Evaluating Financial Performance of Bank with help of CAMEL Model: A Conceptual Framework

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Abstract

Indian banking sector has been passing through a complex, but comprehensive phase of reform and restructuring since 1991. The whole banking scenario has changed a lot in the recent past on the base of implementation of Narasimham Committee Report and other reforms. Further, Base -III norms also introduced. Entire reform process has been implemented with a view to make the banking system very sound, efficient, internationally competitive and joining its links with economy for promotion of savings, investments and overall inclusive growth. Though, complete turnaround in Indian Banking Sector performance is not expected in a hurry till the economy turn around and growth of economy rebound. In spite of this, some signs of slow and gradual improvement are there looking in the horizon in some aspects or indicators under the "CAMEL" model of framework. In this paper an attempt is made to conceptualise the concept of financial performance and present the empirical studies relating to using of CAMEL Model for evaluating financial performance.

Keywords : Asset Quality, Banking system, CapitalAdequacy, Earning, Liquidity and Management Efficiency.

Introduction

Financial performance represents the task of executing financial activity. It indicates to the extent with which financial objectives or targets have been fulfilled. Here company's financial performance in the context of its policies, operation and execution is measured in monetary terms; it can be measured for financial health of any business enterprise for a particular period of time. Financial performance of one enterprise can also be compared with other similar business enterprise in the same industry.

Financial performance analysis is a process of systematically making a proper, critical and comparative evaluation of profitability and financial health of firm or banks through the applications of financial statement analysis.

Areas of Performance

In a business enterprise, by making a comprehensive assessment, certainly the performance of different types of tasks and activities accomplished in various s area of business operations can be improved or modified. These areas of operations may be defined as the area of performance. Financial experts often consider or assess the following important areas for the performance or measurement or analysis.

- Performance of Productivity

- Performance of Profitability

- Performance of Fund Flow

- Performance of Liquidity

- Performance of Working Capital

The Concept of Financial Appraisal

"Financial Appraisal is a scientific evaluation of profitability and financial strength of any business concern(Sharma, 1986)."

Financial statement (i.e. Profit and Loss account and Balance Sheet) are prepared and published by the company at the end of the year. This set of financial statements can become a base for the financial appraisal of any business enterprise including banks. Though some additional value-added statements are also prepared with that of annual accounts, as a part of annual report. According to Kennedy and McMillan, "Financial statement analysis attempt to unveil the meaning and significance of the items composed in profit and loss account and loss account and balance sheet, so as to assist the management in the formation of sound operating financial policies (Kennedy & McMillan, 1962).The financial statement analysis provides an indicative and enough guideline regarding the behaviour of various financial variables for measuring the performance of various business enterprises in the industry or organization. However, for proper understanding and interpretation of these financial statements, a basic understanding of the concept and principles underlying their preparation is necessary for the users of these financial statements performance of various business enterprises in the industry or organization.

CAMEL Model: Conceptual Framework

The "CAMEL" rating is a supervisory rating system originally developed in the U.S. to classify a bank's overall position. It is applied to every banks and credit union in the U.S. and also implemented outside the U.S. by various banking supervisory regulators. The uniform financial institution rating system commonly termed to the acronym "CAMEL" rating was accepted by the federal financial institution examination council on November 13, 1979 and then afterwards by the National Credit Union Administration in Act, 1987. The ratings are given based on the ratio analysis of the financial statement.

The Banking Regulation Act, 1949 empowers the Reserve Bank of India to inspect and super wise commercial banks. These powers are executed through on-site inspection and off-site surveillance. In November, 1994, RBI Set up the Board of financial Supervision (BFS) for integrated supervision overall credit institutions. The whole mechanism of supervisory system was realigned to suit the changing requirement of a sound and stable financial system. In

January, 1995, the Board of Financial Supervision established an audit subcommittee, the main function or focus of which is on up gradation of various auditing functions and practices.

In 1995, The Reserve Banks of India established a working group under the chairmanship of Shri S. Padmanabhan to review the entire supervision system of banking sector. On the base of recommendations and suggestions given by this committee, A rating system namely (based on an internationally adopted model) "CAMEL" Model, which was later modified as "CAMELS" was introduced for banks, commencing from July, 1998 audit and inspection cycle. Committee recommended that the banks should be rated on a five-point scale (1 to 5) based on the guidelines of the international "CAMEL" rating model.

CAMEL" Model measures banks on the following five parameters.

[1] Capital Adequacy

[2] Asset Quality

[3] Management Efficiency

[4] Earning

[5] Liquidity

Capital Adequacy

Capital Adequacy is the capital expected to maintain balance with the risk's exposure of the bank, like credit risk, market risk and operational risk with a view to absorb the potential losses and protect the bank's debt holder. The Capital adequacy represents the overall financial condition of the bank and its ability to meet the need for additional capital. Capital adequacy of

banks is measured by the ratio of capital to risk weighted assets (CRAR). A sound capital Adequacy ratios or position strengthen the confidence of various stakeholders in the bank.

Asset Quality

It takes into consideration the percentage of banks loan that are NPAs (Non-performing assets). The main or prime reason behind determining the asset quality is to ascertain the ingredients of NPAs as a percentage of total assets. It also measures the movement of NPAs. The gross non-performing loans to gross advances ratio are an indication towards the Quality of credit decisions of the bank management. Higher NPAs means that loans given by banks are of lower quality. It affects by two ways: First, it increases the provision and reduces profit and second it affects the internal accruals for banks in the form of reduced profit. So, it is not a good thing for banks.

Management Efficiency

It indicates a subjective analysis for measuring the performance of management. There are so many ratios that indicates the performance of management, e.g. business per branch, net profit per employee, return on net worth, non-interest expenditures to total assets etc., Higher non-interest expenditures ratios (It includes variety of expenses) implies that bank management is not able to control some needless expenses.

Earning Quality

This rating reveals not only the Quantity and trend in earing, but also the factors that may affect the sustainability of earning. It refers to the net profit made by bank after taking into account all the factors. Higher earning shows that bank's performance is healthy but simultaneously it is very important to see that this good earning is on account of main or core banking, i.e. interest

income on lending operations. This aspect gains importance now in a day in the light of argument, that one big portion of bank's earning is earned through non-core activities, like treasury operations, Investment advisory services, corporate advisory service and other activities. So, earning from core banking activity is very important.

Liquidity

Liquidity is one of the important parameters to evaluate the performance of Bank. This parameter ascertains the ability of a bank to pay its liabilities as and when they matured. Higher liquidity implies that the bank will be able to meet any untimely withdrawals by the depositors. Not only that but sometimes in a liquidity crunch situation in the market, bank can earn good interest income in call money market also. There must be sufficient liquidity sources for present and future requirements and also availability of assets that can be readily convertible in to cash without undue loss. Liquidity of a bank can be measured by various ratios.

So, Indian banks are rated as per above supervisory rating model "CAMEL", approved by the Reserve Bank of India.

The Importance of "CAMEL" Rating in Banking Supervision

Objects of "CAMEL" model are to provide a good, actuate and consistent assessment of a bank's financial position in the various key areas like capital, Asset quality, management, earning quality and liquidity. Muhammad (2009) Claims, "that the strength of all these factors would measure the overall strength of the bank. The quality of each component further underlines the inner strength and how far it can take care of itself against the market risk (Muhammad , 2009)."

Furthermore, in a situation where, financial markets are increasingly becoming more and more integrated, providing a common model for measurement or assessment of overall financial performance of the banks is of a big importance for financial market's in general and banking sector in particular.

"CAMEL" model of rating is also providing significant compliance data or information that is needed for the regulators. This information helps them to ensure the extent of supervisory concern and response to issue timely warnings to reduce the negative effects on the banks. "In the financial crisis of 2008, this rating system was being used by American Government and responded to the crisis to help decide, which banks require the special help and which not as part of its capitalization program authorized by the Emergency economic stabilization Act of 2008."**17** So, "CAMEL" model is very useful. Sometimes, its index works as a bank's failure predicting model also. In nutshell, still „CAMEL" model is very important for the banking sector and banking regulator as a whole.

Empirical studies using CAMEL Model

Rao and Datta (1998)**,** in an article **"**Benchmarking in Banking: A CAMEL Approach towards Sound and Strong Banking", developed 21 parameters to derive rating based on CAMEL model. Researcher derived separate rating for each parameter along with combined rating for nationalized banks. Corporation Bank emerged as the front runner followed by Oriental Bank of Commerce in the ratings. Indian Bank preceded by UCO Bank was concluded to be worst rankers in ratings.

Prasuna(2004)**,** in a paper "Performance Snapshot 2003-04", analysed the working of Indian banks during 2003-04 by using CAMEL technique. The researcher wrapped up that the consumers were benefited from the competition as due to competition best services and facilities were available to them and they can even bargain on some terms.

Veni(2004)**,** conducted a study on "Capital Adequacy Requirement of Commercial Banks: A Study in Indian Context", and analysed the capital competence conditions of banks and the methods implemented by the banks to build up their capital ratios. The researcher highlighted that various rating agencies by using CAMEL model had given due importance to Capital Adequacy Ratio of the bank for rating fixed deposits and bonds of the bank.

Keshar(2005)analysed the financial health of joint venture banks in Nepal with the help of CAMEL framework in his article "Health Check-up of Commercial Banks in the framework of CAMEL: A Case Study of Joint Venture Banks in Nepal". For the purpose of study, three joint venture commercial banks were selected and data was collected for a time frame from 2000-04. It was concluded that joint venture banks had good financial position than the other commercial banks in Nepal in terms of asset quality, management capability and earning capacity. These banks were well capitalised but their capital base in relative to risk weighted assets was not strong to manage the balance sheet shocks. The liquidity position maintained by joint venture banks was very high which adversely affected the profitability of these banks.

Bodla and Verma (2006)used CAMEL Model to analyse the performance of two largest banks of India State Bank of India (public sector bank) and ICICI (private sector bank) during the period 2000 to 2005. The researchers used the CAMEL Model to investigate the performance of these banks. They observed that State Bank of India had outperformed ICICI bank in parameters like government securities to total investments, ratio of interest income to total income and liquid assets to total assets etc. whereas ICICI bank had outperformed State Bank of India in ratios like advances to assets, total advances to deposits, business per employee, profit per employee, non-interest income to total income, liquid asset to total deposits etc. The study concluded that overall ICICI bank had performed better than State Bank of India.

Satish and Bharathi (2006)**,** in their research article "Indian Banking Coming of Age – Performance Snapshot 2005-2006", analysed the performance of 59 banks consisted of 25 public banks (including the SBI and its associates), 14 private banks and 20 foreign banks based for the year 2005-06 using CAMEL model. The researchers analysed the performance of the banks by ranking these banks on the basis of capital adequacy, asset quality of the banks, management, earning quality and liquidity by using additional indicators like total income, interest income, profit after tax, operating profit, deposits, advances and total assets. The researcher concluded

that the future would see more and more banks restructuring, re-organizing as well as re-branding themselves to face tough competition and suggested that in progress growth in the financial system should scale up quality global banks both in size and in quality of service.

Gupta and Verma (2008)studied with the help of CAMEL Model the performance of 10 private banks in India using secondary data collected from various published sources like magazines, banks web sites and economic survey of Government of India & reports of RBI and internal reports of selected banks from 2003 to 2007. The study concluded that Karur Vysya bank was front runner in terms of performance closely chased by City Union Bank followed by Kotak Mahindra Bank respectively. Bank of Rajasthan was at last place from the banks taken in the study.

Sisodiya et. al. (2008)analysed 68 banks for the year 2007-08 and ranked them using the famous CAMEL rating in paper "Indian Banking Industry: Sustaining the Growth Momentum". On the basis of ranking of each measure of CAMEL Model, the researcher observed that for capital adequacy PSU banks were better, for assets quality private sector banks were better, for management efficiency PSU banks out performed private sector banks, for earning quality private sector banks were better than PSU banks and for liquidity PSU banks were better than private sector banks.

Sangmi and Nazir (2010)**,** conducted a study "Analysing Financial Performance of Commercial Banks in India: Application of CAMEL Model", and analysed financial performance of Punjab National Bank and Jammu and Kashmir bank. The study concluded that by accepting careful policies of financial management the banks were financially strong. The banks had shown significant performance in managing asset quality and also had capital adequacy ratio higher than minimum benchmark fixed by RBI. It was found that Jammu and Kashmir bank was able to maintain higher earnings per employee. But on other hand, expenditure per employee ratio of the bank was also high as compared to Punjab National Bank.

DCCBs of Punjab were negatively affected.

Chowdhury (2011)**,** in a research paper "An Inquiry into the Financial Soundness of Commercial Banks in India Using 'CAMEL' Approach", studied the financial security of twelve commercial banks which traded in National Stock Exchange and were part of CNX bank Index

during the years 2000-2009. Among the banks under study ICICI secured first rank chased by HDFC bank, whereas Union bank secured last position.

Reddy and Prasad (2011)**,** in their study titled "Evaluating Performance of Regional Rural Banks: An Application of CAMEL Model", analysed the performance of Andhra PragathiGrameena Bank (APGB) and SapthagiriGrameena Bank (SGGB). The secondary information was gathered from 2006 to 2010. Arithmetic mean and t test were used to analyse and interpret the data. They concluded that APGB rated top on the basis of overall performance.

Siva and Natrajan(2011)**,** in their research paper "CAMEL Rating Scanning (CRS) of SBI Groups", evaluated the performance of SBI associate group banks using secondary data during 2003-2010 using CAMEL approach. Various ratios calculated during the study indicated a significant difference in the rating of banks. State Bank of Jaipur secured first position chased by State Bank of Patiala, while State Bank of India was at last position in terms of performance. The researcher suggested that the banks should look up their asset quality and capital adequacy ratios. They should work to improve their management efficiency and Liquidity position.

Denis and Sheth(2012)studied five public sector banks (State Bank of India, Bank of Baroda, Punjab National Bank, United Bank of India, Dena Bank) and five private sector banks (Axis Bank, ICICI Bank, HDFC Bank, Kotak Bank, IDBI Bank) with application of CAMEL method in their research article "Present Scenario of Indian Banking Industry: An Appraisal through CAMEL Analysis". They analysed the performance of these banks using data collected from journals, company prospectus, company annual reports, capitaline software and RBI website for the year 2010. The researchers carried out decisive assessment of the banks' operations in order to study sturdiness of the banks in the face of competition. The results revealed that Axis Bank, HDFC and Punjab National Bank had shown a good growth record for its overall performance. Banks of both sectors were able to maintain minimum requirements of capital adequacy ratio.

Mishra et. al., (2012)**,** conducted a study "Analysing Soundness in Indian Banking: A CAMEL Approach", and found that Private sector banks were at top of the list with their performance in terms of soundness while studying twelve banks of Indian banking system which traded in National Stock Exchange and CNX bank index. The researchers further revealed that SBI and

Union banks had low financial viability. They concluded that government needs more steps to increase profits and profits per employee ratio of these banks.

Prasad and Ravinder (2012)**,** in their research paper with title "A CAMEL Model Analysis of Nationalized Banks in India", assessed and found that Andhra bank was front runner in terms of performance closely chased by Bank of Baroda followed by Punjab & Sindh Bank during a study of nationalized banks through CAMEL. The researcher too established that Central Bank of India secured last position in terms of performance measurement.

Rao (2013)studied the financial efficiency of public sector banks in India using CAMEL model in his paper "Performance Evaluation of Public Sector Banks in India – A CAMEL Approach". The data was collected from reports of Indian Banking Association for the period from six years from 2006-2011. The public sector banks had assigned ranking on the various parameters of the CAMEL model and then composite ranking was assigned to them. The researcher established that Indian Overseas Bank secured top rank in terms of maintaining adequate capital and Andhra Bank was the best bank in asset quality. Corporation bank and Punjab National Bank secured top ranks in terms of management efficiency and earning efficiency parameters respectively. For liquidity parameter, State Bank of Jaipur and Bikaner secure top position among all public sector banks. Overall, Andhra Bank was ranked first chased by Indian bank. Central bank of India, United bank of India, UCO Bank, Dena bank and Bank of Maharashtra were among bottom five banks.

Reddy (2012)**,** studied in his paper "Relative Performance of Commercial Banks in India Using CAMEL Approach", 26 public, 19 private and 16 foreign commercial banks for the time period 1999-2009. The researcher collected data from the reports of RBI to study the performance of the banks using CAMEL model. The researcher observed that due to positive impact of the reforms, public sector banks had significantly improved and moreover their working had also improved due to increasing competition. The researcher also found that Mashreq Bank, China Trust Commercial Bank and Bank of Ceylon were among top three banks as they outperformed in all the categories of CAMEL and were having high capital adequacy and liquidity. Similarly, study revealed that American Express Bank, Development Credit Bank and Catholic Syriyan Bank were worst performers due to low value of assets and poor management efficiency of these banks.

Channaveere Gowda et. al. (2013)**,** in their paper "Bank Performance in India: A Study Based on CAMEL Framework", ranked various banks in India by categorizing them into public sector, private sector and foreign banks. For profitability analysis the researchers had used twenty-six public sector, eighteen private sector and fifteen foreign banks and used CAMEL parameters for analysis. Secondary data was taken from various resources for 2006-11. The ranking of the banks was done both categories wise and overall. The researcher established that Corporation Bank, Yes Bank and Bank of Tokyo Mitsubishi UFJ were front runners in public, private and foreign bank categories, whereas UCO Bank, Development Credit Bank, JP Morgan Chase Bank were last among their respective categories. In overall ranking among all categories Bank of Tokyo Mitsubishi UFJ was ranked first and Development Credit Bank was ranked last among the 59 banks under study.

Devanadhen(2013), conducted a study titled "Performance Evaluation of Larged Sized Commercial Banks in India", and analysed 14 public and 3 private sector banks using CAMEL model. He found that the Central Bank of India was at last position in the overall performance, whereas Corporation Bank and HDFC Bank closely chased Andhra Bank which bagged first rank. State Bank of India exhibited healthier performance than ICICI Bank, which further signified that largest public sector bank outperformed largest private sector bank.

Desai (2013), in his study "Performance Evaluation of Indian Banking Analysis", examined and compared Bank of India, State Bank of India, HDFC Bank, Bank of Baroda and AXIS Bank for their overall financial performance utilizing CAMEL model. The researcher found that State Bank of India secured first rank and HDFC Bank secured second rank, Bank of India bagged third rank followed by Bank of Baroda on fourth position and Axis Bank was at the last position among the banks under study. He observed that private sector banks were giving tough competition to public sector banks.

Lakhtraria(2013)analysed the performance of Bank of Baroda, State Bank of India and Punjab National Bank in his paper "A Comparative Study of the Selected Public Sector Banks through CAMEL Model". The secondary data required was taken from RBI and Indian Banking Association for the period of three years (2010-2012). The researcher with the help of CAMEL approach tried to give rank to the banks as per performance according to various ratios used.

Bank of Baroda was standing at first rank closely chased by Punjab National Bank followed by State Bank of India.

Makkar and Singh (2013), in their study titled "Analysis of the Financial Performance of Indian Commercial Banks: A Comparative Study", made an effort to analyse financial performance 22 public and 15 private sector banks for a period from 2006 to 2011 using CAMELS approach. The researchers concluded that IDBI Bank and Dhanalaxmi Bank were the best and worst performing bank respectively. On the basis of t-test they concluded that both groups differ significantly on account of maintaining adequate capital, in terms of their asset quality and earning capacity while management, liquidity position and sensitivity parameters had shown no significant difference between two groups under study.

Mujeebudheen and Manoj (2013)analysed the financial stability of private banks operating in India for a period of 2001-10 using 'CAMEL' approach. The researchers found that City Union Bank bagged first position chased by Karur Vysya Bank and Tamilnadu Mercantile Bank during the above-mentioned period of the study.

Srinivas and Saroja (2013)selected HDFC bank and ICICI bank for analysing the performance of two largest private sector banks. The researchers used CAMEL model and secondary data collected from various resources for the period 2003-2012 to analyse the performance of the banks. The study concluded that although there was no significance difference between the ICICI and HDFC bank's financial performance but the ICICI bank performance is slightly less compared with HDFC bank.

Waraich and Dhawan (2013)**,** in their research paper titled "Performance Evaluation of Cooperative Banks of Punjab: An Application of CAMEL Model in Terms of Capital Adequacy and Asset Quality", attempted to analyse the performance of selected six district central cooperative banks (DCCBs) of Punjab with the help of CAMEL model in respect of Capital Adequacy and Asset Quality. The researcher used secondary data from 2006 to 2013 and applied mathematical and statistical tools i.e. ratio analysis, mean, compound annual growth rate and t test for analysis of data. They found that in terms of capital adequacy, Sangrur, Mansa and Gurdaspur DCCBs had not attained the prescribed capital adequacy ratio of seven percent. The

researchers also established that all the six DCCBs had managed well to keep their NPAs at a low level and had high quality assets portfolio.

Anojan and Nimalathasan(2014)**,** in their study "A Comparative Study of Financial Performance of State and Private Sector Commercial Banks in Sri Lanka: An Application of CAMEL Rating System", studied selected commercial banks operating in Sri Lanka for the period 2008-2012 to evaluate their financial performance. The study concluded that Commercial Bank of Ceylon was strong, performance of Bank of Ceylon (BOC) was satisfactory, Hatton National Bank (HNB) was rated as fair and People's Bank was on marginal position.

Aspal and Dhawan (2014)evaluated the performance of thirteen old private sector banks for the period 2007 to 2012**,** in their study "Financial Performance Assessment of Banking Sector in India: A Case Study of Old Private Sector Banks". They had used "capital adequacy, assets quality, management, earning, liquidity, systems and controls CAMELS rating model." The researchers established that Tamilnadu Mercantile Bank had bagged first position and second position was secured by Federal Bank in overall ranking using camel model and it was also observed that out of thirteen banks, six banks had shown good results. "On the contrary Catholic Siyrian Bank, ING Vysya Bank and Dhanalakshmi Bank were worst performing banks in terms of financial performance".

Chandni et. al. (2014)**,** studied with the help of CAMEL model in their paper "Women CEOs and Financial Performance of Banks: An Empirical Research of Indian Private Sector Banks", the financial performance of those private banks which had women CEOs. Secondary data was collected from the capitaline.com for six years (2005-2006 to 2012-2013). CAMEL model and Student's t-test was applied to study the performance of banks since the period women CEOs had taken the leadership of banks. The study concluded that the performance of these banks whether the CEO is male or female did not show any significant difference. On the other hand, in terms of profitability, the net profit of the banks improved when the women assumed the leadership role in the banks.

Fredrick (2014)analysed credit risk management to find its impact on financial performance on commercial banks in Kenya using CAMEL approach and secondary data was collected from various sources. He analysed the data using multiple regression analysis and found that the

findings from the individual constituents of CAMEL method had a great influence on financial performance. The researcher also established that there was a sturdy bond between earnings of a bank and financial performance, whereas adequate capital requirement, effectiveness of management, quality of assets and liquidity had a fragile bond with financial performance.

Gupta (2014)**,** in research paper "An Analysis of Indian Public Sector Banks Using CAMEL Approach" attempted to assess public sector banks of India for their performance using CAMEL approach. Secondary data was taken from various published resources for a period 2009 to 2013. The ratios were calculated for each individual constituent of CAMEL model. The banks were ranked according to the ratios calculated for each individual constituent of CAMEL model. Further on the basis of individual ranking group composite rank was computed for all components of model. Researcher concluded that out of 26 banks Andhra Bank secured top most rank whereas Bank of Baroda secured second rank. It was also revealed that United Bank of India was at the last rank among all the banks under study.

Bansal and Khosla (2015)**,** in their research article "Multivariate Analysis of Indian Banking Sector Performance: A CAMEL Framework Approach", analysed the working of scheduled commercial banks on the parameters of capital adequacy, asset quality, productivity and profitability using multivariate analysis. Data had been collected from the RBI reports for the period 1991-92 to 2010-11. The researchers concluded that the private sector banks and foreign banks outperformed as compared to the nationalized banks. They suggested restructuring of the nationalized banks by taking into consideration deregulation, recapitalization and organisational structure of these banks.

Thanki(2015)attempted to find out financial performance of public sector banks in research article "An Analysis of Indian Banks Using CAMEL Approach". The banks selected for the study were State Bank of India, Punjab National Bank, CANARA Bank, Bank of Baroda, Bank of India and Private sector banks i.e. ICICI Bank, HDFC Bank, Kotak Bank, Axis Bank, Yes Bank. Study covered a period from 2010 to 2014. The researcher concluded that BOB Bank was having highest overall CAMEL rating followed by SBI and PNB.

Rajasekar and Rameshkumar (2015)measured and assessed of profitability, productivity, efficiency and effectiveness of new private sector banks in India using the CAMEL model. The

secondary data for a time frame from 2005 to 2013 was collected and analysed using descriptive statistics like percentage analysis, averages, mean, standard deviation and ranking technique. The researchers concluded that for capital adequacy Kotak Mahindra Bank was at the top position and Development Credit Bank (DCB) was at the bottom, whereas for asset quality YES Bank held the top rank while the DCB held the lowest rank. The study further established that management efficiency parameter had top ranker as AXIS Bank and the lowest ranker as DCB while for earning quality parameter the ICICI Bank was on top, while the DCB was at bottom. For liquidity parameter the researchers found that Kotak Mahindra Bank was at the peak and the ICICI Bank was at the bottom position. While calculating composite ranking, they found that YES Bank is front runner with overall average of 2.5 closely chased by the AXIS Bank amid 3.1 composite ranking. The DCB holds the bottom rank with overall composite ranking average of 6.4.

Rauf (2016), conducted a study "Towards Increasing the Financial Performance: An Application of CAMEL Model in Banking Sector in the Context of Sri Lanka", and evaluated financial performance ability of both private and public banks in Sri Lanka. The researcher collected secondary data from 2005 to 2014 and used CAMEL model parameters as independent variables and return of the banks in terms of assets and equity as dependent variable. He found that private banks were best in all parameters of CAMEL and it was also revealed that capital adequacy, assets quality and earning quality were significantly correlated with financial performance, and management efficiency and liquidity were not significantly correlated with financial performance of the banks.

Waraich and Dhawan (2016)attempted to analyze the overall performance of Jalandhar Central Cooperative Bank Ltd. with the help of CAMEL Model parameters. Researcher used secondary data for four years and applied mean and standard deviation for the analysis of data. The researcher found that The Jalandhar Central Cooperative Bank Ltd. was performing exceptionally well in all the five parameters of CAMEL Model.

Tools and Techniques

For the present study, various tools or techniques for analyzing the financial data have been used. These can be classified as under:

Capital Adequacy Ratios

Leverage Ratio: Debt/Equity ratio

Debt/ Equity ratio is the ratio between outsiders' funds and insiders' funds. This is used to measure the firm's obligations to creditors in relation to the owners funds.it is a measure of solvency. The yardstick for this ratio is 1:1, in other words, for every rupee of debt, there should be one-rupee worth internal funds. A high debt equity ratio implies that the creditor's stake is more as compared to that of owners. There is greater risk for the creditors. A low debt equity ratio implies that less risk to the creditors leaving higher margin of safety for the creditors. From the firm's point of view, this is also good in terms of lower commitment to paycharges.

$$\text{Debt} - \text{equity ratio} = \frac{\text{Total Outsiders Funds}}{\text{Total Insiders Funds}}$$

Equity Capital to Assets Ratio

Equity to Assets ratio is a measure of solvency ratio and is determined based on information derived from a business operation in balance sheet. The equity to assets ratio specifically measures the amount of equity the business firm has compared to total assets owned by the business firm. To determine the equity to asset ratio we can divide the net worth by the total assets. This ratio is measured as a percentage. The higher the percentage the less of a business firm is leveraged or owned by the bank through debt.

$$\text{Equity to Assets Ratio} = \frac{\text{Networth}}{\text{Totalassets}}$$

Total Loans to Total Capital

It is also called as debt to capital ratio. Total loans to total capital are a measurement of a company's financial leverage. the loans to total capital ratio are calculated by taking the company's interest-bearing debt, both short- and long-term loans and dividing it by the total capital. total capital is all interest-bearing debt +shareholder's equity, which may include items such as common stock, preferred stock and minority interest.

$$\text{Total Loans to Total Capital Ratio} = \frac{\text{Total Loans}}{\text{Total Capital}} * 100$$

Total Debt to Total Assets Ratio

It is an indicator of a company's financial leverage.it tells you the percentage of a company's total assets that were financed by creditors.in other words .it is the total amount of a company's liabilities divided by the total amount of company's assets. Generally, the higher the debt to total assets ratio, the greater the financial leverage and the greater the risk

$$\text{Total Debt to Total Assets Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

Assets Quality Ratios

Provision for Loan Loss Ratio

A loan loss provision is an expense set aside as allowance for uncollected loans and loan payments. this provision is used to cover a number of factors associated with potential loan losses, including bad debts, bad loans, customer defaults and renegotiated terms of a loan that incur lower than previously estimated payments. Loan loss provisions are an adjustment to loan loss reserves, and are also known as valuation allowances.

$$\text{Provision For Loan Loss Ratio} = \frac{\text{Provision For Loan Loss}}{\text{Total Loans}}$$

Total Loans to Total Assets Ratio

The loans to assets ratio measure the total loans outstanding as a percentage of total assets. The higher the ratio indicates a bank is loaned up and its liquidity is low, the higher the ratio, the riskier a bank may be to higher defaults.

$$\text{Ratio of Total Loans to Total Assets} = \frac{\text{Total Loans Andadvances}}{\text{Total Assets}}$$

Total Investment to Total Assets Ratio

Total investment to total assets indicates the extent of deployment of assets in investment as against advances. This ratio is applied as a tool to measure the percentage of total assets locked up in investments. This ratio is calculated by dividing total investments by total assets of the bank. A higher ratio indicates that the bank has conservation kept a high cushion of investment to guard against probable nonperforming assets. however, this also affects its profitability adversely. While a low ratio indicates that the bank is more focused on its core activities i.e. advances.

$$\text{Total Investmentt to Total Assets Ratio} = \frac{\text{Total Investment}}{\text{Total Assets}} * 100$$

Fixed Assets to Total Assets Ratio

Fixed assets to total assets ratio are a financial analysis technique that shows in percentage terms the portion of your company's total assets that is tied up with fixed assets. It shows the extent to which the company funds are frozen in the form of fixed assets.it is calculated by dividing the value of all fixed assets by net worth.

$$\text{Fixed Assets to Total Assets Ratio} = \frac{\text{Fixed Assets}}{\text{Total Assets}}$$

Management Efficiency Ratios

Expenses to Deposits Ratio

Interest expenses are incurred from deposits, short term and long-term loans, and trading account liabilities. It is the ratio of total interest expenses by total deposits of a bank.

$$\text{Ratio of Expenses to Deposits} = \frac{\text{Total Interest Expenses}}{\text{Total Deposits}}$$

Loans to Deposits Ratio

It is used to assess a bank's liquidity by comparing a bank's total loans to its total deposits for the same period. It is expressed as a %, if the ratio is too high. It means that the bank may not have enough

liquidity to cover any unforeseen fund requirements. If the ratio is too low, the bank may not be earning as much as it could be.

$$\text{Ratio of Loans to Deposits} = \frac{\text{Total Loans And Advances}}{\text{Total Deposits}}$$

Operating Expenses to Total Funds Ratio

Operating ratios compare the operating expenses and assets of a business to several other performance benchmarks. The intent is to determine whether the amount of operating expenses incurred is reasonable or not to achieved revenues. It is calculated by dividing operating expenses with total funds.

$$\text{Operating Expenses to Total Funds} = \frac{\text{Operating Expenses}}{\text{Total Funds}}$$

Intertest Income to Total Funds Ratio

It is ratio between total income and total funds of a business enterprise. Normally the higher this ratio the better indicating the bank is caring a high interest rate or the proportion of interest earning assets(loans) to total funds.

$$\text{Interest Income to Total Funds} = \frac{\text{Interest Income}}{\text{Total Funds}}$$

Earning Quality Ratios

Return on Equity Ratio

 It is a measure of financial performance calculated by dividing net income by shareholders equity, because shareholder's equity is equal to a company's assets minus its debts. ROE could be thought of as the return on net assets. ROE is considered a measure of how effectively management is using a company's assets to create profits. A good rule of thumb is to target a ROE that is equal to or just above the average for the peer group.

$$\text{Return on Equity} = \frac{\text{Netincome}}{\text{Total Shareholder's Equity}} * 100$$

Return on Assets Ratio

Return on Assets measures the amount of profit the company generates as a % of the value of its total assets (the higher the ROA is better in general) falling ROA is always a problem. ROA is a type of ROI metric that measures the profitability of a business in relation to its total assets. This ratio indicates how well a company is performing by comparing the profits (net incomes) it generating to the capital it invested in assets. The higher the return, the more productive and efficient management is in utilizing economic resources.

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}} * 100$$

Net Interest Margin to Total Assets Ratio

Net Interest Margin is a profitability ratio that measures how well a company is making investment decisions by comparing the income and expenses. In other words, this ratio calculates how much money an investment firm is making on its investing operations. Financial institutions typically use this ratio to analyze their investment decisions and track the profitability of their lending operations. A positive % indicates that the fund manager made good decisions and was able to a profit on his investments.

$$\text{Net Interest Margin To Total Assets} = \frac{\text{Net Interest Margin}}{\text{Total Assets}} * 100$$

Interest Income to Total Income Ratio

It is the relationship of interest income to total income. The excess revenue that is generated from the interest earned on assets over the interest paid out on deposits is the net interest income.

$$\text{Interest Income to Total Income Ratio} = \frac{\text{Interest Income}}{\text{Totalincome}}$$

Liquidity Ratio

Customer Deposits to Total Assets Ratio

Deposits to total assets is a ratio that tells you that to what extent bank's assets have been funded from a stake source. Deposits are attracted by better advertising and other promotional efforts.it is to be calculated by dividing the customer deposits by total assets.

$$\text{Customer Deposits to Total Asset Ratio} = \frac{\text{Total Customer Deposits}}{\text{Total Assets}}$$

Cash Ratio

It is also be called cash coverage ratio.it is a liquidity ratio that measures a firm' ability to pay off its current liabilities with only cash and cash equivalents. Cash ratio shows cash and cash equivalents as a % of current liabilities. If calculated cash ratio is >1 is considered as good liquidity measure.

$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Cashequivalents}}{\text{Total Current Liabilities}}$$

Liquid Assets to Total Assets Ratio

It is the ratio between liquid assets and total assets.it indicates that the overall liquidity position of the banks, which provides an indication of the liquidity available to meet the expected and unexpected demand of cash.it shows the number of times short term liabilities are covered by cash.

$$\text{Liquid Assets to Total Assets Ratio} = \frac{\text{Liquid Assets}}{\text{Total Assets}}$$

Liquid Assets to Total Deposits Ratio

This ratio measures the liquidity available to the total deposits of the bank. it can be calculated by dividing the liquid assets by total deposits.

$$\text{Liquid Assets to Total Deposits} = \frac{\text{Liquid Assets}}{\text{Total Deposits}}$$

Earnings Per Share (EPS)

It is the relationship between net profits after taxes and the number of shares outstanding at the end of the given period. This can be compared with previous year to provide basis for assessing the company's performance.it is also called net income per share.it measures the amount of net income earned per share of stock out standings. EPS is the portion of a company's profit that is allocated to each outstanding share of a common stock.

It is used typically by analysts and traders to establish the financial strength of a company. High EPS means that a company is profitable enough to payout more money to its shareholders. It explains the performance of the company and gives better idea of growth indicator to shareholders.

$$\text{Earning Per Share} = \frac{\text{Net Profit Aftertaxes}}{\text{No. of Equity Shares Outstanding}}$$

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