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FINANCIAL PERFORMANCE ANALYSIS OF SELECTED PUBLIC SECTOR BANKS IN INDIA: A COMPARATIVE STUDY (2021–2025)"

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ABSTRACT

This study examines the financial performance and structural relationships among selected public sector banks in India, namely Bank of Baroda (BB), Bank of India (BOI), Indian Bank (IB), Indian Overseas Bank (IOB), and State Bank of India (SBI), during the period 2021–2025. The analysis focuses on liquidity, profitability, efficiency, and solvency dimensions using key financial ratios such as Current Ratio, Quick Ratio, Cash Ratio, Return on Total Assets, Return on Equity, Working Capital Turnover Ratio, Debt Ratio, Debt–Equity Ratio, and Net Profit Ratio. Statistical tools including descriptive statistics, trend analysis, correlation analysis, and one-way ANOVA are employed to evaluate performance variations and interrelationships among the selected banks. The findings reveal a consistent decline in liquidity indicators, accompanied by strong growth in profitability and leverage ratios, highlighting the existence of a liquidity–profitability trade-off. Correlation results confirm strong positive relationships among profitability variables and significant inverse relationships between liquidity and leverage indicators. ANOVA results indicate significant inter-bank differences in quick ratio, cash ratio, return on equity, working capital turnover ratio, and debt–equity ratio, while other ratios display relative uniformity. The study concludes that Indian public sector banks strategically optimize profitability and asset

utilization by maintaining lower liquidity buffers and higher leverage, emphasizing the need for balanced financial management to sustain long-term stability and resilience.

KEYWORDS: Financial Performance Public Sector Banks Liquidity Ratios Profitability Ratios Solvency Ratios.

INTRODUCTION

The banking sector plays a pivotal role in the economic development of a country by mobilizing savings, facilitating credit creation, promoting investment, and ensuring financial inclusion. In India, public sector banks (PSBs) constitute the backbone of the financial system, contributing significantly to industrial growth, infrastructure development, and socio-economic progress. Over the years, the Indian banking industry has undergone profound structural and regulatory transformations, driven by globalization, technological advancements, financial sector reforms, and heightened competition.

Financial performance evaluation has emerged as a crucial tool for assessing the operational efficiency, profitability, liquidity position, and solvency strength of banks. Ratio analysis provides valuable insights into the financial health of banking institutions and enables stakeholders to assess managerial effectiveness, risk exposure, and sustainability. In particular, the interplay between liquidity and profitability represents a critical managerial challenge, as excessive liquidity may reduce returns, while inadequate liquidity may expose banks to solvency risks.

In this context, the present study undertakes a comprehensive financial performance analysis of selected public sector banks in India during the period 2021–2025. By employing statistical techniques such as trend analysis, correlation analysis, and analysis of variance (ANOVA), the study seeks to examine variations in financial performance and identify the interrelationships among key financial indicators. The research aims to provide meaningful insights into the strategic financial management practices adopted by Indian public sector banks in a dynamic economic environment.

STATEMENT OF THE PROBLEM

Public sector banks in India operate in a highly competitive and regulated environment characterized by rising operational costs, asset quality concerns, technological disruptions, and stringent capital adequacy norms. In such a scenario, maintaining an optimal balance between liquidity, profitability, efficiency, and solvency becomes increasingly challenging.

While higher profitability enhances shareholder value, excessive risk-taking through leverage and reduced liquidity buffers may expose banks to financial instability.

Despite numerous reforms and policy interventions, Indian public sector banks continue to face issues related to declining liquidity ratios, rising leverage levels, and fluctuating profitability. The extent to which these factors influence overall financial performance and stability remains an area of empirical investigation. Moreover, variations in financial performance across banks raise critical concerns regarding managerial efficiency and strategic decision-making.

Hence, the present study seeks to address the following core problem:

How do liquidity, profitability, efficiency, and solvency indicators interact, and to what extent do financial performance variations exist among selected public sector banks in India during the period 2021–2025?

OBJECTIVES OF THE STUDY

1. To analyze the liquidity position of selected public sector banks using current ratio, quick ratio, and cash ratio.
2. To evaluate the profitability performance of the banks through return on total assets, return on equity, and net profit ratio.
3. To assess the efficiency of working capital management using the working capital turnover ratio.
4. To examine the solvency and leverage structure through debt ratio and debt–equity ratio.
5. To study the trend patterns of financial ratios during the study period.
6. To investigate the interrelationships among liquidity, profitability, efficiency, and solvency indicators using correlation analysis.
7. To test the statistical significance of differences in financial performance among the selected banks using ANOVA.

SCOPE OF THE STUDY

The scope of the present study is confined to the financial performance evaluation of five major public sector banks in India—Bank of Baroda, Bank of India, Indian Bank, Indian Overseas Bank, and State Bank of India—over a period of five years from 2021 to 2025. The analysis is based exclusively on secondary data extracted from published annual reports and financial statements of the respective banks. The study focuses on key dimensions of financial performance, namely liquidity, profitability, efficiency, and solvency. Advanced

statistical tools such as trend analysis, correlation analysis, and one-way ANOVA are applied to ensure rigorous interpretation. The findings aim to provide insights useful for academicians, policymakers, bank management, investors, and financial analysts.

RESEARCH METHODOLOGY

Research Design

The study adopts a descriptive and analytical research design, aiming to evaluate financial performance and identify interrelationships among financial variables.

Sources of Data

The study is based on **secondary data**, collected from:

- Annual reports of selected banks
- Published financial statements
- Official bank websites
- RBI statistical publications

Sample Selection

Five major public sector banks were selected based on market significance, asset size, and operational scale:

- Bank of Baroda (BB)
- Bank of India (BOI)
- Indian Bank (IB)
- Indian Overseas Bank (IOB)
- State Bank of India (SBI)

Period of Study

The study covers **five financial years from 2021 to 2025**.

Tools of Analysis

- Descriptive Statistics (Mean, Standard Deviation, Coefficient of Variation)
- Trend Analysis
- Correlation Analysis (Pearson’s coefficient)
- One-way Analysis of Variance (ANOVA)

Hypothesis Testing

- **Null Hypothesis (H_0):** There is no significant difference in the mean financial ratios of the selected banks.
- **Alternative Hypothesis (H_1):** There is a significant difference in the mean financial ratios of the selected banks.

LIMITATIONS OF THE STUDY

1. The study is limited to only five public sector banks, and therefore the findings may not be generalized to private or foreign banks.
2. The analysis is based solely on secondary data, which may be subject to accounting policies and reporting practices of individual banks.
3. The study period of five years may not fully capture long-term structural changes in the banking sector.
4. The impact of macroeconomic variables, regulatory changes, and external economic shocks is not explicitly incorporated.
5. The research focuses only on financial indicators, excluding qualitative aspects such as customer satisfaction, service quality, and technological efficiency.

Review of Literature

The literature on Indian banking performance highlights the importance of ratio analysis, statistical tools, and regulatory frameworks in evaluating the financial strength of banks. Studies by Gupta and Jaiswal (2019) applied the CAMEL framework and ratio analysis to compare public and private banks, concluding that public sector banks improved in capital adequacy and profitability after reforms, although private banks remained more efficient in profitability indicators such as ROA and ROE. Similarly, Jha (2018) compared Punjab National Bank and ICICI Bank and found that private banks were stronger in profitability and financial stability, while public sector banks maintained stronger customer trust and credit relationships. Prasad and Ravinder (2011) examined profitability across major banks using statistical tools like ANOVA and Tukey HSD, confirming significant inter-bank differences in profitability ratios. Singh and Sharma (2022) and Srinivasan and Britto (2017) further demonstrated that private banks generally outperform public banks in profitability and capital adequacy, whereas public sector banks maintain relatively higher liquidity and intermediation capacity. Kumar and Kapoor (2022) observed improved profitability and solvency for State Bank of India due to reforms and technological adoption, while Vanlalzawna and Sharma

(2025) confirmed that public sector banks tend to maintain stronger liquidity ratios but lower profitability compared to private banks. Chakraborty (2017) also found private banks to be more profitable and efficient than public sector banks. Meanwhile, Subalakshmi et al. (2025) highlighted the significance of leverage ratios in assessing risk–return trade-offs in large public sector banks such as SBI.

Several comparative and bank-specific studies have focused on the performance of public sector banks such as SBI, Bank of Baroda, Indian Bank, Bank of India, and Indian Overseas Bank. Kanagarathinam et al. (2024) examined the recovery of public sector banks after the NPA crisis and showed that SBI and Bank of Baroda demonstrated strong recovery in ROE, while Indian Overseas Bank experienced a remarkable turnaround following recapitalization and asset quality improvements. Sandhiya and Anandhi (2019) compared Bank of Baroda and Bank of India and found that Bank of India performed better in liquidity and leverage ratios. Deepa Singh and Shambhavi Sharma (2020) reported that SBI and Bank of Baroda performed strongly in operating profit relative to working capital, although private banks maintained superior profitability and capital adequacy. Studies by Shivani Shah (2023) and Somnath Das and Devmalya Khan confirmed that SBI maintained stronger profitability and stability among PSU banks, while banks like PNB faced profitability challenges due to high NPAs. Research by Ritesh Patel (2018) and Anonymous (2018) highlighted that profitability of banks such as SBI and IOB declined during the NPA crisis despite structural reforms and mergers. Additional evidence from Reddy and Murthy emphasized the role of technological reforms, efficient recovery mechanisms, and scale economies in improving the performance of large public sector banks such as SBI and BOI.

From a theoretical and methodological perspective, several scholars have emphasized the importance of statistical and regulatory frameworks in banking performance evaluation. Chandni Gupta and Neeraj Jaiswal validated the CAMEL framework as a reliable model for evaluating bank performance in a deregulated environment. Prasad and Ravinder demonstrated the effectiveness of statistical tools such as ANOVA and Tukey HSD in testing inter-bank profitability differences. Reddy and Murthy showed that panel-data models effectively capture the relationship between liquidity, solvency, efficiency, and profitability in banks. Saravanan highlighted the role of regulatory instruments such as CRR and SLR in influencing liquidity and solvency conditions of public sector banks. Arulmozhi observed that regulatory convergence has reduced differences in capital adequacy and debt–equity ratios across banks, while Gupta emphasized that public sector banks often maintain stronger

liquidity due to their conservative risk orientation. Furthermore, Shivani Shah**,** Kiruthika and Muthumari**,** and Subalakshmi et al. highlighted the critical role of NPAs, recapitalization, leverage, and asset quality in determining bank profitability and stability. Overall, the literature consistently suggests that the financial performance of Indian banks is influenced by multiple factors including liquidity, solvency, asset quality, efficiency, competition, and regulatory policies, thereby providing a strong theoretical foundation for comparative ratio analysis of selected public sector banks such as SBI, Bank of Baroda, Indian Bank, Bank of India, and Indian Overseas Bank.

Table 1:

Descriptive Statistics and Growth Analysis of Financial Ratios of Selected Public Sector Banks in India. (2021–2025)

CURRENT RATIO					
Year	**BB**	**BOI**	**IB**	**IOB**	**SBI**
2021	0.17	0.24	0.13	0.19	0.16
2022	0.15	0.19	0.16	0.19	0.16
2023	0.11	0.15	0.10	0.13	0.14
2024	0.10	0.13	0.08	0.11	0.13
2025	0.11	0.13	0.08	0.09	0.12
Mean	0.13	0.17	0.11	0.14	0.14
SD	0.03	0.05	0.03	0.05	0.02
CV	0.24	0.28	0.31	0.32	0.13
CAGR	-0.05	-0.07	-0.05	-0.08	-0.03
CARG	-4.72	-6.59	-5.25	-7.97	-3.15
QUICK RATIO					
2021	0.35	0.46	0.39	0.49	0.40
2022	0.37	0.39	0.41	0.49	0.40
2023	0.34	0.38	0.36	0.40	0.36
2024	0.32	0.37	0.35	0.36	0.34
2025	0.31	0.37	0.35	0.36	0.33
Mean	0.34	0.39	0.37	0.42	0.37
SD	0.02	0.04	0.03	0.07	0.03
CV	0.07	0.10	0.07	0.16	0.09
CAGR	-0.01	-0.02	-0.01	-0.03	-0.02
CARG	-1.34	-2.39	-1.20	-3.37	-2.11
CASH RATIO					
2021	0.11	0.19	0.09	0.12	0.08
2022	0.10	0.13	0.13	0.13	0.08
2023	0.07	0.11	0.08	0.07	0.06
2024	0.06	0.10	0.06	0.06	0.05
2025	0.08	0.10	0.07	0.06	0.05
Mean	0.08	0.13	0.09	0.09	0.06
SD	0.02	0.04	0.03	0.03	0.02

CV	0.25	0.30	0.31	0.39	0.24
CAGR	-0.03	-0.07	-0.03	-0.07	-0.05
CARG	-3.48	-6.88	-2.75	-7.41	-5.09
RETURN ON TOTAL ASSETS					
2021	0.07	0.30	0.49	0.30	0.45
2022	0.61	0.47	0.59	0.57	0.64
2023	0.97	0.50	0.75	0.67	0.92
2024	1.12	0.70	1.02	0.76	0.99
2025	1.10	0.89	1.26	0.85	1.07
Mean	0.77	0.57	0.82	0.63	0.81
SD	0.44	0.23	0.32	0.21	0.26
CV	0.57	0.40	0.38	0.34	0.32
CAGR	0.36	0.13	0.11	0.12	0.10
CARG	35.81	12.84	11.06	12.27	10.10
RETURN ON EQUITY					
2021	80.05	65.91	266.05	5.06	2286.99
2022	752.11	82.95	316.74	9.04	3549.29
2023	1362.55	98.02	424.08	11.10	5628.54
2024	1717.84	138.75	598.60	14.05	6843.63
2025	1890.93	202.47	810.59	17.32	7944.40
Mean	1160.70	117.62	483.21	11.31	5250.57
SD	744.84	54.56	222.97	4.69	2324.57
CV	0.64	0.46	0.46	0.41	0.44
CAGR	0.42	0.13	0.13	0.15	0.15
CARG	42.10	13.28	13.18	14.65	14.84
WORKING CAPITAL TURNOVER RATIO					
2021	-0.09	-0.09	-0.09	-0.11	-0.09
2022	-0.08	-0.08	-0.09	-0.10	-0.08
2023	-0.08	-0.09	-0.09	-0.09	-0.08
2024	-0.10	-0.09	-0.09	-0.10	-0.09
2025	-0.09	-0.09	-0.10	-0.10	-0.10
Mean	-0.09	-0.09	-0.09	-0.10	-0.09
SD	0.01	0.00	0.00	0.01	0.01
CV	-0.10	-0.05	-0.05	-0.07	-0.10
CAGR	0.00	0.00	0.01	-0.01	0.01
CARG	0.00	0.00	1.18	-1.05	1.18
DEBT RATIO					
2021	5.75	4.02	7.23	5.10	5.90
2022	6.57	5.05	6.09	4.95	6.10
2023	8.92	6.37	9.49	7.45	6.97
2024	9.99	7.31	12.33	8.95	7.24
2025	9.18	7.72	11.42	10.49	7.64
Mean	8.08	6.09	9.31	7.39	6.77
SD	1.82	1.55	2.66	2.41	0.75
CV	0.23	0.25	0.29	0.33	0.11
CAGR	0.05	0.08	0.05	0.08	0.03
CARG	5.34	7.52	5.21	8.34	2.91
DEBT EQUITY RATIO					

2021	998.37	201.23	499.61	14.84	4592.45
2022	1110.39	159.50	490.40	14.03	5017.12
2023	1260.80	178.97	516.48	14.90	5509.39
2024	1372.59	179.83	527.95	16.73	6178.02
2025	1541.00	206.53	578.09	18.39	6662.22
Mean	1256.63	185.21	522.51	15.78	5591.84
SD	213.55	18.97	34.32	1.76	840.42
CV	0.17	0.10	0.07	0.11	0.15
CAGR	0.05	0.00	0.02	0.02	0.04
CARG	4.94	0.29	1.63	2.41	4.22
NET PROFIT RATIO					
2021	0.01	0.04	0.07	0.04	0.07
2022	0.10	0.07	0.09	0.08	0.10
2023	0.14	0.07	0.10	0.09	0.14
2024	0.14	0.09	0.13	0.09	0.13
2025	0.14	0.12	0.15	0.10	0.14
Mean	0.11	0.08	0.11	0.08	0.12
SD	0.06	0.03	0.03	0.02	0.03
CV	0.53	0.38	0.30	0.29	0.26
CAGR	0.34	0.13	0.09	0.11	0.08
CARG	34.07	12.98	8.84	10.72	8.01

Current Ratio: The analysis of the current ratio reveals that all the selected banks—BB, BOI, IB, IOB, and SBI—maintained relatively low liquidity levels throughout the study period from 2021 to 2025. The declining trend indicated by negative CAGR and CARG values suggests a gradual reduction in short-term solvency capacity. Among the banks, BOI exhibited a comparatively higher mean current ratio, reflecting relatively better short-term financial stability, whereas IB recorded the lowest mean, indicating weaker liquidity management. The increasing coefficient of variation, particularly for IOB and IB, highlights greater instability and inconsistency in maintaining adequate current assets relative to current liabilities. Overall, the declining pattern implies rising dependence on efficient working capital management and tighter liquidity control across the banking sector.

Quick Ratio: The quick ratio analysis indicates a moderate but consistently declining liquidity position across all selected banks during the study period. The negative CAGR values show that liquid assets excluding inventories have gradually decreased in relation to current liabilities, suggesting tightening short-term financial flexibility. IOB demonstrated the highest mean quick ratio, reflecting comparatively better immediate solvency, while BB showed the lowest, indicating relatively weaker liquidity conditions. The low coefficient of variation for most banks suggests stable liquidity management practices despite the

downward trend. Overall, the gradual reduction in quick ratios signals increasing pressure on banks to manage liquid resources more efficiently to meet short-term obligations.

Cash Ratio: The cash ratio trend demonstrates a continuous decline in immediate liquidity among all selected banks, as indicated by consistently negative CAGR and CARG values. BOI maintained the highest mean cash ratio, signifying better cash availability to meet immediate liabilities, whereas SBI reported the lowest mean, highlighting comparatively tighter cash management. The relatively high coefficient of variation across banks indicates noticeable fluctuations in cash holdings, suggesting sensitivity to operational and market conditions. The downward trend reflects banks' increasing reliance on near-cash and short-term investments rather than holding idle cash, which may enhance profitability but increases exposure to short-term liquidity risks.

Return on Total Assets (ROTA): The return on total assets shows a strong upward trend for all banks, indicating improved efficiency in utilizing assets to generate profits during the study period. IB and SBI recorded the highest mean returns, reflecting superior asset utilization and operational effectiveness, while BOI and IOB showed comparatively moderate performance. The positive CAGR values confirm sustained profitability growth, especially for BB, which exhibited the highest growth rate despite lower initial returns. The moderate coefficient of variation suggests manageable fluctuations in asset returns, highlighting stable profitability performance. Overall, the increasing ROTA demonstrates strengthened operational efficiency and enhanced asset productivity across the banking sector.

Return on Equity (ROE): The return on equity analysis reveals a substantial and consistent increase across all selected banks, indicating significant improvement in shareholders' wealth generation. SBI recorded exceptionally high ROE values, reflecting strong profitability and efficient capital utilization, while BB and IB also exhibited robust growth patterns. The positive CAGR and high CARG values confirm rapid enhancement in equity returns, suggesting aggressive expansion strategies and improved financial leverage utilization. Although the coefficient of variation is relatively high, it mainly reflects sharp growth rather than instability. Overall, the rising ROE trend indicates improved shareholder confidence and strong financial performance of the banks.

Working Capital Turnover Ratio: The working capital turnover ratio remained consistently negative for all banks throughout the study period, indicating persistent negative working capital positions, a common characteristic in the banking industry due to their operational structure. The near-zero CAGR values reflect stability in this trend, suggesting efficient utilization of short-term funds despite the negative base. The low coefficient of variation indicates consistent management of working capital across all banks. This pattern highlights the banks' ability to operate effectively using short-term liabilities as a primary funding source, reflecting sound financial intermediation practices and strong liquidity management frameworks.

Debt Ratio: The debt ratio analysis indicates a steady increase in financial leverage among all selected banks during the study period. IB recorded the highest mean debt ratio, reflecting greater dependence on borrowed funds, while SBI maintained the lowest, indicating relatively stronger capital stability. The positive CAGR values signify rising leverage, which suggests expansion in lending activities and asset growth financed through external liabilities. The moderate coefficient of variation implies controlled volatility in debt levels, highlighting effective risk management practices. Overall, the increasing debt ratio reflects strategic financial leveraging aimed at enhancing operational scale and profitability.

Source of Variation	Sum of Squares	Df	Mean Square	F	Sig.	F crit
ANOVA OF CURRENT RATIO						
Between Groups	0.00908	4	0.00227			
Within Groups	0.02712	20	0.001356	1.674041298	0.195392	2.866081
Total	0.0362	24				
ANOVA OF QUICK RATIO						
Between Groups	0.019	4	0.00475			
Within Groups	0.0326	20	0.00163	2.914110429	0.047438	2.866081
Total	0.0516	24				
ANOVA OF CASH RATIO						
Between Groups	0.010136	4	0.002534			
Within Groups	0.01596	20	0.000798	3.175438596	0.035758	2.866081
Total	0.026096	24				
ANOVA OF RETURN ON TOTAL ASSETS						
Between Groups	0.260656	4	0.065164			
Within Groups	1.8442	20	0.09221	0.706691248	0.59674	2.866081
Total	2.104856	24				
ANOVA OF RETURN ON EQUITY						

Between Groups	96487468.06	4.00	24121867.02	20.06	0.00	2.87
Within Groups	24044569.65	20.00	1202228.48			
Total	120532037.72	24.00				
ANOVA OF WORKING CAPITAL TURNOVER RATIO						
Between Groups	0.000544	4	0.000136	2.956522	0.045293	2.866081
Within Groups	0.00092	20	0.000046			
Total	0.001464	24				
ANOVA OF DEBT RATIO						
Between Groups	30.70042	4	7.675106	2.003135	0.132862	2.866081
Within Groups	76.63096	20	3.831548			
Total	107.3314	24				
ANOVA OF DEBT EQUITY RATIO						
Between Groups	108442123.36	4.00	27110530.84	179.91	0.00	2.866081
Within Groups	3013779.62	20.00	150688.98			
Total	111455902.98	24.00				
ANOVA OF NET PROFIT RATIO						
Between Groups	0.006056	4	0.001514	1.155725	0.359683	2.866081
Within Groups	0.0262	20	0.00131			
Total	0.032256	24				

Debt–Equity Ratio: The debt–equity ratio shows a consistent upward trend across all banks, signifying growing reliance on debt financing relative to shareholders' equity. SBI recorded exceptionally high values, reflecting aggressive leveraging strategies to support large-scale operations, while IOB exhibited the lowest ratio, indicating relatively balanced capital structure. The positive CAGR values confirm a gradual shift towards higher leverage, which enhances return potential but also increases financial risk. The relatively low coefficient of variation indicates stability in capital structure decisions. Overall, the trend suggests strategic financial structuring aimed at maximizing shareholder returns while maintaining acceptable risk levels.

Net Profit Ratio: The net profit ratio demonstrates a strong and consistent upward trend for all selected banks, indicating significant improvement in profitability and cost efficiency over the study period. SBI and IB recorded the highest mean profit margins, reflecting superior operational efficiency and revenue management, while BOI and IOB showed moderate but stable growth. The positive CAGR values confirm sustained enhancement in profit-generating capacity, especially for BB, which exhibited the highest growth rate. The moderate coefficient of variation suggests stable profit performance despite market

fluctuations. Overall, the increasing net profit ratio highlights strengthened financial performance and effective cost control strategies across the banking sector.

One-Way ANOVA Results for Financial Ratios of Selected Public Sector Banks in India (2021–2025)

Null Hypothesis (H_0): There is no significant difference in the mean financial ratios of the selected banks during the study period.

Alternative Hypothesis (H_1): There is a significant difference in the mean financial ratios of the selected banks during the study period.

ANOVA of Current Ratio: The ANOVA results for the current ratio indicate that the calculated F value (1.674) is lower than the critical F value (2.866) and the significance level ($p = 0.195$) is greater than 0.05; therefore, the null hypothesis (H_0), which states that there is no significant difference in the mean current ratios of the selected banks, is accepted, and the alternative hypothesis (H_1) is rejected. This implies that variations in current ratios among the banks are not statistically significant and are mainly due to random fluctuations. Hence, it can be concluded that the short-term liquidity positions of the selected banks are relatively similar, reflecting uniform liquidity management practices across the banking sector.

ANOVA of Quick Ratio: The ANOVA findings for the quick ratio reveal that the computed F value (2.914) is slightly higher than the critical F value (2.866) and the p-value (0.047) is less than 0.05; therefore, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This indicates a statistically significant difference in the mean quick ratios of the selected banks, suggesting notable variation in immediate liquidity management and liquid asset utilization strategies. Thus, banks differ significantly in their approaches toward maintaining near-cash resources to meet short-term obligations.

ANOVA of Cash Ratio: The ANOVA results for the cash ratio show that the calculated F value (3.175) exceeds the critical F value (2.866) and the significance level ($p = 0.036$) is below 0.05; hence, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This confirms that significant differences exist in the mean cash ratios among the selected banks, indicating diverse cash holding policies and immediate liquidity management practices. The observed variations suggest that banks adopt different strategies regarding the maintenance of cash balances and reliance on short-term investments.

ANOVA of Return on Total Assets: The ANOVA outcome for return on total assets indicates that the computed F value (0.707) is far below the critical F value (2.866) and the p-value (0.597) is greater than 0.05; therefore, the null hypothesis (H_0) is accepted and the alternative hypothesis (H_1) is rejected. This implies that there is no statistically significant difference in asset utilization efficiency among the selected banks. The result reflects uniformity in operational performance and consistency in the effectiveness of converting assets into profits across the banking institutions.

ANOVA of Return on Equity: The ANOVA analysis for return on equity demonstrates that the calculated F value (20.06) is substantially higher than the critical F value (2.87) and the p-value is approximately zero; hence, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This confirms the presence of a highly significant difference in shareholder returns among the selected banks, indicating substantial disparities in profitability, financial leverage, and capital structure management. The wide variation highlights distinct performance levels and risk-return trade-offs across the banks.

ANOVA of Working Capital Turnover Ratio: The ANOVA results for the working capital turnover ratio reveal that the calculated F value (2.957) is greater than the critical F value (2.866) and the p-value (0.045) is less than 0.05; therefore, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This indicates that significant differences exist in working capital utilization efficiency among the selected banks. The variation reflects differences in fund deployment strategies, short-term asset–liability management, and operational efficiency.

ANOVA of Debt Ratio: The ANOVA findings for the debt ratio show that the computed F value (2.003) is lower than the critical F value (2.866) and the significance level ($p = 0.133$) exceeds 0.05; hence, the null hypothesis (H_0) is accepted and the alternative hypothesis (H_1) is rejected. This suggests that there is no statistically significant difference in the leverage positions of the selected banks. The result reflects consistency in long-term financing structures, influenced by similar regulatory frameworks and risk management practices.

ANOVA of Debt–Equity Ratio: The ANOVA results for the debt–equity ratio indicate that the calculated F value (179.91) is far higher than the critical F value (2.866) and the p-value is nearly zero; therefore, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This confirms the existence of a highly significant difference in capital

structure decisions among the selected banks, reflecting diverse financial leverage policies and equity utilization strategies. The substantial variation highlights differing risk profiles and funding preferences across the banking sector.

ANOVA of Net Profit Ratio: The ANOVA analysis for the net profit ratio shows that the computed F value (1.156) is below the critical F value (2.866) and the p-value (0.360) is greater than 0.05; thus, the null hypothesis (H_0) is accepted and the alternative hypothesis (H_1) is rejected. This implies that profitability margins do not differ significantly among the selected banks, indicating similarity in cost structures, revenue generation patterns, and operational efficiency during the study period.

Table: 3 Trend Analysis of Financial Ratios of Selected Public Sector Banks in India (Base Year: 2021 = 100).

TREND ANALYSIS OF CURRENT RATIO					
Year	**BB**	**BOI**	**IB**	**IOB**	**SBI**
2021	100.00	100.00	100.00	100.00	100.00
2022	88.24	79.17	123.08	100.00	100.00
2023	64.71	62.50	76.92	68.42	87.50
2024	58.82	54.17	61.54	57.89	81.25
2025	64.71	54.17	61.54	47.37	75.00
TREND ANALYSIS OF QUICK RATIO					
2021	100.00	100.00	100.00	100.00	100.00
2022	105.71	84.78	105.13	100.00	100.00
2023	97.14	82.61	92.31	81.63	90.00
2024	91.43	80.43	89.74	73.47	85.00
2025	88.57	80.43	89.74	73.47	82.50
TREND ANALYSIS OF CASH RATIO					
2021	100.00	100.00	100.00	100.00	100.00
2022	90.91	68.42	144.44	108.33	100.00
2023	63.64	57.89	88.89	58.33	75.00
2024	54.55	52.63	66.67	50.00	62.50
2025	72.73	52.63	77.78	50.00	62.50
Mean	100.00	100.00	100.00	100.00	100.00
TREND ANALYSIS OF RETURN ON TOTAL ASSETS					
2021	100.00	100.00	100.00	100.00	100.00
2022	871.43	156.67	120.41	190.00	142.22
2023	1385.71	166.67	153.06	223.33	204.44
2024	1600.00	233.33	208.16	253.33	220.00
2025	1571.43	296.67	257.14	283.33	237.78
TREND ANALYSIS OF RETURN ON EQUITY					
2021	100.00	100.00	100.00	100.00	100.00
2022	939.55	125.85	119.05	178.66	155.19
2023	1702.12	148.72	159.40	219.37	246.11

2024	2145.96	210.51	225.00	277.67	299.24
2025	2362.19	307.19	304.68	342.29	347.37
TREND ANALYSIS OF WORKING CAPITAL TURNOVER RATIO					
2021	100.00	100.00	100.00	100.00	100.00
2022	88.89	88.89	100.00	90.91	88.89
2023	88.89	100.00	100.00	81.82	88.89
2024	111.11	100.00	100.00	90.91	100.00
2025	100.00	100.00	111.11	90.91	111.11
TREND ANALYSIS OF DEBT RATIO					
2021	100.00	100.00	100.00	100.00	100.00
2022	114.26	125.62	84.23	97.06	103.39
2023	155.13	158.46	131.26	146.08	118.14
2024	173.74	181.84	170.54	175.49	122.71
2025	159.65	192.04	157.95	205.69	129.49
TREND ANALYSIS OF DEBT EQUITY RATIO					
2021	100.00	100.00	100.00	100.00	100.00
2022	111.22	79.26	98.16	94.54	109.25
2023	126.29	88.94	103.38	100.40	119.97
2024	137.48	89.37	105.67	112.74	134.53
2025	154.35	102.63	115.71	123.92	145.07
TREND ANALYSIS OF NET PROFIT RATIO					
2021	100.00	100.00	100.00	100.00	100.00
2022	1000.00	175.00	128.57	200.00	142.86
2023	1400.00	175.00	142.86	225.00	200.00
2024	1400.00	225.00	185.71	225.00	185.71
2025	1400.00	300.00	214.29	250.00	200.00

Trend Analysis of Current Ratio: The trend analysis of the current ratio reveals a continuous decline in liquidity positions across all selected banks during the study period when compared with the base year 2021. The index values show a sharp reduction, particularly after 2022, indicating weakening short-term solvency. IB exhibited a temporary increase in 2022, suggesting short-term improvement in liquidity, but subsequently experienced a declining trend similar to other banks. IOB recorded the steepest fall by 2025, reflecting relatively tighter liquidity conditions. Overall, the declining index trend highlights a systematic reduction in current assets relative to current liabilities, indicating increasing pressure on working capital management and short-term financial stability among the selected banks.

Trend Analysis of Quick Ratio: The quick ratio trend indicates a gradual and consistent decline in immediate liquidity across all selected banks throughout the study period. Although BB and IB showed slight improvements in 2022, the overall trend thereafter remained downward, reflecting reduced availability of liquid assets excluding inventories.

IOB experienced the most significant decline, indicating comparatively weaker near-cash management. SBI and BOI also displayed consistent reductions, suggesting cautious liquidity positioning. The downward trend in quick ratio index values implies growing dependence on efficient cash and short-term fund management practices to meet short-term obligations, highlighting tightening immediate solvency conditions across the banking sector.

Trend Analysis of Cash Ratio: The trend analysis of the cash ratio demonstrates substantial volatility and an overall declining pattern among the selected banks. IB showed a sharp rise in 2022, indicating higher immediate liquidity, while BB and SBI maintained relatively stable positions initially. However, a steep decline is evident from 2023 onwards across most banks, particularly for BOI and IOB, reflecting reduced cash holdings. The fluctuating yet downward trajectory indicates that banks increasingly prefer to deploy funds into interest-earning assets rather than maintain idle cash balances, thereby improving profitability but simultaneously increasing short-term liquidity risk.

Trend Analysis of Return on Total Assets: The trend analysis of return on total assets shows a strong and consistent upward movement across all selected banks, indicating significant improvement in asset utilization efficiency. BB recorded exceptionally high growth, reflecting substantial enhancement in operational performance and profitability generation from assets. Other banks, including BOI, IB, IOB, and SBI, also demonstrated steady growth, indicating improved efficiency in converting assets into income. The sharply rising index values confirm strengthening profitability and operational effectiveness, highlighting improved asset management strategies across the banking sector.

Trend Analysis of Return on Equity: The trend analysis of return on equity reveals a pronounced and consistent increase across all banks, indicating substantial growth in shareholder value generation. BB exhibited the most rapid expansion, reflecting aggressive profitability improvement and effective utilization of equity capital. SBI and IOB also recorded strong growth, demonstrating enhanced financial performance and capital efficiency. The sustained upward trend across all banks highlights increasing profitability, improved leverage utilization, and stronger investor confidence, reflecting robust financial health and strategic capital management.

Trend Analysis of Working Capital Turnover Ratio: The trend analysis of the working capital turnover ratio indicates relatively stable performance with minor fluctuations throughout the study period. Most banks maintained index values close to the base year level, reflecting consistency in short-term fund utilization efficiency. IB and SBI exhibited marginal improvements in later years, suggesting enhanced working capital management. The overall stability indicates that banks effectively manage their short-term assets and liabilities to sustain operational efficiency, despite changes in liquidity and profitability conditions.

Trend Analysis of Debt Ratio: The trend analysis of the debt ratio shows a consistent upward movement across all selected banks, indicating increasing reliance on borrowed funds over the study period. BOI and IOB recorded the highest growth, reflecting aggressive leveraging strategies to support asset expansion and lending activities. SBI demonstrated moderate but steady growth, indicating balanced debt management. The rising trend highlights growing financial leverage, which enhances profit potential but also elevates financial risk, underscoring the importance of prudent debt management policies.

Trend Analysis of Debt–Equity Ratio: The trend analysis of the debt–equity ratio indicates a steady and continuous rise across all banks, signifying increasing dependence on debt financing relative to equity capital. BB and SBI recorded particularly strong growth, reflecting expansion-driven capital structuring strategies. IB and IOB also showed notable increases, though at relatively moderate rates. The upward trend suggests a strategic shift toward higher leverage to enhance returns, while simultaneously increasing exposure to financial risk, emphasizing the need for effective capital structure management.

Trend Analysis of Net Profit Ratio: The trend analysis of the net profit ratio reveals a sharp and sustained improvement across all selected banks during the study period. BB showed exceptionally high growth, reflecting significant enhancement in profitability and operational efficiency. SBI, IOB, and IB also recorded steady upward movement, indicating improved cost control and revenue generation. BOI displayed consistent progress, though at a relatively moderate pace. The strong upward trend confirms enhanced profit-generating capacity, operational excellence, and strengthening financial performance across the banking sector.

Inter-Correlation Analysis: Introduction

Inter-correlation analysis is a statistical tool used to measure the degree of linear association between various financial metrics, ranging from liquidity and solvency to profitability. In this

study of sample firms within the Indian banking sector, the analysis evaluates the relationship between nine key variables: Liquidity Ratios ($X1, X2, X3$), Profitability Ratios ($X4, X5, X9$), Efficiency Ratios ($X6$), and Solvency/Leverage Ratios ($X7, X8$). The Pearson Correlation coefficient (r) identifies whether an increase in one metric, such as the *Quick Ratio*, corresponds with a movement in another, such as *Return on Equity*. By examining these relationships, we can determine how effectively these banks balance the "liquidity-profitability trade-off"—the challenge of maintaining enough cash to meet obligations (liquidity) without sacrificing the ability to generate high returns (profitability).

VARIABLES LIST CODE	VARIABLES NAME
X1	Current Ratio
X2	Quick Ratio
X3	Cash Ratio
X4	Return On Total Assets
X5	Return On Equity
X6	Working Capital Turnover Ratio
X7	Debt Ratio
X8	Debt To Equity Ratio
X9	Net Profit Ratio

Table: 4 CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN BANK OF BARODA.

Correlations									
		X1	X2	X3	X4	X5	X6	X7	X8	X9
X1	Pearson Correlation	1	.753	.970**	-.971**	-.960**	.315	-.993**	-.869	-.927*
	Sig. (2-tailed)		.142	.006	.006	.010	.605	.001	.056	.024
	N	5	5	5	5	5	5	5	5	5
X2	Pearson Correlation	.753	1	.677	-.677	-.789	.651	-.804	-.874	-.527
	Sig. (2-tailed)	.142		.210	.210	.113	.234	.101	.053	.361
	N	5	5	5	5	5	5	5	5	5
X3	Pearson Correlation	.970**	.677	1	-.905*	-.870	.375	-.971**	-.736	-.859
	Sig. (2-tailed)	.006	.210		.035	.055	.534	.006	.156	.062
	N	5	5	5	5	5	5	5	5	5
X4	Pearson Correlation	-.971**	-.677	-.905*	1	.982**	-.212	.951*	.896*	.980**
	Sig. (2-tailed)	.006	.210	.035		.003	.733	.013	.040	.003
	N	5	5	5	5	5	5	5	5	5
X5	Pearson Correlation	-.960**	-.789	-.870	.982**	1	-.306	.953*	.962**	.933*
	Sig. (2-tailed)	.010	.113	.055	.003		.616	.012	.009	.020
	N	5	5	5	5	5	5	5	5	5
X6	Pearson	.315	.651	.375	-.212	-.306	1	-.424	-.361	-.032

	Correlation									
	Sig. (2-tailed)	.605	.234	.534	.733	.616		.477	.550	.960
	N	5	5	5	5	5	5	5	5	5
X7	Pearson Correlation	-.993**	-.804	-.971**	.951*	.953*	-.424	1	.874	.885*
	Sig. (2-tailed)	.001	.101	.006	.013	.012	.477		.052	.046
	N	5	5	5	5	5	5	5	5	5
X8	Pearson Correlation	-.869	-.874	-.736	.896*	.962**	-.361	.874	1	.818
	Sig. (2-tailed)	.056	.053	.156	.040	.009	.550	.052		.090
	N	5	5	5	5	5	5	5	5	5
X9	Pearson Correlation	-.927*	-.527	-.859	.980**	.933*	-.032	.885*	.818	1
	Sig. (2-tailed)	.024	.361	.062	.003	.020	.960	.046	.090	
	N	5	5	5	5	5	5	5	5	5
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Inter-Correlation Analysis – Bank of Baroda: The inter-correlation analysis for Bank of Baroda reveals a strong and statistically significant relationship among liquidity, profitability, efficiency, and solvency variables, highlighting the dynamic interaction between financial dimensions. The current ratio (X1) exhibits a strong positive correlation with the cash ratio (X3) ($r = 0.970$, $p < 0.01$), indicating that improvements in overall liquidity are closely associated with enhanced immediate cash availability. However, X1 shows a strong and significant negative correlation with return on total assets (X4) ($r = –0.971$, $p < 0.01$), return on equity (X5) ($r = –0.960$, $p < 0.01$), and net profit ratio (X9) ($r = –0.927$, $p < 0.05$), reflecting a pronounced liquidity–profitability trade-off, whereby higher liquidity levels may constrain profit generation. Similarly, the cash ratio (X3) demonstrates a strong negative relationship with profitability measures, particularly X4 ($r = –0.905$, $p < 0.05$), reinforcing the inverse association between idle cash holdings and earning efficiency. In contrast, strong positive correlations are observed among profitability indicators, with return on total assets (X4) showing exceptionally high positive correlations with return on equity (X5) ($r = 0.982$, $p < 0.01$) and net profit ratio (X9) ($r = 0.980$, $p < 0.01$), signifying consistent profit-generating performance and operational synergy. Moreover, debt ratio (X7) and debt–equity ratio (X8) are strongly and positively correlated with profitability variables, particularly X7 with X4 ($r = 0.951$, $p < 0.05$) and X5 ($r = 0.953$, $p < 0.05$), suggesting that effective leverage utilization contributes positively to earnings enhancement. Conversely, liquidity ratios maintain strong negative correlations with leverage measures, notably between X1 and X7 ($r = –0.993$, $p < 0.01$), indicating that higher debt exposure tends to reduce short-term liquidity.

The working capital turnover ratio (X6) shows weak and statistically insignificant correlations with most variables, implying limited influence on overall financial performance. Overall, the correlation structure clearly indicates that Bank of Baroda strategically balances liquidity, profitability, and leverage, prioritizing efficient asset and capital utilization while maintaining adequate liquidity, thereby reflecting a well-managed financial framework.

CHART NO:1

CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN BANK OF BARODA

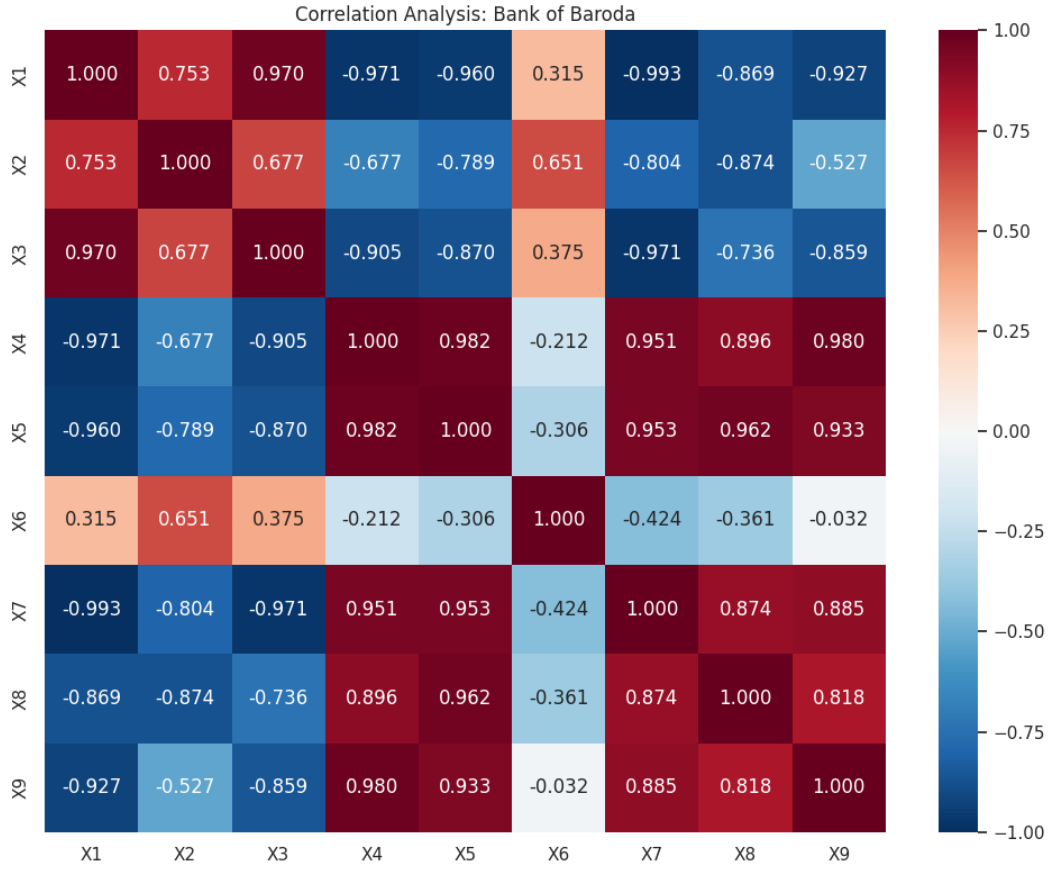


Table: 5 CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN BANK OF INDIA.

Correlations									
		X1	X2	X3	X4	X5	X6	X7	X8	X9
X1	Pearson Correlation	1	.946*	.977**	-.874	-.794	.261	-.978**	.026	-.867
	Sig. (2-tailed)		.015	.004	.053	.109	.671	.004	.966	.057
	N	5	5	5	5	5	5	5	5	5
X2	Pearson Correlation	.946*	1	.993**	-.791	-.672	-.059	-.874	.301	-.820

	Sig. (2-tailed)	.015		.001	.111	.214	.925	.052	.622	.089
	N	5	5	5	5	5	5	5	5	5
X3	Pearson Correlation	.977**	.993**	1	-.821	-.714	.059	-.919*	.212	-.838
	Sig. (2-tailed)	.004	.001		.088	.176	.925	.027	.732	.076
	N	5	5	5	5	5	5	5	5	5
X4	Pearson Correlation	-.874	-.791	-.821	1	.981**	-.251	.939*	.278	.992**
	Sig. (2-tailed)	.053	.111	.088		.003	.684	.018	.650	.001
	N	5	5	5	5	5	5	5	5	5
X5	Pearson Correlation	-.794	-.672	-.714	.981**	1	-.355	.893*	.454	.966**
	Sig. (2-tailed)	.109	.214	.176	.003		.557	.041	.442	.008
	N	5	5	5	5	5	5	5	5	5
X6	Pearson Correlation	.261	-.059	.059	-.251	-.355	1	-.377	-.758	-.152
	Sig. (2-tailed)	.671	.925	.925	.684	.557		.532	.138	.808
	N	5	5	5	5	5	5	5	5	5
X7	Pearson Correlation	-.978**	-.874	-.919*	.939*	.893*	-.377	1	.170	.919*
	Sig. (2-tailed)	.004	.052	.027	.018	.041	.532		.784	.027
	N	5	5	5	5	5	5	5	5	5
X8	Pearson Correlation	.026	.301	.212	.278	.454	-.758	.170	1	.213
	Sig. (2-tailed)	.966	.622	.732	.650	.442	.138	.784		.730
	N	5	5	5	5	5	5	5	5	5
X9	Pearson Correlation	-.867	-.820	-.838	.992**	.966**	-.152	.919*	.213	1
	Sig. (2-tailed)	.057	.089	.076	.001	.008	.808	.027	.730	
	N	5	5	5	5	5	5	5	5	5
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Inter-Correlation Analysis – Bank of India: The inter-correlation analysis for Bank of India reveals strong and statistically significant relationships among liquidity, profitability, efficiency, and solvency variables, indicating a dynamic financial structure. The current ratio (X1) exhibits a strong positive correlation with the quick ratio (X2) ($r = 0.946$, $p < 0.05$) and cash ratio (X3) ($r = 0.977$, $p < 0.01$), suggesting that improvements in overall liquidity are closely supported by increases in immediate liquid assets. However, X1 shows a strong and significant negative correlation with the debt ratio (X7) ($r = –0.978$, $p < 0.01$), reflecting an inverse relationship between short-term liquidity and leverage. Similarly, the quick ratio (X2) and cash ratio (X3) are strongly and positively related ($r = 0.993$, $p < 0.01$), indicating consistency in liquidity management practices. In contrast, liquidity ratios generally exhibit negative relationships with profitability indicators, such as return on total assets (X4), return

on equity (X5), and net profit ratio (X9), highlighting the existence of a liquidity–profitability trade-off. Strong positive and statistically significant relationships are observed among profitability variables, with return on total assets (X4) displaying exceptionally high correlations with return on equity (X5) ($r = 0.981$, $p < 0.01$) and net profit ratio (X9) ($r = 0.992$, $p < 0.01$), confirming strong operational efficiency and consistent profit generation. Furthermore, the debt ratio (X7) shows strong positive correlations with X4 ($r = 0.939$, $p < 0.05$), X5 ($r = 0.893$, $p < 0.05$), and X9 ($r = 0.919$, $p < 0.05$), indicating that leverage is effectively utilized to enhance profitability. The working capital turnover ratio (X6) and debt–equity ratio (X8) display weak and statistically insignificant relationships with most variables, suggesting limited influence on the overall financial performance. Overall, the correlation structure suggests that Bank of India strategically balances liquidity and leverage to optimize profitability while maintaining financial stability.

CHART NO: 2 CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN BANK OF INDIA.

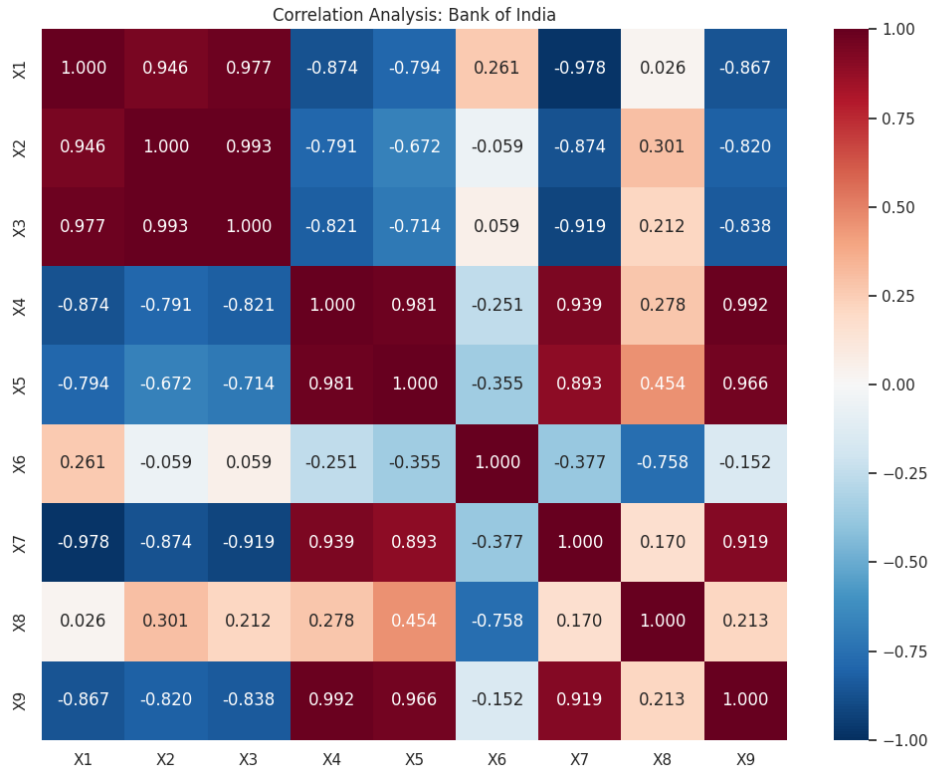


Table: 6 CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN INDIAN BANK.

Correlations

		X1	X2	X3	X4	X5	X6	X7	X8	X9
X1	Pearson Correlation	1	.995**	.962**	-.835	-.821	.484	-.972**	-.806	-.791
	Sig. (2-tailed)		.000	.009	.078	.089	.409	.006	.099	.111
	N	5	5	5	5	5	5	5	5	5
X2	Pearson Correlation	.995**	1	.945*	-.822	-.805	.458	-.963**	-.788	-.782
	Sig. (2-tailed)	.000		.015	.087	.100	.438	.009	.113	.118
	N	5	5	5	5	5	5	5	5	5
X3	Pearson Correlation	.962**	.945*	1	-.680	-.667	.331	-.916*	-.674	-.620
	Sig. (2-tailed)	.009	.015		.206	.219	.586	.029	.212	.265
	N	5	5	5	5	5	5	5	5	5
X4	Pearson Correlation	-.835	-.822	-.680	1	.997**	-.774	.876	.942*	.993**
	Sig. (2-tailed)	.078	.087	.206		.000	.124	.052	.017	.001
	N	5	5	5	5	5	5	5	5	5
X5	Pearson Correlation	-.821	-.805	-.667	.997**	1	-.821	.850	.964**	.983**
	Sig. (2-tailed)	.089	.100	.219	.000		.089	.068	.008	.003
	N	5	5	5	5	5	5	5	5	5
X6	Pearson Correlation	.484	.458	.331	-.774	-.821	1	-.443	-.905*	-.735
	Sig. (2-tailed)	.409	.438	.586	.124	.089		.455	.034	.157
	N	5	5	5	5	5	5	5	5	5
X7	Pearson Correlation	-.972**	-.963**	-.916*	.876	.850	-.443	1	.777	.855
	Sig. (2-tailed)	.006	.009	.029	.052	.068	.455		.122	.065
	N	5	5	5	5	5	5	5	5	5
X8	Pearson Correlation	-.806	-.788	-.674	.942*	.964**	-.905*	.777	1	.901*
	Sig. (2-tailed)	.099	.113	.212	.017	.008	.034	.122		.037
	N	5	5	5	5	5	5	5	5	5
X9	Pearson Correlation	-.791	-.782	-.620	.993**	.983**	-.735	.855	.901*	1
	Sig. (2-tailed)	.111	.118	.265	.001	.003	.157	.065	.037	
	N	5	5	5	5	5	5	5	5	5
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Inter-Correlation Analysis: Interpretation: The inter-correlation analysis of selected financial variables in Indian Bank reveals strong and meaningful relationships among liquidity, profitability, efficiency, and solvency indicators. The liquidity ratios—Current Ratio (X1), Quick Ratio (X2), and Cash Ratio (X3)—exhibit very high and statistically significant positive correlations with each other (r ranging from 0.945 to 0.995, $p < 0.05$ and $p < 0.01$), indicating a consistent and synchronized liquidity management policy. This

suggests that improvements in one liquidity measure are closely associated with improvements in the others. However, these liquidity ratios show strong negative correlations with the profitability indicators, particularly Return on Total Assets (X4), Return on Equity (X5), and Net Profit Ratio (X9), implying a liquidity–profitability trade-off. In other words, maintaining higher liquidity appears to reduce profitability, as excess idle funds may limit income generation.

Profitability ratios X4, X5, and X9 are extremely strongly and positively correlated with each other ($r > 0.98$, $p < 0.01$), signifying that profitability performance is internally consistent, where improvements in asset utilization and equity returns translate directly into higher net profit margins. Furthermore, the solvency ratios—Debt Ratio (X7) and Debt-to-Equity Ratio (X8)—are positively associated with profitability measures, indicating that moderate leverage may contribute positively to profit generation. However, they show strong negative correlations with liquidity ratios, suggesting that higher debt levels reduce the liquidity position of the bank. The Working Capital Turnover Ratio (X6) exhibits weak and mostly insignificant correlations with other variables, except for a significant negative relationship with Debt-to-Equity Ratio (X8), implying that higher leverage may adversely affect the efficiency of working capital utilization.

Overall, the results indicate a complex but systematic relationship among liquidity, profitability, efficiency, and solvency variables. The findings strongly support the existence of a liquidity–profitability trade-off in Indian Bank, where higher liquidity is associated with lower profitability, while efficient leverage management appears to enhance profitability. This highlights the importance of achieving an optimal balance between maintaining adequate liquidity and maximizing returns for sustainable financial performance.

CHART NO:

CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN INDIAN BANK

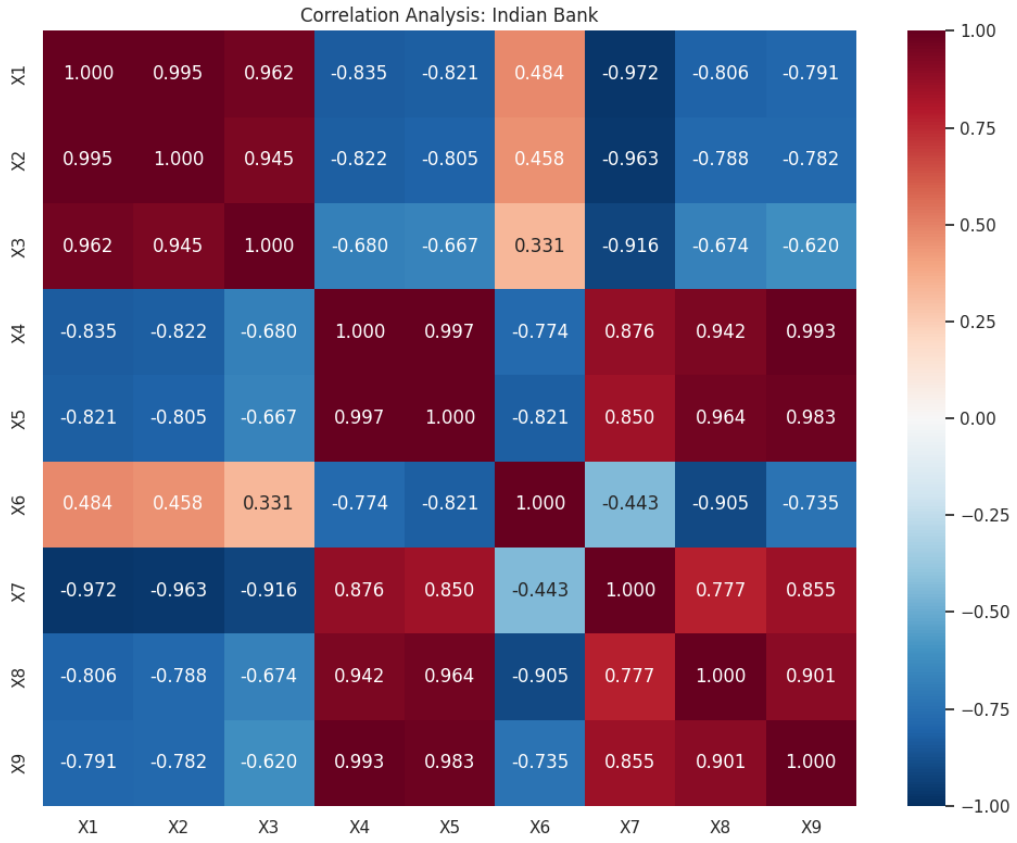


TABLE NO:7 CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN INDIAN OVERSEAS BANK.

Correlations									
		X1	X2	X3	X4	X5	X6	X7	X8	X9
X1	Pearson Correlation	1	.988**	.971**	-.892*	-.934*	-.461	-.989**	-.877	-.787
	Sig. (2-tailed)		.002	.006	.042	.020	.435	.001	.051	.114
	N	5	5	5	5	5	5	5	5	5
X2	Pearson Correlation	.988**	1	.986**	-.879*	-.903*	-.482	-.962**	-.826	-.776
	Sig. (2-tailed)	.002		.002	.050	.035	.410	.009	.085	.123
	N	5	5	5	5	5	5	5	5	5
X3	Pearson Correlation	.971**	.986**	1	-.814	-.837	-.517	-.932*	-.777	-.717
	Sig. (2-tailed)	.006	.002		.093	.077	.373	.021	.122	.173
	N	5	5	5	5	5	5	5	5	5
X4	Pearson Correlation	-.892*	-.879*	-.814	1	.974**	.618	.876	.722	.971**
	Sig. (2-tailed)	.042	.050	.093		.005	.267	.051	.169	.006

	N	5	5	5	5	5	5	5	5	5
X5	Pearson Correlation	-.934*	-.903*	-.837	.974**	1	.456	.946*	.857	.899*
	Sig. (2-tailed)	.020	.035	.077	.005		.441	.015	.064	.038
	N	5	5	5	5	5	5	5	5	5
X6	Pearson Correlation	-.461	-.482	-.517	.618	.456	1	.345	.012	.754
	Sig. (2-tailed)	.435	.410	.373	.267	.441		.570	.985	.141
	N	5	5	5	5	5	5	5	5	5
X7	Pearson Correlation	-.989**	-.962**	-.932*	.876	.946*	.345	1	.938*	.751
	Sig. (2-tailed)	.001	.009	.021	.051	.015	.570		.018	.144
	N	5	5	5	5	5	5	5	5	5
X8	Pearson Correlation	-.877	-.826	-.777	.722	.857	.012	.938*	1	.547
	Sig. (2-tailed)	.051	.085	.122	.169	.064	.985	.018		.340
	N	5	5	5	5	5	5	5	5	5
X9	Pearson Correlation	-.787	-.776	-.717	.971**	.899*	.754	.751	.547	1
	Sig. (2-tailed)	.114	.123	.173	.006	.038	.141	.144	.340	
	N	5	5	5	5	5	5	5	5	5
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Inter-Correlation Analysis: Interpretation – Indian Overseas Bank: The inter-correlation analysis for Indian Overseas Bank reveals strong and statistically significant relationships among liquidity, profitability, efficiency, and solvency variables. The liquidity ratios—Current Ratio (X1), Quick Ratio (X2), and Cash Ratio (X3)—exhibit very high and significant positive correlations with each other (r ranging from 0.971 to 0.988, $p < 0.01$), indicating a consistent and integrated liquidity management framework. This suggests that improvements in one liquidity indicator are closely accompanied by similar movements in the others. However, these liquidity ratios show strong and significant negative correlations with profitability measures such as Return on Total Assets (X4) and Return on Equity (X5), highlighting a clear liquidity–profitability trade-off, where maintaining higher levels of liquidity may constrain profitability due to lower deployment of funds into income-generating assets.

Profitability ratios X4, X5, and Net Profit Ratio (X9) are strongly and positively correlated with one another (r ranging from 0.899 to 0.974, $p < 0.05$ and $p < 0.01$), reflecting a consistent profitability structure in which efficient asset utilization and higher returns on equity contribute directly to improved profit margins. Solvency indicators—Debt Ratio (X7) and Debt-to-Equity Ratio (X8)—display strong positive correlations with profitability

variables, particularly X5 and X9, implying that controlled leverage may enhance earnings performance. Conversely, these solvency measures exhibit significant negative relationships with liquidity ratios, suggesting that higher reliance on debt financing tends to reduce the bank's liquidity position.

The Working Capital Turnover Ratio (X6) shows relatively weak and statistically insignificant correlations with most variables, indicating limited direct influence on either liquidity or profitability within the observed period. Overall, the findings suggest that Indian Overseas Bank experiences a pronounced liquidity–profitability trade-off, wherein higher liquidity is associated with reduced profitability, while prudent leverage management supports profit generation. These results underline the importance of maintaining an optimal balance between liquidity, solvency, and profitability to achieve sustainable financial performance.

CHART NO

CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN INDIAN OVERSEAS BANK

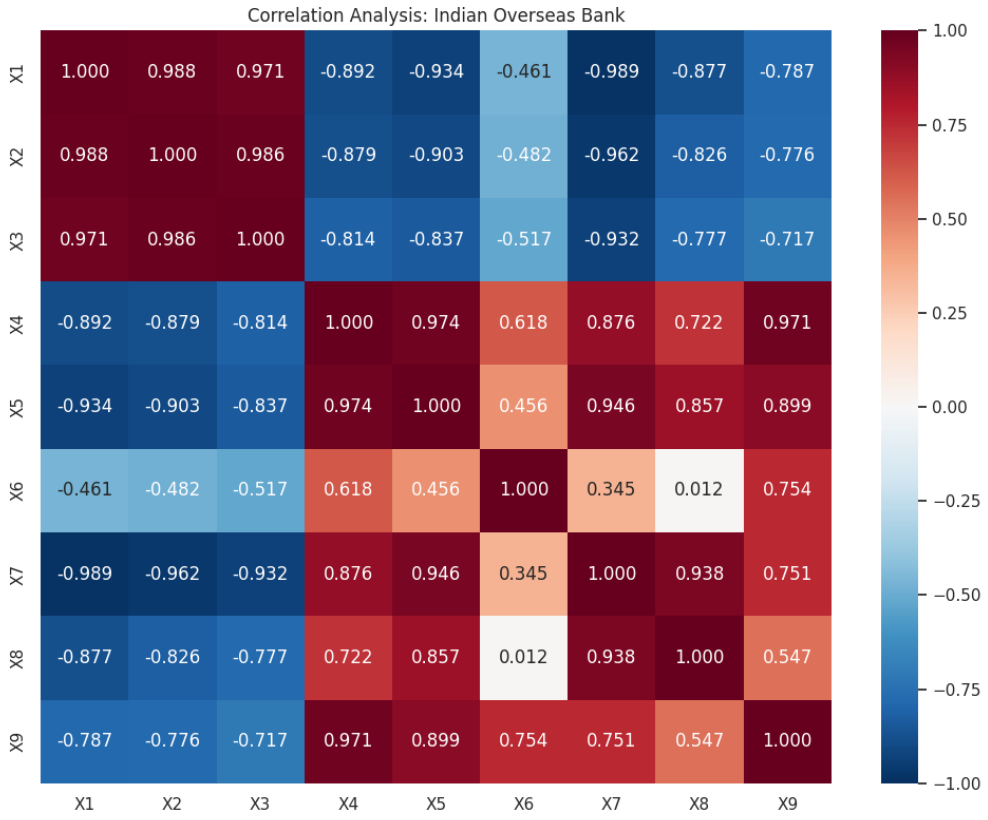


TABLE NO: 8 CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN STATE BANK OF INDIA.

Correlations										
		X1	X2	X3	X4	X5	X6	X7	X8	X9
X1	Pearson Correlation	1	.995**	.977**	-.948*	-.981**	.635	-.992**	-.977**	-.852
	Sig. (2-tailed)		.000	.004	.014	.003	.250	.001	.004	.067
	N	5	5	5	5	5	5	5	5	5
X2	Pearson Correlation	.995**	1	.993**	-.957*	-.979**	.582	-.991**	-.967**	-.868
	Sig. (2-tailed)	.000		.001	.011	.004	.303	.001	.007	.056
	N	5	5	5	5	5	5	5	5	5
X3	Pearson Correlation	.977**	.993**	1	-.956*	-.966**	.512	-.977**	-.942*	-.876
	Sig. (2-tailed)	.004	.001		.011	.008	.378	.004	.016	.052
	N	5	5	5	5	5	5	5	5	5
X4	Pearson Correlation	-.948*	-.957*	-.956*	1	.986**	-.372	.980**	.952*	.967**
	Sig. (2-tailed)	.014	.011	.011		.002	.537	.003	.013	.007
	N	5	5	5	5	5	5	5	5	5
X5	Pearson Correlation	-.981**	-.979**	-.966**	.986**	1	-.516	.993**	.989**	.915*
	Sig. (2-tailed)	.003	.004	.008	.002		.373	.001	.001	.029
	N	5	5	5	5	5	5	5	5	5
X6	Pearson Correlation	.635	.582	.512	-.372	-.516	1	-.537	-.614	-.157
	Sig. (2-tailed)	.250	.303	.378	.537	.373		.351	.270	.801
	N	5	5	5	5	5	5	5	5	5
X7	Pearson Correlation	-.992**	-.991**	-.977**	.980**	.993**	-.537	1	.975**	.913*
	Sig. (2-tailed)	.001	.001	.004	.003	.001	.351		.005	.031
	N	5	5	5	5	5	5	5	5	5
X8	Pearson Correlation	-.977**	-.967**	-.942*	.952*	.989**	-.614	.975**	1	.849
	Sig. (2-tailed)	.004	.007	.016	.013	.001	.270	.005		.069
	N	5	5	5	5	5	5	5	5	5
X9	Pearson Correlation	-.852	-.868	-.876	.967**	.915*	-.157	.913*	.849	1
	Sig. (2-tailed)	.067	.056	.052	.007	.029	.801	.031	.069	
	N	5	5	5	5	5	5	5	5	5
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Inter-Correlation Analysis: Interpretation – State Bank of India The inter-correlation analysis for State Bank of India (SBI) reveals very strong and statistically significant relationships among liquidity, profitability, efficiency, and solvency indicators. The liquidity

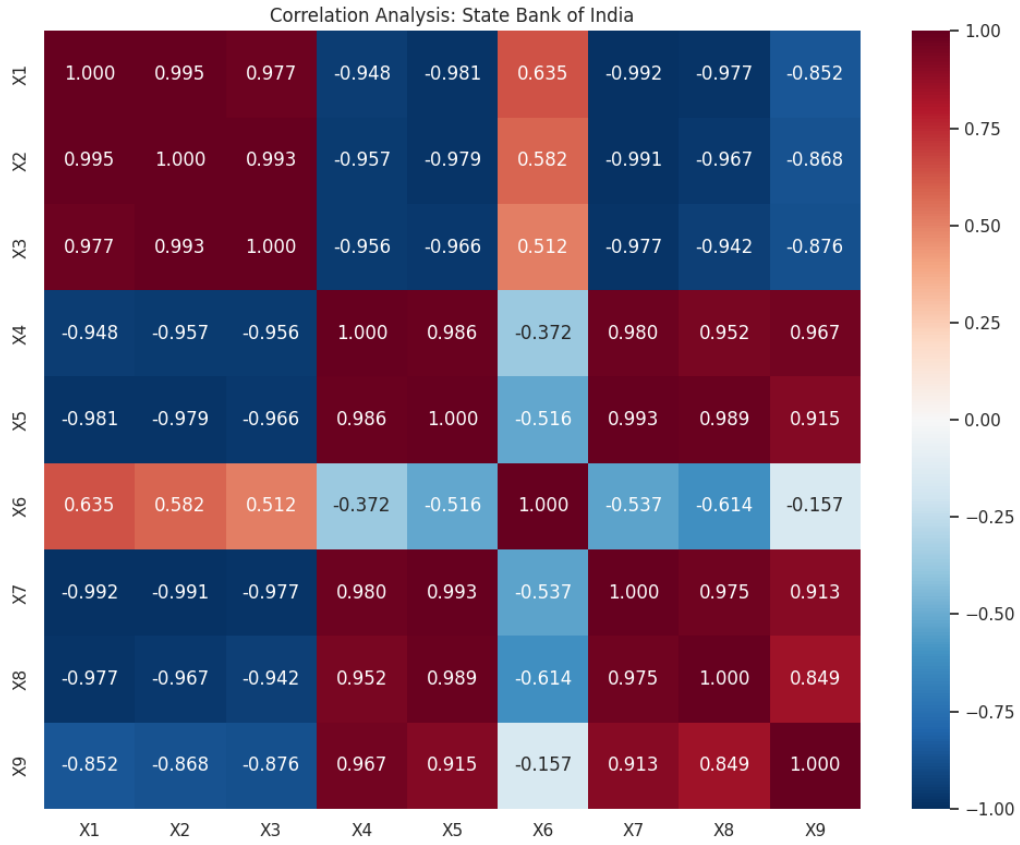
ratios—Current Ratio (X1), Quick Ratio (X2), and Cash Ratio (X3)—are extremely highly and positively correlated with each other (r ranging from 0.977 to 0.995, $p < 0.01$), indicating a well-coordinated liquidity management system where changes in one liquidity measure are closely reflected in the others. However, these liquidity ratios exhibit strong and significant negative correlations with profitability measures, namely Return on Total Assets (X4), Return on Equity (X5), and Net Profit Ratio (X9), demonstrating a pronounced liquidity–profitability trade-off. This suggests that higher liquidity levels may restrict the bank's ability to deploy funds effectively into income-generating assets, thereby reducing profitability.

The profitability indicators X4, X5, and X9 show strong and positive interrelationships (r ranging from 0.915 to 0.986, $p < 0.05$ and $p < 0.01$), reflecting consistent profit performance driven by efficient asset utilization and equity management. The solvency measures—Debt Ratio (X7) and Debt-to-Equity Ratio (X8)—display strong and significant positive correlations with profitability variables, especially X5 and X9, implying that prudent leverage enhances earnings capacity. Conversely, these solvency ratios are strongly and negatively correlated with liquidity indicators, suggesting that increased leverage is associated with reduced liquidity.

The Working Capital Turnover Ratio (X6) shows weak and statistically insignificant correlations with most variables, indicating a limited role in influencing either liquidity or profitability during the study period. Overall, the findings emphasize the existence of a strong liquidity–profitability trade-off in SBI, highlighting the importance of maintaining an optimal balance between liquidity, solvency, and profitability to ensure financial stability and sustainable growth.

CHART NO

CORRELATION ANALYSIS BETWEEN SELECTED VARIABLES IN STATE BANK OF INDIA



CONCLUSION

The study analyzed the financial performance of selected public sector banks in India—Bank of Baroda, Bank of India, Indian Bank, Indian Overseas Bank, and State Bank of India—during the period 2021–2025 using financial ratio analysis, trend analysis, and ANOVA. The results indicate a gradual decline in liquidity ratios such as current ratio, quick ratio, and cash ratio, suggesting that banks are maintaining lower liquid assets relative to short-term obligations. In contrast, profitability indicators including return on total assets, return on equity, and net profit ratio show a significant improvement over the study period, reflecting better operational efficiency and asset utilization. The solvency ratios also reveal increasing leverage among banks. The ANOVA results show significant differences among banks in certain ratios, while others remain relatively uniform. Overall, the study concludes that public sector banks are increasingly focusing on profitability and financial expansion, but maintaining a balanced approach between liquidity, profitability, and solvency is essential for long-term financial stability.

SUGGESTIONS

Based on the findings of the study, the following suggestions are offered:

1. **Improvement in Liquidity Management**

Public sector banks should maintain an optimal level of liquidity to meet short-term obligations and unexpected financial shocks. Adequate liquidity buffers will enhance financial stability and customer confidence.

2. **Balanced Liquidity–Profitability Strategy**

Banks should strike a proper balance between profitability and liquidity. Excessive focus on profitability through reduced liquidity may expose banks to operational risks and financial stress during economic uncertainties.

3. **Strengthening Risk Management Practices**

With the increasing level of leverage indicated by rising debt and debt–equity ratios, banks should adopt strong risk management mechanisms to minimize financial risk and maintain capital adequacy.

4. **Efficient Utilization of Assets**

Banks should continue improving asset utilization efficiency to sustain the positive growth observed in return on assets and return on equity.

5. **Adoption of Advanced Financial Monitoring Systems**

Implementing advanced data analytics and financial monitoring tools can help banks track performance indicators more effectively and take timely corrective actions.

6. **Focus on Sustainable Profit Growth**

Banks should aim for sustainable profitability by improving operational efficiency, reducing non-performing assets, and strengthening credit management practices.

7. **Policy Support and Regulatory Monitoring**

Regulatory authorities such as the Reserve Bank of India should continue monitoring liquidity and leverage levels to ensure the long-term stability of the banking system.

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