# Financial performance assessment of banking sector in India: A case study of old private sector banks

**Parvesh Kumar Aspal**
Punjab Technical University, Jalandhar, India

**Sanjeev Dhawan**
DAV College, Jalandhar, India.

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**Abstract**
*In the globalized economic scenario for economic development of an economy, the role and importance of prudent banking system cannot be underestimated. The performance of banking sector is considered as an effective measure to examine the financial health of an economy. For the assessment of performance of banks in India, Reserve Bank of India has recommended two supervisory rating models (Capital Adequacy, Assets Quality, Management, Earning, Liquidity, Systems and Controls) and CACS (Capital Adequacy, Assets Quality, Compliance, Systems and Controls). The present study is an attempt to use the CAMELS rating model to assess the status and performance of Old Private Sector Banks in India. For analysis all 13 Old Private Sector Banks operating in India are taken as case study. The CAMELS model is applied on the secondary data related to different ratios obtained from Reserve Bank of India annual reports covering the period from 2007-2012. The analytical observations of the study reveal that 6 banks out of 13 selected banks have shown good and excellent financial performance. Tamilnad Mercantile Bank secured first position in terms of overall composite ranking followed by Federal Bank. On the basis of CAMELS criteria Tamilnad Mercantile Bank, Federal Bank and Nainital Bank have shown excellent financial performance. On the contrary Catholic Siyrian Bank, ING Vysya Bank and Dhanalakshmi Bank were worst performing banks in terms of financial performance.*

## 1. Introduction

A prudent financial system is acknowledged as an indispensable and sufficient condition for rapid growth and development for every modern economy. Banking sector which is an important component of financial system is considered as the lifeline of an economy and its people. Banking has facilitated in developing the crucial sectors of the economy and usher in a new dawn of progress on the Indian horizon. The banking sector has translated the hopes and aspirations of millions of people into reality by providing loans and advances. The role and importance of banking and the monetary mechanism cannot under-estimated in the economic development of a nation. Hence the banks and financial institutions play significant and crucial role by contributing in economic planning such as lying down of specific goals and allocating particular amount of resources that constitute the economic policy of the government. Banks by their intermediation role play a vital role in the optimal and well-organized allocation of funds of an economy by mobilizing resources for productive activities. Banks are accomplishing an essential and significant responsibility of capital formation due to their inherent nature in the economy; therefore banks should be given more attention than any other type of economic unit in an economy. **McKinnon (1973)**

and **Shaw (1973)** projected the role of financial sector in economic development and remarked that there is a high degree correlation between development of financial system and economic growth of an economy.

Assessment of financial performance of the banking sector is an efficient measure and indicator to judge the strength of financial system of an economy. The banking sector's performance is professed as the replica of economic activities performed in an economy. Sound financial health of a bank provides the assurance not only to its depositors but is equally significant for its stakeholders and economy as a whole. Therefore, efforts have been made by financial analysts and economists at regular intervals to analyze the financial strength and performance of the banks and manage it accordingly. **Athansasoglou et al. (2005)** remarked that the importance of banks is more prominent in developing countries because financial markets are usually underdeveloped, and banks are typically the only major source of finance and are act as custodian of economic savings.

Over a period of time the banking sector in India has experienced a paradigm change in terms of progress and performance. The financial policy makers and analysts have incorporated a number of policy initiatives to measures the financial performance and appraisal of operations of the banking system. They have proposed CAMELS (capital adequacy, asset quality, management quality, earnings, liquidity and sensitivity) rating model for the assessment of the performance of banks. CAMELS rating **(Dang 2011)**, system as an effective internal supervisory tool for evaluating and identifying financial firms, was adopted for the first time on November 13, 1979 by the Federal Financial Institution Examination Council (USA). For the assessment of performance of banking system in India, **Padmanabhan Working Group (1995)** recommended rating model CAMELS (Capital Adequacy, Asset Quality, Management Quality, Earnings, Liquidity and Systems & Control) to assess the financial performance of Indian Commercial Banks. The CAMELS rating model for assessment of performance in banking sector is a significant and innovative improvement over the earlier criterions. Narsimham Committee set up by the Government of India had recommended various financial and banking sector reforms which laid more emphasis on improvement in performance and profitability of banks. On the basis of recommendations of committee Indian banking system has made significant progress. For the assessment of progress and performance we have taken up Indian old private sector banks in the present research paper as a case study.

### 1.2 Objectives of Study

For the assessment of performance of old private sector banks which are an important component of Indian banking system, CAMELS rating model has been used. This model incorporates various ratios for the analysis of the financial performance of banks. In the context of CAMELS model the main objectives of the study are:

1. To assess the performance of Indian old private sector banks on the basis of ratios used in CAMELS model.
2. To rank the banks in terms of performance on the basis of analysis of CAMELS ratios.

## 2. A Brief Survey of Literature

The banking system is considered as the backbone of financial system of an economy. The growth and performance of banking system portrays the healthy economic picture of the financial system. In India over a period of time especially after the introduction of economic reforms banking system has made significant progress. In order to assess the financial performance of old private sector banks CAMELS model is used. This is

a rating model which has been used by researchers and policy makers for the assessment of performance of financial sector in different time period. Reserve Bank of India suggested rating model named CAMELS (Capital Adequacy, Asset Quality, Management Efficiency, Earnings, Liquidity and System & Control) for rating of banks operating in India. The CAMELS model is very much popular among regulators due to its effectiveness. **Gaytán** and **Johnson (2002)** argued that this model is highly compatible for the assessment of the performance of the bank. **Sarker (2005)** found that CAMELS methodology was adopted by North America Bank regulators to judge the financial and managerial reliability of commercial lending institutions. This model assesses the overall condition of the bank, its strengths and weaknesses. **Wirnkar** and **Tanko (2008)** emphasized the importance of CAMEL model in examining the overall performance of bank. The study highlighted the importance of each component in CAMEL and evaluated the best ratios that bank regulators can adopt in assessing the efficiency of banks. **Dahiyat (2012)** examined each parameter of CAMELS system (Capital adequacy, asset quality, management quality, earning, liquidity and sensitivity to market risks) by conducting literatures and empirical studies, and relying on interviews with responsible persons in Jordan securities commission and brokerage firms. **Barr et al. (2002)** described the CAMELS rating system used by bank examiners and regulators; and finds that banks with high efficiency scores also have strong CAMELS ratings.

**Bodla** and **Verma (2006)** attempted CAMEL rating system to analyze the problems faced by the banks and analyzed the comparative analysis of the performance of various banks. **Grier (2007)** recommended that management is considered to be the single most important element in the CAMEL rating system because it plays a significant role in bank's success. **Muhammad (2009)** in his study claimed that the strength of CAMEL's factor is responsible for the overall strength of the bank. In an empirical study **Bernanke (2007)** observed that U.S. Federal Reserve investigated the safety and soundness of financial stability in banks through the on-site bank examination with the support of the CAMEL rating model. **Veni (2004)** highlighted the importance of capital adequacy requirement and the measures adopted by banks to build up their capital ratios. The study highlighted that the rating agencies using CAMEL model emphasized on capital adequacy ratios of banks in order to rate the bank's certificate of deposits, fixed deposits and bonds. **Gupta** and **Kaur (2008)** in their study used CAMEL model for the assessment of the performance of Indian private sector banks and ranked the top five and bottom five banks. **Al-Tamimi (2010)** using the rating model investigated factors influencing the performance of Islamic and conventional banks in (UAE) during 1996 to 2008. The study revealed that liquidity and concentration were crucial determinants of the performance of conventional banks while cost and number of branches significantly influenced the performance of Islamic banks.

## 3. Data and Methodology

In the present study an attempt has been made to assess the financial performance of Old Private Sector Banks in India. For this purpose 13 old private sector banks in India are selected as sample. The sample constitutes Catholic Syrian Bank, City Union Bank, Dhanalakshmi Bank, Federal Bank, ING Vysya Bank, Jammu & Kashmir Bank, Karnataka Bank, Karur Vysya Bank, Lakshmi Vilas Bank, Nainital Bank, Ratnakar Bank, South Indian Bank and Tamilnad Mercantile Bank. For analytical analysis the secondary data from the Reserve Bank of India's annual reports of respective banks for a period of 5 years (2008-2012) have been taken.

For the assessment of financial performance of Indian old private sector banks CAMELS model has been used. Using the collected data eighteen ratios related to CAMELS model have been calculated and banks are ranked for financial performance on the basis of these ratios. The following table depicts the ratios used in CAMELS model.

| Ratio | Measurement |
|---|---|
| Capital Adequacy | 1. Capital Adequacy Ratio (CAR)<br>2. Debt-Equity Ratio<br>3. Advances to Assets Ratio |
| Asset Quality | 1. Priority Sector Advances to Total Advances<br>2. Net NPAs to Net Advances Ratio Secured<br>3. Advances to Total Advances |
| Management Efficiency | 1. Expenditure to Income Ratio<br>2. Business per Employee<br>3. Return on Advances |
| Earning Quality | 1. Operating Profit to Total Assets<br>2. Spread or Net Interest Margin (NIM) to Total Assets<br>3. Non Interest Income to Total Income |
| Liquidity | 1. Liquid Assets to Total Assets<br>2. Cash Deposit Ratio<br>3. Credit Deposit Ratio |
| Sensitivity | 1. Price Earnings Ratio<br>2. Total Securities to Total Assets Ratio<br>3. GAP |

**Table 1: Ratios used in CAMELS model**

The ranking of banks for financial performance have been done on the basis of following criteria

| CAMELS Ranking Criteria | Rank |
|---|---|
| Rating ratio greater than X + 0.842 σ | Excellent performance |
| Rating ratio between X + 0.253 σ and X + 0.842 σ | Good performance |
| Rating ratio between X - 0.253 σ and X + 0.253 σ | Average performance |
| Rating ratio between X – 0.842 σ and X - 0.253 σ | Poor performance |
| Rating ratio lesser than X – 0.842σ | Worst performance |

**Table 2: CAMELS Ranking Criteria**

In the CAMELS rating criteria we have used the quintiles which subdivide the data into five equal parts. The first quintile effectively splits the data set into the lower 20% of values and the upper 80% of values; the second quintile splits the data set into the lower 40% of values and the upper 60% of values, and so on. The advantage of quintiles is that there is a central one with boundaries on either side of the median which can serve as an average group. In a Normal distribution the boundaries of the quintiles have boundaries ±0.253σ and ±0.842σ on either side of the mean (or median), where σ is the sample standard deviation. It is important to note that in normal distribution the mean, median and mode coincide.

## 4. Analysis & Findings

### a) Capital Adequacy:

Capital adequacy reflects the overall financial position of a bank. Adequate capital held by the bank provides protection to investors' interest and it enhances the stability and efficiency of bank. Capital Adequacy is an indicator which determines the financial health and soundness of a bank. From the capital adequacy it can be determined whether the bank

has sufficient resources to bear unexpected losses in the future and bank leverage. **Kosmidou (2008)** and **Dang (2011)** in their studies opined that capital adequacy refers to the sufficiency of the amount of equity to absorb any shocks that the bank may experience and it reveals the internal strength of the bank to withstand losses during crisis.

### (I) Capital Adequacy Ratio

This ratio ensures that banks can adopt a reasonable level of losses arising from operations and to ascertain bank's loss bearing capacity. Higher CAR means banks are financially strong enough to protect the stakeholders' interest. As per RBI guideline for banks in India has to maintain a CAR of 9%. CAR = (Tier-I Capital + Tier-II Capital) / Risk Weighted Assets.

### (II) Debt-Equity Ratio

The degree of leverage of a bank is reflected by debt-equity ratio. It shows the proportion of debt and equity in the total finance of the bank. It is calculated by dividing total borrowings with shareholders' net worth. Higher debt-equity ratio indicates less protection for the depositors and creditors and vice-versa. **Taub (1975)** in a regression analysis of four profitability metrics against debt equity ratio found significantly positive association between debt and profitability. **Abor (2005)** also found a significantly positive relationship between total debt and profitability of banks.

### (III) Advances to Assets Ratio

This is a ratio between total advances and total assets. It is calculated by dividing the total advances with total assets. This ratio indicates a bank's aggressiveness in lending which ultimately leads to better profitability. Higher ratio is preferred as compared to lower one. **Alam et al. (2011)** highlighted that this ratio is used to identify existing relationship among advances of bank and its total assets and it can also be calculated by dividing net investment with total assets.

### (IV) Composite Capital Adequacy

The different ratios measuring capital adequacy of sample banks are shown in table 3. It is clear from this table that all banks have higher CAR ratio than prescribed level by Reserve Bank of India. It is evident that the Ratnakar Bank secured the top position with highest average CAR of 41.02 followed by Federal Bank (18.89).

| Bank | CAR | | Debt-Equity Ratio | | Advances to Assets Ratio | | Group Rank | |
|---|---|---|---|---|---|---|---|---|
| | % | Rank | % | Rank | % | Rank | Mean | Rank |
| Catholic Syrian Bank | 11.25 | 13 | 37.41 | 10 | 58.58 | 8 | 10.33 | 11.5 |
| City Union Bank | 12.79 | 10 | 10.37 | 3 | 62.27 | 3 | 5.33 | 3.5 |
| Dhanalakshmi Bank | 11.77 | 12 | 76.99 | 12 | 58.76 | 7 | 10.33 | 11.5 |
| Federal Bank | 18.89 | 2 | 36.34 | 9 | 60.38 | 6 | 5.66 | 5.0 |
| ING Vysya Bank | 12.74 | 11 | 133.28 | 13 | 57.32 | 9 | 11.00 | 13.0 |
| Jammu & Kashmir Bank | 14.05 | 7 | 33.91 | 7 | 54.84 | 10 | 8.00 | 8.0 |
| Karnataka Bank | 12.83 | 8 | 27.42 | 6 | 54.58 | 11 | 8.33 | 9.5 |
| Karur Vysya Bank | 14.14 | 6 | 34.32 | 8 | 62.72 | 2 | 5.33 | 3.5 |
| Lakshmi Vilas Bank | 12.82 | 9 | 41.35 | 11 | 61.16 | 5 | 8.33 | 9.5 |
| Nainital Bank | 14.50 | 4 | 5.94 | 1 | 47.78 | 13 | 6.00 | 6.5 |
| Ratnakar Bank | 41.02 | 1 | 21.35 | 5 | 51.84 | 12 | 6.00 | 6.5 |
| South Indian Bank | 14.39 | 5 | 17.43 | 4 | 62.26 | 4 | 4.33 | 2.0 |
| Tamilnad Mercantile Bank | 15.36 | 3 | 8.07 | 2 | 63.16 | 1 | 2.00 | 1.0 |

**Table 3: Composite Capital Adequacy**

Catholic Syrian Bank was at the bottom most position with a least average CAR of 11.25. In terms of debt-equity ratio Nainital Bank was at the top position with the least average of 05.94 followed by Tamilnad Mercantile Bank of India. ING Vysya Bank attained the lowest position. In case of advance to assets, Tamilnad Mercantile Bank was at first position with the highest average of 63.16, followed by Karur Vysya Bank. Nainital Bank of India was at the bottom most position with an average of 55.04. On the basis of group averages of three sub parameters of capital adequacy viz. CAR, Debt-Equity Ratio and Advances to Assets Ratio Tamilnad Mercantile Bank was at the top position with group average of 2.00. ING Vysya Bank got last rank due to its poor performance in debt-equity and CAR ratio.

**b) Assets Quality:**

The quality of assets possessed by bank determines its financial strength. The principal objective to evaluate the quality of assets is to determine the composition of non-performing assets (NPAs) as a percentage of the total assets. **Baral (2005)** suggested that credit risk in the form of NPAs is one of the crucial factors that have an impact on the financial health of a bank. The extent of the credit risk depends on the quality of assets possessed by a bank.

**(I) Net NPAs to Net Advances Ratio**

The assets quality of a bank is measured by the percentage of net non-performing assets to net advances. Net NPAs are calculated by deducting net of provisions on non-performing assets and interest in suspense account from Gross NPAs. **Rajender (2009)** argued that the concern of growing NPAs is a challenge to banks, which will adversely affect the performance of banks.

**(II) Priority Sector Advances to Total Advances**

Priority sector lending is the prime objective of commercial banks set by Government of India. It includes agricultural, SSI advances, micro enterprises within SSI, export credit, advances to weaker sections and differential rate of interest scheme advances. It is calculated by dividing total Priority sector advances with total advances. **Uppal (2009)** remarked that with a view to secure better adaptation of the banking system to the needs of economic planning, priority sector lending plays more active role.

**(III) Secured Advances to Total Advances**

A loan or advance is sanctioned against the security of asset, the market value of which is not at any time less than the amount of such loan or advance (Banking Regulation Act, 1949). Banks try to make secured advances as it reduces their risks. Stronger the security lesser the risk and vice versa. **Rajan** and **Winton (1995)** predicted that secured debt should be observed more often in firms that need monitoring, and that changes in guarantees should be positively correlated with the onset of financial distress.

**(IV) Composite Asset Quality**

The three sub parameters of assets quality of sample banks are shown in table 4. It is evident that the Nainital Bank secured the top position with least average of net NPAs to net Advances of 0.00 followed by Karur Vysya Bank (0.21). Lakshmi Vilas Bank of India was at the bottom most position with the highest average of 1.90. In terms of Priority Sector Advances to Total Advances ratio Nainital Bank was at the top position with the highest

average of 51.89 followed by Tamilnad Mercantile Bank. Ratnakar Bank stood at the lowest position with the least average of 28.67.

| Bank | Net NPAs to Net Advances Ratio | | Priority Sector Advances to Total Advances | | Secured Advances to Total Advances | | Group Rank | |
|---|---|---|---|---|---|---|---|---|
| | % | Rank | % | Rank | % | Rank | Mean | Rank |
| Catholic Syrian Bank | 1.68 | 12 | 35.94 | 4 | 91.47 | 6 | 7.33 | 6 |
| City Union Bank | 0.72 | 9 | 35.29 | 5 | 96.94 | 1 | 5.00 | 3 |
| Dhanalakshmi Bank | 0.71 | 8 | 32.31 | 11 | 86.45 | 10 | 9.66 | 11.5 |
| Federal Bank | 0.42 | 5 | 35.25 | 6 | 81.32 | 13 | 8.00 | 7.5 |
| ING Vysya Bank | 0.75 | 10 | 35.15 | 7 | 84.73 | 12 | 9.66 | 11.5 |
| Jammu & Kashmir Bank | 0.61 | 6 | 33.53 | 9 | 85.43 | 11 | 8.66 | 9 |
| Karnataka Bank | 1.40 | 11 | 36.49 | 3 | 92.22 | 4 | 6.00 | 5 |
| Karur Vysya Bank | 0.21 | 2 | 33.19 | 10 | 92.17 | 5 | 5.66 | 4 |
| Lakshmi Vilas Bank | 1.90 | 13 | 34.90 | 8 | 89.29 | 9 | 10.00 | 13 |
| Nainital Bank | 0.00 | 1 | 51.89 | 1 | 93.79 | 3 | 1.66 | 1 |
| Ratnakar Bank | 0.64 | 7 | 28.67 | 13 | 90.49 | 7 | 9.00 | 10 |
| South Indian Bank | 0.41 | 4 | 29.69 | 12 | 89.77 | 8 | 8.00 | 7.5 |
| Tamilnad Mercantile Bank | 0.33 | 3 | 43.09 | 2 | 94.90 | 2 | 2.33 | 2 |

**Table 4: Composite Asset Quality**

In case of Secured Advances to Total Advances ratio, City Union Bank was at first position with the highest average of 96.94, followed by Tamilnad Mercantile Bank. Federal Bank was at the bottom most position with least average of 81.32. On the basis of group averages of three sub parameters of asset quality Nainital Bank was at the top position with group average of 1.66, followed by Tamilnad Mercantile Bank. Lakshmi Vilas Bank stood at the lowest position.

### c) Management Efficiency:

The survival and growth of a bank depends upon management efficiency which is also an important component of the CAMELS model. Management efficiency refers to the follow up of defined norms, capability to plan and respond to dynamic environment and administrative ability of the bank. **Sangmi** and **Tabassum (2010)** remarked that the management efficiency is often expressed qualitatively through subjective evaluation of management systems, organizational discipline, control systems, quality of staff and others.

### (I) Expenditure to Income Ratio

It is the ratio between operating expenses to Net Interest income and other income. It signifies the capability of the bank to cover up the operating expenses from the revenues generated by the bank. Lower the ratio, the better for the bank and vice versa. **Kumbirai** and **Webb (2010)** showed that cost to income ratio expresses the income generated per £ cost. The lower the ratio betters the performance of the bank and vice versa.

### (II) Business per Employee

Business per employee expresses the productivity and efficiency of human resources of bank. It is calculated by dividing the total business with total number of employees. Higher the ratio, the better it is for the bank and vice versa. **Kalakkar (2012)** emphasized that business per employee means the overall business generated by each employee who is working in any organization or bank. This can be done by dividing overall business

generated divided by per head of the employees working in each of the banks forming business per employee.

### (III) Return on Advances

It is the ratio of net profit after tax and total advances. Higher return on advances means greater returns earned on advances given by the bank. **Shollapur** and **Baligatti (2010)** highlighted that a major share of banks revenue emanates from return on advances. Return on advances includes interest and discount on various loans and advances such as cash credits, overdrafts, term-loans, bills purchased and discounted. Ratio of return on advances to total advances indicates the ability of banks in generating income from its lending operations. Higher the ratio of return on advances, higher will be the productivity of funds management and vice versa.

### (IV) Composite Management Efficiency

The three ratios reflecting management efficiency position of sample banks are shown in table 5. It is found that the Federal Bank secured the top position with lowest average of Expenditure to Income Ratio of 70.75 followed by Nainital Bank. Dhanalakshmi Bank of India was at the bottom most position with a highest average of 92.63. In terms of Business per Employee ratio Federal Bank was at the top position with the highest average of Rs. 830.40 followed by Tamilnad Mercantile Bank. Ratnakar Bank of India stood at the lowest position with the least average of Rs. 435.60.

| Bank | Expenditure to Income Ratio | | Business per Employee | | Return on Advances | | Group Rank | |
|---|---|---|---|---|---|---|---|---|
| | % | Rank | Rs. | Rank | % | Rank | Mean | Rank |
| Catholic Syrian Bank | 92.23 | 12 | 464.40 | 12 | 11.37 | 7 | 10.33 | 10.5 |
| City Union Bank | 75.43 | 5 | 668.64 | 7 | 12.43 | 1 | 4.33 | 3 |
| Dhanalakshmi Bank | 92.63 | 13 | 509.33 | 11 | 10.88 | 11 | 11.66 | 13 |
| Federal Bank | 70.75 | 1 | 830.40 | 1 | 11.51 | 5 | 2.33 | 1 |
| ING Vysya Bank | 82.31 | 9 | 602.40 | 9 | 10.23 | 13 | 10.33 | 10.5 |
| Jammu & Kashmir Bank | 73.88 | 3 | 713.80 | 6 | 10.95 | 10 | 6.33 | 6 |
| Karnataka Bank | 83.57 | 11 | 719.00 | 5 | 11.41 | 6 | 7.33 | 9 |
| Karur Vysya Bank | 76.86 | 6 | 790.00 | 4 | 11.21 | 8 | 6.00 | 5 |
| Lakshmi Vilas Bank | 83.43 | 10 | 605.80 | 8 | 11.72 | 3 | 7.00 | 8 |
| Nainital Bank | 72.63 | 2 | 510.60 | 10 | 11.68 | 4 | 5.33 | 4 |
| Ratnakar Bank | 77.76 | 7 | 435.60 | 13 | 10.37 | 12 | 10.66 | 12 |
| South Indian Bank | 81.14 | 8 | 802.71 | 3 | 11.09 | 9 | 6.66 | 7 |
| Tamilnad Mercantile Bank | 74.69 | 4 | 823.87 | 2 | 11.73 | 2 | 2.66 | 2 |

**Table 5: Composite Management Efficiency**

In case of Return on Advances, City Union Bank was at first position with the highest average return of 12.43, followed by Tamilnad Mercantile. ING Vysya Bank was at the bottom most position. On the basis of group averages of three sub parameters of management efficiency Federal Bank was at the top position with group average of 2.33. Dhanalakshmi Bank of India stood at bottom most position.

### d) Earning Quality:

The quality of earnings is an important criterion which highlights the quality of income in terms of income generated from lending operation by a bank. Earning quantifies the performance of the institution to increase and maintain the total worth through earnings from operations. **Dechow** and **Schrand (2004)** defined high earnings quality should reflect

the firm's current operating performance and a good indicator of future operating performance.

### (I) Operating Profit to Total Assets

This ratio reflects how much profit a bank can earn from its operations for every rupee invested in its total asset. The better utilization of assets will result in higher operating profit. The higher the ratio the better will be the performance of the bank. **Sarkar et al. (1998)** defined operating profit ratio as the operating profit (or net operating income) of the bank divided by average total assets. It measures the ability of the management to keep revenue growth ahead of rising costs. Operating profit includes the amount earmarked for provisions and contingencies.

### (II) Net Interest Margin to Total Assets

Net Interest Margin is calculated as the difference between the interest earned and the interest spent by a bank. It is expressed as a percentage of total assets. Higher ratio signifies the better earnings given the total assets. **Gul et al. (2011)** argued that net interest margin is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders, relative to the amount of their assets.

### (III) Non Interest Income to Total Income

This ratio calculates the income from other operations as a percentage of the total income earned by the bank during a year. Other income includes income like commission, net profit (loss) on sale of investment, land and other assets, revaluation of investment and miscellaneous income. **Uzhegova (2010)** argued that product mix reduces total risks because income from non-interest activities is not correlated or at least perfectly correlated with income from fee based activities and as such diversification should stabilize operating income and give rise to a more stable stream of profits.

### (IV) Composite Earning Quality

The various ratios reflecting earning quality position of sample banks are shown in table 6. It is found that Federal Bank secured the top position with highest average of operating profit to total assets ratio of 3.01 followed by Tamilnad Mercantile.

| Bank | Operating Profit to Total Assets | | Spread or Net Interest Margin (NIM) to Total Assets | | Non Interest Income to Total Income | | Group Rank | |
|---|---|---|---|---|---|---|---|---|
| | % | Rank | % | Rank | % | Rank | Mean | Rank |
| Catholic Syrian Bank | 0.77 | 12 | 2.55 | 9 | 1.04 | 5 | 8.66 | 10 |
| City Union Bank | 2.67 | 3 | 2.99 | 5 | 1.35 | 11 | 6.33 | 6 |
| Dhanalakshmi Bank | 0.69 | 13 | 2.25 | 12 | 1.27 | 8 | 11.00 | 12.5 |
| Federal Bank | 3.01 | 1 | 3.45 | 3 | 1.23 | 7 | 3.66 | 2 |
| ING Vysya Bank | 1.66 | 9 | 2.51 | 10 | 1.80 | 13 | 10.66 | 11 |
| Jammu & Kashmir Bank | 2.33 | 6 | 2.98 | 6 | 0.78 | 2 | 4.66 | 4 |
| Karnataka Bank | 1.64 | 10 | 2.03 | 13 | 1.30 | 10 | 11.00 | 12.5 |
| Karur Vysya Bank | 2.40 | 5 | 2.80 | 7 | 1.29 | 9 | 7.00 | 7 |
| Lakshmi Vilas Bank | 1.71 | 8 | 2.46 | 11 | 1.22 | 6 | 8.33 | 9 |
| Nainital Bank | 2.56 | 4 | 3.86 | 1 | 0.49 | 1 | 2.00 | 1 |
| Ratnakar Bank | 2.02 | 7 | 3.68 | 2 | 0.86 | 4 | 4.33 | 3 |
| South Indian Bank | 1.31 | 11 | 2.64 | 8 | 0.81 | 3 | 7.33 | 8 |
| Tamilnad Mercantile Bank | 2.77 | 2 | 3.38 | 4 | 1.38 | 12 | 6.00 | 5 |

**Table 6: Composite Earning Quality**

Dhanalakshmi Bank of India was at the bottom most position with a least average of 0.69. In terms of Net Interest Margin to Total Assets ratio Nainital Bank was at the top position with the highest average of 3.86 followed by Ratnakar Bank. Karnataka Bank stood at the lowest position with the least average of 2.03. In case of Non Interest Income to Total Income ratio, Nainital Bank was at first position with the lowest average of 0.49, followed by Jammu & Kashmir. ING Vysya Bank was at the bottom most position with highest average of 1.80.

On the basis of group averages of three sub parameters of earning quality Nainital Bank was at the top position with group average of 2.00. Dhanalakshmi Bank and Karnataka Bank stood at bottom most position.

### e) Liquidity:

Liquidity is another noteworthy factor that determines the financial performance of banks. Liquidity means the ability of the bank to fulfill its obligations, primarily of depositors. Bank can maintain adequate liquidity position either by increasing current liabilities or by converting its assets in to cash quickly. It also signifies the fund availability to meet its credit demand and cash flow requirements. **Dang (2011)** remarked that an adequate level of liquidity is positively linked with bank profitability.

### (I) Liquid Assets to Total Assets

The overall liquidity position of a bank is measured by this ratio. The liquid assets include cash in hand, money at call and short notice, balance with Reserve Bank of India and balance with other financial institutions/banks (India and Abroad). **Demirguc (1989)** and **Gonzalez (1999)** opined that under CAMELS approach, bank liquidity is measured by liquidity ratios based on accounting data such as liquid assets to total assets or total loans to total deposits.

### (II) Cash Deposit Ratio

Cash has the highest liquidity and safety among all assets. Cash deposit ratio means the ratio of average cash balance held against total deposits of a particular bank. It ensures the confidence of customers in the bank that they will be able to take their money back when needed.

***Cash Deposit ratio = (Cash in hand + Balances with RBI) / Deposits.***

**Maynard** and **Moore (2005)** revealed that a bank required to hold liquid assets to fulfill the cash needs of its customers which could be captured by fluctuations in the cash-to-deposit ratio.

### (III) Credit Deposit Ratio

Credit-Deposit ratio is proportion of loan created by banks from deposits it receives. In other words it refers to the capacity of banks to lend. High ratio indicates banks are generating more credit from its deposits. Credit Deposit Ratio is influenced by certain factors like credit-deposit growth, cash reserves and investments made by banks. Banks gives credit after allocating its deposits to cash reserves and statutory liquidity requirements. A higher ratio indicates more reliance on deposits for lending and vice-versa. **Shollapur** and **Baligatti (2010)** highlighted the fact that Credit deposit ratio reveals the extent of deposit utilized for meeting the credit needs of the banks. Change in the volume of loan business causes a change in the size of profits. Credit business carries high risk as well as high return. A higher credit deposit ratio indicates the higher deployment of deposits for credit business and higher will be the productivity of funds.

### (IV) Composite Liquidity

The various ratios reflecting liquidity position of banks are shown in table 7.

| Bank | Liquid Assets to Total Assets | | Cash Deposit Ratio | | Credit Deposit Ratio | | Group Rank | |
|---|---|---|---|---|---|---|---|---|
| | % | Rank | % | Rank | % | Rank | Mean | Rank |
| Catholic Syrian Bank | 9.46 | 10 | 7.39 | 7 | 65.60 | 10 | 9.00 | 10 |
| City Union Bank | 9.06 | 8 | 7.93 | 10 | 70.36 | 7 | 8.33 | 8 |
| Dhanalakshmi Bank | 9.34 | 9 | 8.03 | 12 | 67.92 | 9 | 10.00 | 11.5 |
| Federal Bank | 7.52 | 4 | 6.83 | 3 | 73.73 | 2 | 3.00 | 1.5 |
| ING Vysya Bank | 8.38 | 7 | 8.02 | 11 | 72.13 | 4 | 7.33 | 7 |
| Jammu & Kashmir Bank | 10.58 | 11 | 7.49 | 9 | 62.40 | 11 | 10.33 | 13 |
| Karnataka Bank | 6.56 | 1 | 7.05 | 6 | 62.32 | 12 | 6.33 | 5.5 |
| Karur Vysya Bank | 6.68 | 2 | 6.82 | 2 | 72.08 | 5 | 3.00 | 1.5 |
| Lakshmi Vilas Bank | 8.16 | 5 | 7.47 | 8 | 70.78 | 6 | 6.33 | 5.5 |
| Nainital Bank | 25.62 | 13 | 6.84 | 4 | 54.87 | 13 | 10.00 | 11.5 |
| Ratnakar Bank | 19.2 | 12 | 8.77 | 13 | 73.76 | 1 | 8.66 | 9 |
| South Indian Bank | 8.34 | 6 | 5.68 | 1 | 69.38 | 8 | 5.00 | 4 |
| Tamilnad Mercantile Bank | 7.00 | 3 | 6.90 | 5 | 73.58 | 3 | 3.66 | 3 |

**Table 7: Composite Liquidity**

South Indian Bank was at the top position with the lowest average of 5.68 followed by Karur Vysya Bank. Ratnakar Bank stood at the lowest position. In case of Credit Deposit ratio, Ratnakar Bank was at first position with the highest average of 73.76, followed by Federal Bank. Nainital Bank was at the bottom most position with least average of 54.87. On the basis of group averages of three sub parameters of liquidity Federal Bank and Karur Vysya Bank was at the top position. Jammu & Kashmir Bank stood at bottom most position.

### f) Sensitivity Ratios:

The sensitivity of the market risk is evaluated by banks through changes in interest rate, foreign exchange rates and equity prices. The changes in these variables influence bank's earning ability. So, sensitivity to market risk measures how adversely the bank is affected by such changes. Market risk is the outcome of trading activities, non-trading activities and foreign exchange operation.

**Grier (2007)** pointed out that sensitivity refers to the risk which arises due to changes in market conditions, could adversely impact earnings and/or capital. Market risk encompasses exposures associated with changes in interest rates, foreign exchange rates, commodity prices, equity prices, etc. While all of these items are important, the primary risk in most banks is interest rate risk.

### (I) Price Earnings Ratio

The Price Earnings ratio gives an idea of what the market is willing to pay for the company's earnings. The higher the Price Earnings ratio the more the market is willing to pay for the company's earnings. Conversely, a low Price Earnings ratio may indicate a "vote of no confidence" by the market. In general, a high price earnings ratio suggests that investors are expecting higher earnings growth in the future. A valuation ratio of current share price compared to its per-share earnings. **Shiller (2005)** considered high level of price earnings ratio as an indication of overheating of stock markets. Price earnings ratio have

more predictability in emerging markets and can be used to predict future returns and particularly to choose the entry/exit timings and country/stock selections.

*Price Earnings Ratio = Market Value per Share/Earnings per Share (EPS)*

### (II) Total Securities to Total Assets Ratio

This ratio indicates the risk-taking ability of a bank. It is a bank's strategy to have high profits, high risk or low profits, low risk. It also provides ideas about the available alternative investment opportunities. Keeping in view market demands the banks now a day change themselves accordingly. This ratio explains the correlation between banks' securities and total assets. It also provides the percentage change of its portfolio with respect to alteration in interest rates or other issues associated with the issuer of the securities.

*Total Securities to Total Assets = Total securities/Total assets.*

The higher value of this ratio is more risky means the bank´s portfolio is subject to market risk. Lower the ratio is good for the bank since it shows the appropriateness of response towards market risk **(Christopoulos et. al, 2011)**.

### (II) GAP Analysis

GAP Analysis is a tool used to judge a bank's earnings exposure to interest rate movements is called a gap. A bank's gap over a given time period is the difference between the value of its assets that mature or reprice during that period and the value of its liabilities that mature or reprice during that period. If this difference is large (in either a positive or negative direction), then interest rate changes will have large effects on net interest income. A balanced position would result if the amount of repricing assets were exactly offset by the repricing liabilities (ratio = 1.0). Ratio less than 1.0 indicate a bank that is liability sensitive (liabilities reprice quicker than assets), while a ratio greater than 1.0 indicates that the bank's assets reprice faster than liabilities (asset sensitive).

*GAP = (Risk Sensitive Assets) - (Risk Sensitive Liabilities)*
*Risk Sensitive Assets=Net Advances+ Net investments + Money at Call.*
*Risk Sensitive Liabilities= Deposits + borrowings.*

### (IV) Composite Sensitivity

The various ratios reflecting Sensitivity position of sample banks are shown in table 8. It is found that the Dhanalakshmi Bank secured top position with highest average of Price/Earnings Ratio of 20.12 followed by ING Vysya Bank (12.14). Jammu & Kashmir Bank was at the bottom most position. In terms of Total Securities to Total Assets Ratio Ratnakar Bank was at the top position with the lowest average of 18.36 followed by Nainital Bank. Dhanalakshmi Bank stood at the lowest position. In case of **GAP**, ING Vysya Bank, Jammu & Kashmir Bank, Karnataka Bank and Karur Vysya Bank were at first position with a ratio showing equality between Risk Sensitive Assets and Risk Sensitive Liabilities. Federal Bank, Ratnakar Bank and Tamilnad Mercantile Bank were at the second position. Catholic Syrian Bank, City Union Bank, Dhanalakshmi Bank, Lakshmi Vilas Bank, Nainital Bank and South Indian Bank were at the bottom most position with with ratio of less than 1:1.

On the basis of group averages of three sub parameters of GAP Analysis Ratnakar Bank was at the top position with group average of 1.50. Catholic Syrian Bank stood at bottom most position.

| Bank | Price/Earnings Ratio | | Total Securities to Total Assets Ratio | | GAP = (Risk Sensitive Assets) - (Risk Sensitive Liabilities) | | Group Rank | |
|---|---|---|---|---|---|---|---|---|
| | % | Rank | % | Rank | % | Rank | Mean | Rank |
| Catholic Syrian Bank | -- | -- | 23.02 | 10 | 95.87 | 3 | 6.5 | 13 |
| City Union Bank | 6.92 | 8 | 20.90 | 4 | 98.00 | 3 | 5.0 | 7.5 |
| Dhanalakshmi Bank | 20.22 | 1 | 24.39 | 13 | 94.35 | 3 | 5.66 | 9 |
| Federal Bank | 8.94 | 4 | 20.99 | 5 | 105.27 | 2 | 3.66 | 3.5 |
| ING Vysya Bank | 12.14 | 2 | 22.50 | 8 | 100.49 | 1 | 3.66 | 3.5 |
| Jammu & Kashmir Bank | 6.32 | 9 | 19.87 | 3 | 100.28 | 1 | 4.33 | 5 |
| Karnataka Bank | 7.26 | 7 | 23.34 | 11 | 100.87 | 1 | 6.33 | 12 |
| Karur Vysya Bank | 7.52 | 5 | 23.56 | 12 | 100.72 | 1 | 6.00 | 10.5 |
| Lakshmi Vilas Bank | 11.42 | 3 | 22.64 | 9 | 97.84 | 3 | 6.00 | 10.5 |
| Nainital Bank | -- | -- | 18.57 | 2 | 83.31 | 3 | 2.50 | 2 |
| Ratnakar Bank | -- | -- | 18.36 | 1 | 110.03 | 2 | 1.50 | 1 |
| South Indian Bank | 7.32 | 6 | 21.05 | 6 | 98.49 | 3 | 5.00 | 7.5 |
| Tamilnad Mercantile Bank | -- | -- | 21.90 | 7 | 103.71 | 2 | 4.50 | 6 |

**Table 8: Composite Sensitivity**

**g) Overall Composite Ranking**

Table 9 depicts the group ranking of the sample banks for the period 2008-2012.

| Bank | C | A | M | E | L | S | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| Catholic Syrian Bank | 10.33 | 7.33 | 10.33 | 8.66 | 9.00 | 6.50 | 8.69 | 11 |
| City Union Bank | 5.33 | 5.00 | 4.33 | 6.33 | 8.33 | 5.00 | 5.72 | 5 |
| Dhanalakshmi Bank | 10.33 | 9.66 | 11.66 | 11.00 | 10.00 | 5.66 | 9.72 | 13 |
| Federal Bank | 5.66 | 8.00 | 2.33 | 3.66 | 3.00 | 3.66 | 4.39 | 2 |
| ING Vysya Bank | 11.00 | 9.66 | 10.33 | 10.66 | 7.33 | 3.66 | 8.77 | 12 |
| Jammu & Kashmir Bank | 8.00 | 8.66 | 6.33 | 4.66 | 10.33 | 4.33 | 7.05 | 8 |
| Karnataka Bank | 8.33 | 6.00 | 7.33 | 11.00 | 6.33 | 6.33 | 7.55 | 9 |
| Karur Vysya Bank | 5.33 | 5.66 | 6.00 | 7.00 | 3.00 | 6.00 | 5.50 | 4 |
| Lakshmi Vilas Bank | 8.33 | 10.00 | 7.00 | 8.33 | 6.33 | 6.00 | 7.66 | 10 |
| Nainital Bank | 6.00 | 1.66 | 5.33 | 2.00 | 10.00 | 2.50 | 4.58 | 3 |
| Ratnakar Bank | 6.00 | 9.00 | 10.66 | 4.33 | 8.66 | 1.50 | 6.69 | 7 |
| South Indian Bank | 4.33 | 8.00 | 6.66 | 7.33 | 5.00 | 5.00 | 6.05 | 6 |
| Tamilnad Mercantile Bank | 2.00 | 2.33 | 2.66 | 6.00 | 3.66 | 4.50 | 3.52 | 1 |

**Table 9: Overall Composite Ranking**

The analysis of table reveals that Tamilnad Merchantile Bank secured first position in terms of overall composite ranking followed by Federal Bank. Dhanalakshmi Bank secured the lowest rank.

**h) Classification of Old Private Sector Banks Based on CAMELS Criteria**

On the basis of criterion discussed in section 3, the following table shows the classification of performance of banks:

| CAMELS Ranking Criteria | Bank | Rank |
|---|---|---|
| Greater than (8.17) | Catholic Syrian Bank, ING Vysya Bank and Dhanalakshmi Bank | Worst performance |
| Between (7.07) to (8.17) | Karnataka Bank and Lakshmi Vilas Bank | Poor performance |
| Between (5.65) to (7.07) | Ratnakar Bank and Jammu & Kashmir Bank | Average performance |
| Between (5.03) to (6.13) | Karur Vysya Bank, City Union Bank and South Indian Bank | Good performance |
| Less than (5.03) | Tamilnad Mercantile Bank, Federal Bank and Nainital Bank | Excellent performance |

**Table 10: Cclassification of Performance of Banks**

The table reveals that Tamilnad Mercantile Bank, Federal Bank and Nainital Bank have excellent financial performance. Karur Vysya Bank, City Union Bank and South Indian Bank have shown good financial performance. Ratnakar Bank and Jammu & Kashmir Bank performed average in terms of financial performance. Karnataka Bank and Lakshmi Vilas Bank have poor financial performance in their credit. Catholic Syrian Bank, ING Vysya Bank and Dhanalakshmi Bank are worst banks in terms of financial performance.

## 5. Discussion and Summary

In the present study the CAMELS rating model has been used for the assessment of performance of old private sector banks in India, which constitutes an important component of Indian banking system. The present study does not relate to public sector banks, new private sector banks and foreign banks. In the study using CAMELS model it is revealed that Tamilnad Mercantile Bank secured first position in terms of overall composite ranking followed by Federal Bank. On the basis of CAMELS criteria Tamilnad Mercantile Bank and Federal bank have shown excellent financial performance. On the contrary Catholic Siyrian Bank, ING Vysya Bank and Dhanalakshmi Bank were worst performing banks in terms of financial performance. From the study it is suggested that the worst performing banks have to improve their position in terms of Capital adequacy, asset quality, management efficiency, liquidity and sensitivity to come at par with banks having good financial performance.

## 6. Direction for Future Research

The limitation of present study is that it is confined to the analysis of old private sector banks in India. The CAMELS rating model can be applied for the study of financial performance of public sector banks as well as non-banking financial companies for further analysis.

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