International Journal of Research in Economics and Social Sciences (IJRESS)
Available online at: http://euroasiapub.org
Vol. 7 Issue 11, November- 2017, pp. 20~29
ISSN(o): 2249-7382 | Impact Factor: 6.939 |

ANALYSIS OF PUBLIC AND PRIVATE SECTOR BANKS PERFORMANCE USING CAMELS MODEL: A LONGITUDINAL STUDY

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ABSTRACT

The present study is a longitudinal study on performance analysis of public and private sector banks using CAMEL model. The study is conducted on same set of sample banks after a gap of five years of previous study conducted by the authors in year 2011 and published in year 2013. Statistical sample includes four major public and private sector banks. They were State Bank of India, Punjab National Bank, HDFC Bank and AXIS Bank, being in the list of top five banks in India. The results of previous study found that private sector banks have shown better performance on all the dimensions of CAMEL and following ranks have been assigned HDFC Bank-1st rank, AXIS Bank-2nd rank, PNB-3rd rank and SBI-4th rank.

Our results for the present study, after a gap of five years confirm, that HDFC Bank has maintained its 1st rank. PNB also succeeded in managing its 3rd position whereas ranks of Axis Banks and SBI are replaced. SBI which was ranked 4th in previous study improved its ranking and secured 2nd Position after five years, whereas Axis Bank lost its 2nd position and now ranked as 4th .

KEYWORDS: *CAMEL Model, Capital Adequacy, Asset Quality, Management Quality, Earning Performance, Liquidity.*

1- THE BACKGROUND

The Indian Banking system is one of the largest banking systems in the world having a wide reach and deep presence across country. It has gone through various stages of development since the set up of General Bank of India in 1786. Year 1991 is earmarked with the recommendations of the Narishiman Committee that suggested for the First Generation Reforms of the financial sector by implementing prudential norms relating to capital adequacy, earning recognition, asset classification and provisioning, and risk exposure norms. The Report of the Narishiman Committee- 2 in 1998, provided the road map for the second generation reforms processes that led the banks to diversify their functions, entering new areas of operation and improve the performance. The regulations were also suggested and brought in various other areas like NPAs, interest rates, government control, CRR, access to capital market etc. The regulators have also

augmented bank supervision on the recommendations of the Padmanabhan Working Group in 1995, through CAMEL (capital adequacy, asset quality, management quality, earnings and liquidity) rating model to include explicit assessment of bank's ability to manage its performance. In recent time the world economy has witnessed serious difficulties in terms of lapse of banking & financial institutions and tumbling demand causing recession in major economies. However, despite this turmoil Indian Banking Sector has been amongst the few to maintain its credibility.
Last financial year and two quarter of the current financial year was terrifying for the banks as bad loans across the 40 listed banks increased to Rs.5.8 trillion as of the end of March 2016 from Rs.4.38 trillion at the end of December which has weaken the bank's balance sheet resulted a steep dip in bank index. The amount surged after the central bank conducted an asset quality review across the banking sector and insisted that banks classify visibly stressed assets as NPAs. However RBI has introduced few schemes and allowed lenders to convert their loans in to equity or quasi-equity instruments under Debt Restructuring Scheme. RBI has also formulated the 'Scheme for Sustainable Structuring of Stressed Assets' (S4A) as an optional framework for the resolution of large stressed accounts. However, these schemes will take a long time clean up banks' balance sheet. In the light of the present financial weakness of the banks the authors attempted to analyze the performance of the top public and private banks after a gap of five years on the same set of sample banks to identify the areas of strength and weakness using 360 degree review approach using CAMELS model.

2- THE CAMEL FRAMEWORK

The CAMEL model is a supervisory rating system to assess the banks' overall performance. The model was first adopted by the Federal Financial Institution Examination Council on November 1979, and then adopted by the National Credit Union Administration in October 1987. The ratings in this model are assigned, based on a ratio analysis of the financial statements, on five dimensions; which are **C**apital Adequacy, **A**sset Quality, **M**anagement Quality, **E**arnings, **L**iquidity.

2.1- CAPITAL ADEQUACY

This ratio measures a bank's capital position and is expressed as a ratio of its capital to its asset. The ratio determines the capacity of the bank to absorb unexpected losses. Capital Adequacy Ratio (CAR) below the minimum statutory level indicates that the bank is not adequately capitalised to expand its operations. Following ratios are used in this category; Capital Adequacy Ratio, Debt Equity Ratio and Total Advance to Total Asset Ratio.

2.2- ASSET QUALITY

Banks are more concern about the quality of debtors to avoid NPAs. This ratio determines the quality of loan of a bank. Higher the ratio the more problematic loans of the current year. In this category following ratios are calculated; Provision Coverage Ratio, NPA Ratio and Loan Loss Reserve to Problem Loan.

2.3- MANAGEMENT QUALITY

The performance of management capacity is usually qualitative and can be analyzed through the subjective evaluation of management systems, organization culture, control mechanisms and so on. However, the capacity of the management of a bank can also be gauged with the help of certain ratios. Ratios calculated under this category are; Asset Utilisation Ratio and Cost to Income Ratio

2.4- EARNING QUALITY

This dimension lays importance on how a bank earns its profits. This also explains the sustainability and growth in earnings in the future. In this category; ROA, ROE and Dividend Payout Ratio are calculated.

2.5- LIQUIDITY QUALITY

Since the banks are in such a business where liquidity is of prime importance, this ratio becomes more important.. Bank lending finances investments in relatively illiquid assets, but they fund their loans with mostly short term liabilities. Thus one of the main challenges to a bank is ensuring its own liquidity under all reasonable conditions. Ratios calculated under this category are; Liquidity Ratio, Liquid Asset to Deposit Ratio and Liquid Asset to Asset Ratio

3- LITERATURE REVIEW

Since we know that the health of the economy is closely related to the soundness of its banking system, thus banking has always been a major area of interest of scholars. Several studies have been conducted time to time to analyse the banks performance using CAMEL model. ***Rastogi, Sanjay and Saxena, Pradeep (2013***), in our study An Analysis of Public and Private Sector Banks Performance Using Camel Model, observed private sector banks having performance edge over public sector banks. We took a sample of four top performer banks from the statistical population of all banks. Out of four sample banks, two are from public sector and two are from private sector. Public sector banks are State Bank of India (SBI) and Punjab National Bank (PNB) and private sector banks are HDFC Bank and AXIS Bank. The data set was analysed for four years ranging from 2007-08 to 2010-11. It was observed that capitalization affects the operation of financial capitalization affects the operation of financial institution. ***Prasad, K.V.N. and Ravinder, G. (2012),*** analysed the performance of Nationalized Banks for a period of 2006-2010 using CAMEL model and found that on an average Andhra Bank was at the top most position followed by Bank of Baroda and Punjab & Sindh Bank. The Central Bank of India was at the bottom most position. They opined thatAsset Quality is commonly used as a risk indicator for financial institutions, which also determines the reliability of capital ratios.***Reddy, Sriharsha. (2012),*** Ascertained the relative positions of banks, using CAMEL ratios, using panel data published by RBI from 1999-2009. Their data set consists of 26 public sector banks, 19 private sector banks and 16 foreign banks. They observed that public sector banks have significantly improved their performance indicating positive impact of the reforms in liberalizing interest rates, rationalizing directed credit and investments and increasing competition. ***Sangmi & Nazir. (2010),*** in their study they analysed the performance of Punjab National Bank (public bank) and Jammu and Kashmir Bank (private bank) from year 2001-2005. They found that PNB has shown better results on the capital adequacy, asset quality and management quality parameters. ***Kaur (2010),*** do analysed the Public and Private Banks performance for five years from 2001-2006 using CAMEL model. His analysis revealed that the best bank from the public sector has been awarded to Andhra Bank and State Bank of Patiala. In the category of private sector banks, Jammu and Kashmir Bank has been assigned the first rank succeeded by HDFC Bank. Among the foreign sector banks, Antwerp has bagged the first rank followed by JP Morgan Chase Bank. ***Dash & Das (2009),*** also concluded with the same findings of better scores of Private Banks over Public Banks. They analysed 58 banks. Out of which 29 were public and remaining 29 were private and foreign banks. They analysed the data for 2003-2008. ***Derviz et al. (2008)***, investigated the determinants of the movements in the long term Standard & Poor's and CAMEL bank ratings in the Czech Republic during the period of 1998-2001, when the three biggest banks, representing approximately 60% of the Czech Banking Sector's total assets, were privatized. ***Gupta and Kaur (2008),*** analysed the performance of Public and Private sector Banks, using data from 2003-2007. They concluded with better score of Private Banks over Public Banks. They ranked HDFC Bank first on all the dimensions of CAMEL. ***Bodla & Verma (2006),*** in their study they examined the performance of State Bank of India (Public Bank) and ICICI Bank (Private bank) using CAMEL dimensions for a period of 2001-2005. They ranked SBI at top for capital adequacy and ICICI for other dimension.

4- METHODOLOGY AND RESEARCH FRAMEWORK

The present study is a longitudinal in nature. The same set of sample is used which was used in previous study. We have taken a sample of four top performer banks from the statistical population of all banks. Out of four sample banks, two are from public sector and two are from private sector. Public sector banks are State Bank of India (SBI) and Punjab National Bank (PNB) and private sector banks are HDFC Bank and AXIS Bank. The data set is analysed for four years ranging from 2011-12 to 2014-15. The data used in this study are reliable and validated as they have been sourced from published (audited) financial statement of banks, including balance sheet, profit & loss statement, explanatory notes etc. Besides, the data also taken from 'statistical tables relating to banks' published by RBI.

The data has been analysed using CAMELS ratios for the aforesaid period. Under ***Capital Adequacy;*** following ratios are calculated; *capital adequacy ratio, debt equity ratio and total advance to total asset ratio.* Under ***Asset Quality;*** *provision coverage ratio, NPA ratio and loan loss reserve to problem loan* are calculated. Under ***Management Efficiency;*** *asset utilisation ratio and cost to income ratio* are calculated. ***Under Earning Quality;*** *ROA, ROE and dividend payout ratio* are calculated. And under ***Liquidity Position;*** *liquidity ratio, liquid asset to deposit ratio and liquid asset to asset ratio* are calculated. All the banks were first individually ranked based on the sub-parameters of each dimensions; then the sum of these scores were taken to calculate the group average of individual bank for each dimension. Finally a composite ranking for the banks are made after computing the average of these group averages.

5- DATA ANALYSIS AND INTERPRETATION

5.1.1- CAPITAL ADEQUACY

Table-1: Capital Adequacy Ratio (CAR):

Banks	2015	2014	2013	2012
PNB	13%	12%	13%	13%
SBI	12%	13%	13%	14%
AXIS	15%	16%	17%	14%
HDFC	17%	16%	17%	17%

Among all the four banks HDFC has higher CRAR. The reason for higher CRAR ratio in private banks, as evident in above table, is that risk based assets are much lower than the public banks when compared to 9% as minimum CRAR prescribed by RBI.

Table -2: Debt Equity Ratio (D/ER):

Banks	2015	2014	2013	2012
PNB	1.17	1.34	1.21	1.34
SBI	1.60	1.55	1.71	1.51
AXIS	1.79	1.32	1.33	1.49
HDFC	0.73	0.91	0.91	0.80

The above table indicates that public sector banks have maintained a good debt equity ratio. The ratio is much higher for SBI followed by PNB, AXIS Bank and HDFC Bank.

Table-3: Total Advance to Total Asset Ratio:

Banks	2015	2014	2013	2012
PNB	63%	63%	64%	64%
SBI	69%	68%	67%	65%
AXIS	61%	60%	58%	59%
HDFC	63%	62%	60%	58%

The marginal differences in the ratio are observed in the above table. All the four banks have maintained the average rate of 58-68 percent. However year on year basis SBI and HDFC Bank has shown a continuous improvement on this parameter, as the bank is growing with advances and the assets have increased in the same proportion.

5.1.2- ASSET QUALITY

Table-4: Provision Coverage Ratio:

Banks	2015	2014	2013	2012
PNB	0.527899743	0.604373609	0.890681497	1.232592705
SBI	0.979084531	0.927424235	0.887333684	1.251817324
AXIS	1.499319983	2.120435671	1.909698256	1.861235675
HDFC	5.65158883	10.02186814	8.80078299	12.34150916

For public sector banks the quality loans were not as better as the private sector banks had. Both Axis and HDFC Bank have been observed with a higher provision coverage ratio.

Table-5: NPA Ratio:

Banks	2015	2014	2013	2012
PNB	4	3	2	2
SBI	2	3	2	2
AXIS	0.47	0.45	0.36	0.70
HDFC	0.25	0.27	0.20	0.00

PNB has been observed with high ratios among all the banks followed by SBI, which indicates a higher risk for the banks. HDFC Bank and AXIS Bank have been successful in maintaining their NPA at lower level.

Table-6: Loan loss Reserve to Problem Loan:

Banks	2015	2014	2013	2012
PNB	0.87%	2.24%	4.17%	3.40%
SBI	1.94%	1.87%	3.87%	3.50%
AXIS	0.78%	1.23%	0.81%	1.81%
HDFC	1.02%	0.12%	0.11%	1.81%

Out of four banks above, HDFC Bank have maintained the lowest average scores throughout the said period followed by AXIS Bank. Private Sector Banks have succeeded in maintaining a lower ratio again.

5.1.3- <u>MANAGEMENT QUALITY</u>

Table-7: Asset Utilisation Ratio:

Banks	2015	2014	2013	2012
PNB	9%	9%	10%	18%
SBI	9%	9%	17%	7%
AXIS	10%	11%	11%	19%
HDFC	11%	11%	12%	11%

The marginal differences are observed on the ratios. None of the banks were able to maintain a progressive utilization ratio. However they could maintain a stable efficiency in asset utilization.

Table-8: Cost to Income Ratio:

Banks	2015	2014	2013	2012
PNB	37.13	36.36	31.06	31.33
SBI	36.85	36.76	34.09	38
AXIS	34.53	32.72	33.54	39.45
HDFC	36.84	36.53	38.02	38.03

As observed in above table PNB and AXIS banks have performed well as they have maintained overall low ratio as compared to SBI and HDFC bank. Out of four banks PNB has maintained the lowest and HDFC Bank highest ratio.

5.1.4- EARNING QUALITY

Table-9: Return of Assets (ROA):

Banks	2015	2014	2013	2012
PNB	0.5	0.6	0.99	1.06
SBI	0.63	0.6	0.9	0.87
AXIS	1.62	1.52	1.48	1.39
HDFC	1.73	1.72	1.68	1.52

At this parameter SBI and PNB has reported lowest returns whereas HDFC Bank and AXIS Bank have reported higher returns. Overall the private banks have reported good returns on assets as compared to public sector banks.

Table-10: Return of Equity (ROE):

Banks	2015	2014	2013	2012
PNB	8.12	9.69	15.19	18.52
SBI	10.2	9.2	14.26	13.94
AXIS	16.26	15.64	18.59	17.83
HDFC	16.47	19.5	18.57	17.26

Return on equity for PNB continuously decreasing from 2012 to 2015 whereas SBI reported high returns in 2012 and 2013. In private segment HDFC and AXIS Banks have shown a high average returns for the reported years.

Table-11: Dividend Payout Ratio:

Banks	2015	2014	2013	2012
PNB	20.51	10.83	20.10	15.28
SBI	19.52	20.56	20.13	20.06
AXIS	14.78	15.11	16.29	15.52
HDFC	19.63	19.38	19.46	19.53

In this segment PNB has reported a very volatile payouts whereas other banks have maintained an average payouts. HDFC bank has maintained most stable payout ratio. Overall SBI has maintained a good average payout.

5.1.5- LIQUIDITY QUALITY

Table-12: Liquidity Ratio:

Banks	2015	2014	2013	2012
PNB	3.30	2.37	3.23	3.53
SBI	0.84	1.11	0.96	1.70
AXIS	1.11	1.26	1.12	1.23
HDFC	1.46	2.21	1.33	1.70

The ratio has been very volatile for all the banks under study. PNB Banks have maintained a high liquidity position as compared to other banks. The lowest ratio is reported by SBI. Overall PNB and HDFC Bank have reported the high liquidity among all four banks.

Table-13: Liquid Asset to Deposit Ratio:

Banks	**2015**	**2014**	**2013**	**2012**
PNB	11.16	10.02	6.93	7.59
SBI	11.09	9.51	9.55	9.31
AXIS	11.20	10.05	8.09	6.33
HDFC	11.06	10.78	9.21	8.49

Public Sector Banks have parked less funds in liquid assets which hampers their cost of funds. Private Sector Banks have maintained a good deposit ratio. Out of which HDFC Bank has maintained a good average ratio.

Table-14: Liquid Asset to Asset:

Banks	**2015**	**2014**	**2013**	**2012**
PNB	11.32	11.91	13.22	13.56
SBI	10.41	12.39	14.58	7.28
AXIS	9.15	11.07	11.13	11.12
HDFC	12.92	13.87	17.26	6.20

It is evident from the above table that the ratio has been very volatile for all four banks. However on an average SBI and HDFC Bank have maintained a better investment in liquid assets.

SOURCE: Authors compilation and *extracted from the master table prepared using data sourced from annual reports of the banks.*

5.2- COMPONENT WEIGHTAGE

Table- 15: Weightage to CAMEL Components:

The weightage given to different parameters are as follows.

Parameters	**Weightage**
Capital Adequacy	27%
Asset Quality	21%
Management Quality	10%
Earning	18%
Liquidity	24%
Total	**100%**

5.3- RATIO-WISE WEIGHTAGE:

Table-16: Ratio-wise Weightage to CAMEL Components:

RATIO	WEIGHTAGE
Capital Adequacy	**27%**
• Capital Adequacy Ratio	9%
• Debt Equity Ratio	9%
• Advance to Asset Ratio	9%
Asset Quality	**21%**
• Provision Coverage Ratio	7%
• NPA Ratio	7%
• Loan Loss Reserve to Problem Loan	7%
Management Quality	**10%**
• Asset Utilisation Ratio	5%
• Cost to Income Ratio	5%
Earning	**18%**
• ROA	6%
• ROE	6%
• Dividend Payout Ratio	6%
Liquidity	**24%**
• Liquidity	8%
• Liquid Asset to Deposit	8%
• Liquid Asset to Asset	8%
Total	**100%**

5.4- BANKS' SCORE FOR DIFFERENT RATIOS

After allocating frequency classes for the each ratio, now the score to each bank on the basis of average of their average of performance during the last four years i.e. 2012 to 2015 to all the banks are given.

Table-22: Capital Adequacy:

The table given below shows the scores assigned to the Capital Adequacy Ratios.

Ratio	**Banks**			
	PNB	**SBI**	**AXIS**	**HDFC**
CRAR	3	5	7	9
Debt-Equity Ratio	6	11	9	3
Advance to Asset Ratio	5	7	1	2
Total Score	**14**	**23**	**17**	**14**

Table-23: Asset Quality:

The table given below shows the scores assigned to the Asset Quality Ratios.

Ratio	Banks			
	PNB	SBI	AXIS	HDFC
Provision Coverage Ratio	1	2	3	18
NPA Ratio	5	5	8	10
Loan Loss Reserve to Problem Loan	3	3	3	3
Total Score	**9**	**10**	**14**	**21**

Table-24: Management Quality:

The table given below is showing the scores assigned to the Management Quality Ratios.

Ratio	Banks			
	PNB	SBI	AXIS	HDFC
Asset Utilisation Ratio	5	4	6	6
Cost to Income Ratio	6	4	4	3
Total Scores	**11**	**8**	**10**	**9**

Table-25: Earning:

The table below is showing scores given to the Earning Quality Ratios**.**

Ratio	Banks			
	PNB	SBI	AXIS	HDFC
ROA	3	2	7	8
ROE	13	9	6	6
Dividend Payout Ratio	4	13	4	10
Total Scores	**20**	**24**	**17**	**24**

Table-26: Liquidity:

The table given below is showing marks given to the Liquidity Ratios.

Ratio	Banks			
	PNB	SBI	AXIS	HDFC
Liquidity	11	3	3	5
Liquid Asset To Deposit	3	4	3	4
Liquid Asset To Asset	6	5	4	7
Total scores	**20**	**12**	**10**	**16**

5.5-OVERALL RANKING OF THE BANKS BASED ON THE TOTAL SCORES:

Parameters	Banks			
	PNB	SBI	AXIS	HDFC
Capital Adequacy	14	23	17	14
Asset Quality	9	10	14	21
Management Quality	11	8	10	9
Earning	20	24	17	24
Liquidity	20	12	10	16
Total Score	**74**	**77**	**68**	**84**
Rank	**3**	**2**	**4**	**1**

6- FINDINGS AND CONCLUSION:

The present study is a longitudinal study on performance analysis of public and private sector banks using CAMELS model. The study is conducted on same set of sample banks after a gap of five years of previous study conducted by the authors in year 2011. Statistical sample includes four major public and private sector banks. They were State Bank of India, Punjab National Bank, HDFC Bank and AXIS Bank, being in the list of top five banks in India. The results of previous study found that private sector banks have shown better performance on all the dimensions of CAMELS and following ranks have been assigned HDFC Bank-1st rank, AXIS Bank-2nd rank, PNB-3rd rank and SBI-4th rank. Our results for the present study, after a gap of five years confirm, that HDFC Bank has maintained its 1st rank. PNB also succeeded in managing its 3rd position whereas ranks of Axis Banks and SBI are replaced. SBI which was ranked 4th in previous study improved its ranking and secured 2nd Position after five years, whereas Axis Bank lost its 2nd position and now ranked as 4th The previous study observed that on most of the parameters private sector banks have outperformed. Be it CAR, Management Quality or Liquidity. Private Sector Banks also reported a low NPA. All these factors indicate an all round high efficiency of private sector banks. However the present study observed an improvement in performance of public sector banks on some of the parameters like management quality and liquidity.

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