-economic goals of the nation. PSBs have a widespread reach, often operating in rural and semi-urban areas where private banks have a limited presence. This extensive network helps in mobilizing savings from all corners of the country and channeling them into productive sectors. Historically, public sector banks have been instrumental in the development of India's banking sector. Post-independence, the Indian government nationalized several banks to bring them under state control, aiming to ensure a more equitable distribution of credit. The first major wave of nationalization occurred in 1969, followed by another in 1980. These measures were taken to direct funds towards key sectors like agriculture, small and medium enterprises (SMEs), and underdeveloped regions. Over the years, these banks have played a crucial role in supporting the government's developmental programs and in fostering financial inclusion.

Public sector banks in India are governed by various regulations and policies stipulated by the Reserve Bank of India (RBI) and the Ministry of Finance. These regulations ensure that PSBs maintain adequate capital reserves, adhere to prudent lending practices, and follow strict risk management protocols. Despite these regulations, PSBs have faced several challenges, particularly related to non-performing assets (NPAs). High levels of NPAs have often been a result of large corporate defaults, poor lending practices, and economic slowdowns. The government and the RBI have initiated multiple reforms to address these issues, including recapitalization plans and the implementation of the Insolvency and Bankruptcy Code (IBC). In recent years, public sector banks have undergone significant transformations to improve their efficiency and competitiveness. Technological advancements and digital banking initiatives have been key focus areas. PSBs are increasingly adopting digital platforms to enhance customer service, streamline operations, and reduce costs. The introduction of various digital payment systems and mobile banking services has also expanded their reach, making banking services more accessible to the masses. Additionally, mergers and consolidations among PSBs have

Research Paper

Copyright© 2024, IEJSE. This open-access article is published under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License which permits Share (copy and redistribute the material in any medium or format) and Adapt (remix, transform, and build upon the material) under the Attribution-NonCommercial terms.

been undertaken to create stronger and more resilient banking entities.

Despite the challenges, public sector banks continue to be the backbone of India's banking sector. They play a vital role in the implementation of government schemes such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), which aims to provide banking services to every household, and the Pradhan Mantri Mudra Yojana (PMMY), which focuses on providing credit to micro and small enterprises. PSBs also contribute significantly to the social and economic development of the country by providing credit for agriculture, infrastructure, and other priority sectors. Overall, public sector banks in India are crucial for the country's economic stability and growth. They serve a dual purpose of supporting the government's developmental agenda while striving to maintain profitability and financial health. Continued reforms, effective management of NPAs, and leveraging technology will be essential for these banks to sustain their pivotal role in India's financial landscape.

Capital structure refers to the mix of debt and equity that a company uses to finance its operations and growth. It is a crucial aspect of corporate finance because the composition of a firm's capital structure can significantly affect its overall risk profile and cost of capital. Companies strive to find an optimal capital structure that balances the benefits and costs of debt and equity financing to maximize shareholder value.

2. LITERATURE REVIEW

Kumar and Reddy (2018) analyzed the relationship between capital structure and profitability of public sector banks in India. Their study found that banks with higher equity ratios tend to exhibit better profitability indicators such as return on assets (ROA) and return on equity (ROE). They argued that a higher equity base reduces the cost of capital and provides a buffer against financial distress, leading to improved profitability. However, they also noted that excessively high equity ratios could indicate underutilization of financial leverage, which might not be optimal for all banks.

Sharma et al. (2019) conducted a comprehensive study on the capital structure of public sector banks in India and its impact on their financial performance. They found that a balanced mix of debt and equity is crucial for optimizing profitability. Their findings suggested that banks with moderate levels of debt tend to achieve better profitability due to the tax shield provided by interest payments. However, excessive reliance on debt was found to increase financial risk and negatively impact profitability. The study recommended that banks should carefully manage their capital structure to strike a balance between debt and equity.

Gupta and Mehta (2020) examined the effect of capital structure on the profitability of public sector banks using panel data analysis. Their study revealed a significant positive relationship between leverage and profitability, suggesting that banks with higher leverage ratios tend to have higher ROE. They attributed this to the efficient use of debt financing, which enhances shareholder returns. However, they also highlighted the importance of maintaining a sustainable level of debt to avoid excessive financial risk.

Patel and Joshi (2020) focused on the impact of capital adequacy on the profitability of public sector banks. Their findings indicated that well-capitalized banks are more profitable due to their ability to absorb losses and maintain customer confidence. They found that higher capital adequacy ratios (CAR) are associated with lower risk and higher profitability. The study suggested that regulatory measures aimed at improving capital adequacy can positively impact the financial performance of banks.

Rao and Singh (2021) investigated the impact of capital structure on the operational efficiency and profitability of public sector banks. Their study found that banks with a higher debt-to-equity ratio tend to have better operational efficiency, which in turn enhances profitability. They argued that debt financing imposes discipline on management to improve operational efficiency and optimize resource utilization. However, they cautioned that excessive debt could lead to financial distress and negatively affect profitability.

Nair and Menon (2022) analyzed the long-term impact of capital structure on the profitability of public sector banks. Their study found that banks with a stable and well-planned capital structure tend to perform better in terms of profitability over the long term. They emphasized the importance of strategic planning in capital structure decisions to ensure sustainable growth and profitability. The study also highlighted the role of external factors such as economic conditions and regulatory environment in influencing the capital structure and profitability of banks.

Chakraborty and Das (2023) conducted an empirical analysis of the relationship between capital structure and profitability of public sector banks in the context of the Indian banking industry. Their findings indicated that capital structure decisions have a significant impact on profitability, with a higher proportion of equity leading to better financial performance. They recommended that banks should focus on strengthening their equity base to enhance profitability and reduce financial risk. The study also suggested that regulatory policies should support banks in optimizing their capital structure for improved profitability.

3. RESEARCH OBJECTIVES

1. To examine the capital structure and profitability of selected public sector banks.
2. To analyse the impact of capital structure on profitability of selected public sector banks.

DATA ANALYSIS

1. Net Profit Margin

BANK	2022-23	2021-22	2020-21	2019-20	2018-19
State Bank of India	15.12	7.69	5.63	0.35	-2.96

Bank of Baroda	15.74	10.40	1.17	0.71	0.87
Bank of India	8.44	8.94	5.32	-6.98	-13.60

The net profit margin is a key financial metric that indicates the percentage of revenue that a company retains as profit after accounting for all its expenses. By analyzing the net profit margins of the State Bank of India (SBI), Bank of Baroda (BoB), and Bank of India (BoI) over the past five financial years (2018-19 to 2022-23), we can gain insights into their financial health, profitability trends, and how they compare to each other. Starting with the State Bank of India, the net profit margin shows a remarkable improvement over the five-year period. In 2018-19, SBI recorded a negative net profit margin of -2.96%, indicating a loss during that year. However, the bank's performance improved significantly in the following years. In 2019-20, the net profit margin turned positive, albeit modestly, at 0.35%. The upward trend continued in 2020-21 with a net profit margin of 5.63%, followed by a further increase to 7.69% in 2021-22. The most notable improvement was seen in 2022-23, where SBI achieved a net profit margin of 15.12%. This consistent increase reflects the bank's effective cost management, improved asset quality, and successful recovery efforts. The significant jump in 2022-23 suggests a strong recovery and robust financial performance. The Bank of Baroda also exhibited a positive trajectory in its net profit margins over the same period. In 2018-19, BoB had a modest net profit margin of 0.87%, which saw a slight increase to 0.71% in 2019-20. The year 2020-21 marked a substantial improvement, with the net profit margin rising to 1.17%. This trend continued with a more significant leap to 10.40% in 2021-22. By 2022-23, BoB's net profit margin reached 15.74%, showcasing the bank's strong financial performance and efficiency in generating profits. The steady increase over the years indicates the bank's resilience, improved operational efficiency, and effective handling of non-performing assets (NPAs). The Bank of India presents a contrasting picture compared to SBI and BoB. In 2018-19, BoI recorded a substantial negative net profit margin of -13.60%, indicating significant financial distress. The situation improved slightly in 2019-20, but the net profit margin remained negative at -6.98%. The year 2020-21 marked a turnaround, with BoI achieving a positive net profit margin of 5.32%. This positive trend continued with a slight increase to 8.94% in 2021-22. However, in 2022-23, the net profit margin slightly declined to 8.44%. Despite the recent decrease, BoI's overall improvement from severe losses to positive margins indicates progress in financial stability and profitability, though it lags behind its peers in terms of consistency and magnitude of recovery. Comparatively, the State Bank of India and the Bank of Baroda have demonstrated strong and consistent improvements in their net profit margins, especially in the last two financial years. Both banks achieved net profit margins exceeding 15% in 2022-23, indicating robust profitability. In contrast, the Bank of India, despite significant recovery from earlier losses, still trails in terms of net profit margin, with a notable dip in 2022-23 compared to the previous year. This analysis underscores the varying degrees of financial health and recovery among these public sector banks. While SBI and BoB have shown remarkable resilience and growth, BoI still faces challenges, despite showing significant improvement from its previous financial distress. These trends highlight the importance of effective management strategies, operational efficiency, and prudent handling of assets to enhance profitability in the banking sector.

2. Net Interest Income / Total Funds

BANK	2022-23	2021-22	2020-21	2019-20	2018-19
State Bank of India	2.77	2.62	2.59	2.49	2.45
Bank of Baroda	3.02	2.68	2.49	2.83	2.46
Bank of India	2.64	1.94	2.08	2.40	2.23

The ratio of Net Interest Income (NII) to Total Funds is a critical indicator of a bank's ability to generate income from its interest-earning assets relative to its total funding base. By analyzing the NII/Total Funds ratios for the State Bank of India (SBI), Bank of Baroda (BoB), and Bank of India (BoI) over the five-year period from 2018-19 to 2022-23, we can evaluate their interest income efficiency and trends in profitability. The State Bank of India has demonstrated a steady improvement in its NII/Total Funds ratio over the analyzed period. In 2018-19, the ratio was 2.45%, which increased slightly to 2.49% in 2019-20. This upward trend continued in 2020-21, with the ratio reaching 2.59%, followed by further increases to 2.62% in 2021-22 and 2.77% in 2022-23. This consistent rise indicates that SBI has been effectively managing its interest-earning assets and funding costs, leading to enhanced income generation from its core lending activities. The continuous improvement also suggests strong lending practices and effective interest rate management. The Bank of Baroda shows a more varied trend in its NII/Total Funds ratio. In 2018-19, the ratio stood at 2.46%, and it increased to 2.83% in 2019-20, indicating a significant improvement in interest income efficiency. However, in 2020-21, the ratio decreased to 2.49%, reflecting some challenges in maintaining the previous year's performance. The ratio rebounded in 2021-22 to 2.68% and further increased to 3.02% in 2022-23. The sharp rise in the most recent year suggests that BoB has made substantial progress in optimizing its interest income, possibly through better asset-liability management and improved lending practices. The fluctuations over the years highlight periods of both strong performance and challenges, but the overall trend remains positive. The Bank of India presents a more fluctuating pattern in its NII/Total Funds ratio. In 2018-19, the ratio was 2.23%, which increased to 2.40% in 2019-20, showing initial improvement. However, in 2020-21, the ratio dropped to 2.08%, indicating a decline in interest income efficiency. The ratio further decreased to 1.94% in 2021-22, marking a period of significant challenges for BoI. In 2022-23, the ratio improved to 2.64%, indicating a recovery in the bank's ability to generate interest income. Despite the recent improvement, BoI's performance over the five-year period has been less consistent compared to SBI and BoB, highlighting the bank's struggles with maintaining stable and efficient interest income generation. Comparatively, the State Bank of India has shown the most consistent and steady improvement in its NII/Total Funds ratio, reflecting robust management of its interest-earning assets and funding costs. Bank of Baroda, while showing some fluctuations, has demonstrated significant improvement, particularly in the last two years, indicating strong recovery and efficient income generation. On the other hand, the Bank of India, despite showing a recent positive trend, has had a more inconsistent performance, indicating ongoing challenges in optimizing its interest income.

3. Capital Adequacy Ratio

BANK	2022-23	2021-22	2020-21	2019-20	2018-19
State Bank of India	14.68	13.74	13.13	12.72	12.60
Bank of Baroda	16.24	15.84	14.99	13.30	13.42
Bank of India	16.28	17.04	14.93	13.10	14.19

The Capital Adequacy Ratio (CAR) is a measure of a bank's capital, expressed as a percentage of its risk-weighted credit exposures. It is crucial for ensuring a bank's ability to absorb a reasonable amount of loss and complies with statutory capital requirements. Analyzing the CAR for the State Bank of India (SBI), Bank of Baroda (BoB), and Bank of India (BoI) over the period from 2018-19 to 2022-23 provides insights into their financial stability and capacity to withstand potential losses. For the State Bank of India, the CAR has shown a consistent improvement over the five-year period. In 2018-19, SBI's CAR was 12.60%, which gradually increased to 12.72% in 2019-20, 13.13% in 2020-21, 13.74% in 2021-22, and reached 14.68% in 2022-23. This steady upward trend indicates that SBI has been successfully enhancing its capital base relative to its risk-weighted assets. The continuous improvement suggests prudent capital management and a focus on maintaining a robust buffer to absorb potential losses, contributing to the bank's overall financial stability. The Bank of Baroda's CAR also reflects a positive trajectory, with significant improvements observed over the years. In 2018-19, BoB's CAR was 13.42%, which increased to 13.30% in 2019-20. This trend continued with further increases to 14.99% in 2020-21, 15.84% in 2021-22, and 16.24% in 2022-23. The substantial rise in CAR over the five-year period indicates that BoB has been effectively managing its capital, ensuring compliance with regulatory requirements, and strengthening its ability to absorb shocks. The consistent improvement in CAR highlights the bank's focus on maintaining a solid capital foundation to support its growth and mitigate risks. The Bank of India presents a more variable trend in its CAR, although it has generally maintained a strong capital position. In 2018-19, BoI's CAR was 14.19%, which decreased to 13.10% in 2019-20, indicating some challenges in capital management during that year. However, the CAR rebounded to 14.93% in 2020-21, followed by a further increase to 17.04% in 2021-22. In 2022-23, the CAR slightly decreased to 16.28%, but it still remained strong. Despite the fluctuations, BoI's CAR has generally remained above regulatory requirements, reflecting its ability to maintain a substantial capital buffer to absorb potential losses and support its operations.

4. Impact of Capital Adequacy Ratio on Net Profit Margin

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.956219					
R Square	0.914356					
Adjusted R Square	0.885808					
Standard Error	2.554419					
Observations	5					
ANOVA						
	df	SS	MS	F	Significance F	
Regression	1	208.9882	208.9882	32.02857	0.010924	
Residual	3	19.57517	6.525057			
Total	4	228.5634				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-81.8343	15.17258	-5.39357	0.01249	-130.12	-33.5484
X Variable 1	5.940584	1.049688	5.659379	0.010924	2.600007	9.281161

Interpretation

Multiple R = 0.956219, which indicates that there is no linear relationship between capital adequacy ratio and net profit margin.

From the ANOVA table, it can be seen that p-value 0.010924 which is less than specified α of 0.05. So it is suggested that null hypothesis is rejected and there is impact of capital adequacy ratio on net profit margin.

Formula

Net Profit Margin = -81.8343 + 5.940584 * Capital Adequacy Ratio

5. Impact of Capital Adequacy Ratio on Net Interest Income / Total Funds

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.378785					
R Square	0.143478					
Adjusted R Square	-0.14203					

Standard Error	0.196638					
Observations	5					
ANOVA						
	df	SS	MS	F	Significance F	
Regression	1	0.019431	0.019431	0.502539	0.52951	
Residual	3	0.116	0.038667			
Total	4	0.135431				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.687037	1.167979	1.444408	0.24436	-2.02999	5.404066
X Variable 1	0.057282	0.080805	0.7089	0.52951	-0.19987	0.314439

Interpretation

Multiple R = 0.378785, which indicates that there is no linear relationship between capital adequacy ratio and net interest income / total funds.

From the ANOVA table, it can be seen that p-value 0.52951 which is more than specified α of 0.05. So it is suggested that null hypothesis is accepted and there is no impact of capital adequacy ratio on net interest income / total funds.

5. CONCLUSION

Based on the analysis of the net profit margin, net interest income to total funds ratio, and capital adequacy ratio for the State Bank of India (SBI), Bank of Baroda (BoB), and Bank of India (BoI) over the period from 2018-19 to 2022-23, several key insights emerge regarding their financial performance, stability, and management practices. The State Bank of India has shown consistent improvement across all three financial metrics. The net profit margin has improved significantly from a negative value in 2018-19 to a robust 15.12% in 2022-23, reflecting effective cost management and recovery efforts. The net interest income to total funds ratio has steadily increased, indicating better income generation from interest-earning assets. The capital adequacy ratio has also risen consistently, showcasing SBI's efforts to enhance its capital base and financial stability. These trends collectively suggest that SBI's strategic focus on capital management and income optimization has positively impacted its profitability.

The Bank of Baroda has exhibited a strong upward trajectory in its financial metrics, particularly in recent years. The net profit margin has surged to 15.74% in 2022-23 from a modest 0.87% in 2018-19, indicating significant improvements in operational efficiency and profitability. The net interest income to total funds ratio has shown some fluctuations but has generally improved, reaching 3.02% in 2022-23. BoB's capital adequacy ratio has also strengthened, rising to 16.24% in 2022-23. This consistent enhancement in capital adequacy highlights BoB's robust capital management practices, contributing to its overall financial health and resilience against potential risks. The Bank of India presents a more variable performance, with notable improvements in certain years. The net profit margin has recovered from significant losses in 2018-19 to a positive 8.44% in 2022-23. The net interest income to total funds ratio, although fluctuating, shows a recent improvement to 2.64% in 2022-23. BoI's capital adequacy ratio has generally remained strong, with a slight dip in the latest year but still at a solid 16.28%. Despite these fluctuations, BoI's efforts to maintain a robust capital position and improve profitability are evident, though the bank still faces challenges in achieving consistent performance compared to its peers.

Based on these findings, it is evident that the null hypothesis that there is no impact of the capital adequacy ratio on the net profit margin is rejected. The capital adequacy ratio has a significant impact on the net profit margin, as seen from the consistent improvement in profitability metrics coinciding with enhanced capital positions for all three banks. A stronger capital base provides a cushion against potential losses, allowing banks to focus on income-generating activities and improving their overall profitability. Conversely, the null hypothesis that there is no impact of the capital adequacy ratio on the net interest income to total funds ratio is accepted. The fluctuations in the net interest income to total funds ratio for the banks, despite improvements in their capital adequacy ratios, suggest that other factors, such as interest rate management, asset-liability matching, and operational efficiency, play a more critical role in determining this particular ratio. The lack of a consistent correlation between capital adequacy and net interest income efficiency indicates that capital levels alone do not directly influence the ability to generate interest income relative to total funds.

6. REFERENCE

1. Chakraborty, P., & Das, A. (2023). Empirical analysis of capital structure and profitability in Indian public sector banks. Journal of Financial Economics, 33(1), 55-72.
2. Gupta, V., & Mehta, S. (2020). Effect of leverage on profitability: A panel data analysis of public sector banks in India. Journal of Financial Analysis, 28(1), 45-62.
3. Kumar, A., & Reddy, S. (2018). Capital structure and profitability: A study of public sector banks in India. Journal of Financial Studies, 42(2), 78-94.
4. Nair, R., & Menon, S. (2022). Long-term impact of capital structure on profitability: Evidence from Indian public sector banks. Journal of Strategic Financial Management, 27(3), 89-107.
5. Patel, R., & Joshi, N. (2020). Capital adequacy and profitability of public sector banks: An empirical study. Journal of Banking Regulation, 50(1), 45-62.
6. Rao, S., & Singh, K. (2021). Operational efficiency and profitability: The role of capital structure in public sector banks. Journal of Banking and Finance, 39(4), 201-218.
7. Sharma, P., Verma, R., & Kaur, J. (2019). Impact of capital structure on financial performance: Evidence from public sector banks in India. International Journal of Banking and Finance, 31(3), 105-121.