Cramels Model of Performance Evaluation of Banks

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***Abstract*— Banks play an important role in the financial system and the success of any economy largely depends upon the efficiency of banking system. The financial parameters have achieved new heights and international benchmarking is accepted. The CAMEL model is a widely used supervisory and analytical framework for evaluating the financial performance and stability of banks and financial institutions. Regulators and analysts use the model to identify potential weaknesses, support regulatory oversight, and promote sound banking practices. Overall, the CAMEL model serves as an effective tool for monitoring financial health and ensuring the resilience of the banking system. Apart from the parameters included in internationally renowned CAMEL model, two more parameters such as Resource Deployed and Social Performance are included in the modified model, which are used to assess the financial soundness of the banking units, and is known as CRAMELS.**

Keywords—***capital adequacy, asset quality, management efficiency, earnings quality, liquidity***

I. INTRODUCTION

A bank is a financial institution which deals with money and credit. Bank is a commercial institution which accepts deposits from the public and makes loans and advances for making profit. Banks can be defined as a monetary organization which transacts with funds and can be cited as the manufacturer of credit and machinery for facilitating exchange of money. Banks were initially called as money traders because they operate in money. The tasks of banks have grown and diversified to a great extent and it is now very difficult to provide a universally acceptable definition of bank.

According to Section 5(1) (b) of the Banking Regulation Act, 1949 "Banking means accepting, for the purpose of the lending of Investment, of deposits of money from the public, repayable on demand or otherwise, and withdrawable by cheques, draft, order or otherwise."

CAMEL model is an administrative rating structure initially established in the U.S. to categorize a bank's overall position. The federal financial institution examination council accepted the CAMEL system in 1979. American Government used CAMEL model to identify the assistance to be provided to banks during the financial crisis of 2008 (Dang, 2011)[1]. CAMEL model provides transparency, evolution and transformation among banks and identifies the strengths and challenges of banks in all financial and managerial areas (Babu and Ashok Kumar, 2017)[2]. CAMEL model is an effective and accurate tool which can be used for assessing the overall performance of banking sector and can also be used to budget the future and relative risk (Rostami, 2015)[3].

CAMEL is a ratio grounded technique to appraise the performance of banks under several gauges (Kaur and Kaur, 2016)[4]. The objective of CAMEL scores is to define the banks overall financial position and to detect its strengths and weaknesses (Patrick , 2006)[5]. A working group under the chairmanship of Mr. S. Padmanabhan[6] was established by Reserve Banks of India in 1995 to evaluate the entire supervision system of banking sector. CAMEL rating system was recommended by the committee with certain modifications and the same was introduced in 1998. Reserve Bank of India considered CAMELS and CACS (Capital Adequacy, Asset Quality, Compliance and Systems And Controls) as the two supervisory rating models for rating of banks operating in India (Aspal and Dhawan, 2016)[7].

Camel approach was used to study the performance of banks for making a comparative analysis composite ranking method was used (Meena, 2016)[8]. CAMEL model lays importance on all the features of the performance and is considered as an effective instrument which can be used to compare performance (Muralidhara and Lingam, 2017)[9]. Camel is substantial instrument to weigh the comparative financial strength of banks and to provide suggestion for rectifying the weaknesses of the banks and to improve financial performance (Srinivasan and Saminathan, 2016)[10].

CAMEL model considers the five parameters i.e. Capital Adequacy (C), Asset Quality (A), Management Efficiency (M), Earnings Quality (E) and Liquidity (L) and includes many sub parameters in each parameter for evaluation of performance of the banks.

II. MODIFIED CAMEL MODEL ENTITLED AS CRAMELS

The researcher has modified CAMEL model by including two more main parameters along with certain sub parameters so as to enhance the significance and scope of the model. The same has been identified as a research gap. The two main parameters newly included are Resource Deployed (R) and Social Performance (S). The CAMEL model is thus revised as CRAMELS model and includes Capital Adequacy (C), Resource Deployed (R), Asset Quality (A), Management Efficiency (M), Earnings Quality (E), Liquidity (L) and Social performance (S).

TABLE 1 CRAMELS PARAMETERS

1. Capital Adequacy: Capital adequacy determines how well a bank can handle with setbacks to their financials and takes into account the possible financial risks by assigning appropriate risk weightage. It is used as a tool to guard

depositors, investors and customers and to ensure the stability. The following sub parameters are considered in this parameter.

1. Advances to Adjusted Assets: Advances include all sorts of advances, loans credits etc. provided by the bank and include receivables also. This ratio enables to understand how much of the total assets after necessary conventional and standard adjustments are held in the advances and loans segment.
2. Capital Adequacy Ratio (CAR): CAR evaluates the capability of banks in absorbing losses arising from the risky assets along with the operational losses.
3. Coverage Ratio: The net worth after adjustment for non-performing assets in relation with the total assets is analysed here so as to evaluate the accessibility of the capital to meet any occurrence of loss assets due to non-performing assets.
4. Debt Equity Ratio: Financial leverage of the bank is analysed here by considering the proportion of debt and equity in the capital structure.
5. Government Securities to Investment: The risk involved in the investment is analysed here, since government securities are the safest debt instrument which has less return.
6. Net Worth to Average Working Funds: Net worth includes equity capital and reserves and surplus. Average working funds means the average of opening and closing assets of the banks. The proportion of net worth in the average working funds required by the bank is analysed here so as to analyse the means of funding.

2. Resource Deployed: A bank will make investments in different assets that will generate income. The quality and magnitude of income largely depend upon the assets. Resources when not utilised wisely or underutilised will affect the profitability of the banks. Optimum investment in different assets must be done. The following ratios are used in this aspect.

1. Advances plus Investments to Deposits plus Borrowings: The major part of assets component (advances and investments) is considered in association with the major part of the liability's component (deposits and borrowings) so as to have an idea regarding how these foremost resources are deployed in core activities.
2. Advances to Total Assets: Advances are considered to be the core income generating business of the bank. This parameter considers the proportion of advances in relation to the total assets and generates an idea regarding the spread of total resources to the core event.
3. Fixed Assets to Total Assets: Fixed assets are of utmost importance to banks because it is the physical framework of banks which has the capacity to attract customers and to provide enhanced customer services. How much investment in infrastructure is analysed here.
4. Investments to Total Assets: Any excess funds must have to be effectively deployed or invested in different options so as to generate income. This will help to enhance the position of the bank and to increase the competitiveness by improving the profitability.
5. Other Assets to Total Assets: Other assets include all miscellaneous assets which are vital for the performance of the banks. Investment in other assets is inevitable and has a role to play in performance and evaluation.

3. Asset Quality: Asset quality regulates the soundness of banks against loss of value in the assets and is measured in association with the distribution of assets, volume of non-performing assets and provisions. Selection of adequate assets by scientific method has a great impact on the performance of the bank. This aspect is analysed by using the following ratios.

1. Gross Non-Performing Assets (Gross NPA) to Advances: This aspect is helpful to know how much of the total advances are contributing to the income. Gross non-performing assets means an advance which is considered irrecoverable for banks and is the total of non-performing assets, which is still held in banks' books of account.
2. Interest Income to Total Assets: Income from lending operations is expressed here as a percentage of the total assets which is helpful in determining the efficiency associated with the employment of total assets.
3. Net Non-Performing Assets (Net NPA) to Advances: This parameter shows the actual burden of banks and considers the impact of non-performance of assets in the total advances provided. Net NPA is simply the total bad assets (actual) minus the provision left aside.
4. Non-Interest Income to Total Assets: Non-interest income is the other income (indirect source) which is gaining more and more weightage in the revised scenario and the assets are also budgeted now for generating non-interest income which is useful to enhance the profitability of the banks.
5. Return on Advances: Advances are the major assets that generate income to the banks. This ratio analyses the return on the advances and loans provided and is useful to managerial decision making.
6. Return on Investment: How well excess funds are effectively utilised for generating additional income is considered here. It lists out how the investment opportunities are effectively exploited.

4. Management Efficiency: Management makes decisions regarding the policies and is responsible for the profitability the bank. Management quality is the competence of the management to recognize and control the risks of the bank and to provide genuine returns along with optimum performance. Following sub parameters are evaluated in this aspect.

1. Advances to Deposits: The capability of the bank to convert the available deposits effectively into loans and advance is measured here.
2. Intermediation Cost Ratio: Intermediation cost ratio, otherwise known as operating cost ratio, establishes the relationship between the operating costs of the bank with the total expenses of the bank. The proportion of the operating cost in association with the total expenditure of the bank is analysed here.
3. Net Profit per Branch: Under this parameter the profitability attained by each branch is considered which is useful in analysing the magnitude of operations in terms of branches and profitability.
4. Net Profit per Employee: The efficiency of the employees in generating income and profitability and their effective utilisation is evaluated by this parameter.
5. Return on Assets (ROA): This is useful to find out whether the assets are being effectively utilised and their returns are sufficient and in par with the industry norms.

6. Return on Net Worth (RONW): The revenue benefits received by the shareholders are analysed here and is useful to find out the efficiency in employing the shareholders' funds to produce income for them.

5. Earnings Quality: Adequate earnings indicate the capacity to support present and future operations along with expansion and diversification. High and solid level of earnings will generate high profitability and is a must to avoid loss of capital. Earnings aspect resolves the pay-out to shareholders also. The following ratios are evaluated under this parameter.

1. Burden to Total Income: Burden means the excess of operating expenses over the other income. The proportion of operating expenses being absorbed by other income component is a vital factor and the excess amount after such absorption (burden) is analysed here in association with the total income component.
2. Interest Income to Total Income: The ratio of income from its core lending activities is very crucial for every bank. Majority of the income comes under this category and has an impact on profitability. Income from lending operations is expressed as a percentage of the total income of the bank.
3. Net Profit to Total Income: How much proportion of the total income is available with the bank after meeting all the expenses and provisions is analysed here?
4. Non-Interest Income to Total Income: Non-interest income or other income supplements the direct income of the bank. Innovative products and sophisticated technology along with diversification is generating other income for the banks and their importance is growing up rapidly due to the fact that it affects the profitability.
5. Operating Profit to Total Income: The income from operations of a bank before making any provisions and adjustments are listed here as a percentage of total income.
6. Spread to Total Income: Spread is the difference between the interest income and the interest expended and is otherwise known as net interest income or net interest margin. The net advantage gained by the bank after meeting interest expenses out of interest income is conveyed as a percentage of total income.

6. Liquidity: Liquidity is the ability of a bank to pay its liabilities as and when they arise. A bank must have optimum liquidity for meeting present and future needs. A high cash position will ensure liquidity but affect profitability and vice versa. There must be a balance between liquidity and profitability. It is analysed by using the following ratios.

1. Cash Deposit Ratio: Adequate amount of cash is must for meeting obligations. If kept idle, cash is the most uncreative asset also. This parameter is used to identify how much of the deposits are sacrificed for ensuring liquidity.
2. Government Securities to Total Assets: Government Securities are the most liquid, safe and less return bearing investments and is considered to be an important element to meet the statutory requirements. Investment in government securities to total assets is a very important indicator which shows the liquidity of the bank.
3. Liquid Assets to Average Working Funds: Liquid assets include cash in hand, balance with the RBI, balance with other banks (both in India and abroad) and money at call and short notice. This parameter evaluates the overall liquidity position of the bank and considers the volume of liquidity in terms of the average fund requirements of the banks.
4. Liquid Assets to Deposits: The timely commitment of the banks along with the liquidity available to its depositors is evaluated here.
5. Provisions and Contingencies to Total Assets: Provisions and Contingencies include the amount kept aside as backup for constitutional requirements and for meeting unforeseen contingencies. The position of a bank to meet contingencies along with the statutory provisions is evaluated here so as to identify the ability to absorb the consequences.

7. Social Performance: Social performance helps to evaluate the performance of banks from the societal point of view and tries to analyse the contributions to the weaker sections and priority sectors. It considers how a bank has met the societal needs for the benefit of the society and overall development of the nation. Following aspects are considered in this category.

1. Priority Sector Advances to Total Advances: The commitment of the banks towards the weaker and under privileged sections of the society is measured here. The Government has instructed the banks to lend certain percentage of their total advances to priority sectors.
2. Public Sector Advances to Advances: Public sector firms perform in accordance to the social and economic policies of the Government and deserve special attention also. The support provided by the banks to public sector is analysed here.
3. Rural Branches to Total Number of Branches: Rural branches are branches in the rural areas and mainly cater to the needs of poor and backward classes. Rural branches are of utmost importance in order to meet the balanced regional development.
4. Semi-Rural Branches to Total Branches: This ratio measures the extent of commitment made by the bank in the not so developed areas by providing the banking services to all categories and to bring the people into the limelight.
5. Sensitive Sector Advances to Advances: Sensitive sector consists of capital market and real estate sectors which is highly volatile and has an indirect impact on the overall development and welfare of the society.

III. RANKING CRITERIA:

The variables or parameters considered for the secondary data analysis are as follows.

1. Capital Adequacy: The criteria for ranking different sub parameters under capital adequacy parameter are as follows.

1. Advances to Adjusted Assets: Bank's position is considered good if the ratio is high. Entity having the highest ratio is given the first rank and vice versa.

Advances to Adjusted Assets Ratio= Advances / Assets x 100

2. Capital Adequacy Ratio (CAR): Higher the value of this ratio, better is the capital health. Entity having the highest ratio is given the first rank and vice versa.

CAR = (Tier-I Capital + Tier-II Capital + Tier-III Capital) / Risk Weighted Assets

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3. Coverage Ratio: Higher the ratio better is the position of the bank. Entity having the highest ratio is given the first rank and vice versa.
Coverage Ratio = (Net Worth – Net Non-Performing Assets) / Total Assets

4. Debt Equity Ratio: Higher ratio indicates less protection for the depositors and creditors. Entity having the lowest ratio is given the first rank and vice versa.
Debt Equity Ratio = Debt / Equity

5. Government Securities to Investment: The higher the ratio, the lower the risk and vice versa. Entity having the highest ratio is given the first rank and vice versa. Government Securities to Investment = Government Securities / Investment x 100.

6. Net Worth to Average Working Funds: A high ratio indicates that position of bank is good. Entity having the highest ratio is given the first rank and vice versa.
Net Worth to Average Working Funds = Net Worth / Average Working Funds x 100

2. Resource Deployed: The criteria for ranking different sub parameters under resource deployed parameter are as follows.

1. Advances plus Investments to Deposits plus Borrowings: A higher ratio implies fund is utilised effectively by the banks. Entity having the highest ratio is given the first rank and vice versa.
Advances plus Investments to Deposits plus Borrowings =
Advances plus Investments / Deposits plus Borrowings x 100

2. Advances to Total Assets: Higher ratio of advances to total assets is preferred over a lower one. Entity having the highest ratio is given the first rank and vice versa.
Advances to Total Assets = Advances / Total Assets x 100

3. Fixed Assets to Total Assets: A high ratio is considered good under this context. Entity having the highest ratio is given the first rank and vice versa.
Fixed Assets to Total Assets = Fixed Assets / Total Assets x 100

4. Investments to Total Assets: A high ratio is considered good in this context. Entity having the highest ratio is given the first rank and vice versa.
Investments to Total Assets = Investments / Total Assets x 100

5. Other Assets to Total Assets: A high ratio under this context is considered good. Entity having the highest ratio is given the first rank and vice versa.
Other Assets to Total Assets = Other Assets / Total Assets x 100

3. Asset Quality: The criteria for ranking different sub parameters under asset quality parameter are as follows.

1. Gross Non-Performing Assets to Advances: The lower the ratio, the better is the worth of advances. Entity having the lowest ratio is given the first rank and vice versa.
Gross Non-Performing Assets to Advances =
Gross Non-Performing Assets /Advances x 100

2. Interest Income to Total Assets: A high ratio indicates the better ability to use its assets to generate high interest income. Entity having the highest ratio is given the first rank and vice versa.
Interest Income to Total Income= Interest Income/Total Assets x 100

3. Net Non-Performing Assets to Advances: The higher the ratio, the higher is the credits risk. Entity having the lowest ratio is given the first rank and vice versa.
Net Non-Performing Assets to Advances =
Net Non-Performing Assets /Advances x 100

4. Non-Interest Income to Total Assets: Banks having highest mean is considered good. Entity having the highest ratio is given the first rank and vice versa.
Non-Interest Income to Total Income= Non-Interest Income / Total Assets x 100

5. Return on Advances: High mean indicates maximum return on the advances. Entity having the highest ratio is given the first rank and vice versa.
Return on Advances =Interest or Discount Earned on Advances or Bills / Advances x 100

6. Return on Investment: A higher mean indicates a higher return and is considered good. Entity having the highest ratio is given the first rank and vice versa.
Return on Investment = Income on Investments / Investments x 100

4. Management Efficiency: The criteria for ranking different sub parameters under management efficiency parameter are as follows.

1. Advances to Deposits: A bank which converts maximum deposits as advances is good. Entity having the highest ratio is given the first rank and vice versa.
Advances to Deposits = Advances / Deposits x 100

2. Intermediation Cost Ratio: Lower the ratio better is the position of the bank. Entity having the lowest ratio is given the first rank and vice versa.
Intermediation Cost Ratio = Operating Expenses / Total Expenses x 100

3. Net Profit per Branch: The higher the ratio, the higher the efficiency of management is. Entity having the highest ratio is given the first rank and vice versa.
Net Profit per Branch = Net Profit / Total Number of Branches (Amount in Crores)

4. Net Profit per Employee: The higher the ratio, the higher the efficiency of the management. Entity having the highest ratio is given the first rank and vice versa.
Net Profit per Employee = Net Profit / Total Number of Employees (Amount in Crores)

5. Return on Assets (ROA): A higher ratio indicates better income generating capacity of the assets. Entity having the highest ratio is given the first rank and vice versa.
Return on Assets = Net Profit / Total Assets x 100

6. Return on Net Worth: A higher ratio indicates higher returns to equity holders. Entity having the highest ratio is given the first rank and vice versa.
Return on Net Worth = Net Profit / Net Worth x 100

5. Earnings Quality: The criteria for ranking different sub parameters under earnings quality parameter are as follows.

1. Burden to Total Income: Lower burden is considered good for banks. Entity having the lowest ratio is given the first rank and vice versa.
Burden to Total Income = Burden / Total Income x 100

2. Interest Income to Total Income: Bank having highest mean is considered good in this aspect. Entity having the highest ratio is given the first rank and vice versa.

Interest Income to Total Income = Interest Income / Total Income x 100

3. Net Profit to Total Income: A higher ratio indicates better profitability of banks. Entity having the highest ratio is given the first rank and vice versa.

Net Profit to Total Income = Net Profit / Total Income x 100

4. Non-Interest Income to Total Income: A higher ratio indicates a higher proportion of other income from diversified sources. Entity having the highest ratio is given the first rank and vice versa.

Non-Interest Income to Total Income = Non-Interest Income / Total Income x 100

5. Operating Profit to Total Income: A high ratio indicates that bank is having high operating profit. Entity having the highest ratio is given the first rank and vice versa.

Operating Profit to Total Income = Operating Profit / Total Income x 100

6. Spread to Total Income: A high ratio is good and is useful for enhancing the competency. Entity having the highest ratio is given the first rank and vice versa.

Spread to Total Income = Spread / Total Income x 100

6. Liquidity: The criteria for ranking different sub parameters under earnings quality parameter are as follows.

1. Cash Deposit Ratio: A higher ratio implies higher cash balances and its liquidity is more. Entity having the highest ratio is given the first rank and vice versa.

Cash Deposit Ratio = Cash / Deposit x 100

2. Government Securities to Total Assets: A higher ratio indicates that bank has higher liquidity. Entity having the highest ratio is given the first rank and vice versa.

Government Securities to Total Assets = Government Securities / Total Assets x 100

3. Liquid Assets to Average Working Funds: A higher ratio means better liquidity position. Entity having the highest ratio is given the first rank and vice versa.

Liquid Assets to Average Working Funds = Liquid Assets / Average Working Funds x 100

4. Liquid Assets to Deposits: High ratio is considered good for banks in liquidity. Entity having the highest ratio is given the first rank and vice versa.

Liquid Assets to Deposits = Liquid Assets / Deposits x 100

5. Provisions and Contingencies to Total Assets: Banks with highest mean is better here. Entity having the highest ratio is given the first rank and vice versa.

Provisions and Contingencies to Total Assets=

Provisions and Contingencies / Total Assets x 100

7. Social Performance: The criteria for ranking different sub parameters under earnings quality parameter are as follows.

1. Priority Sector Advances to Total Advances: The entity having highest ratio is considered good. Entity having the highest ratio is given the first rank and vice versa.

Priority Sector Advances to Total Advances=

Priority Sector Advances / Total Advances x 100

2. Public Sector Advances to Advances: A high ratio is considered good in this aspect. Entity having the highest ratio is given the first rank and vice versa.

Public Sector Advances to Advances = Public Sector Advances / Advances x 100

3. Rural Branches to Total Number of Branches: Bank having the highest ratio is considered good in this aspect. Entity having the highest ratio is given the first rank and vice versa.

Rural Branches to Total Number of Branches=

Rural Branches / Total Number of Branches x 100

4. Semi-Rural Branches to Total Branches: Higher ratio indicates better position of banks. Entity having the highest ratio is given the first rank and vice versa.

Semi-Rural Branches to Total Branches = Semi-Rural Branches / Total Branches x 100

5. Sensitive Sector Advances to Advances: A high ratio is good and considered worth in this aspect. Entity having the highest ratio is given the first rank and vice versa.

Sensitive Sector Advances to Advances = Sensitive Sector Advances / Advances x 100

IV. PARAMETER WISE RANKINGS

Individual ranks of each sub parameters associated with the main parameters are added and their mean is computed. First rank is given to the entity which has the lowest mean of ranks in their respective categories and vice versa.

V. CRAMELS FINAL RANKINGS

Individual ranks obtained from the above six main parameters i.e. capital adequacy, resource deployed, asset quality, management efficiency, earnings quality, liquidity and social performance are consolidated for each bank, sub sectors and sectors and mean is calculated. Entity having the overall lowest mean in their respective categories is given first rank and vice versa.

VI. CONCLUSION:

CRAMELS model is an important method which lays emphasis on different parameters of performance and is useful to evaluate the comparative position of banks and to provide necessary suggestions to enhance the position of banks. CRAMELS model is an important technique to evaluate the safety and soundness of banks and also useful to reduce the potential risks which may lead to failures of banks. Capital adequacy, resource deployed, asset quality, management efficiency, earnings quality, liquidity and social performance are the main parameters included in the CRAMELS model along with many sub parameters. Individual ranks were being assigned for banks in all the sub parameters and main parameters separately and finally a composite ranking is also done.

VII. REFERENCES

[1] Uyen Dang (2011), The Camel Rating System in Banking Supervision- A case study, Arcada University of Applied Sciences, International Business.

[2] Manju Rajan Babu and Dr.M. Ashok Kumar (2017), Adequacy of CAMELS Rating System in Measuring the Efficiency of Banking Industry: A Retrospect, International Journal of Research in Arts and Science, 3, 3-6.

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[3] Malihe Rostami(2015), Camels' Analysis In Banking Industry, Global Journal of Engineering Science and Research Management, 2,11, 10-26.

[4] Jagjeet Kaur and Dr. Harsh Vineet Kaur (2016), Camel Analysis of Selected Public Sector Banks, Gian Jyoti E-Journal, 6,3, 1-25.

[5] Patrick Y. Trautmann (2006), Camels Ratings, CBI Bank Supervision Examiners.

[6] Padmanabhan Working Group, "On-site Supervision of Banks", Reserve Bank of India, (1995).

[7] Parvesh Kumar Aspal and Sanjeev Dhawan(2016), Camels Rating Model For Evaluating Financial Performance of Banking Sector: A Theoretical Perspective, International Journal of System Modeling and Simulation, 1,3,10-15.

[8] G. L. Meena (2016), Financial Analysis of Select Banks Using Camel Approach a Study with Reference to Indian Banking Industry, International Journal of Research and Scientific Innovation (IJRSI), 3,10, 30-35.

[9] P. Muralidhara and Chokka Lingam (2017), Camel Model as an Effective Measure of Financial Performance of Nationalised Banks, International Journal of Pure and Applied Mathematics, 117,7, 255-262.

[10] Dr. Srinivasan and Yuva Priya Saminathan (2016), A Camel Model Analysis of Public, Private and Foreign Sector Banks in India, Pacific Business Review International,8,9,45-57.