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# Validating the Relevance of CAMEL Model as Predictor of Perceived Financial Performance: An Empirical Study from Banking Sector

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***Abstract***

*Banking industry is the pivot around which the whole economy of a country revolves around. In India, banking industry play a great role and thus is one of the fastest growing industries. The Indian government has introduced various banking reforms, with the latest being the mega mergers of public sector banks. Due to such reforms many changes have been seen in this industry, be it financial or infrastructural. In this context, a study has been done to evaluate the financial performance of PNB, India's Second largest public sector bank and ICICI, India's second largest Private Sector Bank for the last 6 years from 2017-2018 to 2022-2023. The CAMEL model, a framework extensively used in the banking industry, is used in this study to perform an extensive comparison of two well-known banks functioning in India's vibrant financial ecosystem. Study is based on primary as well as secondary data collected from the annual reports of respective banks for the above-mentioned period. As per this study, it can be concluded that ICICI being a private player has been performing well in comparison to PNB. These comparison findings have major implications for Indian banking investors, regulators, and policymakers. In conclusion, the financial comparison utilizing the CAMEL model provides a good view on PNB and ICICI's strengths and weaknesses.*

***Keywords:*** *Banking, CAMEL, PNB, ICICI, Performance Analysis, Perceived Financial Performance.*

## I. INTRODUCTION

### Background of the study

Banking, one of the most ancient financial institutions, has existed alongside human civilization since its inception. Its origin can be traced back to ancient times. The banking system plays a crucial role in the economic advancement of a nation, occupying a vital place in modern society. Its significance in driving a country's economic development cannot be ignored. Banks are considered the most important part of the economy and hence steps taken by the government in enhancing banking industries are very crucial. The banking sector has a unique place in development of a nation's economy. Economic reforms, deregulation, and liberalization of market are the few factors that have created competitiveness in the banking industry. This growing competition has enforced banks to become relentless about being financially strong and capture the market. A notable connection exists between the expansion of the economy and the development of the financial sector.

One of India's biggest and most well-known banks is PNB, followed by ICICI. The operation and influence of significant players in the Indian banking industry might be better understood by researching these banks. Punjab National Bank (PNB) and ICICI Bank are two of the biggest and best-known banks in India. ICICI Bank is a PVB, whereas PNB is a PSB. Investors and analysts pay great attention to the financial performance of both banks because they are significant players in the Indian economy.

In this research paper two banks have been selected and compared using CAMEL model analysis. Punjab National Bank (PNB) and ICICI Bank are two of India's largest and most reputable banks. PNB was established in 1895, making it India's second

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oldest bank. ICICI Bank and Punjab National Bank (PNB) are two of the biggest and most prestigious financial organizations in India. PNB, which was founded in 1895, claims the title of being India's second-oldest bank. ICICI, which was initially established in 1955 as a financial institution, became a fully-fledged bank in 1994. With branches and ATMs located all over India, both banks can brag of having a strong national presence. They provide a wide range of financial services and products, including loans, savings accounts, investment options, and insurance protection. They also offer a broad range of online banking alternatives. PNB and ICICI are equally committed to upholding their corporate social responsibility and providing outstanding customer service.

The main objective of the study is to analyse and compare the financial performance of the selected banks with the help of CAMEL model. All the parameters of CAMEL model will be studied for the selected banks. The study has also validated the secondary study with the primary study and assessed the relevance of CAMEL as significant predictor of perceived financial performance.

The **CAMEL** model is a supervisory rating methodology that bank regulators use to analyse banks' financial health. It is built around five important components: **C**apital adequacy: It refers to the amount of capital a bank has in comparison to its risk-weighted assets. **A**sset quality: It refers to the condition of a bank's loan portfolio and other assets. **M**anagement effectiveness: The efficiency with which a bank's management team operates. **E**arnings capability: The ability of a bank to create profits. **L**iquidity: The ability of a bank to meet its short-term financial obligations. The research is important for a variety of reasons. It will first give a thorough assessment of the financial performance of two of India's biggest banks. In addition, the study will point out each bank's strengths and weaknesses, which will be helpful to analysts and investors. Third, the study would shed light on the Indian banking industry's competitive environment with respect to private and public sector banks. The rest of the paper is organized as follows. The literature on the financial performance of Indian banks is reviewed in Section 2. The study's methodology is described in Section 3. The study's findings are presented in Section 4. Section 5 summarizes the results and puts the paper to conclusion.

## II. LITERATURE REVIEW

With a focus on Punjab National Bank (PNB) and ICICI Bank within the Indian banking industry, the literature review gives an overview of pertinent studies and research on the application of the CAMEL model in analysing the financial performance and stability of banks.

Punjab National Bank (PNB), famously referred to as India's first swadeshi bank, began its operations on April 12, 1895, in Lahore. It started with an authorized capital of 2 lakh and a working capital of 20,000. The bank was established with a spirit of patriotism and nationalism, marking it as the initial bank entirely managed by Indians with Indian capital. Over its extensive history, PNB has merged/amalgamated with nine other banks. (pnbindia.in)

ICICI Bank, with a diverse business strategy, provides its customers a wide range of goods and services, including retail banking, corporate banking, and investment banking. With significant investments in digital technology and one of India's most cutting-edge digital banking platforms, the bank is a pioneer in the field of digital banking as well.

The CAMEL model offers a systematic structure that regulatory bodies use to evaluate the financial health and stability of banks. By scrutinizing these five core elements (Capital Adequacy, asset quality, management quality, earnings and liquidity) regulatory entities can detect potential problems, vulnerabilities, or aspects of worry within a bank's functioning. This allows them to implement necessary measures to ensure the robustness of the banking system. Many studies have been done to analyse the financial performance of banks using CAMEL model in past years. Summary of some of the studies are as follows:

**Trivedi (2013)** evaluated public and private banks on CAMEL model for a cross sectional data of 14 years period. It was found that ICICI bank topped the list.

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**Ferrouhi (2014)** analysed the performance of the major Moroccon Financial institutions using CAMEL model approach. Ranks were given to these institutions based on their respective performance within the parameters of CAMEL. After critically evaluating the rankings of all the institutions involved in the study, CDM is concluded as the best among all.

**Kaur et al. (2015)** The findings indicate that Bank of Baroda is at the forefront in every dimension of CAMEL evaluation. Following this, Punjab National Bank takes the lead in terms of Capital Adequacy, Management effectiveness, and Earnings potential, while Bank of India excels in Asset Quality.

**Srinivasan & Saminathan (2016)** The practical outcomes indicate a statistically noteworthy distinction among the CAMEL ratios of the chosen Public Sector Banks, Private Sector Banks, and Foreign Banks operating in India.

**Kumar & Malhotra (2017)** evaluated the performance and financial soundness of selected private sector banks using CAMEL model. The study found that Axis bank was performing better as compared to others.

**Munir & Bustamam (2017)** The research studies about the effect of CAMEL analysis on the profitability of the banks. It concluded that among the CAMEL factors, only capital and management have a substantial partial impact on banking profitability.

**Asllanaj (2018)** observed the impact of management of credit risk on the financial performance of banks in Kosovo. Study reveals that CAMEL model can be helpful as a system of assessment and rating of credit risk management.

**Panboli & Birda (2019)** The study analysed the selected private and public sector banks and ranked these banks based on the CAMEL model. The conclusion based on the 5 years of data in this study is that HDFC and AXIS banks are above average while two government players PNB and CANARA is seen below average. The study further mentions that the performance of private sector is better as compared to the public sector.

**Biswas & Bhattacharya (2020)** observed that among the recently established private sector banks, Bandhan Bank demonstrated the highest level of efficiency, with HDFC Bank coming next, and IDBI Bank occupying the last position in the ranking.

**Yildirim & Ildokuz (2020)** Because of cut and throat competition, profits are a vital outcome for banks to maintain operations and ensure ongoing growth. The results of this research demonstrate that the capital, management, and liquidity positions significantly affect banks' Return on Assets (ROA) and Return on Equity (ROE) ratios. Nevertheless, factors like asset quality or market risk sensitivity do not considerably affect these ratios.

**Ray & Shantnu (2021)** The CAMEL rating system is employed to assess the comprehensive performance of banks and ascertain their strengths and weaknesses. The study revealed variations in capital sufficiency, asset quality, managerial effectiveness, and liquidity, while no distinctions were noted in terms of earning ratios.

**Sathavara and Christian (2021)** The researcher has tried to analyse selected banks using EAGLE model by including 10 years of data. The analysis of data depicts that HDFC is the best performer followed by Kotak Mahindra Bank, Indusind Bank, Axis Bank and ICICI Bank.

**Sengupta & Patil (2022)** observed the financial performance changes after merger of banks. CAMEL model is applied to check out the best performer and UBI is found to be the best among the rest.

**Singh (2022)** The study attempted to evaluate the financial performance of three major banks (HDFC, SBI, and PNB) using the camel rating model. The study was titled "performance evaluation of Indian banking sector after the global crisis via camel ratios." The objective of the research was to CAMELS stimulation model is basically the most widely used method of measuring the performance of a bank unit.

**Sunil & Philip (2023)** CAMEL model is used to measure the financial performance of South Indian Bank and a comparison is made between South Indian Bank and HDFC Bank. It revealed that

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HDFC outperformed in two dimensions whereas South Indian Bank did well in other three parameters.

**Gosavi (2023)** analysed ICICI bank thoroughly and found that bank has been performing well in increasing its total deposits, ATM coverages and enhancing many other banking services for its valuable customers.

**Mistry et al. (2023)** CAMEL model is used to compare the small finance banks of India. This study accessed the overall performance using all the parameters of CAMEL approach. As per the conclusion Disha/Fin care bank emerges as top performing small finance bank.

**Khan & Faisal (2023)** CAMEL model has been used for analysing the financial performance of State Bank of India. Data has been used from the secondary sources for the 10 years starting from 2012 to 2022. It has been concluded in the study that the financial standing of SBI is clear as a solid foundation for achieving its financial objectives.

**Koshti & Rathod (2023),** This study uses the CAMEL Model to assess many aspects of performance and soundness as well as the impact of the CAMEL ratios contributing to the efficiency of the chosen public and private sector banks. Based on the CAMEL Models' composite evaluation, it has been determined that HDFC Bank Ltd. performs very well.

**Research Gap and Purpose**

Even if the CAMEL model has been applied to Indian banking in the existing literature, a thorough comparison of PNB and ICICI Bank is still required. By using the CAMEL model to evaluate and compare the financial performance and stability of PNB and ICICI Bank, this study seeks to close this gap and offers insightful information about the Indian banking industry. Very few studies have been done based on the Validation of primary and secondary data.

In conclusion, the body of current literature has established the framework for using the CAMEL model in banking analysis, including its applicability to the Indian banking industry. A concentrated comparison of PNB and ICICI Bank, however, has not yet been done; this study aims to fill that gap.

## III. RESEARCH METHODOLOGY

**Research Design**

The CAMEL model is a tool used to assess the financial health of banks. The present study is an analytical study.

**Sampling**

2 banks have been considered for this study – Punjab National Bank and ICICI Bank. The selection of these banks was based on criteria such as size and availability of reliable financial data.

**Data Collection**

1. **Primary Data-** Data has been collected from the employees of the target banks by circulating the survey forms online among the target audience.
2. **Secondary Data**- Data has been collected from the secondary sources like annual reports of the banks, statistics published by RBI, bseindia.com, etc.

**Measuring Instruments**

Secondary data has been analysed using Independent T Test and Linear Regression. To validate the results of Secondary Data and get additional information on employee attitudes and experiences about the CAMEL score and Financial Score of their respective banks, a questionnaire was created. An electronic questionnaire was sent to 300 individuals chosen at random. A response rate of 70% was achieved with 210 total responses. In order to assess the CAMEL model being the predictor of Perceived Financial Performance Regression has been used. Perceived Financial Performance was measured through Questionnaire consisting of 11 questions taken from **Delany & Husenid (1996)** study.

The primary data thus collected has been analysed using Linear Regression and the parameters of CAMEL model are used in this study to analyse the financial performance of the selected banks. **Reliability** of both instruments came out to be satisfactory given in the table 1

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Table No. 1:

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .651 | 10 |

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .728 | 11 |

The 10-item scale had a Cronbach's alpha of.651 for CAMEL and Perceived Financial Performance had reliability of .728. The reliability or internal consistency of a scale or test is measured by Cronbach's alpha. It is calculated by averaging all conceivable scale split-half reliabilities. This came out to be within the acceptable threshold limit and hence we move ahead for further analysis.

**Hypotheses of the Study**

1) H01 = There is significant difference between Capital Adequacy Ratio of PNB and ICICI assessed by CAMEL model.

2) H02 = There is significant difference between Asset Quality of PNB and ICICI assessed by CAMEL model.

3) H03 = There is significant difference between Management Efficiency of PNB and ICICI assessed by CAMEL model.

4) H04 = There is significant difference between Earnings Quality of PNB and ICICI assessed by CAMEL model.

5) H05 = There is significant difference between Liquidity of PNB and ICICI assessed by CAMEL model.

## IV. ANALYSIS

### COMPARATIVE FINANCIAL PERFORMANCE OF PNB AND ICICI BANK:

### i) CAPITAL ADEQUACY

This ratio is mainly concerned with the protection of the depositors. This ratio ensures the financial stability and efficiency of the financial systems. The CAR is a measure of a bank's available capital to absorb losses. A high CAR indicates that the bank has enough buffer to handle losses without going bankrupt. A bank that is insolvent is unable to satisfy its financial obligations. A bank may be at danger of financial difficulty if its CAR is low. A bank may be required to take action to raise capital if its CAR falls below the minimal threshold.

**TABLE 2: CAPITAL ADEQUACY RATIO**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | 9.82 | 18.42 |
| 2018-2019 | 10.13 | 16.89 |
| 2019-2020 | 14.14 | 16.11 |
| 2020-2021 | 14.32 | 19.12 |
| 2021-2022 | 14.50 | 19.16 |
| 2022-2023 | 15.50 | 18.34 |

*SOURCE: ANNUAL REPORTS OF PNB AND ICICI BANK*

**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|

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| | | | | | |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | 13.0683 | 2.44390 | .99772 |
| | ICICI | 6 | 18.0067 | 1.24064 | .50649 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | 5.605 | .039 | -4.413 | 10 | .001 | -4.93833 | 1.11892 | -7.43143 | -2.44523 |
| | Equal variances not assumed | | | -4.413 | 7.417 | .003 | -4.93833 | 1.11892 | -7.55432 | -2.32235 |

Since p-value is less than 0.05, **H01** is supported and it can be concluded that there is significant difference between Capital Adequacy Ratio of both the banks. Both the banks have maintained a good level of CAR as against the norms of BASEL 9%.

**ii) ASSET QUALITY**

Asset quality tells whether how much credit risk is associated with a particular asset. It includes the following two measures-

**1) GROSS NPA TO TOTAL ADVANCES:** The percentage of Gross Non-Performing Assets to Total Advances indicates the magnitude of bad assets without accounting for the provision amount deducted from Gross NPA in relation to total advances. If it is on higher side means large parts of assets are not performing and if it is on a lower side then it means assets are getting managed well in an organisation.

**TABLE 3: GROSS NPA TO TOTAL ADVANCES %**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | 18.38 | 9.90 |
| 2018-2019 | 15.50 | 7.38 |
| 2019-2020 | 14.21 | 6.04 |
| 2020-2021 | 14.12 | 5.33 |
| 2021-2022 | 11.78 | 3.76 |
| 2022-2023 | 8.74 | 2.87 |

**Group Statistics**

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| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | 13.7883 | 3.28086 | 1.33940 |
| | ICICI | 6 | 5.8800 | 2.54138 | 1.03751 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | .201 | .663 | 4.668 | 10 | .001 | 7.90833 | 1.69424 | 4.13334 | 11.68333 |
| | Equal variances not assumed | | | 4.668 | 9.412 | .001 | 7.90833 | 1.69424 | 4.10112 | 11.71555 |

Since p-value is less than 0.05, **H02** is supported and it can be concluded that there is significant difference between Gross NPAs to Total Advances of both the banks.

**2) NET NPA TO NET ADVANCES:** A bank with a higher ratio of net NPA to net advances has a higher percentage of loans that are not being repaid, which can be a sign that the bank is struggling financially.

**TABLE 4: NET NPAS TO NET ADVANCES %**

| **YEARS** | **PNB** | **ICICI** |
|---|---|---|
| 2017-2018 | 11.24 | 5.43 |
| 2018-2019 | 6.56 | 2.29 |
| 2019-2020 | 5.78 | 1.54 |
| 2020-2021 | 5.73 | 1.24 |
| 2021-2022 | 4.80 | 0.81 |
| 2022-2023 | 2.72 | 0.51 |

**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | 6.1383 | 2.82758 | 1.15436 |
| | ICICI | 6 | 1.9700 | 1.80383 | .73641 |

**Independent Samples Test**

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| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | .384 | .549 | 3.044 | 10 | .012 | 4.16833 | 1.36925 | 1.11746 | 7.21920 |
| | Equal variances not assumed | | | 3.044 | 8.491 | .015 | 4.16833 | 1.36925 | 1.04237 | 7.29430 |

Since p-value is less than 0.05, **H02** is supported and it can be concluded that there is significant difference between Net NPAs to Net Advances of both the banks.

**iii) MANAGEMENT EFFICIENCY**

The CAMELS model's management efficiency component evaluates a bank's management's capacity to recognize, quantify, track, and manage risks. Additionally, it evaluates how well the bank complies with legislation and its internal controls. It includes the following two measures-

**1) PROFIT PER EMPLOYEE:** It reveals how much profit each of the employees generates over a specific time frame. Theoretically, the more effective the business is, the higher net income per employee will be.

**TABLE 5: PROFIT PER EMPLOYEE**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | -0.17 | 0.8 |
| 2018-2019 | -0.15 | 0.4 |
| 2019-2020 | 0.01 | 0.8 |
| 2020-2021 | 0.02 | 1.7 |
| 2021-2022 | 0.04 | 2.3 |
| 2022-2023 | 0.03 | 2.8 |

**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | -.0367 | .09626 | .03930 |
| | ICICI | 6 | 1.4667 | .95429 | .38959 |

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**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | 21.494 | .001 | -3.839 | 10 | .003 | -1.50333 | .39156 | -2.37579 | -.63087 |
| | Equal variances not assumed | | | -3.839 | 5.102 | .012 | -1.50333 | .39156 | -2.50387 | -.50279 |

Since p-value is less than 0.05, **H03** is supported and it can be concluded that there is significant difference between Profit Per Employee of both the banks.

**2) BUSINESS PER EMPLOYEE:** This indicator aids in evaluating the effectiveness and productivity of a company's workforce in producing financial results.

**TABLE 6: BUSINESS PER EMPLOYEE**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | 14.74 | 10.78 |
| 2018-2019 | 16.80 | 12.22 |
| 2019-2020 | 18.14 | 12.75 |
| 2020-2021 | 18.85 | 14.92 |
| 2021-2022 | 19.41 | 16.69 |
| 2022-2023 | 21.64 | 17.07 |

**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | 18.2633 | 2.35080 | .95971 |
| | ICICI | 6 | 14.0717 | 2.55248 | 1.04205 |

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**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | .410 | .536 | 2.959 | 10 | .014 | 4.19167 | 1.41665 | 1.03517 | 7.34817 |
| | Equal variances not assumed | | | 2.959 | 9.933 | .014 | 4.19167 | 1.41665 | 1.03228 | 7.35106 |

Since p-value is less than 0.05, **H03** is supported and it can be concluded that there is significant difference between Business Per Employee of both the banks.

**iv) EARNING QUALITY**

This section looks at how stable and long-lasting a bank's profits are. The CAMELS model's crucial component for determining the bank's long-term profitability is the quality of its earnings. This includes following three measures-

**1) RETURN ON ASSETS:** It gives information on how well a business uses its resources to make money.

**TABLE 7: RETURN ON ASSETS**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | -1.60 | 0.87 |
| 2018-2019 | -1.25 | 0.39 |
| 2019-2020 | 0.04 | 0.81 |
| 2020-2021 | 0.15 | 1.42 |
| 2021-2022 | 0.26 | 1.84 |
| 2022-2023 | 0.18 | 2.16 |

**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | -.3700 | .82767 | .33790 |

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| | | | | | |
|---|---|---|---|---|---|
| | ICICI | 6 | 1.2483 | .67567 | .27584 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | .726 | .414 | -3.710 | 10 | .004 | -1.61833 | .43619 | -2.59023 | -.64644 |
| | Equal variances not assumed | | | -3.710 | 9.615 | .004 | -1.61833 | .43619 | -2.59553 | -.64113 |

Since p-value is less than 0.05, **H04** is supported and it can be concluded that there is significant difference between Return on Assets of both the banks.

**2) RETURN ON EQUITY:** ROE sheds light on the efficiency with which a business generates profits by allocating its equity (ownership stake). It is a crucial indicator for analysts and investors since it determines how well a firm can reward its owners.

**TABLE 8: RETURN ON EQUITY**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | -32.85 | 6.63 |
| 2018-2019 | -24.20 | 3.19 |
| 2019-2020 | 0.58 | 6.99 |
| 2020-2021 | 2.41 | 11.21 |
| 2021-2022 | 3.90 | 13.94 |
| 2022-2023 | 2.74 | 16.13 |

**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | -7.9033 | 16.24099 | 6.63036 |

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| | | | | | |
|---|---|---|---|---|---|
| | ICICI | 6 | 9.6817 | 4.91426 | 2.00624 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | 13.630 | .004 | -2.539 | 10 | .029 | -17.58500 | 6.92724 | -33.01985 | -2.15015 |
| | Equal variances not assumed | | | -2.539 | 5.908 | .045 | -17.58500 | 6.92724 | -34.59956 | -.57044 |

Since p-value is less than 0.05, **H04** is supported and it can be concluded that there is significant difference between Return on Equity of both the banks.

**3) NET INTEREST MARGIN:** NIM is a measure of a bank's capacity to earn interest income from its assets while managing interest expenses. It shows the profitability of a bank's primary lending and investing activities.

**TABLE 9: NET INTEREST MARGIN**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | 2.16 | 3.23 |
| 2018-2019 | 2.41 | 3.42 |
| 2019-2020 | 2.30 | 3.73 |
| 2020-2021 | 2.88 | 3.69 |
| 2021-2022 | 2.71 | 3.96 |
| 2022-2023 | 3.06 | 4.48 |

**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|

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| | | | | | |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | 2.5867 | .35234 | .14384 |
| | ICICI | 6 | 3.7517 | .43824 | .17891 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | .016 | .903 | -5.075 | 10 | .000 | -1.16500 | .22957 | -1.67650 | -.65350 |
| | Equal variances not assumed | | | -5.075 | 9.559 | .001 | -1.16500 | .22957 | -1.67972 | -.65028 |

Since p-value is less than 0.05, **H04** is supported and it can be concluded that there is significant difference between Net Interest Margin of both the banks.

**v) LIQUIDITY**

The liquidity parameter in the CAMELS model evaluates many aspects of a bank's liquidity management. Liquidity risk is the risk that a bank will not have enough liquid assets (cash or assets that can be swiftly converted to cash) to pay its short-term obligations and support its day-to-day operations. This includes following three measures-

**1) CASA DEPOSIT RATIO:** It indicates the percentage of a bank's total deposits that come from current and savings accounts, which are seen as more stable and low-cost sources of funding for the bank.

**TABLE 10: CASA DEPOSIT RATIO**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | 40.98 | 51.68 |
| 2018-2019 | 42.16 | 49.61 |
| 2019-2020 | 42.97 | 45.11 |
| 2020-2021 | 44.54 | 46.28 |
| 2021-2022 | 46.55 | 48.69 |
| 2022-2023 | 41.99 | 45.83 |

**Group Statistics**

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| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | 43.1983 | 2.02707 | .82755 |
| | ICICI | 6 | 47.8667 | 2.55042 | 1.04121 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | .843 | .380 | -3.510 | 10 | .006 | -4.66833 | 1.33002 | -7.63180 | -1.70487 |
| | Equal variances not assumed | | | -3.510 | 9.515 | .006 | -4.66833 | 1.33002 | -7.65239 | -1.68428 |

Since p-value is less than 0.05, **H05** is supported and it can be concluded that there is significant difference between CASA Deposit (%) of both the banks.

**2) CREDIT TO DEPOSIT RATIO:** It evaluates the proportion of bank loans provided relative to total deposits held in a certain area or region. It reveals the degree of lending activity in relation to available deposits in a geographical or systemic environment.

**TABLE 11: CREDIT TO DEPOSIT RATIO**

| YEARS | PNB | ICICI |
|---|---|---|
| 2017-2018 | 67.54 | 91.34 |
| 2018-2019 | 67.79 | 89.85 |
| 2019-2020 | 67.04 | 83.70 |
| 2020-2021 | 60.94 | 78.68 |
| 2021-2022 | 63.53 | 84.30 |
| 2022-2023 | 64.90 | 89.50 |

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**Group Statistics**

| | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PROFIT PER EMPLOYEE | PNB | 6 | 65.2900 | 2.70360 | 1.10374 |
| | ICICI | 6 | 86.2283 | 4.83813 | 1.97516 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PROFIT PER EMPLOYEE | Equal variances assumed | 3.443 | .093 | -9.254 | 10 | .000 | -20.93833 | 2.26263 | -25.97979 | -15.89688 |
| | Equal variances not assumed | | | -9.254 | 7.845 | .000 | -20.93833 | 2.26263 | -26.17394 | -15.70273 |

Since p-value is less than 0.05, **H05** is supported and it can be concluded that there is significant difference between Credit-Deposit Ratio of both the banks.

**Secondary Data Analysis:**

**Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .969[a] | .938 | .932 | 2.18278 | .938 | 152.552 | 1 | 10 | .000 | 1.405 |

a. Predictors: (Constant), CAMEL

b. Dependent Variable: PROFITABILITY

A sizable percentage of the variance in "PROFITABILITY" may be explained by the predictor "CAMEL" (R 0.969).

The model's overall fit is excellent (adjusted R2 = 0.932).

**ANOVA[a]**

The model was significantly better with the addition of "CAMEL" (F Change 152.552, p 0.001).

Strong statistical significance supports the value of "CAMEL" as a predictor for the model's "PROFITABILITY" explanation.

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| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 726.842 | 1 | 726.842 | 152.552 | .000[b] |
| | Residual | 47.645 | 10 | 4.765 | | |
| | Total | 774.487 | 11 | | | |

a. Dependent Variable: PROFITABILITY

b. Predictors: (Constant), CAMEL

The regression model is highly significant ($p < 0.001$).

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -51.728 | 4.306 | | -12.013 | .000 |
| | CAMEL | .506 | .041 | .969 | 12.351 | .000 |

a. Dependent Variable: PROFITABILITY

The predictor "CAMEL" has a coefficient of 0.506, which means that for every unit rise in "CAMEL," an increase in "PROFITABILITY" of 0.506 units is anticipated.

Approximately 0.969 is the standardized coefficient (Beta) for "CAMEL," indicating that "CAMEL" is a powerful and efficient predictor of "PROFITABILITY."

The statistical significance of the predictor is shown by the "CAMEL" t-statistic, which is 12.351 ($p < 0.001$).

**Primary Data Analysis:**

**Model Summary[b]**

| TYPE OF BANK (ASSOCIATED WITH) | Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| PRIVATE SECTOR BANK | 1 | .686[a] | .471 | .467 | 3.27333 | .471 | 120.101 | 1 | 135 | .000 | 1.446 |
| PUBLIC SECTOR BANK | 1 | .825[a] | .680 | .676 | 3.07542 | .680 | 151.164 | 1 | 71 | .000 | 2.265 |

a. Predictors: (Constant), CAMEL_SCORE

b. Dependent Variable: FINANCIAL_SCORE

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The overall relevance of the model for banks in the private sector is determined by the F-statistic, which has a value of 120.101. The corresponding p-value (Sig. F Change) is less than .05 i.e 0.000), demonstrating the statistical significance of the model.

The statistical significance of the model may be seen by looking at the public sector banks' F-statistic, which is 151.164 with p-value (0.000).

With the addition of "Type of Bank" as a predictor, the model's ability to account for 68% of the variance in FINANCIAL_SCORE for private sector banks has significantly improved.

With the "Type of Bank" predictor significantly improving model fit, the model explains a higher percentage of the variance (82.0%) in FINANCIAL_SCORE for public sector banks.

These findings imply that the type of bank—public or private—plays an important role in explaining the variation in FINANCIAL_SCORE, and this link is highly statistically significant for both types of banks. Compared to the private sector bank model, the public sector bank model seems to have a better correlation between the CAMEL_SCORE and FINANCIAL_SCORE.

**ANOVA[a]**

| TYPE OF BANK (ASSOCIATED WITH) | Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| PRIVATE SECTOR BANK | 1 | Regression | 1286.849 | 1 | 1286.849 | 120.101 | .000[b] |
| | | Residual | 1446.483 | 135 | 10.715 | | |
| | | Total | 2733.332 | 136 | | | |
| PUBLIC SECTOR BANK | 1 | Regression | 1429.740 | 1 | 1429.740 | 151.164 | .000[b] |
| | | Residual | 671.533 | 71 | 9.458 | | |
| | | Total | 2101.272 | 72 | | | |

a. Dependent Variable: FINANCIAL_SCORE

b. Predictors: (Constant), CAMEL_SCORE

For PRIVATE SECTOR BANK:

The regression model is highly significant ($p < 0.001$).

For PUBLIC SECTOR BANK:

The regression model is also highly significant ($p < 0.001$).

Both models indicate that the kind of bank has a considerable impact on FINANCIAL_SCORE, with PUBLIC SECTOR BANKS showing a stronger link.

**Coefficients[a]**

| TYPE OF BANK (ASSOCIATED WITH) | Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|---|
| | | | B | Std. Error | Beta | | |
| PRIVATE SECTOR BANK | 1 | (Constant) | 3.309 | 1.518 | | 2.180 | .031 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | CAMEL_SCORE | .895 | .082 | .686 | 10.959 | .000 |
| | | (Constant) | 3.160 | 1.545 | | 2.045 | .045 |
| PUBLIC SECTOR BANK | 1 | CAMEL_SCORE | .879 | .072 | .825 | 12.295 | .000 |

a. Dependent Variable: FINANCIAL_SCORE

The t-statistics for both kinds are significant ($p < 0.001$), indicating the significant influence of CAMEL_SCORE on FINANCIAL_SCORE.

CAMEL_SCORE has a standardized coefficient (Beta) of 0.686 in the PRIVATE SECTOR BANK model. As opposed to private sector banks, the PUBLIC SECTOR BANK model's CAMEL_SCORE has a larger standardized coefficient (Beta) of 0.825, indicating a bigger influence on FINANCIAL_SCORE.

## V. FINDINGS

1) The Capital Adequacy Ratio of both the banks are more than the BASEL accord norms 9% and hence both the banks involved in the research are performing well in their respected area. However, if comparison is to be made between private and public player then ICICI being a private player has been performing well in maintaining sufficient level of CAR.
2) The Gross NPA to Total Advances is an indicator of bad loans. ICICI bank has been maintaining a lower level of Gross NPA top Total Advances which is considered good as far as the banking industry is concerned. Initially PNB had a very high ratio for the same but later it has managed well to reduce it. RBI has recommended to maintain a 5% or lower levels which only ICICI bank is able to cope up with.
3) The Net NPA to Total Advances (NNPA) is an indicator of economic crisis for banks and thus it is preferred to be at very lower side. Icici bank has managed very well in maintaining a level of less than 1% whereas PNB is still struggling to bring it lower.
4) As far as Profit Per Employee is concerned, ICICI has better average as compared to PNB. So, it can be said that employees of ICICI bank are working more efficiently and thus generating more profit.
5) By comparing the Business Per Employee of both the banks, it can be said that PNB is managing its resources efficiently and thus producing a good return on its investment in its employees.
6) After comparing ROA, ROE and NIM, it can be concluded that ICICI is more efficient and profitable but at the same time it is also prone to higher risk as it is generating more profit out of its assets, equity and interests respectively but it can also lead to loss of money if such risks do not pay off.
7) After considering CASA ratio, it can be concluded that ICICI is more stable in terms of funds availability and cost efficiency. A bank with higher CASA ratio is also not impacted by increment in market interest rate and thus ICICI is having more benefits comparatively.
8) If CDR is to be concerned, it can be said that ICICI is more aggressive in lending money. It can be good sign for any bank with higher CDR but at the same time it also leads to higher exposure towards risk.

## CONCLUSION AND PRACTICAL IMPLICATION

Camel Model being the predictor of Financial Performance and this is validated by both Primary and Secondary Data which is one of the objectives of study. This means good credit rating insures overall good financial performance as perceived by employees. A well-functioning banking system may promote rapid growth in many sectors of the economy and is a necessary condition for a country's progress. This study concludes that the financial performance of Punjab National Bank is excellent in terms of Capital Adequacy Ratio and Business Per Employee. Still, there is need of much improvement in Gross NPA to Advances Percentage. Despite the mentioned cause, bank has been performing well overall. Comparatively ICICI Bank’s performance is robust with higher ratios across many dimensions surpassing PNB. Overall conclusion can be that the performance of ICICI is way better than PNB.

**Practical Implication**

The practical application of this study that compared the two banks using the CAMEL model is to shed light on the relative financial performance and strength of the two banks. Many different stakeholders can make use of this information, including:

Potential depositors: Those considering making a deposit can use the information to choose which bank offers the highest level of security.

Potential borrowers: Using the data, borrowers can select the bank that will most likely approve their loan application and provide them with the best terms.

Investors: Using the information, investors can choose which bank's stock to purchase or dispose of.

Regulators: Regulators can use the data to pinpoint banks that might be in danger of going bankrupt and can then take action to stop it.

Policymakers: The data might be used by a central bank to identify banks that are at risk of experiencing liquidity issues and to offer them emergency loans. The data might be used by a financial regulator to determine which institutions require more stringent regulation. The data might be used by the government to choose which banks qualify for loans or guarantees backed by the government. The data could be used by a deposit insurance organization to determine risk-based bank premiums.

**Limitations of the Study**

The six-year (2017-2018 to 2022-2023) study period may not have captured long-term patterns that could have a substantial impact on the performance of the institutions. Because of the distinctive characteristics of the two selected banks, the results of this study might not be generalizable to other banks or time periods. The study is based on primary as well as secondary data. Primary data limitations are the small sample size (i.e., 210) used for data collection and the reliance on participant replies for data accuracy. Limitations related to secondary data is that the data available from publicly accessible sources may not always be correct, and there may be differences in the two banks' reporting practices.

**Future Prospects**

To comprehend the most recent trends and advances in the banking business, new research is continuously required. This research paper will be helpful for the depositors of the selected banks for comparing the various risks that are associated with their financial investments. While the performance of two selected banks was examined in this study, future research may look at a bigger and more varied group of banks to acquire a more complete knowledge of the sector. Policymakers, investors, and bank management can all benefit from this study's findings by better understanding banks' financial performance and using it to guide their actions.

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