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CAMELS RATING SYSTEM FOR BANKS A MAGNIFYING LENS – AN EMPIRICAL STUDY IN INDIA

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ABSTRACT

CAMELS rating system for evaluating performance of banks on financial as well as non-finance aspects is a system in which target bank is evaluated by assigning a rank to the selected bank based on its performance on select financial ratios. The system is a comparative method therefore at least two banks are required for applying this system. Evaluation of financial performance of banks on different parameters of CAMELS, i.e., capital adequacy, asset quality, management efficiency, earning capability, liquidity position and systems and control exercised by banks helps in evaluating whether the target banks have performed well on all the parameters of CAMELS or not. In the study presented here a mix sample of public sector and private sector banks has been selected to testify whether CAMELS rating system can be applied in Indian banking scenario for evaluating and rating banks working in Indian banking scenario.

The final outcome of CAMELS rating indicates that HDFC Bank a private sector bank ranked first on the overall ranking followed by SBI and PNB both securing second rank and Kotak Mahindra bank ranked last. Result of hypothesis testing reveals that there is no significant difference between the performance of public sector banks and private sector banks working in Indian banking scenario.

The outcomes of the study are likely to provide necessary input to regulatory authorities responsible for designing appropriate policies.

Keywords: CAMELS rating system, NPA, CAR, Sensitive Assets, Liquidity Ratio.

JEL Classification: G21, G 29, M41

GENESIS OF THE STUDY

Rating of banks on the basis of certain performance parameters has always been emphasized both by the regulators and by the investors. Rating becomes more important while making peer group comparison. Although CAMELS rating system in its extended and revised form existed since 1997 but its application in Indian scenario became more important after the privatization of banking sector. At the time of introducing banking sector reforms in India the main concern of conservative thinkers (those who were not in favor of privatization of banking sector) was that the private sector banks might outperform the public sector banks, resulting into a major threat for the survival of public sector banks. To testify this apprehension of conservative thinkers, the ensuing study was carried

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out to empirically test the performance of private sector banks and public sector banks using CAMELS rating system.

At the same time policymakers also need some empirical evidence about the comparison of public sector banks and private sector banks. Thus, keeping these considerations in focus the ensuing study was carried out.

INTRODUCTION TO BANK AND BANKING SYSTEM

Banks are among the main participants of the financial system in India. Banking offers several facilities & Opportunities. Bank of Hindustan, set up in 1870, was the earliest Indian Bank. A Bank is defined as "accepting, for the purpose of lending or investment of deposits of money from the public, repayable on demand or otherwise and withdrawal by cheques, draft, order or otherwise."

Most of the activities a Bank performs are derived from the above definition. In addition, Banks are allowed to perform certain activities, which are ancillary to this business of accepting deposits and lending. A bank's relationship with the public, therefore, revolves around accepting deposits and lending money. Another activity, which is assuming increasing importance, is transfer of money - both domestic and foreign - from one place to another. This activity is generally known as "remittance business" in banking parlance. The so-called FOREX (foreign exchange) business is largely a part of remittance and it involves buying and selling of foreign currencies.

Development of Banking System in India

As stated by Dr. Jalan, Governor Reserve Bank of India "India's banking system has several outstanding achievements to its credit, the most striking of which is its reach. An extensive banking network has been established in the last thirty years and India's banking system is no longer confined to metropolitan cities and large towns; in fact, Indian banks are now spread out into the remote corners of our country. In terms of the number of branches, India's banking system is one of the largest, if not the largest in the world today. An even more significant achievement is the close association of India's banking system with India's development efforts. The diversification and development of our economy and the acceleration of the growth process are in no small measure due to the active role that banks have played in financing economic activities in different sectors."[2]

Indian banking system has passed through following three distinct phases of development and regulation:

1. Early phase from 1786 to 1969
2. Nationalization of Banks and up to 1991 prior to banking sector Reforms
3. New phase of Indian Banking with the advent of Financial & Banking Sector Reforms after 1991.

[2] Dr. Bimal Jalan, Governor RBI in a speech delivered at the 22nd Bank Economists' Conference, New Delhi,15th February, 2001

Basel Committee

From 1965 to 1981 there were about eight bank failures (or bankruptcies) in the United States. Bank failures were particularly prominent during the 1980s, a time which is usually referred to as the "savings and loan crisis". Banks throughout the world were lending extensively, while countries' external indebtedness was growing at an unsustainable rate.

To prevent such a large scale bankruptcies in banking sector an urgent need for some security measures and performance evaluation measures was felt in the banking sector. To address this need Basel Committee on Banking Supervision was formed.

The Committee's members come from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom and the United States. Countries are represented by their central bank and also by the authority with formal responsibility for the prudential supervision of banking business where this is not the central bank. The present Chairman of the Committee is Mr. Nout Wellink, President of the Netherlands Bank who succeeded Jaime Coruana of the Bank of Spain on 1 July 2006.

Purpose of Basel Accord

In 1988, the Basel I Capital Accord was created. The general purpose was to:

1. Strengthen the stability of international banking system.
2. Set up a fair and a consistent international banking system in order to decrease competitive inequality among international banks.

The basic achievement of Basel I have been to define bank capital and the so-called bank capital ratio. In order to set up a minimum risk-based capital adequacy applying to all banks and governments in the world, a general definition of capital was required. Indeed, before this international agreement, there was no single definition of bank capital. The first step of the agreement was thus to define capital and capital adequacy ratio of banks.

Three Pillars of Basel Accord

Basel accord for banking reforms emphasizes on risk management, managerial efficiency, and asset liability management in banks. The three pillars of Basel accord are as follows:

The First Pillar

The first pillar deals with maintenance of regulatory capital calculated for three major components of risk that a bank faces: credit risk, operational risk and market risk. Other risks are not considered fully quantifiable at this stage.

The Second Pillar

The second pillar deals with the regulatory response to the first pillar, giving regulators much improved 'tools' over those available to them under Basel I. It also provides a framework for dealing with all the other risks a bank may face, such as systemic risk, concentration risk, strategic risk, reputation

risk, liquidity risk and legal risk, which the accord combines under the title of residual risk. It gives banks a power to review their risk management system.

The Third Pillar

The third pillar greatly increases the disclosures that the bank must make. This is designed to allow the market to have a better picture of the overall risk position of the bank and to allow the counterparties of the bank to price and deal appropriately.

The new Basel Accord has its foundation on three mutually reinforcing pillars that allow banks and bank supervisors to evaluate properly the various risks that banks face while performing banking functions.

REVIEW OF LITERATURE

Kumar (2001)[3]: Private sector banks played an important role in development of Indian economy. After liberalization the banking industry underwent major changes. The economic reforms totally changed the banking sector. RBI permitted new banks to be started in the private sector as per the recommendation of Narsimham committee. The main idea of this article was to make an evaluation of the financial performance of Indian private sector banks.

Biswas (2006)[4]: In this paper, the author analyzed the performance of new private sector banks through the help of the CAMELS model. For the purpose of CAMELS analysis, the data of five years, i.e., from 2000-2001 to 2004-2005, had been used. The findings of the study revealed that the aggregate performance of IDBI bank was the best among all the banks, followed by UTI bank.

Rengasamy and Kumar (2007)[5]: The paper focused on the service quality and customer satisfaction among the private, public and foreign banks in India. An analysis was carried out to examine the level of awareness among customers and to identify the best sector which provided qualitative customer service.

Kannungo, Sadavarti and Yalapati (2008)[6]: This paper analyzes a relationship between selected aspects of organizational culture and IT-Strategy in public sector units (PSUs). Organization culture, which is treated as a shared set of norms and values, is analyzed with respect to IT-Strategies. The study was based on the data collected by means of a nation-wide survey covering 72 public sector organizations in India.

Kimball and James (2007)[7]: In a study in UK studies the relationship between the ownership pattern of banks and their CAMELS rating. The study was carried in two segments to establish the relationship between different parameters of CAMELS and the type of bank – public sector and private sector banks. It was concluded that for the public sector banks it was easy to maintain adequate capital as compared to private sector banks. But private sector banks were much efficient

[3] Kumar, B.S. (2001). Financial performance of private sector banks in India - An evaluation.

[4] Biswas, S.J. (2006). Performance of the new Indian private sector banks: A comparative study.

[5] Rengasamy, E. & Kumar, V. (2007). A comparative study of the service quality and customer satisfaction among private, public and foreign banks.

[6] Kannungo, S., Sadavarti, S. & Yalapati, S. (2008). Retaining IT strategy and organizational culture - An empirical study of public sector units in India.

[7] Kimball & James. (2007). A comparative study of public sector and private sector banks in UK.

in managing NPA and risk profile of banks assets as compared to public sector banks.

Sathye (2005)[8]: Prepared a working paper the objective of this paper was to measure the productive efficiency using Data Envelopment Analysis (DIA). Two models were constructed to show how efficiency scores vary with change in inputs and outputs. The efficiency scores, for three groups of banks, that is, publicly owned, privately owned and foreign owned, was measured. The study shows that the mean efficiency score and the efficiency of private sector commercial banks as a group are paradoxically lower than that of public sector banks and foreign banks in India.

Cole and Gunther (2000)[9]: The study was conducted to assess the accuracy of CAMELS ratings in predicting failure, the researchers used as a benchmark an off-site monitoring system based on publicly available accounting data. Their findings suggest that, if a bank has not been examined for more than two quarters, off-site monitoring systems usually provide a more accurate indication of survivability than its CAMELS ratings. The higher predictive accuracy of off-site monitoring systems should continue to play a prominent role in the supervisory process.

RESEARCH METHODOLOGY

The study was empirical in nature testifying the applicability of CAMELS rating system for performance evaluation of banks in India. The study focused on the following objectives:

(i) To analyze the financial performance of the banks on CAMELS rating system.

(ii) To rank the banks on the basis of CAMELS rating system.

The study was conducted by extracting data from the financial statements of four banks (two each from public sector banks and private sector banks) namely (a) State Bank of India (SBI), and (b) Punjab National Bank (PNB), (c) HDFC Bank, and (d) Kotak Mahindra (KM) Bank.

In the study instead of evaluating financial performance using traditional ratio analysis, mechanism of CAMELS rating has been used.

Scope and Limitations

Study was carried out using financial statements of all the banks under study for the period 20011-2012 to 2015-2016.

Findings of the research are subject to the limitations of financial statements and the limitations of CAMELS rating system; hence these are to be interpreted in the light of these limitations. Further to it the finding may not be taken for a generalized interpretation rather these confine to the period of study, i.e., 20011-2012 to 2015-2016.

Hypothesis

H0: There is no significant difference between the performance of public sector banks and bank of private sector.

[8] Sathye, M. (2005). Efficiency of banks in a developing economy - Case of India.

[9] Cole, R. & Gunther, J. (2000). Financial industry studies working paper. CAMLE Model Examination, *3*(5).

Ha: There is significant difference between the performance of public sector banks and bank of private sector.

CAMELS Rating System

CAMELS as acronym refer to six evaluative parameters indicating quantitative as well as qualitative performance of a bank. These six parameters are as follows:

C-Capital Adequacy Ratio

It refers to the sufficiency of capital of the bank with reference to its risk weighted assets. Different assets of the bank are given weightage according to the level of risk inherent in these assets. According to the latest norms banks are required to have a capital adequacy ratio of minimum 9%. Analysis of capital adequacy helps in measuring the financial solvency of a bank by determining whether the risk of different assets is covered adequately by the capital of the bank or not.

A-Asset Quality

Quality of assets of a bank is represented by the quality of portfolio of bank, classification of bank's portfolio and level of risk to which differ portfolios of assets of bank are exposed to. As per CAMELS rating system the quantitative indicator for asset quality is indicated by portfolio at risk and the policy of the bank regarding write-off policy regarding non-performing assets.

M-Management Efficiency

Management of a bank is generally evaluated in terms of capital adequacy, earning and profitability, liquidity management, management of assets, and sensitivity of assets of bank towards changes in external and internal environment.

E-Earning Ability

Earning ability of a bank is evaluated with the help of different profitability ratios like return on total assets, return on equity shareholders' net worth, and related parameters. While evaluating earning ability present earning as well as expected earnings of the bank are also considered.

L-Liquidity

It refers to overall assets and liabilities management of a bank. Meaning thereby having a perfect synchronization between duration of liabilities and duration of assets. A bank is expected to invest the funds realized through long-term deposits (liabilities for a bank) should be utilized in long-term loans (assets for a bank).

S-Systems and Control

It refers to the system employed by the bank in exercising control over different activities and flow of information for decision making. It also includes internal audit system and mechanism employed to control proliferation of funds and different assets of the bank.

Steps in Applying CAMELS Rating System

The logical sequence of applying CAMELS rating system is as follows:

i. Calculation of different financial ratios for each of the bank under study as required under CAMELS rating system.
ii. Ranking of banks on each parameter of CAMELS rating system.
iii. Overall ranking and interpretation.

ANALYSIS OF FACTS

Financial performance of all the four banks under study was done by calculating different ratios; the ratios so calculated were further analyzed using CAMELS rating system.

Capital Adequacy Ratio (CAR) of Banks

Capital adequacy ratio is calculated by taking ratio of equity capital to total assets of the bank. The ratio shows the ability of a bank to withstand losses in the value of its assets. For calculating capital adequacy ratio, capital of the bank is divided into two, i.e., Tier – 1 capital (comprising of equity share capital and preference share capital) and Tier – 2 capital (comprising of subordinated debt of five to seven years tenure). The higher CAR indicates sound system of management of capital and sufficiency of capital to absorb the losses in the event of loan loss which might take place in future. The capital adequacy ratios of banks under the study are shown in the Table 1. A reference to this table reveals that CAR of all the banks under study is well above the limit prescribed by RBI, i.e., 9%. On the basis of CAR Kotak Mahindra bank has maintained mean CAR of 16.26% and secured rank 1, secured 4th rank on the basis of CAR.

Table 1. Capital adequacy ratio of banks (in percentage).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-2012	11.90	11.00	13.20	16.80
2012-2013	12.40	11.20	12.60	15.40
2013-2014	13.60	12.40	12.50	16.50
2014-2015	14.20	13.60	13.90	16.70
2015-2016	13.40	14.80	13.80	15.90
Mean	13.10	12.60	13.20	16.26
Rank	3	4	2	1

Source: Calculated using the facts extracted from financial statements of banks

Asset Quality of Banks

Asset quality of banks is evaluated using types of advances extended by the bank and different categories of assets like standard assets, sub-standard assets and doubtful as well as loss assets. Under this classification the advances (assets of bank) which cease to earn income/interest are classified as non-performing assets (NPA) and bank is required to make necessary provision to cover the loss arising due to NPA. As per the standards low level of NPA is preferred because high level of NPA indicates most likely chance of losses on accounting of non-recovery of dues from these non-performing assets. Therefore, maintaining NPA at minimum level indicates better quality of assets of bank. Table 2 shows NPA of the banks under study. Usually, level of NPA of a bank should be below 3%. NPA percentage indicates NPA as a percentage of total loans and advances portfolio of the bank. A reference to Table 2 reveals that all the banks except PNB maintained NPA less than 3%; NPA of PNB was 3.38%. As per RBI's prudential norms NPA of less than 3% is considered a good indicator of asset quality of banks. On the basis of NPA, HDFC bank ranked first followed by SBI and KM bank; PNB ranked 4th in this category. This shows that asset quality of HDFC is better as compared to rest of the banks under study.

Table 2. Showing NPA of banks (in percentage).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-2012	1.90	6.60	1.20	2.50
2012-2013	1.60	5.20	1.00	1.90
2013-2014	1.80	3.60	0.80	1.60
2014-2015	1.85	1.20	0.85	1.50
2015-2016	1.75	0.30	0.75	1.45
Mean	1.78	3.38	0.92	1.79
Rank	2	4	1	3

Source: Calculated using the facts extracted from financial statements of banks

Management Efficiency of Banks

Efficiency of management is evaluated using qualitative factors like management systems, organizational culture, control mechanisms and similar other parameters indicating overall efficiency of banks. Efficiency of management can be evaluated by assessing the capability in using resources of the bank to maximize the profitability. Under CAMELS rating system it is evaluated by taking the parameters like business per employee, profit per employee and other related parameters. Tables 3 and 4 depict business per employee and profit per employee respectively. Table 3 reflects efficiency of employees of the bank in generating business. Mean value of business per employee of HDFC bank was highest at a level of Rs. 608.40 crore, followed by PNB Rs. 591.80 crores, KM Bank Rs. 486.60 crores and SBI Rs. 456.60 crores. The ranking shows that managerial efficiency of HDFC Bank was the best among these four banks and managerial efficiency of SBI was the least.

Table 3. Showing business per employee of banks (Rs. in crore).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-12	300	429	410	290
2012-13	352	475	472	388
2013-14	445	600	580	492
2014-15	556	699	830	593
2015-16	630	756	750	670
Mean	456.6	591.8	608.4	486.6
Rank	4	2	1	3

Source: Calculated using the facts extracted from financial statements of banks

Table 4. Showing profit per employee of banks (Rs. in crore).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-12	2.14	2.10	3.26	2.18
2012-13	2.32	2.89	3.89	2.58
2013-14	3.71	3.76	4.36	3.17
2014-15	4.60	4.39	4.78	3.45
2015-16	4.35	4.80	5.45	4.40
Mean	3.42	3.59	4.35	3.16
Rank	3	2	1	4

Source: Calculated using the facts extracted from financial statements of banks

Similarly an analysis of Table 4 reveals profit earning capability of employees of banks under study. Here again HDFC bank has secured rank 1 followed by PNB, SBI and KM bank in the order. This shows that HDFC bank in the private sector and PNB in the public sector are the best on the basis of profit per employee within their respective sectors.

Earning Ability of Banks

Earning ability of banks is assessed using different profitability ratios like interest income ratio, operating profit ratio, and return on asset ratio. Banks are required to have sufficient earning to meet out all the operating expenses. Usually a high earnings ratio is considered better -indicating more profitability. Tables 5 and 6 depict interest earning ratio and return on asset of banks, respectively. Table 5 shows that KM bank maintained good percentage of interest income to total assets of the bank. It could maintain mean interest income to total asset ratio of 8.20% followed by PNB 7.94%, HDFC bank 7.81% and SBI 7.58%. This ratio indicates gross interest margin of the bank on its total assets, higher ratio indicates lending at better rate of interest.

Table 5. Showing ratio of interest income to total assets (in percentage).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-2012	7.59	7.13	7.29	7.50
2012-2013	7.12	7.40	7.50	7.87
2013-2014	7.77	8.30	8.00	8.34
2014-2015	7.81	8.76	8.36	8.90
2015-2016	7.62	8.12	7.88	8.40
Mean	7.58	7.94	7.81	8.20
Rank	4	2	3	1

Source: Calculated using the facts extracted from financial statements of banks

Table 6. Showing return on assets (in percentage).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-2012	1.10	1.20	1.14	0.88
2012-2013	1.24	1.34	1.22	0.97
2013-2014	1.23	1.19	1.19	1.10
2014-2015	1.36	1.38	1.09	1.23
2015-2016	1.28	1.32	1.23	1.20
Mean	1.24	1.29	1.17	1.08
Rank	2	1	3	4

Source: Calculated using the facts extracted from financial statements of banks

Table 6 shows return on assets (ROA), it shows that PNB is better as compared to other banks. However, in terms of interest income to total assets it was at 2nd rank. This shows that the operating expenses of the bank are much less as compared to HDFC bank which was ranked 1st on the basis of interest income to total assets. On the basis of return on assets first ranked bank PNB is followed by SBI, HDFC and KM bank respectively in order of the rank.

Liquidity of Banks

An adequate liquidity position refer to a situation, where bank can obtain sufficient funds, either by increasing liabilities or by converting its assets quickly at a reasonable cost. Liquidity of banks is measured by credit-deposit ratio. In the study credit-deposit ratio of banks under study has been given in Table 7.

Management of liquidity is of paramount importance for a bank. It affects both operating efficiency as well as utilization of funds by bank. Ratio of credit to deposit indicates the relationship between funds used up in extending credit and the amount of funds mobilized by accepting deposits. A high ratio indicates more reliance of bank on deposit funds, which might lead to liquidity crisis in the bank. Therefore low ratio is preferred, but a too low ratio indicates idle funds having

negative effect on profitability of the bank. A reference to Table 7 shows that HDFC bank with a ratio 70% secured first rank, followed by SBI 75.25%, KM Bank 75.73% and PNB 75.77% in the order of rank.

Table 7. Showing credit-deposit ratio (in percentage).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-2012	68.12	72.34	67.09	72.90
2012-2013	77.13	76.99	70.10	77.99
2013-2014	78.46	72.90	72.54	70.12
2014-2015	72.67	78.65	70.23	78.29
2015-2016	79.89	77.99	70.03	79.37
Mean	75.25	75.77	70.00	75.73
Rank	2	4	1	3

Source: Calculated using the facts extracted from financial statements of banks

Analysis of Systems and Controls

Effectiveness of systems and control practices exercised by banks can be evaluated using sensitivity ratio and quality of control exercised by the banks. The ratio of sensitive assets to total assets indicates the level and efficiency of control exercised by the banks while creating different asset, i.e., loan portfolio and other operating assets. Sensitive assets are such assets the value of which fluctuates with the changes in internal and external environmental factors. Table 8 depicts ratio of sensitive assets to total assets of banks.

Table 8. Showing ratio of sensitive assets (in percentage).

Financial Year	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
2011-2012	58.00	59.90	67.25	69.33
2012-2013	52.35	60.12	66.54	70.58
2013-2014	57.69	62.35	67.34	69.56
2014-2015	56.78	61.46	68.66	70.12
2015-2016	58.23	62.90	69.56	71.23
Mean	56.61	61.35	67.87	70.16
Rank	1	2	3	4

Source: Calculated using the facts extracted from financial statements of banks

Efficiency of control systems at bank is evaluated with the help of ratio of sensitive assets to total assets of the bank. Sensitive assets are the one the value of which fluctuates with changing environmental factors. A best bank is the one which has a low ratio of sensitive assets to total assets. This indicates less value at risk. A reference to Table 8 reveals that SBI secured rank 1st followed by PNB, HDFC bank and KM bank respectively in the order of rank.

OVERALL CAMELS RATING OF BANKS

On the basis of ranking assigned to the banks on different parameters of CAMELS rating system a final rating score was assigned to banks under study (Table 9). Ranking of each bank on all the parameters has been summed up to calculate mean overall rank. HDFC bank a private sector bank of 1.875 ranked first. Mean overall rank score of SBI and PNB was 2.625 each therefore both of these were assigned an overall rank of 2.5 Kotak Mahindra Bank (KM Bank) had mean overall rank score of 2.875 and was assigned fourth rank. Thus the final effective ranking was HDFC bank first rank, SBI and PNB both at rank second and KM bank ranked the last.

Table 9. Showing overall CAMELS rating of banks.

CAMELS' Ratio	Public Sector Banks		Private Sector Banks	
	SBI	PNB	HDFC Bank	KM Bank
C – Capital adequacy ratio	3	4	2	1
A - Asset quality	2	4	1	3
M – Management efficiency				
(i) Business per employee	4	2	1	3
(ii) Profit per employee	3	2	1	4
E – Earning capability				
(i) Interest income ratio	4	2	3	1
(ii) Return on assets	2	1	3	4
L – Liquidity	2	4	1	3
S - Systems and control	1	2	3	4
Total of Ranks	21	21	15	23
Mean of Overall Rank	2.625	2.625	1.875	2.875
Overall CAMELS Ranking	2.5	2.5	1	4
Effective CAMELS Ranking	2	2	1	3

Source: Compiled on the basis of Tables 1 to 8

Hypothesis Testing

H0: "There is no significant difference between the performance of public sector banks and banks of private sector."

Ha: "There is significant difference between the performance of public sector banks and banks of private sector."

The hypothesis was tested using overall CAMELS ranking assigned to the banks under study. The hypothesis has been tested using 't-test' at 5% significance level with two degree of freedom.

The table value for two tailed test at 5% significance level with two degree of freedom is 4.303; whereas calculated value of 't-test' using data of the sample banks was 0.294. This indicates that there was no significance difference between the performance of public sector banks and private sector banks covered under the study. Therefore, on the basis of test of hypothesis it is proved that these

private sector banks and public sector banks have shown almost equal performance on difference parameters of CAMELS rating.

CONCLUSION

The findings of the study reveal that out of four banks under study two banks were from public sector and two were from private sector. HDFC bank from private sector ranked first on overall mean rank of CAMELS parameters, both SBI and PNB from public sector were ranked second and KM bank was ranked last.

Evaluation of financial performance of these banks on different parameters of CAMELS, i.e., capital adequacy, asset quality, management efficiency, earning capability, liquidity position and systems and control exercised by banks reveal that these banks have performed well on all the parameters of CAMELS rating system. Result of hypothesis testing revealed that there was no significant difference between the performance of public sector banks and private sector banks covered under the study.

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