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# IMPACT OF CAMEL FRAMEWORK COMPONENTS ON SELECTED INDIAN BANKING COMPANIES -*A Comparative Financial Performance Study of SBI, HDFC Bank, Bank of Baroda, ICICI Bank, and YES Bank*

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## ABSTRACT

*This study evaluates the financial performance and stability of selected Indian commercial banks using the CAMEL framework over a five-year period from FY 2018–19 to FY 2022–23, encompassing the disruption caused by the COVID-19 pandemic. The analysis focuses on five banks State Bank of India, HDFC Bank, Bank of Baroda, ICICI Bank, and YES Bank representing a mix of public and private sector institutions with varying operational characteristics.*

*Using secondary data sourced from audited annual reports, RBI publications, and stock exchange filings, the study adopts a descriptive-analytical approach. The CAMEL model assesses five key dimensions: Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity. Each parameter is evaluated using relevant financial ratios, and a composite ranking is derived based on equal weighting.*

*The findings reveal that HDFC Bank consistently outperforms its peers across most CAMEL parameters, demonstrating strong capital buffers, superior asset quality, high operational efficiency, and stable profitability. ICICI Bank shows significant improvement over the study period, particularly in asset quality and earnings, indicating a successful turnaround. SBI exhibits steady performance with gradual improvements, while Bank of Baroda faces challenges due to merger-related inefficiencies. YES Bank reflects the impact of its FY20 crisis, with weakened asset quality and profitability, though signs of recovery are observed in later years. The study highlights that asset quality, particularly the management of non-performing assets, is a critical determinant of overall financial soundness. The CAMEL framework proves to be an effective tool for comparative performance evaluation and early identification of financial vulnerabilities. The research provides valuable insights for policymakers, regulators, and banking professionals in strengthening risk management and ensuring long-term financial stability in the Indian banking sector.*

**KEYWORDS:** *CAMEL Model, Banking Performance, Capital Adequacy, Asset Quality, NPA, Liquidity, Financial Ratios, Indian Banks*

## 1. INTRODUCTION

As intermediaries between savers and buyers, banks are essential to any economy. Given India's dependence on public quarter banks and its developmental dreams, this activity takes on additional importance inside the nation. Public quarter banks, new-generation non-public banks, small financing banks, and overseas banks are all part of modern Indian banking scene, which has changed dramatically over the last 30 years due to liberalisation that allowed non-public participation in 1991. with a view to compare institutions that modify greatly in length, possession, and enterprise mix, structured frameworks together with CAMEL provide an not unusual yardstick. with a view to get a realistic understanding of the elements that contribute to banking resilience inside the Indian setting, this study analyses 5 banks from FY 2018–19 to FY 2022–23, a time body that included the COVID-19 interruption of FY 2020–21.

### Research Objectives

(i) Evaluate the financial performance of five selected Indian commercial banks using the CAMEL framework; (ii) analyse how each individual CAMEL component affects overall financial soundness; (iii) rank the selected banks based on composite CAMEL scores across the five-year study period; and (iv) draw comparative insights and offer practical suggestions for each bank.

### Scope and Period of Study

From FY 2018–19 to FY 2022–23, the studies span five economic years. assets for all statistics include audited annual reports, statistical releases by using the RBI, and filings with the relevant exchanges. at some point of, standalone monetary statements are used to assure uniformity.

## 2. REVIEW OF LITERATURE

The following assessment summarises key CAMEL-based totally studies on Indian banks in chronological order, situating the prevailing research inside the current scholarly panorama.

Prasuna (2004) carried out the CAMEL framework to a numerous organization of Indian banks and found that, because of faster choice-making and stricter lending rules, personal

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quarter banks often outperformed their public quarter opposite numbers in phrases of managerial performance and profitability.

Bhayani (2006) and Bodla & Verma (2006) both proven that personal banks have a essential gain with regards to managerial performance and profitability. similarly, Bhayani found that lots of banks had liquidity ratios better than the minimum required by using regulators, which supposed they were secure, however their profitability took a great hit.

Grier (2007) discovered a correlation among CAMEL composite ratings and the probability of bank failure; specially, within a two-12 months duration applicable to the yes bank case, institutions with a composite rating of 4 or five have been more likely to fail.

Dash and Das (2009) shown that nonperforming asset levels (NPAs) were the most important element in CAMEL ratings, setting substantial empirical emphasis on credit score threat management as the foundation for evaluating a financial institution's output.

Sangmi and Nazir (2010) discovered that banks with distinct ownership paperwork have sufficient capital however extensively distinct asset first-rate and managerial performance, proving that ownership kind is a key determinant in figuring out a financial institution's success.

Misra and Aspal (2013) determined that profits great and capital sufficiency had been the high-quality signs of institutional balance over the long run, in addition demonstrating the importance of capital buffers as a safeguard towards poor economic shocks.

Aspal and Dhawan (2014) proven that CAMEL overall performance differs considerably across private banks even after controlling for mortgage eBook composition and governance first-rate, a fashion that expected the systemic weaknesses visible at sure bank.

Kiran (2018) has proven that personal banks are nevertheless doing better than public ones on almost each CAMEL metric. this is mainly genuine when it comes to earnings exceptional and nonperforming asset management.

Kumari et al. (2023) used CAMEL evaluation to take a look at 5 public area banks from 2017 to 2022, and SBI got here out on pinnacle among their public area counterparts, assisting the findings of this observes enhancing trajectory.

**Research Gap**

A small range of research have focused on a representative pattern of banks. hardly ever do you see a crisis-hit bank (sure bank) paired with a reliable performer within the same 5-year length. previous research changed into not able to account for the modifications to asset best delivered approximately with the aid of the submit-COVID monetary years of 2021–2023, in particular the results of loan moratoria.

## 3. RESEARCH METHODOLOGY

Utilising secondary information sourced from the five banks' audited annual reports (FY 2018-19 to FY 2022-23), RBI information releases, and NSE/BSE filings, the examine adheres to a descriptive-analytical studies approach. To assure uniformity amongst institutions, standalone economic statements are used for the duration of.

| Bank | Sector | Basis of Selection |
|---|---|---|
| **State Bank of India** | Public | Largest public sector bank by assets |
| **HDFC Bank** | Private | Largest private sector bank; consistent performer |
| **Bank of Baroda** | Public | Post-merger dynamics; international exposure |
| **ICICI Bank** | Private | Recovery from NPA stress; digital banking leader |
| **YES Bank** | Private | Crisis-restructuring experience and recovery study |

**Table 1: Sample Banks and Selection Criteria**

## 4. THE CAMEL FRAMEWORK

The CAMEL framework was created in the 1970s with the aid of US federal banking regulators and was adopted with the aid of the RBI in 1998 as a result of the suggestions made with the aid of the Padmanabhan running group. To account for differences in length and offer significant comparisons between establishments of wildly varying sizes, it uses ratios as opposed to absolute numbers. C: Capital Adequacy: This metric determines whether a financial institution has enough equity to climate losses without jeopardising depositor finances, which ought to be as a minimum 9% consistent with Basel III/RBI standards. Non-acting belongings (loans which can be more than 90 days past due) are the primary consciousness of Asset great (an), which measures credit danger in the mortgage eBook with the aid of looking at Gross NPA and internet NPA ratios. efficiency in management (M): Measuring the effectiveness of the deployment of human and monetary sources the use of metrics which include commercial enterprise in line with employee and credit-deposit ratio. profits great (E): uses running profit Ratio and go back on belongings (ROA) to gauge the reliability and longevity of profits.

## 5. DATA ANALYSIS AND INTERPRETATION

**Capital Adequacy**

| Bank | FY19 | FY20 | FY21 | FY22 | FY23 | 5-Yr Avg | Rank |
|---|---|---|---|---|---|---|---|
| SBI | 13.44 | 13.06 | 13.74 | 13.83 | 14.68 | 13.75 | 5 |
| HDFC Bank | 17.11 | 18.52 | 18.80 | 18.90 | 19.26 | 18.52 | 1 |
| Bank of Baroda | 13.42 | 13.30 | 14.99 | 16.32 | 16.24 | 14.85 | 4 |
| ICICI Bank | 16.89 | 16.11 | 19.12 | 19.16 | 18.34 | 17.92 | 2 |
| YES Bank | 16.50 | 8.50 | 13.50 | 17.40 | 18.10 | 14.80 | 3 |

**Table 2: Capital Adequacy Ratio 5-Year Average (%) Source: Annual reports; RBI publications**

From FY19 to FY23, HDFC financial institution's car expanded from 17.11% to 19.26%. the car of sure financial institution plummeted to 8.5% in FY20, a way beneath the legal nine% barrier, which brought about direct intervention with the aid of the RBI. The capital-raising projects that accompanied financial institution of Baroda's merger contributed to its stepped forward car submit-FY20.

**Asset Quality**

| Bank | FY19 | FY20 | FY21 | FY22 | FY23 | 5-Yr Avg | Rank |
|---|---|---|---|---|---|---|---|
| SBI | 3.01 | 2.72 | 2.46 | 1.66 | 1.17 | 2.20 | 3 |
| HDFC Bank | 0.55 | 0.53 | 0.81 | 0.87 | 0.72 | 0.70 | 1 |
| Bank of Baroda | 4.26 | 4.44 | 3.44 | 2.82 | 1.86 | 3.36 | 4 |
| ICICI Bank | 3.65 | 2.48 | 2.30 | 1.55 | 0.86 | 2.17 | 2 |
| YES Bank | 3.22 | 16.80 | 9.50 | 6.25 | 2.20 | 7.59 | 5 |

**Table 3: Gross NPA to Total Assets Ratio 5-Year Average (%) Source: Annual reports; RBI publications**

In FY20, sure bank's gross nonperforming asset ratio reached 16.80%, revealing confused belongings that have been hidden. HDFC bank carried out the wonderful feat of maintaining its ratio below 1% for the duration of, thinking about the COVID stress seen by means of the entire enterprise. With a ratio of 0.86% for FY23, ICICI bank is getting close to HDFC bank vicinity.

**Management Efficiency**

| Bank | FY19 | FY20 | FY21 | FY22 | FY23 | 5-Yr Avg | Rank |
|---|---|---|---|---|---|---|---|
| SBI | 14.8 | 15.9 | 17.2 | 18.5 | 21.3 | 17.54 | 2 |
| HDFC Bank | 17.8 | 18.3 | 20.5 | 22.7 | 25.4 | 20.94 | 1 |
| Bank of Baroda | 11.2 | 11.8 | 13.1 | 14.5 | 16.8 | 13.48 | 5 |
| ICICI Bank | 14.3 | 14.3 | 16.9 | 19.2 | 22.5 | 17.44 | 3 |
| YES Bank | 12.8 | 9.5 | 11.2 | 12.6 | 14.9 | 12.20 | 4 |

**Table 4: Business per Employee (Rs. Crore) 5-Year Average Source: Annual reports**

HDFC financial institution tops the charts every year, with FY23 seeing according to-employee earnings of Rs. 25.4 crore. For a financial institution with over 230,000 employees, SBI's 44% growth (from Rs. 14.8 to Rs. 21.3 crore) is great. The decline to Rs. 9.5 crore in FY20 at yes financial institution is an end result of deposit withdrawals, that have reduced the enterprise base.

**Earnings Quality**

| Bank | FY19 | FY20 | FY21 | FY22 | FY23 | 5-Yr Avg | Rank |
|---|---|---|---|---|---|---|---|
| SBI | 0.02 | 0.36 | 0.48 | 0.67 | 0.96 | 0.50 | 4 |
| HDFC Bank | 1.69 | 1.71 | 1.78 | 1.83 | 1.95 | 1.79 | 1 |
| Bank of Baroda | (0.77) | 0.04 | 0.31 | 0.66 | 1.03 | 0.25 | 5 |
| ICICI Bank | 0.34 | 0.72 | 1.31 | 1.65 | 2.04 | 1.21 | 2 |
| YES Bank | 1.22 | (1.90) | (0.60) | 0.10 | 0.42 | (0.15) | 3 |

**Table 5: Return on Assets (%) 5-Year Average Source: Annual reports; RBI publications**

The return on belongings for HDFC financial institution turned into relatively steady among 1.69% to 1.95%. The maximum putting fine exchange in this dataset is the increase in ROA at ICICI financial institution, which went from 0.34% to 2.04%. sure financial institution's big provisioning on its

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corporate loan portfolio is the cause for its negative ROA in FY20 and FY21.

**Liquidity**

| Bank | FY19 | FY20 | FY21 | FY22 | FY23 | 5-Yr Avg | Rank |
|---|---|---|---|---|---|---|---|
| SBI | 8.50 | 9.20 | 12.30 | 10.80 | 9.70 | 10.10 | 3 |
| HDFC Bank | 8.80 | 7.55 | 8.95 | 9.60 | 10.20 | 9.02 | 5 |
| Bank of Baroda | 9.20 | 10.10 | 13.50 | 11.30 | 10.60 | 10.94 | 2 |
| ICICI Bank | 12.30 | 15.45 | 14.28 | 13.50 | 11.80 | 13.47 | 1 |
| YES Bank | 9.10 | 24.50 | 18.30 | 14.20 | 11.50 | 15.52 | 1 |

**Table 6: Liquid Assets to Total Deposits Ratio (%) YES Bank FY20–21 figures reflect emergency RBI/SBI support**

ICICI financial institution leads on organic liquidity during the period. YES, financial institution's outsized FY20–21 figures replicate emergency injections from the reconstruction consortium, no longer real investment strength. HDFC financial institution's lower ratio shows efficient asset deployment alongside an study, granular deposit franchise.

## 6. COMPOSITE CAMEL PERFORMANCE ANALYSIS AND BANK RANKINGS

The composite ranking aggregates each financial institution's individual rank throughout the five CAMEL dimensions. a decrease average rating suggests more potent overall performance. each dimension includes same weight, representing a same-weighted evaluation throughout all five parameters.

| Bank | C | A | M | E | L | Avg Score | Overall Rank |
|---|---|---|---|---|---|---|---|
| SBI | 5 | 3 | 2 | 4 | 3 | 3.40 | 3 |
| HDFC Bank | 1 | 1 | 1 | 1 | 5 | 1.80 | 1 |
| Bank of Baroda | 4 | 4 | 5 | 5 | 2 | 4.00 | 5 |
| ICICI Bank | 2 | 2 | 3 | 2 | 1 | 2.00 | 2 |
| YES Bank | 3 | 5 | 4 | 3 | 4 | 3.80 | 4 |

**Table 7: Composite CAMEL Ranking of Selected Banks (FY2019–FY2023)**

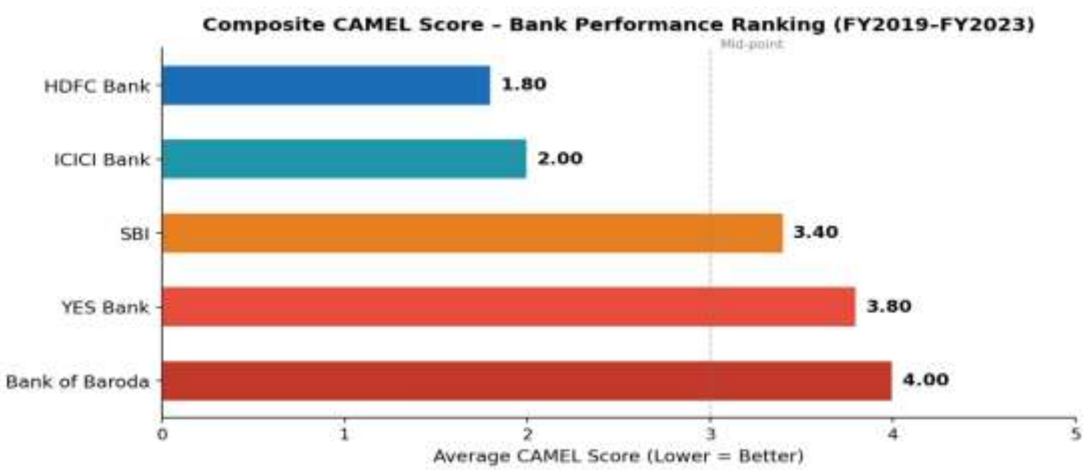


**Figure 1: Composite CAMEL Score Bank Performance Ranking (Lower Score = Better Performance)**

With a complete score of 1.80, HDFC financial institution easily leads in four of the 5 categories. Its relative underperformance in liquidity (rank 5) appears to be due to powerful asset allocation as opposed to actual fear. The most powerful runner-up is ICICI financial institution at 2.00; if now not for its starting function in FY19, its general rank would be higher. The combination of low earnings and asset first-rate inside the first 3 years, which might be each effect of the merger, is the main reason financial institution of Baroda comes bottom. The considerable effect of yes financial institution's FY20 crisis on 5-yr averages is contemplated in its fourth area.

## 7. SUMMARY OF FINDINGS

C is for capital adequacy. Over the direction of the research duration, all five banks except for sure financial institution in FY20 (eight.5%), which triggered RBI to step in maintained cars above the required requirement of nine%. HDFC financial institution had the highest 5-12 months average at 18.52%, whilst ICICI financial institution got here in second at 17.92%. whilst each SBI and financial institution of Baroda had enough but smaller buffers, financial institution of Baroda confirmed consistent improvement after the merger.

Maximum Achievers: HDFC financial institution.

Lowest Achievers: First, in phrases of asset best, HDFC financial institution has constantly had the lowest nonperforming asset (NPA) ranges, with a complete of zero.87% throughout all years. With a lower from 3.65% in FY19 to zero.86% in FY23, ICICI financial institution most impressively confirmed progress. The concentrated and unmonitored company lending becomes highlighted by using sure financial institution's gross nonperforming property reaching a height of 16.80% in FY20. financial institution of Baroda and SBI each constantly reduced nonperforming property during the research duration. here are the pinnacle 3 banks: HDFC financial institution, ICICI financial institution, and sure financial institution. The effectiveness of management Over the direction of the five years, HDFC financial institution crowned the charts for business per employee, hitting 25.4 crore rupees in FY23. For an organisation of SBI's size and assets, the most super absolute benefit becomes an 44% boom (from Rs. 14.8 to Rs. 21.3 crore). The deposit shrinkage that become caused by using the crisis become right now reflected in sure financial institution's precipitous fall to Rs. 9.5 crore in FY20. The merger-related inefficiencies triggered financial institution of Baroda to continuously rank worst.

**Winner:** HDFC financial institution pinnacle Performer: wherein SBI Falls quick, financial institution of Baroda while it got here to profits best (E), HDFC financial institution become the most consistent with an ROA that stayed between a tight range of 1.60 nine percent and 1.95 percent, even throughout the COVID 12 months. The dataset confirmed the most noteworthy tremendous upward push in ICICI financial institution's ROA, which improved from 0.34% to 2.04% (nearly 6 instances). big provisioning triggered sure financial institution to obtain poor ROA in FY20 and FY21. by using FY21-22, financial institution of Baroda had sooner or later finished a tremendous ROA.

**Scores:** HDFC financial institution, ICICI financial institution, financial institution of Baroda, and sure financial institution, in that order. while it got here to natural liquidity buffers, ICICI financial institution become the boldest all through the time. Alternatively, from being a signal of authentic strength, sure financial institution's improved FY20-21 ratios represent emergency assist from RBI and SBI. HDFC financial institution has a consistent, granular deposit franchise and powerful deployment, that is proven in their reduced ratios. each state financial institution of India and financial institution of Baroda had healthful buffers, little over but still considerably above regulatory minimums. Organically, ICICI financial institution is the satisfactory performer; in phrases of deployment performance, financial institution of Baroda and SBI are the worst.

## 8. CONCLUSION

In order to offer a full view of ways various ownership systems, commercial enterprise models, and strategic decisions affect monetary outcomes, this research used the CAMEL framework on 5 Indian banks throughout 5 fiscal years. The consensus view is that a financial institution's fulfilment is supported by way of the energy of its belongings. given that low nonperforming belongings (NPAs) loose up provisioning capacity, guard profitability, and promote capital adequacy, banks that managed to keep their NPAs low HDFC financial institution in particular performed nicely throughout almost all different dimensions. even though it takes time and consistent strategic area and honest management, the ICICI financial institution case suggests that the damage caused by an NPA cycle may be constant. The maximum caution example is sure financial institution, wherein the declining asset fine and capital adequacy might be detected nicely earlier than the 2020 problem have become everlasting if the CAMEL evaluation were automatically performed from 2016–2017 and past. The CAMEL version is still a legitimate and useful way to examine how exclusive banks are doing. As frameworks for comparing monetary establishments expand further, this research might be extended in the destiny to include ESG-related measures and market danger sensitivity (whole CAMELS framework).

## 9. LIMITATIONS

1. The research can omit modifications in real-time or banks' inner insights as it's miles primarily based only on secondary statistics that has already been posted (annual reviews, RBI reviews).
2. The comparison of numerous banks might be impacted by their somewhat various accounting tactics, inclusive of provisioning necessities.
3. lengthy-term developments won't be completely captured by the research since it only covers financial years 2018–19 to 2022–23. a fundamental discontinuity in its time series is brought by yes bank's 2020 rebuild.

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