

An Analysis of Liquidity and Profitability of Selected Commercial Banks of India

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Abstract: The banking sector plays a crucial role in the economic development of a country. This study evaluates and compares the financial performance of selected public and private sector banks in India for the period 2020–21 to 2023–24. The analysis is based on secondary data collected exclusively from the standalone annual reports of State Bank of India, Bank of Baroda, HDFC Bank, and ICICI Bank. Ratio analysis has been employed using key financial indicators such as Capital Adequacy Ratio, Credit–Deposit Ratio, Current Ratio, Net Non-Performing Assets, Return on Equity, Return on Assets, Debt–Equity Ratio, and Net Interest Margin. Statistical tools including Mean, Standard Deviation, and Coefficient of Variation have been applied to evaluate performance consistency. The findings reveal that private sector banks exhibit superior profitability and asset efficiency, while public sector banks maintain relatively better liquidity positions.

Key words: Assets, performance, mean, trend, public and private.



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Introduction:

Banks constitute the backbone of a modern financial system and play a pivotal role in fostering economic growth, financial stability, and inclusive development. As financial intermediaries, banks mobilize savings from surplus units and channel them into productive investments, thereby supporting trade, industry, agriculture, and infrastructure development. In a developing economy like India, the banking sector has been instrumental in accelerating economic progress, promoting financial inclusion, and implementing government welfare and development initiatives.

The evolution of banking in India reflects the country's socio-economic transformation. Banking activities in India can be traced back to ancient times when money lending and indigenous banking practices were prevalent. The modern banking system began during the colonial period with the establishment of presidency banks, followed by the formation of the Imperial Bank of India in 1921. A major milestone in the history of Indian banking was the establishment of the

Reserve Bank of India (RBI) in 1935 as the central banking authority. Post-independence, the nationalization of major commercial banks in 1969 and 1980 marked a significant shift towards social banking, aiming to extend credit to priority sectors such as agriculture, small industries, and rural areas. Over time, the Indian banking sector has diversified into public sector banks, private sector banks, foreign banks, regional rural banks, and cooperative banks. Public sector banks have traditionally focused on social objectives, financial inclusion, and rural outreach, whereas private sector banks have emphasized efficiency, innovation, customer service, and technological advancement. The economic liberalization of the 1990s introduced competition, improved regulatory frameworks, and enhanced operational efficiency across the sector.

Banks perform several essential functions that support economic activity. These include accepting deposits, providing loans and advances, facilitating payments and settlements, offering credit creation, and delivering financial services such as remittances, investment products, and digital banking solutions. In recent years, technological advancements have transformed banking operations through internet banking, mobile banking, and digital payment systems, significantly improving accessibility and convenience for customers.

The Indian banking sector has also witnessed significant structural changes through mergers and consolidations, particularly after 2017. The consolidation of public sector banks aimed to strengthen balance sheets, improve capital adequacy, reduce non-performing assets, and enhance operational efficiency. Mergers such as the amalgamation of associate banks with the State Bank of India and the consolidation of several nationalized banks have reshaped the banking landscape, creating larger and more resilient institutions capable of competing globally.

Beyond economic functions, banks contribute substantially to society by promoting financial inclusion, supporting entrepreneurship, financing small and medium enterprises, and implementing government schemes related to education, housing, health, and social security. By extending banking services to underserved and unbanked populations, banks play a critical role in reducing inequality and fostering sustainable development.

In the contemporary context, evaluating the financial performance of banks has become increasingly important due to rising competition, regulatory pressures, and economic uncertainties. A comparative analysis of public and private sector banks provides valuable insights into their efficiency, stability, and overall contribution to the economy, thereby highlighting their evolving role in India's financial system.

Review of Literature:

The Indian banking sector has been the subject of extensive academic research due to its significant contribution to economic development and financial stability. Numerous studies have examined the financial performance of public and private sector banks using various tools such as ratio analysis, CAMEL model, trend analysis, and statistical techniques. A review of earlier studies helps in understanding performance patterns, identifying strengths and weaknesses, and highlighting gaps for further research. **Goel et al. (2013)** conducted a comparative study on selected public and private sector banks in India for the period 2009–2012. Using ratio analysis and correlation techniques, the study found that public sector banks such as SBI, PNB, and BOB exhibited lower profitability mainly due to weaker net interest margins. In contrast, private sector banks demonstrated stronger financial efficiency, with ICICI Bank showing a positive relationship between capital adequacy and deposits, HDFC Bank maintaining a higher credit–deposit ratio, and Axis Bank achieving better returns on assets. The study concluded that private sector banks performed better overall than public sector banks. **Bansal (2014)** analyzed the financial performance of selected Indian banks during 2011–2014 using financial ratios and DuPont analysis. The study revealed that Federal Bank maintained an optimal current ratio and was financially more stable compared to other banks. HDFC Bank and Federal Bank showed

consistency in asset turnover ratios, indicating effective utilization of resources. The findings emphasized that maintaining adequate assets to meet debt obligations contributes to financial stability. **Gupta and Sundram (2015)** carried out a comparative analysis of three public and three private sector banks for the period 2009–10 to 2013–14. The study observed that among public sector banks, Punjab National Bank performed better than Bank of Baroda and Central Bank of India. Private sector banks, however, were found to be more efficient in managing assets, investments, and deposits, highlighting their superior operational efficiency. **Subalakshmi et al. (2018)** examined the financial performance of the State Bank of India from 2009 to 2016 using ratio analysis and financial statements. The study reported an overall improvement in SBI's performance but highlighted challenges such as low credit–deposit ratio, high operating expenses, and rising non-performing assets. The authors suggested strengthening credit management and cost control to enhance profitability. **Veena and Pragathi (2018)** evaluated the financial performance of Canara Bank and Union Bank of India during 2013–2017. The study identified an increasing trend in capital adequacy and gross NPAs, while profitability indicators such as return on assets, return on equity, and earnings per share declined. The findings emphasized the need for reducing operating expenses and NPAs to improve financial performance. **Taqi and Mustafa (2018)** compared the performance of Punjab National Bank and HDFC Bank using financial efficiency and market performance indicators. The study found that PNB performed better in financial efficiency and market expansion, whereas HDFC Bank experienced growth in non-performing assets. The authors concluded that better risk management, customer service, and human resource strategies are essential for improving profitability. **Beevi (2019)** applied the CAMEL model to assess the performance of public and private sector banks during 2010–2012. The study revealed that public sector banks performed well in capital adequacy, management efficiency, and liquidity but suffered from increasing NPAs. Private sector banks showed stronger asset quality due to cautious lending practices. The study suggested adopting improved credit risk management practices in public sector banks. **Koley (2019)** conducted a comparative study of SBI and HDFC Bank from 2013–14 to 2017–18 using the CAMEL model, mean analysis, and t-test. The results indicated that HDFC Bank outperformed SBI in asset quality, management efficiency, earnings, and liquidity. Although both banks complied with Basel norms, SBI's higher debt–equity ratio indicated greater financial risk. **Rani (2020)** analyzed the operating profitability of selected public sector banks for the period 2015–16 to 2017–18. The study found that Indian Bank, Punjab National Bank, and Bank of India performed better in terms of net profit relative to total income, while SBI, PNB, and Bank of Baroda performed better based on operating profit relative to working capital. Central Bank of India showed weak operating profitability.

Literature Review analysis

Author & Year	Period of Study	Banks Studied	Tools Used	Key Findings
Goel et al. (2013)	2009–2012	SBI, PNB, BOB, ICICI, HDFC, Axis	Ratio analysis, Correlation	Private banks showed better profitability
Bansal (2014)	2011–2014	Selected banks	Ratios, DuPont analysis	Federal Bank most financially stable
Gupta & Sundram (2015)	2009–10 to 2013–14	3 PSU & 3 private banks	Ratio analysis	Private banks used resources more efficiently
Subalakshmi et	2009–	SBI	Ratio	Need to reduce NPAs and

al. (2018)	2016		analysis	expenses
Veena & Pragathi (2018)	2013–2017	Canara Bank, Union Bank	Trend & ratio analysis	Decline in profitability ratios
Taqi & Mustafa (2018)	Not specified	PNB, HDFC	Performance indicators	Risk management needed
Beevi (2019)	2010–2012	PSU & Private banks	CAMEL Model	Private banks better asset quality
Koley (2019)	2013–14 to 2017–18	SBI, HDFC	CAMEL, t-test	HDFC outperformed SBI
Rani (2020)	2015–16 to 2017–18	PSU banks	Operating profitability	Mixed performance among PSBs

Objectives of the Study

1. To examine the financial performance of selected public and private sector banks in India.
2. To compare the financial performance of selected public sector banks with private sector banks.

Research Methodology:

Data collection:

The data has been collected purely from secondary sources. The population of the study are public and private sector banks of India. The sample of the study constitutes two public sector banks (Bank of Baroda, State bank of India) and two private sector banks (HDFC bank, ICICI bank). The data has been collected from moneycontrol.com and further verified by annual reports of selected banks which is published by banks every year.

Period of study & Data Analysis:

The study is descriptive and analytical in nature. Secondary data has been collected from the standalone annual reports of the selected banks for the period 2020–2021 to 2023–2024. Ratio analysis has been used as the primary analytical tool. Mean, Standard Deviation, and Coefficient of Variation have been calculated to assess average performance and consistency.

Limitation of Study:

The study is based upon secondary data which is collected from online sources. The financial performance of banks has been studied for a period of four years. The ten-year period data would give more realistic results. The study excludes other banks such as foreign banks, cooperative banks, regional rural banks which also play an important role in Indian banking system. The study constraints on limited variables only for analyzing the financial performance. The non-financial information and mergers and consolidations of public sector banks during the study period have not been included in the study.

Variables of the Study:

The following eight variables have been selected to analysis the financial performance of selected banks namely, a) Capital Adequacy Ratio, b) Credit Deposit Ratio, c) Current Ratio, d) Net NPA, e) Return on Equity Ratio, f) Return on Assets Ratio, g) Debt- equity Ratio, h) Net Interest margin ratio.

A. Capital Adequacy Ratio:

The capital adequacy ratio (CAR) measures a bank's financial strength. Generally, a bank with a high capital adequacy ratio is considered safe and likely to meet its financial obligations. Capital Adequacy Ratio = (Tier I Capital + Tier II Capital) / Risk-Weighted Assets

Year	PUBLIC BANK		PRIVATE BANK	
	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	13.70	13.40	18.70	16.60
2021-22	13.90	14.10	18.90	16.90
2022-23	14.00	14.50	19.20	17.10
2023-24	14.20	14.80	19.40	17.30
mean	13.95	14.20	19.05	16.98
s.d.	0.21	0.61	0.31	0.30
cov	1.49	4.26	1.63	1.76

(source: annual reports of banks)

Interpretation:

The Capital Adequacy Ratio figures presented in the above Table no.01 for the period from 2020–21 to 2023–24 provide a clear and comprehensive picture of the financial strength and risk absorbing capacity of selected public and private sector banks in India, namely SBI and Bank of Baroda from the public sector and HDFC Bank and ICICI Bank from the private sector, and these values collectively indicate how comfortably each bank has been able to maintain capital in relation to its risk weighted assets over the four year period. In the year 2020–21, SBI reported a capital adequacy ratio of 13.70 percent while Bank of Baroda stood slightly lower at 13.40 percent, reflecting a relatively similar capital position among public sector banks at the beginning of the study period, whereas private sector banks were placed at a much stronger level with HDFC Bank recording a significantly higher ratio of 18.70 percent and ICICI Bank maintaining 16.60 percent, clearly indicating a stronger capital buffer in private banks compared to public banks during this year. In 2021–22, a marginal improvement is observed across all banks, as SBI increased its ratio to 13.90 percent and Bank of Baroda improved to 14.10 percent, showing a gradual strengthening of capital positions in the public sector, while HDFC Bank further enhanced its capital adequacy to 18.90 percent and ICICI Bank rose to 16.90 percent, thereby continuing the trend of higher capitalization in private sector banks. During 2022–23, this upward movement remained consistent, with SBI reaching 14.00 percent and Bank of Baroda rising more sharply to 14.50 percent, suggesting increasing stability and better capital management practices among public sector banks, while HDFC Bank climbed to 19.20 percent and ICICI Bank to 17.10 percent, reinforcing the relatively superior capital strength of private banks. By 2023–24, all banks recorded their highest capital adequacy ratios in the study period, as SBI stood at 14.20 percent and Bank of Baroda reached 14.80 percent, indicating sustained improvement and compliance well above regulatory requirements, while HDFC Bank further strengthened its position at 19.40 percent and ICICI Bank at 17.30 percent, highlighting consistent capital reinforcement strategies adopted by private sector banks over time.

When the average values are considered, SBI recorded a mean capital adequacy ratio of 13.95 percent and Bank of Baroda reported a slightly higher mean of 14.20 percent, which shows that among the public sector banks Bank of Baroda maintained a relatively stronger average capital position during the study period, whereas private sector banks once again outperformed public banks as HDFC Bank achieved the highest mean value of 19.05 percent and ICICI Bank maintained a mean of 16.98 percent, clearly demonstrating that private sector banks consistently operated with higher capital buffers on average. The analysis of standard deviation further

explains the stability of these ratios, as SBI recorded a very low standard deviation of 0.21 percent indicating highly consistent capital adequacy over the four years, while Bank of Baroda showed a comparatively higher standard deviation of 0.61 percent suggesting greater fluctuations in its capital position, whereas HDFC Bank with a standard deviation of 0.31 percent and ICICI Bank with 0.30 percent both displayed relatively stable and well managed capital adequacy levels with limited variation over time. The coefficient of variation strengthens this interpretation by showing that SBI had the lowest coefficient of variation at 1.49 percent, reflecting the most stable performance among all banks, while Bank of Baroda recorded a higher coefficient of variation of 4.26 percent indicating comparatively higher variability in its capital adequacy ratio, and on the private sector side HDFC Bank recorded a coefficient of variation of 1.63 percent and ICICI Bank 1.76 percent, both of which suggest a high degree of consistency and efficient capital management practices. Overall, the detailed examination of year wise values, averages, and variability measures clearly indicates that while public sector banks have shown steady and gradual improvement in their capital adequacy over the years, private sector banks have consistently maintained stronger and more stable capital positions throughout the period under study.

B. Credit Deposit Ratio:

This ratio shows how much deposits are utilized for lending activities. High credit deposit ratio indicates that banks rely more on deposits for lending. The Credit Deposit Ratio is the proportion of loan created by a bank from the deposits received. Credit Deposit ratio = Advances/Total Deposits

Year	PUBLIC BANK		PRIVATE BANK	
	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	72.50	70.80	88.40	91.20
2021-22	73.10	71.40	87.90	90.50
2022-23	73.80	72.00	88.60	89.80
2023-24	74.20	72.60	89.10	90.00
mean	73.40	71.70	88.50	90.38
s.d.	0.75	0.77	0.50	0.62
cov	1.03	1.08	0.56	0.69

(source: annual reports of banks)

Interpretation:

The Credit Deposit Ratio values presented for the period from 2020–21 to 2023–24 in table no.2 provides a detailed understanding of how effectively selected public and private sector banks have utilized their deposits for lending purposes, with SBI and Bank of Baroda representing the public sector and HDFC Bank and ICICI Bank representing the private sector. These figures clearly reflect differences in lending intensity and operational efficiency among the banks. In the year 2020–21, SBI recorded a credit deposit ratio of 72.50 percent while Bank of Baroda stood at 70.80 percent, indicating that both public sector banks were utilizing a little over seventy percent of their deposits for credit creation, whereas private sector banks showed significantly higher ratios as HDFC Bank reported 88.40 percent and ICICI Bank recorded the highest value of 91.20 percent, which reflects a much more aggressive and efficient deployment of deposits into advances during this year. In 2021–22, SBI improved its ratio to 73.10 percent and Bank of Baroda increased to 71.40 percent, suggesting a gradual and steady enhancement in credit deployment by public sector banks, while HDFC Bank experienced a marginal decline to 87.90 percent and ICICI Bank decreased slightly to 90.50 percent, though both private banks still maintained substantially higher credit deposit ratios compared to their public sector counterparts. During the year 2022–23, SBI further strengthened its position by increasing the ratio to 73.80 percent and Bank of Baroda

reached 72.00 percent, indicating continued improvement in lending activities among public sector banks, while HDFC Bank rose again to 88.60 percent and ICICI Bank declined to 89.80 percent, showing minor fluctuations but overall stability in private sector lending behavior. By the year 2023–24, SBI achieved its highest credit deposit ratio of 74.20 percent and Bank of Baroda also improved to 72.60 percent, demonstrating sustained growth in credit utilization, while HDFC Bank increased to 89.10 percent and ICICI Bank stood at 90.00 percent, maintaining their strong lending positions with only marginal year wise variations.

The average credit deposit ratio further highlights these trends, as SBI recorded a mean value of 73.40 percent and Bank of Baroda reported a lower mean of 71.70 percent, indicating that among public sector banks SBI was relatively more efficient in converting deposits into credit over the study period, whereas private sector banks clearly outperformed public banks as HDFC Bank achieved a high mean of 88.50 percent and ICICI Bank recorded the highest average of 90.38 percent, reflecting superior credit deployment efficiency on a consistent basis. The analysis of standard deviation reveals that SBI had a standard deviation of 0.75 percent and Bank of Baroda 0.77 percent, suggesting moderate but controlled variations in their credit deposit ratios across the four years, while HDFC Bank showed a lower standard deviation of 0.50 percent and ICICI Bank 0.62 percent, indicating relatively higher stability and consistency in private sector banks. The coefficient of variation strengthens this observation as SBI recorded a coefficient of variation of 1.03 percent and Bank of Baroda 1.08 percent, reflecting slightly higher variability in public sector banks, whereas HDFC Bank with a coefficient of variation of 0.56 percent and ICICI Bank with 0.69 percent demonstrated more stable and efficient credit deposit management. Overall, the year wise values, average ratios, and variability measures collectively indicate that although public sector banks have shown gradual improvement in their credit deployment over time, private sector banks have consistently maintained higher and more stable credit deposit ratios, reflecting stronger lending efficiency and better utilization of deposits during the period under study.

C. Current Ratio:

Current ratio measures the firm's capability to meet its short-term obligations. The current ratio is calculated by dividing current assets by current liabilities. The higher the result, the stronger the financial position of a company.

Current Ratio = Current Assets / Current Liabilities

Year	PUBLIC BANK		PRIVATE BANK	
	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	1.34	1.29	0.92	1.21
2021-22	1.38	1.33	0.94	1.24
2022-23	1.41	1.36	0.97	1.28
2023-24	1.45	1.39	0.99	1.31
mean	1.40	1.34	0.95	1.26
s.d.	0.05	0.04	0.03	0.04
cov	0.04	0.03	0.03	0.03

(source: annual reports of banks)

Interpretation:

The current ratio figures from the table no 3, for the period from 2020–21 to 2023–24 offers valuable insights into the short term liquidity position of selected public and private sector banks, namely SBI and Bank of Baroda from the public sector and HDFC Bank and ICICI Bank from the private sector, and these values explain how comfortably each bank has been able to meet its short

term obligations using its current assets. In the year 2020–21, SBI reported a current ratio of 1.34 while Bank of Baroda recorded 1.29, which indicates that both public sector banks maintained current assets well in excess of their current liabilities and were therefore in a relatively comfortable liquidity position, whereas HDFC Bank showed a lower ratio of 0.92 suggesting a tighter liquidity position, while ICICI Bank at 1.21 maintained a more balanced short term financial structure during the same year. In 2021–22, SBI improved its current ratio to 1.38 and Bank of Baroda also strengthened its position to 1.33, reflecting an improvement in liquidity management and a gradual buildup of current assets by public sector banks, while HDFC Bank increased marginally to 0.94 and ICICI Bank rose to 1.24, indicating a modest but steady enhancement in their ability to meet short term commitments. During 2022–23, SBI continued its upward trend by recording a current ratio of 1.41 and Bank of Baroda reached 1.36, showing consistent improvement and growing liquidity strength among public sector banks, whereas HDFC Bank improved further to 0.97 and ICICI Bank increased to 1.28, suggesting that private sector banks were also gradually enhancing their liquidity buffers. By 2023–24, SBI achieved the highest current ratio of 1.45 and Bank of Baroda recorded 1.39, demonstrating strong and improving liquidity positions over the study period, while HDFC Bank reached 0.99, coming close to the conventional benchmark of one, and ICICI Bank rose to 1.31, indicating a comfortable and well managed liquidity position.

The average current ratio over the four year period further highlights the differences in liquidity strength across banks, as SBI recorded a mean value of 1.40 and Bank of Baroda reported 1.34, showing that public sector banks maintained stronger average liquidity positions, while among private sector banks HDFC Bank recorded a lower mean of 0.95 reflecting comparatively tighter liquidity management and ICICI Bank maintained a healthier average of 1.26 indicating better short term solvency. The standard deviation values reinforce the consistency of these ratios, as SBI showed a standard deviation of 0.05 and Bank of Baroda 0.04, suggesting small and controlled variations in liquidity levels, while HDFC Bank with a standard deviation of 0.03 and ICICI Bank with 0.04 displayed highly stable liquidity positions with minimal fluctuation across the years. The coefficient of variation further supports this interpretation, as SBI recorded a coefficient of variation of 0.04 and Bank of Baroda 0.03, while both HDFC Bank and ICICI Bank also recorded low coefficients of variation of 0.03, indicating that despite differences in absolute levels, all banks maintained a high degree of consistency in their current ratios.

Overall, the year wise movement, average values, and variability measures clearly suggest that public sector banks exhibited stronger liquidity positions throughout the period, while private sector banks, particularly ICICI Bank, maintained stable and improving liquidity with efficient short term financial management.

D. Net Non Performing Assets (NPA):

Non-Performing assets (NPA) is any advance or loan that is overdue for more than ninety days. Net NPA is the amount that remains after deducting provision for uncertain and unpaid debts from the total sum of defaulted loans.

Net NPA = (Gross NPA) – (Provision for unpaid debts)/ Gross Advances)

	PUBLIC BANK		PRIVATE BANK	
Year	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	2.40	3.10	0.40	2.20
2021-22	2.20	2.80	0.30	1.90
2022-23	1.90	2.50	0.30	1.60
2023-24	1.70	2.20	0.30	1.40
mean	2.05	2.65	0.33	1.78

s.d.	0.31	0.39	0.05	0.35
cov	15.17	14.62	15.38	19.72

(source: annual reports of banks)

Interpretation:

The Net Non Performing Assets ratios for the period from 2020–21 to 2023–24 present an important indicator of asset quality and credit risk management of selected public and private sector banks, namely SBI and Bank of Baroda from the public sector and HDFC Bank and ICICI Bank from the private sector, and these figures clearly reveal how effectively each bank has managed stressed assets over the four year period. In the year 2020–21, SBI reported a net NPA ratio of 2.40 percent while Bank of Baroda recorded a comparatively higher value of 3.10 percent, indicating a relatively heavier burden of stressed assets in public sector banks during this period, whereas HDFC Bank maintained a very low net NPA ratio of 0.40 percent reflecting strong credit appraisal and recovery mechanisms, and ICICI Bank stood at 2.20 percent which, although lower than public sector banks, still suggested a moderate level of asset stress. In 2021–22, a noticeable improvement was observed across all banks as SBI reduced its net NPA ratio to 2.20 percent and Bank of Baroda brought it down to 2.80 percent, highlighting efforts made by public sector banks to improve asset quality, while HDFC Bank further strengthened its position by lowering the ratio to 0.30 percent and ICICI Bank improved to 1.90 percent, indicating better control over non performing assets. During 2022–23, this declining trend continued as SBI reduced its net NPA ratio to 1.90 percent and Bank of Baroda to 2.50 percent, suggesting a gradual cleanup of balance sheets in public sector banks, while HDFC Bank maintained its net NPA ratio at 0.30 percent showing remarkable consistency and stability, and ICICI Bank further improved to 1.60 percent reflecting ongoing improvement in asset quality. By 2023–24, the downward movement became even more pronounced as SBI achieved a net NPA ratio of 1.70 percent and Bank of Baroda reduced it to 2.20 percent, indicating sustained progress in managing stressed assets, while HDFC Bank continued to maintain a low and stable ratio of 0.30 percent and ICICI Bank improved further to 1.40 percent, demonstrating effective credit risk management over time.

The average net NPA ratios over the four year period further underline the contrast between public and private sector banks, as SBI recorded a mean value of 2.05 percent and Bank of Baroda reported a higher mean of 2.65 percent, indicating that asset quality challenges were more pronounced in public sector banks on average, whereas private sector banks performed better with HDFC Bank recording a very low mean net NPA ratio of 0.33 percent and ICICI Bank maintaining a mean of 1.78 percent, reflecting stronger overall asset quality and more effective recovery mechanisms. The standard deviation values provide insight into the consistency of these ratios, as SBI showed a standard deviation of 0.31 percent and Bank of Baroda 0.39 percent, suggesting moderate variation in asset quality improvements across the years, while HDFC Bank with a standard deviation of 0.05 percent displayed extremely stable net NPA levels and ICICI Bank with 0.35 percent reflected a gradual but consistent reduction in stressed assets. The coefficient of variation further highlights the relative stability and volatility of asset quality, as SBI recorded a coefficient of variation of 15.17 percent and Bank of Baroda 14.62 percent, indicating noticeable variability in public sector banks, while HDFC Bank recorded a coefficient of variation of 15.38 percent reflecting variability relative to its very low mean, and ICICI Bank showed the highest coefficient of variation at 19.72 percent indicating comparatively higher relative fluctuations despite a consistent downward trend.

E. Return on Equity Ratio:

This ratio indicates the net income that banks earn for equity shareholders after deducting taxes from total earnings. It indicates the proficiency of banks to generate profits from shareholders

investments. This ratio acts as a fundamental for the present as well the potential investors of the banks. Return on Equity ratio = Net Income/ Shareholders fund

Year	PUBLIC BANK		PRIVATE BANK	
	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	9.10	8.30	16.50	14.20
2021-22	10.40	9.60	17.20	15.60
2022-23	12.20	11.10	18.10	16.90
2023-24	13.50	12.80	18.90	17.80
mean	11.30	10.45	17.68	16.12
s.d.	1.94	1.94	1.05	1.57
cov	0.17	0.19	0.06	0.10

(source: annual reports of banks)

Interpretation:

The Return on Equity values show a clear improvement in profitability for all selected banks during the period from 2020–21 to 2023–24 and reflect how efficiently shareholders funds have been used to generate profits. In 2020–21 SBI recorded a return on equity of 9.10 percent and Bank of Baroda reported 8.30 percent indicating moderate profitability in public sector banks while HDFC Bank with 16.50 percent and ICICI Bank with 14.20 percent displayed much stronger returns highlighting the superior earning capacity of private sector banks.

In 2021–22 profitability improved further as SBI increased its return on equity to 10.40 percent and Bank of Baroda to 9.60 percent showing better utilization of equity capital while HDFC Bank rose to 17.20 percent and ICICI Bank to 15.60 percent maintaining their lead over public sector banks. During 2022–23 SBI continued its upward trend and reached 12.20 percent while Bank of Baroda improved to 11.10 percent indicating steady recovery and growth whereas HDFC Bank increased to 18.10 percent and ICICI Bank to 16.90 percent reflecting strong and consistent profitability. In 2023–24 SBI achieved 13.50 percent and Bank of Baroda reached 12.80 percent showing notable improvement in public sector bank performance while HDFC Bank recorded the highest value of 18.90 percent and ICICI Bank stood at 17.80 percent confirming sustained profitability in private sector banks.

The average return on equity further supports these trends as SBI recorded a mean of 11.30 percent and Bank of Baroda 10.45 percent while HDFC Bank achieved a higher mean of 17.68 percent and ICICI Bank 16.12 percent indicating better overall returns for private sector banks. The standard deviation values show that profitability fluctuations were higher in public sector banks as SBI and Bank of Baroda both recorded 1.94 percent compared to 1.05 percent for HDFC Bank and 1.57 percent for ICICI Bank. The coefficient of variation confirms this pattern as SBI and Bank of Baroda reported higher variability while HDFC Bank and ICICI Bank showed greater stability in returns. Overall the results indicate improving profitability across all banks with private sector banks consistently delivering higher and more stable returns on equity.

F. Return on Assets:

Return of Assets is the ratio which measures the annual net income to the total assets of the company during a financial year. The return on assets shows how efficiently a company can convert assets into net income or profits. Higher return on assets ratio depicts the efficiency of banks in managing assets. Return on Assets ratio = Net Income/ Average total assets

	PUBLIC BANK		PRIVATE BANK	
Year	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	0.52	0.48	1.72	1.35
2021-22	0.61	0.57	1.81	1.44
2022-23	0.74	0.69	1.89	1.56
2023-24	0.89	0.82	1.94	1.63
mean	0.69	0.64	1.84	1.50
s.d.	0.16	0.15	0.10	0.12
cov	23.34	23.07	5.23	8.33

(source: annual reports of banks)

Interpretation:

The return on assets figures in table no 6 shows, a steady improvement in asset utilization efficiency for all banks over the study period. In 2020–21 SBI recorded a low ROA of 0.52 percent and Bank of Baroda stood at 0.48 percent indicating limited profitability from total assets in public sector banks while HDFC Bank with 1.72 percent and ICICI Bank with 1.35 percent reflected stronger asset based earnings. In 2021–22 SBI improved to 0.61 percent and Bank of Baroda to 0.57 percent showing gradual recovery whereas HDFC Bank rose to 1.81 percent and ICICI Bank to 1.44 percent maintaining higher efficiency. In 2022–23 SBI reached 0.74 percent and Bank of Baroda 0.69 percent while HDFC Bank increased to 1.89 percent and ICICI Bank to 1.56 percent reflecting consistent improvement. In 2023–24 SBI achieved 0.89 percent and Bank of Baroda 0.82 percent while HDFC Bank recorded 1.94 percent and ICICI Bank 1.63 percent showing the strongest performance. The mean values confirm lower average ROA for public sector banks and higher for private sector banks. Higher coefficients of variation for SBI and Bank of Baroda indicate greater relative fluctuations compared to HDFC Bank and ICICI Bank which show more stable asset efficiency.

G. Debt Equity Ratio:

Debt equity ratio calculates the portion of total debts in the banks against total shareholders' equity. It also indicates the weightage of debt and equity for financing operations of the bank. The debt - equity ratios less than one signify less risky banking operations. The ratio shows the use of debt financing for every rupee one of equity financing.

Debt to Equity ratio = Total long-term debt/ Shareholders equity

	PUBLIC BANK		PRIVATE BANK	
Year	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	15.90	14.80	7.60	8.40
2021-22	16.10	15.00	7.80	8.60
2022-23	16.40	15.30	8.00	8.90
2023-24	16.70	15.60	8.20	9.10
mean	16.28	15.18	7.90	8.75
s.d.	0.35	0.35	0.26	0.31
cov	2.15	2.31	3.27	3.55

(source: annual reports of banks)

Interpretation:

The debt equity ratio in table no. 7 highlights the capital structure and leverage position of the banks. In 2020–21 SBI reported a high ratio of 15.90 and Bank of Baroda 14.80 indicating heavy reliance on borrowed funds while HDFC Bank at 7.60 and ICICI Bank at 8.40 showed lower leverage. In 2021–22 SBI increased to 16.10 and Bank of Baroda to 15.00 while HDFC Bank and ICICI Bank rose marginally to 7.80 and 8.60. In 2022–23 SBI reached 16.40 and Bank of Baroda 15.30 whereas HDFC Bank and ICICI Bank moved to 8.00 and 8.90. In 2023–24 SBI recorded 16.70 and Bank of Baroda 15.60 while HDFC Bank and ICICI Bank stood at 8.20 and 9.10. The mean values show consistently higher leverage in public sector banks and relatively balanced capital structures in private banks. Low standard deviation and coefficient of variation indicate stable leverage patterns across all banks.

H. Net Interest Margin:

The net interest margin of banks is calculated by deducting total interest paid out of total interest generated divided by total assets. A positive ratio shows investments are efficiently managed while a negative ratio shows inefficiency because total interest paid was higher than total revenues earned on the investment. The Net Interest Margin is calculated by using the formula, Net Interest margin ratio = Interest Earned-Interest paid / Total assets

Table 08- Net Interest Margin (NIM %)				
	PUBLIC BANK		PRIVATE BANK	
Year	SBI	Bank of Baroda	HDFC Bank	ICICI Bank
2020-21	2.55	2.42	3.89	3.45
2021-22	2.62	2.49	3.96	3.52
2022-23	2.71	2.58	4.02	3.61
2023-24	2.78	2.64	4.11	3.68
mean	2.67	2.53	4.00	3.57
s.d.	0.10	0.10	0.09	0.10
cov	3.78	3.83	2.33	2.83

(source: annual reports of banks)

Interpretation:

The net interest margin in table no. 8, figures reflect the earning capacity of banks from their core lending operations. In 2020–21 SBI recorded a margin of 2.55 percent and Bank of Baroda 2.42 percent while HDFC Bank reported a higher margin of 3.89 percent and ICICI Bank 3.45 percent indicating better interest spread in private sector banks. In 2021–22 SBI improved to 2.62 percent and Bank of Baroda to 2.49 percent while HDFC Bank and ICICI Bank increased to 3.96 percent and 3.52 percent. In 2022–23 SBI reached 2.71 percent and Bank of Baroda 2.58 percent while HDFC Bank rose to 4.02 percent and ICICI Bank to 3.61 percent. In 2023–24 SBI recorded 2.78 percent and Bank of Baroda 2.64 percent while HDFC Bank achieved 4.11 percent and ICICI Bank 3.68 percent. The mean values show consistently higher margins for private sector banks compared to public sector banks. Lower coefficients of variation for HDFC Bank and ICICI Bank indicate more stable interest income performance over the period.

Findings:

- The Credit Deposit Ratio indicates that SBI and Bank of Baroda followed a cautious but consistently rising lending approach over the years while HDFC Bank and ICICI Bank maintained significantly higher ratios which shows stronger credit expansion and more effective conversion of deposits into advances by private sector banks.

- The Current Ratio analysis highlights that public sector banks retained comparatively higher liquidity cushions across the study period whereas HDFC Bank functioned with leaner liquidity levels and ICICI Bank maintained a stable and comfortable short term financial position.
- The Net NPA trend reflects a steady reduction in non performing assets for all selected banks which points towards improved credit discipline with public sector banks still carrying a relatively higher burden of stressed assets and HDFC Bank displaying the strongest asset quality position.
- The Return on Equity figures reveal a continuous rise in profitability for all banks with private sector banks delivering superior returns to shareholders and public sector banks gradually strengthening their earnings capacity.
- The Return on Assets results show that private sector banks were more efficient in utilizing their asset base to generate profits while public sector banks though improving remained less effective in comparison.
- The Debt Equity Ratio demonstrates that public sector banks operated with higher leverage levels which indicates greater reliance on borrowed funds whereas private sector banks maintained a more balanced and controlled capital structure.
- The Net Interest Margin analysis shows that private sector banks consistently achieved higher interest spreads which reflects better pricing efficiency and asset liability management practices compared to public sector banks.
- Variability measures such as standard deviation and coefficient of variation suggest that private sector banks experienced more stable financial performance while public sector banks showed relatively higher fluctuations in key indicators.

Conclusions:

The comprehensive evaluation of financial ratios clearly establishes that private sector banks namely HDFC Bank and ICICI Bank maintained stronger overall performance in terms of profitability efficiency asset management and interest income generation throughout the study period. Public sector banks including SBI and Bank of Baroda exhibited visible progress particularly in reducing non performing assets improving profitability and strengthening liquidity positions but they continued to trail private banks in efficiency and return based indicators. The consistent decline in net NPAs across all banks highlights improved credit risk control and regulatory compliance within the banking system. While public sector banks relied more on leverage private sector banks demonstrated sound capital management and delivered relatively stable financial outcomes

Suggestions:

- ✓ Public sector banks should prioritize operational reforms and strengthen credit evaluation systems to improve profitability and asset productivity.
- ✓ Stronger recovery frameworks and proactive monitoring mechanisms should be adopted by public sector banks to further control and reduce stressed assets.
- ✓ Efforts should be made by public sector banks to rationalize their capital structure and lower dependence on excessive leverage for long term stability.
- ✓ Private sector banks should sustain their effective risk management practices while ensuring adequate liquidity buffers are maintained.
- ✓ Adoption of advanced digital tools and analytics can help both public and private sector banks enhance credit monitoring and early warning systems.

- ✓ Banks should focus on widening interest spreads through efficient asset liability management and diversification of income streams.
- ✓ Regular performance assessment using financial ratios should be encouraged to support consistent growth and resilience in the banking sector.

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