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Assessing the Robustness and Financial Effectiveness of Private Sector Banks(PVB) in India: An In-Depth Analysis Utilizing the CAMEL Rating Framework

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Abstract

The banking industry holds a significant role in shaping economic growth and upholding a nation's financial stability. The assessment of a bank's financial performance is crucial for its stakeholders as it enables them to make pivotal decisions. The paper aims to evaluate and rank the financial outcomes of ten privately owned bank in India over the time frame of ten years (2014-2023. The study uses financial ratios calculated under each of CAMEL(Capital Adequacy, Asset quality, Managerial Efficacy, Earnings profitability, and Liquidity) to give a view on banks strengths and weaknesses. According to the results, HDFC tops the ranking followed by IndusInd and Kotak Mahindra Bank. These results provide knowledge on risk level of respective banks and thus helps in decision making.

Keywords: CAMEL, Bank, Private Sector, Performance, Capital Adequacy

1. Introduction

The sector that contributes most to the growth of the country's GDP is the banking sector. Tracking the banks' operations and assessing their effectiveness has become incredibly important. Because of the substantial changes that occur in the underperforming assets held by the banks recently, we must use a systematic approach to evaluate and analyse banks to ensure the country's financial stability.(K. A. Kumar & Murty, 2019)

Indian Banking sector consists of public and private sector banks(PVB), of which twenty-one banks belong to private sector (RBI, n.d.). It helps in balancing fund flow in the country thus helping to maintain stability. One technique to evaluate the effectiveness of banks is by CAMEL framework. The Uniform Financial Institutions Ratings System (UFIRS), often known as CAMEL, has been utilized to evaluate State-owned banking institutions in the US since 1979. The Federal Reserve and other banking authorities recommend using this system. UFIRS evaluates the following five primary fact Capital adequacy, Asset quality, Management Efficiency, Earnings, Liquidity when rating. (Uniform Financial Institutions Rating System, 1997)

The study analyses and compares ten Private sector banks(PVB) in India over a span of ten years from 2014 - 2023. It uses selective financial ratios under CAMEL into five distinct categories: Capital Adequacy, Asset quality, Management Efficiency, Earnings Profitability and Liquidity.

The CAMEL technique is a potent tool for evaluating and ranking banks in the current economic integration phase as a foundation for figuring out how competitive the market is and how well-equipped banks are to compete on a global scale.(Thi et al., n.d.)

(AL-Najjar & Assous, 2021) main goal of the study is to rank banks present in Saudi based on ratings for CAMEL overall and its composite. There are four stages to the method. For each of the 11 Saudi banks, essential financial ratios pertaining to the CAMEL are computed in the first phase. Ranking is done inside each CAMEL composite yearly in the second phase. Saudi banks are ranked in the third phase using both the CAMEL combined rating and composite score. The association between the rankings of the CAMEL ratios and the total deposits of banks is next examined in the fourth phase.

(Paule-Vianez et al., 2020) study highlights the CAMELS framework as its focus to predict financial difficulty in credit institutions. The goal of the study is to forecast monetary difficulty in credit institutions, such as insolvency and liquidity problems. It makes predictions with a high degree of accuracy using artificial neural networks.

(Singh & Milan, 2023) tries to understand the elements influencing the performance of these institutions, particularly the financial aspects of them, and focuses on the recent mergers among India's public sector banks in India. It uses the CAMEL framework. The results have a major impact on how well the industry performs. It is crucial to keep in mind various restrictions, such as the use of secondary data and the exclusive attention paid to financial issues at the expense of non-financial factors.

The five categories of CAMEL assessment are as follows.

1.1 Capital Adequacy

Global banking has seen significant changes because of deregulation and globalization. While new avenues for banks to increase their profits opened up, the banking industry was exposed to greater dangers due to growing competition brought on by new products, new practices, and technological innovation. The efforts to standardize international capital standards, which had gained momentum under the direction of the Bank for International Settlement (BIS), were once again highlighted by this. Basel Committee on Banking Supervision(BCBS) was founded in 1975. The BIS made a significant contribution to the global harmonization of supervisory standards with this. (Prakash, 2008).

Basel rules, often known as BCBS banking standards, have been implemented by most nations in conjunction with domestic policy choices. One of the Basel Committee's key initiatives is adoption of capital adequacy standards to reduce the bank's excessive risk-taking actions. The banking regulator, i.e., Reserve Bank, has modified common BCBS norms in India. (Seth et al., 2022)

The first international banking agreement, BASEL-I (1988), placed a strong emphasis on credit risk. For banks, it set an 8% capital requirement. In 1999, India adopted BASEL-I.

BASEL-II (2004): BASEL-II maintained the 8% capital requirement while extending the scope to include operational risk, market risk, and capital risk. In 2006, BASEL-II was deployed in India.

BASEL-III (2010): Launched in 2010, BASEL-III suggested increased capital requirements, ranging from 10% to 14%, and it was implemented globally in 2013. However, BASEL-III was approved by India in 2019.(P. Kumar et al., 2023)

1.2 Asset Quality

The quality of loans is its key focus. Analysis of asset quality is crucial for a bank's smooth operation and efficiency because lending operations are particularly significant for banks. Bad debts that are in default or on the verge of default are considered non-performing assets.(Varga & Bánkuti, 2021)

1.3 Managerial Efficacy

Employing this parameter, we can assess the management quality to reward banks with higher standards and correct those that are badly run. As part of this process, managers' effectiveness in generating revenue (top-line) and maximizing profits (bottom-line) is analysed.

(Reddy & Sriharsha Reddy, 2012)

1.4 Earnings Profitability

(Kumar Mishra et al., n.d.) states that a bank's ability to sustain quality and earn consistently is determined by the quality of its earnings, which is a key trait. It demonstrates how profitable a bank is and indicates how its future earnings will increase and remain stable.

1.5 Liquidity

(M. A. Kumar et al., 2012) States that due to intense competition and the simple flow of foreign capital into domestic markets, managing liquidity has taken on a priority role in banks A liquidity crisis' influence on banks may be detrimental to their financial performance. Banks' performance may suffer as a result of their inability to manage their short-term liquidity commitments and loan commitments, which can cause a significant increase in their cost of capital and increase their exposure to unrated asset classes.

In the study by (Ferrouhi, 2014), the CAMEL model was applied to assess major Moroccan financial institutions from 2001 to 2011. By utilizing financial metrics ratios, the study provided a comprehensive CAMEL ranking of the institutions.

(Chaudhuri, 2018) presents a comparative examination of the performance of two prominent banks in India: SBI and ICICI .Through the utilization of CAMEL method, the study evaluates dimensions such as profitability, solvency, and management efficiency. The results suggests that both banks meet required industry standards and maintain profitability; however, ICICI Bank emerges as a superior performer in terms of profitability and management efficiency.

(Ab-Rahim et al., 2018) assessed the publicly listed banks across five prominent ASEAN countries employing the CAMEL framework. Utilizing annual data spanning the years 1997 to 2011, the study seeks to comprehensively gauge banking performance. It pursues a dual perspective, first by evaluating the performance of the banking sector collectively within the ASEAN region and second, by individually examining the banking sector's performance within each of the ASEAN countries.

Taiwan's cost effectiveness is positively impacted by the CAR, ROA, and leverage ratio. However, the NPL ratio and deposit growth rate are detrimental to cost effectiveness.(Liang et al., 2020).

In the following sections, we will go into more detail about the conclusions drawn from our literature study and the use of CAMEL framework in the context of Indian private sector banks(PVB). Our analysis will include empirical research, theoretical foundations, and in-depth examinations. By the end of our research, these insights will help understand the importance of CAMEL framework and help provide a more thorough knowledge of bank performance.

2. Methodology:

The nature of the current study is descriptive. For this study, Data is collected from secondary sources. The empirical analysis conducted in this study is based on the audited financial reports of ten private sector banks(PVB) in India, from 2014 through 2023, a ten-year span. This research paper focuses to assess the effectiveness of private sector banks (PVB) using the CAMEL approach.

The financial ratios to be considered under each category of CAMEL is identified.

- The financial ratios for each chosen bank over the study period (TEN YEARS) is computed.
- Each category is evaluated separately using the ratios for the purpose of calculating individual ranks and the Group rank is obtained by calculating the average rank each individual ratio rank.
- With the average of group ranks, the Final overall ranking is established in accordance with the CAMEL overall ranking.
- Data Analysis and interpretation.

2.1 Data Collection:

The secondary data for this study has been sourced from Annual Reports of the respective banks, RBI.

2.2 Sampling:

Random sampling method is applied to select ten banks from the twenty-one private sector banks(PVB) in India.

The chosen banks are HDFC Bank Ltd., ICICI Bank Ltd., IndusInd Bank Ltd., Federal Bank Ltd., IDBI Bank Limited, Karur Vysya Bank Ltd., YES Bank Ltd., Axis Bank Ltd., Kotak Mahindra Bank Ltd., and Karnataka Bank Ltd.—represent a broad spectrum in the private banking industry.

3. Discussions

3.1 Capital Adequacy

The next series of ratios are used to calculate Capital adequacy:

3.1.1 Capital Adequacy Ratio(CAR):

CAR is a way to gauge how much of a bank's risk-weighted assets are covered by core capital. The formula for calculating CAR is given below.

$$\text{CAR} = {}^{(\text{Tier 1 Capital} + \text{Tier 2 Capital})}/_{Risk\ Weighted\ Assets}$$

TABLE 1. Average Capital Adequacy Ratios during the Period 2014-2023.

BANK	CAR	RANK	D/E	RANK	Total Advances /Total Assets Ratio	RANK	AVERAGE RANKING	GROUP RANKING
AXIS	16.66	4	1.77	9	0.62	7	6.67	8
FEDERAL	14.53	8	0.66	3	0.65	2	4.33	4
ICICI	17.68	2	1.42	7	0.60	8	5.67	6
IDBI	13.62	10	1.64	8	0.51	10	9.33	10
INDUSIND	15.46	7	1.41	6	0.63	4	5.67	6
KARNATAKA	13.68	9	0.36	1	0.63	5	5.00	5
KARURVYSYA	15.65	6	0.40	2	0.68	1	3.00	1
KOTAKMAHINDRA	18.94	1	0.68	4	0.63	6	3.67	2
YES	15.98	5	2.74	10	0.60	9	8.00	9
HDFC	17.03	3	0.82	5	0.64	3	3.67	2

Source: compiled by author

Kotak Mahindra bank has highest CAR that are higher than Basel III's minimum requirement of 14% as seen from Fig. 1, highlighting their strong capital levels. Although the CAR's of IDBI and Karnataka banks only just meet this threshold, they continue to have adequate capital levels. These findings demonstrate the banks' substantial financial reserves and adherence to global capital rules, which puts them in an advantageous position to manage risks and uncertainties.

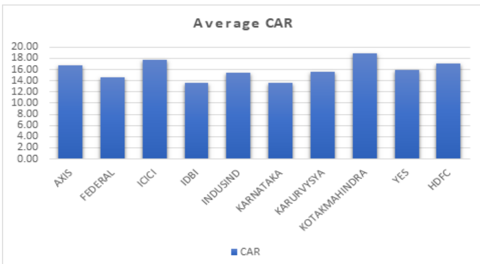
3.1.2 Debt Equity Ratio (D/E):

The D/E ratio is an important financial metric used to determine how much debt to equity is present in a company. As can be seen from the chart in Fig.2, with a ratio of 2.74, YES Bank has the highest value among the chosen private sector banks(PVB), showing a comparatively stronger reliance on debt in its capital structure. Karnataka Bank, on the other hand, has the lowest D/E ratio (0.36), implies a more cautious strategy with reduced debt utilization. With favourable ratios of 0.82 and 0.66, respectively, HDFC and Federal Bank similarly show a well-balanced mix of debt and equity. The higher ratios of 1.77 and 1.64 for Axis Bank and IDBI Bank may suggest a higher risk of financing for these institutions. Overall, keeping the D/E ratio within the advised range helps these institutions manage their risks responsibly and ensure financial stability.

3.1.3 Total Advances / Total Assets Ratio:

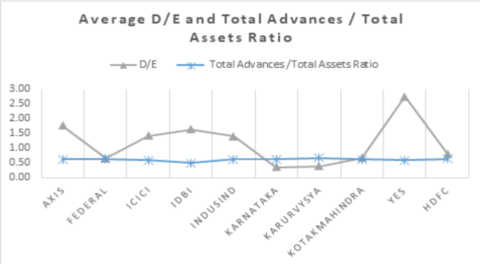
This ratio states how much a bank's total assets are made up of loans and advances. Karur Vysya Bank, one of the chosen private sector banks(PVB), has the highest ratio (0.68), reveals that a sizable part of assets is dedicated to loans. The following banks HDFC, Federal Bank, Kotak Mahindra Bank, and Karnataka Bank is expressing a strong emphasis on lending activities. The lowest ratio, 0.51 as captured in Fig. 2 belongs to IDBI Bank, which would suggest a more cautious approach to lending. While a larger ratio may suggest greater earning potential, it also carries additional credit risks. For these banks to perform at

FIGURE 1. Average CAR during the Period 2014-2023.



Source: compiled by author

FIGURE 2. Average D/E and Total Advances / Total Assets Ratio during the Period 2014-2023.



Source: compiled by author

their best and maintain financial stability, it is essential to strike a balance between loan expansion and risk management.

The financial data and rank table under average capital adequacy ratios for the selected banks is summarized in Table 1, and the graphical representations are provided in Figure 1 and Figure 2.

3.1.4 Group Rank:

The data in Table 1 reveals that, with respect to capital adequacy Karur Vysya Bank and HDFC rank in the top positions, whereas YES bank and IDBI rank at the bottom.

3.2 Asset Quality

(Siva & Natarajan, 2011) states that the strength of financial institutions against asset value loss is determined by asset quality. When assessing asset quality, factors such as the quantity and severity of non-performing assets(NPA), the adequacy of contingencies, recoveries, distribution of assets, etc.

(Alemu & Aweke, 2017) In determining the quality of an asset, The given metrics are taken into account. Non-Performing Loans to Gross Loans, Gross Nonperforming Assets (NPA) to Net Advances , Net NPAs to Net Advances, Total Investments to Total Assets, Net NPAs to Total Assets. The total of all loan assets that have not been repaid by the borrowers within the allotted 90 days is known as gross NPA. The amount left over after subtracting questionable and unpaid loans from the GNPA is known as Net NPA. It represents the real loss incurred by the bank.

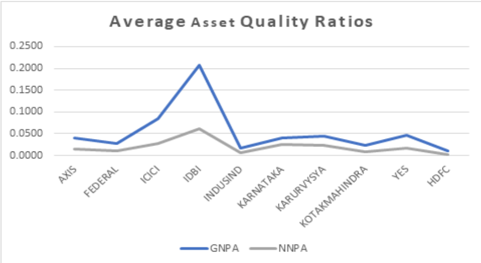
3.2.1 Gross Non-Performing Assets (GNPA) Ratio:

The percentage of non-performing loans in a bank's overall loan portfolio is given by the gross non-performing assets (GNPA) ratio. Following the information, HDFC Bank has the lowest GNPA ratio (0.0115), placing it first among the chosen private sector banks(PVB) and indicating effective asset quality management. IndusInd Bank (0.0166), which likewise exhibits responsible credit management, follows closely. In Figure 3, it is evident that ICICI (0.0855) and IDBI Bank (0.2074) show high values are ranked ten and nine respectively according to Table 2, proving larger NPA levels and higher credit risk. For these banks to remain solvent and have sustainable growth, effective NPA management and proactive initiatives are essential.

3.2.2 Net Non-Performing Assets(NNPA) Ratio:

When considering reserves for anticipated losses, the NNPA Ratio is a vital sign of a bank's capacity to manage defaulted loans. With the lowest Net NPA ratio among the chosen private sector banks(PVB), HDFC Bank (0.0033) distinguishes out and takes the top spot, highlighting its effective asset quality management. For these banks to maintain financial stability and growth, effective NPA management is essential. On the other hand, from Figure 3, IDBI Bank (0.0605) has potentially elevated credit risk and higher net NPA ratios. For these banks to maintain financial stability and growth, effective NPA management is essential.

FIGURE 3: Average asset quality Ratios during the Period 2014-2023.



Source: compiled by author

Table 2 provides an overview of average asset quality ratios during the Period 2014-2023, and Figure 3 provides a graphic representation of the same.

3.2.3 Group Rank:

As per the overall group rank pointed by Table 2, HDFC and IndusInd Banks have lower nonperforming loans, IDBI and ICICI rank at the end having higher NPA.

3.3 Managerial Efficacy

(P. Kumar et al., 2023)states this parameter is used to assess management quality. Analysis of managerial efficacy in generating business (top-line) and optimizing profits (bottom-line) is part of this process. Total advances to total deposits (CD ratio), profit per employee, business per employee is some of the ratios taken into account to gauge the management calibre of the banks. The following ratios are considered in this analysis.

3.3.1 The Ratio of Total Advances to Total Deposits:

The ratio of total advances to total deposits shows how much a bank depends on client deposits to finance its lending activity. According to Fig.4, YES Bank has the highest ratio of 100% among the listed banks, highlighting that deposits cover 100% of its total advances. With a ratio of 85%, HDFC Bank has a very balanced attitude toward deposits and advances. The bank with the lowest ratio, IDBI Bank, relies more heavily on sources other than deposits for its lending activities (69%). This ratio measures the effectiveness and capacity of the bank's management in converting the available deposits (including receivables) into rich earning advances while excluding other funds like stock capital, etc.(Kumar Mishra et al., n.d.)

TABLE 2. Average asset quality Ratios during the Period 2014-2023.

BANK	GNPA	RANK	NNPA	RANK	AVERAGE RANKING	GROUP RANKING
AXIS	0.0409	5	0.0154	5	5	5
FEDERAL	0.0274	4	0.0117	4	4	4
ICICI	0.0855	9	0.0274	9	9	9
IDBI	0.2074	10	0.0605	10	10	10
INDUSIND	0.0166	2	0.0060	2	2	2
KARNATAKA	0.0409	6	0.0251	8	7	6
KARURVYSYA	0.0446	7	0.0238	7	7	6
KOTAKMAHINDRA	0.0233	3	0.0091	3	3	3
YES	0.0476	8	0.0164	6	7	6
HDFC	0.0115	1	0.0033	1	1	1

Source: compiled by author

3.3.2 Business Generated per Employee:

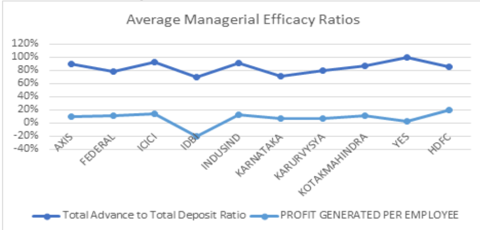
The Business Generated per Employee (Rs) shows how well the bank generates business, proving the effectiveness of the bank's personnel in terms of generating income. With a value of Rs 238,962,716.5, with reference to Figure 5, IDBI Bank stands out as having great business generation per employee. Federal Bank (Rs 185,104,164.6) and HDFC Bank (Rs 160,107,710.5) are two further strong performances. However, the business generated per employee at Kotak Mahindra Bank (Rs 84,802,924.56) is less. While Kotak Mahindra Bank and Karnataka Bank may want to concentrate on increasing their business creation per employee, this measure implies that IDBI Bank is effective in using its personnel to produce higher business.

3.3.3 Profit Generated per Employee:

The "Profit per Employee" reflects how efficiently a bank generates profits per employee. HDFC Bank performs well in this regard, with a profit of approximately 19.83% per employee, followed by ICICI Bank (13.94%) and IndusInd Bank (12.28%). However, IDBI Bank reports a severely negative profit per employee with the graph dropping to negative according to Figure 4, implying significant challenges. The lower profit per employee for YES Bank (2.17%) also suggests room for improvement. Based on the data, HDFC Bank excels in effectively leveraging its workforce to generate high profits.

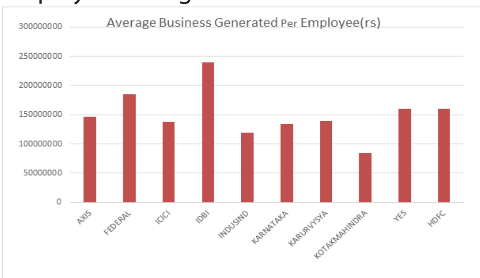
Table 3 provides an overview of the average managerial efficacy ratios with the ranks and Figure 4 and Figure 5 provides a visual depiction of the average ratios.

FIGURE 4. Average managerial efficacy Ratios during the Period 2014-2023.



Source: compiled by author

FIGURE 5. Average Business per Employee during the Period 2014-2023.



Source: compiled by author

TABLE 3. Average managerial efficacy Ratios during the Period 2014-2023.

BANK	Total Advance to Total Deposit Ratio	RANK	BUSINESS GENERATED PER EMPLOYEE(Rs)	RANK	PROFIT GENERATED PER EMPLOYEE	RANK	AVERAGE RANKING	GROUP RANKING
AXIS	89.37%	4	146634468	5	9.92%	6	5.000	5
FEDERAL	77.56%	8	185104164.6	2	10.81%	4	4.667	3
ICICI	91.79%	2	137909927.9	7	13.94%	2	3.667	2
IDBI	69.02%	10	238962716.5	1	-20.30%	10	7.000	9
INDUSIND	91.24%	3	119102300.7	9	12.29%	3	5.000	5
KARNATAKA	71.33%	9	134425711.8	8	6.16%	8	8.333	10
KARURVYSYA	79.32%	7	138540000	6	6.72%	7	6.667	7
KOTAKMAHINDRA	86.79%	5	84802924.56	10	10.72%	5	6.667	7
YES	99.62%	1	159891765.8	4	2.17%	9	4.667	3
HDFC	85.12%	6	160107710.5	3	19.84%	1	3.333	1

Source: compiled by author

3.3.4 Group Rank:

Among the listed banks, HDFC has the highest managerial efficacy (Rank 1), and Karnataka has the lowest (Rank 10).

3.4 Earnings Profitability

(Siva & Natarajan, 2011) Earnings and profitability which is the main driver of capital base growth, are influenced by interest rate policy and the sufficiency of provisioning. Additionally, it supports the institutions' ongoing and future operations. The ratio of return on assets (ROA), is the sole metric of profitability. The ability to support current and future activities is reflected in the banks' strong earnings and profitability. This proves the company's ability to overcome financial setbacks, finance expansion plans, deliver dividends to the shareholders, and accumulate enough capital reserves.

(Reddy & Sriharsha Reddy, 2012) states that ROA, interest income as a percentage of total income, and non-interest income as a percentage of total income are some of the ratios considered to determine the earning capacity of the banks.

The following ratios used in this analysis.

3.4.1 Dividend Payout Ratio:

The percentage of earnings that are paid out as dividends to shareholders is known as the "Dividend Payout Ratio". Federal Bank has the highest dividend payout ratio of the examined banks at 19.27%, closely followed by HDFC Bank (18.43%) and Karnataka Bank (18.44%). Kotak Mahindra Bank (2.96%) and IDBI Bank (4.68%), have substantially lower ratios as seen from Figure 6, suggesting they keep more of the profits for other uses. The bank's commitment to its shareholders and financial plan for striking a balance between dividends and retained earnings are both reflected in the dividend payout ratio.

3.4.2 Return on Assets (ROA):

A crucial financial metric used to assess a bank's capacity to make money in relation to its total assets is called "Return on Assets" (ROA). While referring with the graph from Figure 7 we can clearly note that with a high ROA of 9.42% among the examined banks, Kotak Mahindra Bank stands out for its efficient use of its assets to produce profits. A noteworthy ROA of -1.08% for IDBI Bank states issues with profitability and asset usage. A higher ROA typically points out more profitable and effective asset management by the bank.

3.4.3 Interest Income to Total Income Ratio(IITI):

The "Interest Income to Total Income Ratio" measures the percentage of a bank's total revenue that comes from operations that pay interest. Among the examined banks, From the visual graph shown as Figure 6, Federal Bank (88.82%) stands out due to its significant reliance on interest-related operations and high proportion of interest revenue to total income. Karur Vysya Bank (86.93%), Karnataka Bank (86.43%), and IDBI Bank (84.33%) are a few other banks with noteworthy interest income ratios. Both ICICI Bank (79.90%) and HDFC Bank (65.73%) balance their income from interest-bearing and non-interest sources.

TABLE 4. Average Earnings Profitability Ratios during the Period 2014-2023.

BANK	Dividend Payout Ratio	RANK	ROA	RANK	IITI	RANK	OITI	RANK	AVERAGE RANKING	GROUP RANKING
AXIS	8.78%	8	0.87%	5	81.00%	7	19.00%	3	5.75	8
FEDERAL	19.27%	1	0.87%	6	88.82%	1	11.18%	10	4.5	1
ICICI	17.31%	5	1.28%	4	79.90%	9	20.10%	1	4.75	2
IDBI	4.68%	9	-1.08%	10	84.33%	4	15.67%	7	7.5	10
INDUSIND	11.66%	7	1.43%	3	79.95%	8	20.05%	2	5	3
KARNATAKA	18.44%	2	0.69%	8	86.43%	3	13.57%	8	5.25	4
KARURVYSYA	17.91%	4	0.74%	7	86.93%	2	13.07%	9	5.5	7
KOTAKMAHINDRA	2.96%	10	9.42%	1	83.59%	5	16.41%	5	5.25	4
YES	17.01%	6	0.07%	9	82.45%	6	17.55%	4	6.25	9
HDFC	18.43%	3	1.73%	2	65.73%	10	16.21%	6	5.25	4

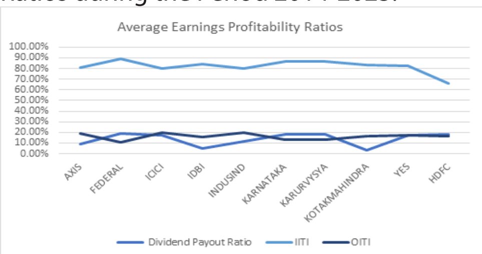
Source: compiled by author

3.4.4 Other Income to Total Income Ratio(OITI):

The percentage of revenue coming from non-interest generating sources is represented by the "Other Income to Total Income Ratio". From Figure 6 we can infer higher ratios of roughly 20% are found in banks like ICICI, INDUSIND, and AXIS, indicating a more varied income source. Conversely, the lower percentages of roughly 18% or less for YES, IDBI, and KARURVYSYA show a stronger reliance on interest-related earnings. To thoroughly evaluate a bank's financial health and strategic direction, a thorough assessment of this ratio, along with other financial parameters is essential.

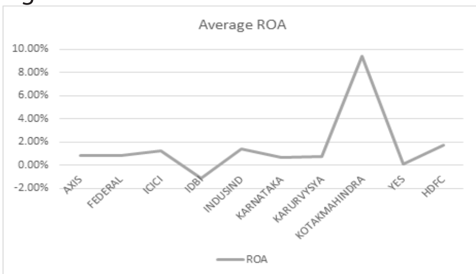
Within Table 4, you'll find an overview of the financial data with rank for Average Earnings Profitability Ratios, while Figure 6 and Fig 7 visually presents this same information.

FIGURE 6. Average Earnings Profitability Ratios during the Period 2014-2023.



Source: compiled by author

FIGURE 7. Average Return on Assets during the Period 2014-2023.



Source: compiled by author

3.4.5 Group Rank:

Among the listed banks, Federal Bank has the highest profitability performance (Rank 1) and IDBI the lowest (Rank 10).

3.5 Liquidity

(Kankipati, 2017) gives the following ratios

Liquidity Asset to Total Asset: This demonstrates the business's capacity to bounce back from financial setbacks, fund expansion plans, pay dividends to shareholders, and build up sufficient capital reserves, maintain balances with the Reserve Bank of India and banks (both domestically and abroad) are all included.

Liquidity Asset to Total Deposits: This ratio is used to assess a bank's depositors' access to liquidity. Divide the total deposits by the liquid assets to arrive at the figure.

3.5.1 Liquidity Asset To Total Asset Ratio:

The "Liquidity Asset to Total Asset Ratio" sheds light on how well a bank can use liquid assets to cover liabilities. At almost 9.7%, INDUSIND has the highest ratio, indicating effective liquidity management. As we see from Figure 8, KARNATAKA has the lowest percentage at about 5.1%, which would suggest a reduced capacity to fulfil short-term obligations. To preserve financial stability and satisfy unforeseen requests, liquidity management must be balanced.

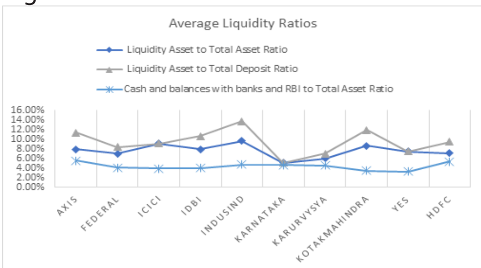
3.5.2 Cash And Balances With Banks And The Rbi Relative To Total Assets:

With a ratio of 5.51%, Axis Bank has the strongest liquidity position among the examined banks in terms of cash and balances with banks and the RBI relative to total assets. With 5.34%, HDFC comes in second, displaying a similarly excellent liquidity position. Kotak Mahindra Bank and Yes Bank are on the lower end and may imply marginally less liquidity. The graph can be seen from Figure 8. It is crucial to remember that a higher ratio typically denotes better liquidity because banks can pay short-term obligations with ease. (Asst & Ramya, 2014).

3.5.3 Liquidity Asset To Total Deposit Ratio:

Among the banks analysed for the "Liquidity Asset to Total Deposit Ratio," IndusInd Bank maintains the highest ratio of around 13.8%, which is shown as a high peak in Figure 8, displaying its robust liquidity management. ICICI Bank and HDFC Bank, with ratios of approximately 9.1% and 9.5% respectively, also exhibit healthy liquidity buffers. Karnataka Bank has a relatively lower ratio of approximately 5.1%, suggesting a relatively smaller

FIGURE 8. Average Liquidity Ratios during the Period 2014-2023.



Source: compiled by author

TABLE 5. Average Liquidity Ratios during the Period 2014-2023.

BANK	Liquidity Asset to Total Asset Ratio	Liquidity Asset to Total Deposit Ratio	Cash and balances with banks and RBI to Total Asset Ratio	AVERAGE RANKING	GROUP RANKING
AXIS	7.89%	11.32%	5.51%	2.67	2
FEDERAL	7.02%	8.39%	4.07%	7.00	7
ICICI	9.06%	9.06%	3.87%	5.33	5
IDBI	7.86%	10.59%	4.01%	5.33	5
INDUSIND	9.66%	13.76%	4.75%	1.67	1
KARNATAKA	5.09%	5.09%	4.65%	8.00	9
KARURVYSYA	6.03%	7.04%	4.50%	7.67	8
KOTAKMAHINDRA	8.60%	11.89%	3.47%	4.67	3
YES	7.40%	7.40%	3.25%	8.00	9
HDFC	7.12%	9.45%	5.34%	4.67	3

Source: compiled by author

liquidity buffer compared to other banks. Effective liquidity management is crucial for ensuring stability and confidence within the banking sector.

3.5.4 Group Rank:

As per the ranking data given in Table 5, IndusInd Bank has the strongest liquidity position (Rank 1), while YES Bank, Karnataka Bank, and IDBI Bank share the lowest liquidity position among the listed banks (Rank 9). The graphical representation can be seen from Figure 8.

3.6 Overall Group Rank:

The average of individual category rank of CAMEL is taken, its average is calculated to arrive at the overall rank.

From Table 6 we can understand in the context of Capital Adequacy Karur Vysya and HDFC top the list, with respect to managerial efficacy and Asset Quality, HDFC ranks number one, Federal Bank has high rank in Earnings profitability and IndusInd Bank shows high in Liquidity, YES bank and IDBI rank low in overall performance.

HDFC Bank stands out as the best-performing bank due to its balanced performance across all CAMEL components. But each bank's ranking reflects its unique strengths and limitations, and there is room for improvement in several areas of how they conduct business. These rankings offer a view of these institutions' comparative performance based on the CAMEL methodology.

4. Conclusions:

The CAMEL framework is employed to assess the overall operational effectiveness of banks. In this study, we have evaluated the operational performance of ten private sector banks (PVBs) operating in India. Our study shows the following results as overall rank.

- RANK 1: HDFC Bank is clearly the top-Ranked bank. Throughout all CAMEL components, it consistently received high scores, demonstrating its solid capital adequacy, asset quality, managerial efficacy, earnings, and liquidity position.
- RANK 2: The second-best overall Ranking went to indusind Bank, which likewise displayed excellent performance. It showed excellent risk management techniques by excelling primarily in asset quality and liquidity.
- RANK 3: Federal Bank performed well in terms of capital sufficiency, asset quality, and earnings, but its liquidity situation may be strengthened.

TABLE 6. CAMEL Ranking.

BANK	C	A	M	E	L	AVERAGE	OVERALL RANK
AXIS	8	5	5	8	2	5.6	6
FEDERAL	4	4	3	1	7	3.8	3
ICICI	6	9	2	2	5	4.8	5
IDBI	10	10	9	10	5	8.8	10
INDUSLAND	6	2	5	3	1	3.4	2
KARNATAKA	5	6	10	4	9	6.8	8
KARURVYSYA	1	6	7	7	8	5.8	7
KOTAKMAHINDRA	2	3	7	4	3	3.8	3
YES	9	6	3	9	9	7.2	9
HDFC	2	1	1	4	3	2.2	1

Source: compiled by author

- RANK 4: Federal Bank and Kotak Mahindra Bank are tied for third. It showed strength in capital adequacy and asset quality, which helped it score well overall.
- RANK 5: ICICI Bank came in at number five. Even though it displayed strong profitability, it may gain from improvements in capital adequacy and asset quality.
- RANK 6: Axis Bank comes in at number six overall, showing that there is room for development in a number of CAMEL components, including capital adequacy, asset quality, and earnings.
- RANK 7: Karur Vysya Bank earned the seventh spot by exhibiting moderately strong managerial efficacy and earnings, while it might improve its capital adequacy and liquidity situation.
- RANK 8: Karnataka Bank Ranks eighth overall, showing that there is potential for a boost in capital sufficiency, asset quality, and liquidity.
- RANK 9: YES Bank is now Ranked ninth overall, however there is room for development in terms of capital sufficiency, management efficiency, and liquidity.
- RANK 10: The fact that IDBI Bank is Ranked last means that a number of factors, such as capital sufficiency, asset quality, managerial efficacy, and profitability, need to be addressed.

This data can be useful for banks management, investors, and other stakeholders to take important decisions.

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