Comparative Study on the Overall Performance of Merged Public Sector Banks and Private Sector Banks using CAMEL Model

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ABSTRACT

Purpose: *The main motive of this research was to assess the overall functioning of public sector banks before merger and after the merger. At the same time effective comparison is been undertaken between public and private sector banks. One of the most crucial practices of evaluating the performance of bank involves critical examination of account statements concerning annual report. Major parameters for evaluating the Banks's performance include assessment of adequate capital, quality of assets, ability of management to control the risk, earning capacity and liquid adequacy to meet the monetary obligations by the banks. Impact of merger on the bank's performance are measured and compared to judge its effectiveness.*

Methodology: *Quarterly published financial statements from 2019-20 to 2020-21 of selected banks are used for the analysis. Analysis is based on CAMEL model where the performance is rated on a scale of 1 to 5 on the basis of rating analysis. This study applied t-test as inferential statistics to draw a conclusion based on a comparative analysis.*

Findings: *The study revealed there is significant difference in the performance of selected merged public sector banks and private banks and it was found that even after the merger of public sector banks it is not able to strive against private sector banks in their overall performance.*

Originality: *It may be helpful to the government in making the merger an effective strategy by changing its policies and practices in consolidating the banks. Banking sectors are the major contributor to country's GDP hence the result of this study can be utilized to improve both public and private sector banks.*

Utilitarian Implication: *This study will be valuable and pragmatic to the various stakeholders like investors, banking sectors, government, employees, customers, management and society as a whole to maintain their stake in these banks.*

Paper Type: *Analytical Research*

Keywords: Bank Performance, CAMEL Model, Merger, Public Sector Banks, Private Sector Bank, Effectiveness.

1. INTRODUCTION :

Merger of bank is an effective strategy to have a better control. In India, at present there are 12 nationalized banks after the merger of April 1, 2020. Allahabad Bank merged into Indian Bank; Andhra Bank and Corporation Bank merged into Union Bank of India; Oriental Bank of Commerce and United Bank of India merged into Punjab National Bank (PNB) and lastly Syndicate Bank merged into Canara Bank [1]. Measuring the overall performance of bank is the need of the hour, as customers' and other stakeholders' trust and confidence is dependent on the reputation of the banks. It can be analyzed by finding its overall performance. CAMEL technique is a very important tool to examine the financial

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ability of a bank and to enhance the effectiveness of a bank. In India, RBI utilizes this tool to judge the performance of banks which includes (C) Capital adequacy, (A) Assets quality, (M) Management soundness, (E) Earnings, (L) Liquidity [2]. The present research is conducted to analyze the overall performance of Private banks and merged public sector banks with special reference to four public sector banks (Punjab National Bank, Canara Bank, Indian Bank and Union Bank of India) and four private sector banks (ICICI Bank, Axis Bank, Karnataka Bank and HDFC Bank).

The consolidation of bank plans to improve the conditions of banking sector which is suffering from huge amount of bad debts and to have better governance, underwriting, monitoring, Competing and introducing technology to reduce NPAs of PSBs [3]. Now the question is whether merger actually fulfills the above requirement. The main context of the study is to find out whether these merged public sector banks are capable to strive against private banks in terms of overall performance.

2. REVIEW OF LITERATURE :

CAMELS rating model is a yardstick of Central Bank to measure the performance as well as to establish control over the nonperforming banks. This model is not only a controlled operation for Central Bank but it is also a very useful tool for the banks itself to assess its performance level thereby improve its efficiency [4][5]. There is a huge need of realizing the defects and inefficiency in banking operations to solve these issues and improve its financial health, which can be evaluated and controlled using CAMELS Technique [6]. In this technique the first parameter depicts the capital adequacy of the bank where the capacity of bank in order to tackle the future unexpected losses can be analyzed using various formulae like capital funds to risk weighted assets, debt-equity ratio, etc. [4]. Second component of this model is the quality of banking assets where it measures how far the non-performing asset can impact the financial health of bank [7]. A third component deal with the quality of management, measuring this ratio is complex as this is qualitative assessment. There are various formulae to calculate this ratio which includes total advances to total deposit, operating expense to assets, etc. [8]. Earning ability of banks are analyzed using the formulae Return on Asset, Return on Equity etc. which helps in analyzing the firms capacity to generate revenue or income by utilizing its assets or equities [9]. Bank's liquidity status is as important as any of the components. This measure helps the banking institutions to protect its activity from liquidity crunch and it is calculated using various formulae like liquid asset to total asset, liquid asset to total deposit, etc. [10]. The new parameter which was added to the CAMEL model is Sensitivity ratio after which it is called as CAMELS Model. This study utilizes CAMEL model for the effective evaluation of banking performance. After the brief review of the performance evaluation model the researchers attempted to review various other articles related to the main objective of our study to establish the foundation for further research and those articles include performance evaluation before and after the merger process as well as the effective comparison between two prominent sectors of Indian banking system.

Table 1: This section reviews the various literatures on merger and relative investigation of performance between public and private banks.

Sl. No	Area	Contribution	Authors
1	Merger	Merger refers to consolidation of two or more companies into one.	Svetlana Santosh, T., & Dinesh, H. (2016). [11]
2	Merger Intention and Complexities	The merger strategy helps the banks to improve customer services and operational efficiency and to maintain cost effective deposits and branches. But combining and merging of banks are complex task, as many nationalized banks are facing affliction and perilous situation.	Kambar, P. (2019). [12]
3	Pre and Post Merger	Merger of banks have highly impacted the employees and shareholders. As this study made a pre and post-merger comparison which showed no remarkable difference between pre and post-	Ambawade, S. H. (2017). [13]

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		amalgamation in capital adequacy, NPA to net advances ratio, return on net worth and Liquid asset to total Asset ratio of all the transferee banks	
4	Financial performance	Relative analysis of pre and post-merger of both private and public sector banks showed there is volatility in the financial performance of Public banks but private banks have stable and better financial health.	Sapna, K., & Sachin, S. (2016). [14]
5	Merger of Public and Private banks.	Merged private sector banks are functioning well compared to merged public sector banks in the analyzed financial performance of pre and post-amalgamation.	Jagadish, R., & Raiyani. (2010). [15]
6	Performance evaluation and CAMEL	Performance evaluation of any bank is a complicated task, as it is an important tool to measure, interpret, and evaluate the effectiveness and efficiency of banks in attaining the prescribed goal. Capital adequacy Ratios, Assets quality Ratios, Management earnings Ratios, Earning Ability Ratios, Liquidity Ratios of the selected private and public Banks were compared and overall, private banks were found immensely better than public sector Banks according to the CAMEL parameters	Jalpa C., D., & B.L., S. (2016). [16]
7	Private sector benchmark	The public sector banks have made a remarkable progress, but they still lack in reaching the benchmark setup by the private sector banks as NPA is well controlled by them	Vadrale, K. S. (2019). [17]
8	Position of banks	The analysis of other studies showed that Axis Bank is in top Position and second Position by HDFC, Third position by ICICI bank according CAMEL model. As the maximum top positions are dominated by Private Banking institutions it is clearly Indicated that Private sector Banks have strong Performance and risk management Practices.	Santoshi Kumari, G., & M S V, P. (2016). [18]
9	Comparison of private banks	When the CAMEL technique was used to analyze the two private sector banks it showed no significant difference which depicts similarity of performance among the private banks.	Srinivas, K., & Saroja, L. (2013). [19]
10	Effective merger	In order to implement effective merger, management strategies and policies must be revised and formulated in such a way that it improves the internal and external efficiency in the operation of banks. Marketing strategies would ensure the better performance of banks.	Singh, S., & Das, S. (2018). [20]

Economic growth of country is positively related to development of financial sector. Therefore, banking sector majorly contributes to economic development of a country so mergers and acquisition of banks should be carried out systematically [14]. The successful merger can be achieved with adequate credit and depository balance along with consistent profit and strategic NPA management [13]. According to the study, among all banks HDFC is in top position in terms of performance next are ICICI and BOB [21]. Hence majority of the article highlight the performance bench marks set up by private banks and depicts the inability of public banks in meeting their standard. This study attempts to identify the remarkable difference in the performance of Public banks after the merger by comparing its performance with private banks.

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3. RESEARCH GAP :

Research gap found from the literature is that there is a need to find out the overall performance of public sector banks after the mergers and to conduct the effective comparison between the merged nationalized banks and Private Banks. Hence, the present study is significant and unique in its kind.

4. OBJECTIVES OF THE STUDY :

(1) To analyze the overall functioning of public sector banks before and after the merger.
(2) To compare the overall performance of merged public sector banks and private banks in order to assess the effectiveness of merger.

5. HYPOTHESIS OF THE STUDY :

H_1: Performance benchmarks setup by the private banks are better than merged nationalized banks.

6. RESEARCH METHODOLOGY :

The research design of this paper is based on analytical research. The main research problem signifies growing NPAs among banking sectors. This study is restricted to the four recently merged public sector banks (Union Bank of India, Canara Bank, Indian Bank and Punjab National Bank) only and their performance is compared with the four top private banks (Axis Bank, HDFC Bank, ICICI Bank and Karnataka Bank). To evaluate the overall performance of selected banks CAMEL technique is been used. For which the quarterly financial statement of selected banks is referred from 2019-20 to 2020-21. This study has evolved both accounting technique – ratio analysis and statistical technique – t-test. Based on the averages of Capital adequacy ratio, Asset quality ratio, Management quality ratio, Earning quality ratio and Liquidity ratio ranks are been allotted for the selected banks. This study applied t-test as inferential statistics to draw a conclusion based on a comparative analysis. Lastly performance is rated on a scale of 1 to 5 on the basis of rating analysis.

7. RESULTS AND DISCUSSIONS :

From the quarterly report of selected banks all the components of CAMEL model is computed and analyzed below for the evaluation of banking performance. All the parameters are ranked on the basis of average ratio. Hence lower the mean rank better the performance of the bank and vice versa.

7.1 (C) Capital Adequacy Ratios: This ratio signifies banks' ability to maintain adequate capital in order to meet the unanticipated damages and losses. Hence high CAR contributes to better adequacy level of capital and low CAR contributes to poor adequacy level of capital [22].

Table 2: Capital Adequacy Ratios

Banks	CAR 2019-20		CAR 2020-21	
	Avg.	Rank	Avg.	Rank
Canara Bank	13.37	6	13.10	7
Union Bank of India	13.53	5	12.35	8
Punjab National Bank	13.32	7	13.67	6
Indian Bank	14.32	4	14.22	4
Mean	-	5.5	-	6.25
Axis Bank	17.45	2	18.50	2
HDFC Bank	17.85	1	18.93	1
ICICI Bank	16.24	3	17.91	3
Karnataka Bank	12.60	8	13.71	5
Mean		3.5		2.75

Source: Compiled by the Researcher
Note: Capital Adequacy Ratio= Capital Funds/ Risk Weighted Assets*100

The table 2 depicts the data of 2019-20 where the ranked average performance of private sector banks (3.5) found significantly lower than the public sector banks (5.5). Therefore, Privatized banks are stronger in maintaining CAR than nationalized banks. In the year 2020-21 average performance of private sector banks (2.75) found significantly lower than the merged public sector banks (6.25).

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Highest CAR is showed by HDFC bank (18.93%) during research period while lowest by Union Bank (12.35%) during the research period. Therefore, Privatized banks have done well in maintaining CAR than merged Public sector banks. This finding is supported by [23] according to which private banks hold good capital adequacy to risk weighted asset than public sector banks.

7.2 (A) Asset Quality Ratios: This ratio highlights the asset quality of banks. The quality of loan is determined on the basis of ratio level where low ratio depicts good asset quality and high ratio depicts rising non-performing asset leading to low quality of banking assets [23].

Table 3: Asset Quality Ratios

Banks	AQR-2019-20		AQR-2020-21	
	Avg.	Rank	Avg.	Rank
Canara Bank	4.945152	6	3.457763	6
Union Bank Of India	6.673519	8	4.245881	7
Punjab National Bank	5.214866	7	4.966483	8
Indian Bank	3.501276	5	3.109436	5
Mean		6.5		6.5
Axis Bank	2.050879	3	1.074708	2
HDFC Bank	0.421602	1	0.247996	1
ICICI Bank	1.745736	2	1.105535	3
Karnataka Bank	3.277395	4	2.533693	4
Mean		2.5		2.5

Source: Compiled by the Researcher

Note: Net NPA'S to Net Advances = Net NPA / Net Advances *100

The table 3 depicts the data of 2019-20 where the ranked average performance of private sector banks (2.5) found significantly lower than the public sector banks (6.5). Therefore, Privatized banks are better in maintaining AQR than Public sector banks. In the year 2020-21 average performance of private sector banks (2.5) found significantly lower than the public sector banks (6.5). This result is supported by [23] which depict those private banks are better than merged Public sector banks in maintaining AQR.

7.3 (M) Management Quality Ratios: Management quality is concerned with the productivity of management as a whole. This ratio signifies management's ability in extending more qualitative loan by utilizing its deposits. Here high ratio shows good management quality and low ratio shows poor management quality [23].

Table 4: Management Quality Ratios

Banks	MQR 2019-20		MQR 2020-21	
	Avg.	Rank	Avg.	Rank
Canara Bank	70.45615	6	65.30704	6
Union Bank Of India	69.22334	7	65.16874	7
Punjab National Bank	64.76086	8	61.0224	8
Indian Bank	75.37762	5	68.09807	5
Mean		6.5		6.5
Axis Bank	90.19437	1	89.334	1
HDFC Bank	82.10452	3	84.70475	2
ICICI Bank	87.82512	2	78.93051	3
Karnataka Bank	78.20735	4	72.84455	4
Mean		2.5		2.5

Source: Compiled by the Researcher

Note: Total Advances to Total Deposits Ratio= Total Advances / Total Deposits *100

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The table 4 depicts the data of 2019-20 where the ranked average performance of private sector banks (2.5) found significantly lower than the public sector banks (6.5). Therefore, Private sector banks have done well in maintaining MQR than Public sector banks. In the year 2020-21 average performance of private sector banks (2.5) found significantly lower than the public sector banks (6.5). This analyzed data is supported by [23]. Therefore, private banks are better in comparison with merged public sector banks in maintaining MQR.

7.4 (E) Earnings Quality Ratio: The earing capacity of a bank is essential to know their financial health. High EQR shows stable income or earning capacity of banks, whereas low EQR ponders low earning capacity of bank [22].

Table 5: Earnings Quality Ratio

Banks	EQR 2019-20		EQR 2020-21	
	Avg.	Rank	Avg.	Rank
Canara Bank	-0.315	8	0.23	7
Union Bank Of India	-0.075	7	0.27	6
Punjab National Bank	0.205	6	0.1525	8
Indian Bank	0.2675	4	0.4925	4.5
Mean		6.25		6.375
Axis Bank	0.2175	5	0.7	2
HDFC Bank	0.5	3	0.4925	4.5
ICICI Bank	0.8125	1	1.415	1
Karnataka Bank	0.535	2	0.57	3
Mean		2.75		2.625

Source: Compiled by the Researcher

Note: Return on Assets (ROA) = Net Profit after tax (PAT) / Total Assets *100

The table 5 depicts the data of 2019-20 where the ranked average performance of private sector banks (2.75) found significantly lower than the public sector banks (6.75). Therefore, Private sector banks have performed well in maintaining EQR than Public sector banks. In the year 2020-21 average performance of private sector banks (2.625) found significantly lower than the merged public sector banks (6.375). The result of this study is grounded by [23] therefore private banks are better than merged nationalized banks in maintaining EQR.

7.5 (L) Liquidity: Liquidity is mainly concerned with liquid assets of banks i.e., cash and balance with Reserve Bank of India, money at call and short notice and balance with other banks. This measure shows the level of liquid asset in proportion to total asset. High liquid asset depict good liquid position and low liquid asset depicts poor liquidity position of banks [18].

Table 6: Liquidity

Banks	LR 2019-20		LR 2020-21	
	Avg.	Rank	Avg.	Rank
Canara Bank	10.32309	2	12.70966	1
Union Bank of India	8.740657	3	7.566615	4
Punjab National Bank	11.63789	1	8.836329	3
Indian Bank	6.202755	7	6.49665	6
Mean		3.25		3.5
Axis Bank	6.916595	5	6.47441	7
HDFC BANK	6.299022	6	6.755082	5
ICICI BANK	7.937467	4	11.11661	2
Karnataka Bank	4.390834	8	4.304384	8
Mean		5.75		5.5

Source: Compiled by the Researcher

Note: Liquidity Asset to Total Asset = Liquid Assets/ Total Assets* 100

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The table 6 depicts the data of 2019-20 where the ranked average performance of public sector banks (3.25) found significantly lower than the private sector banks (5.75). Therefore, public sector banks have maintained better LR than private sector banks. In the year 2020-21 average performance of public sector banks (3.5) found significantly lower than the private sector banks (5.5). The result of this study is also grounded by [23] therefore merged public sector banks have outperformed private banks in maintaining LR.

7.6 Overall CAMEL rank test: On the basis of ranked ratio of CAMEL parameters, overall analysis is been done to draw an inference.

H0 = 0 Performance benchmarks setup by the private banks are equal to merged nationalized banks.

H1 > 0 Performance benchmarks setup by the private banks are better than merged nationalized banks.

Table 7: T-Tests for Overall CAMEL Rank 2019-20 and 2020-21

Variable	2019-20		2020-21	
	Public Sector	Private Sector	Public Sector	Private Sector
Mean value	6.25	2.75	6.5	2.5
No. of observation (n)	4	4	4	4
Degrees of freedom	6		6	
t Statistics	2.898275349		4.38178046	
"p" value (two-tailed)	0.02		0.01	
t Critical (two-tailed) (5%)	2.447		2.447	

Source: Compiled by the Researcher

Table 7 shows that in the year 2019-20 according to the t-test analysis null Hypothesis is been rejected as t stat value is 2.89 which is more than t critical value 2.447, it means that there is significant difference between the Overall CAMEL rank of Public and private sector banks. It shows that the rank of average performance in maintaining the Overall CAMEL rank of private sector banks (2.75) found significantly lower than the public sector banks (6.25). Therefore, Performance benchmarks setup by the private banks are better than nationalized banks. Similarly in the year 2020-21, Null Hypothesis is rejected as t stat value is 4.38 which is more than t critical value 2.447, consequently significant difference is found between the Overall CAMEL rank of merged Public sector banks and private sector banks. It shows that the rank of average performance in maintaining the Overall CAMEL parameters of private sector banks (2.5) found significantly lower than the merged public sector banks (6.5). This finding is supported by [23]. Hence, Performance benchmarks setup by the private banks are better than merged nationalized banks.

Table 8: Ratings of Selected Public & Private Sector Banks based on Overall Average rank

Rating (Overall)	Camel Criteria	Mean = 4.5 And Standard Deviation=2.45	Banks Under Study 2019-20	Banks Under Study 2020-21
'1' Or A+ (Excellent)	Up to (Mean-0.67 SD)	2.86	ICICI Bank, HDFC Bank	ICICI Bank, HDFC Bank, Axis Bank
'2' Or A (Good)	From (Mean-0.67 SD)	2.86 - 4.5	Axis Bank	-
'3' Or B (Fair)	Up to (Mean+0.67 SD)	4.51 - 6.14	Canara Bank, Indian Bank, Karnataka Bank, Union Bank of India, Punjab National Bank	Karnataka Bank, Indian Bank, Canara Bank

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| ‘4’ Or C (Poor) | Above (Mean +0.67 SD) | Above 6.14 | - | Punjab National Bank, Union Bank of India |
| ‘5’ Or D (V. Poor) | Above 1.5 of Mean | Above 6.75 | - | - |

Source: Compiled by the Researcher

Table 8 shows that before the merger of public sector banks, ICICI bank & HDFC bank has been rated on excellent position which lies in the category of (‘1’ OR A+). Axis Bank have been rated on good position which lies in the category of (‘2’ OR A). Indian Bank, Karnataka Bank, Canara Bank, Union Bank of India & Punjab National Bank have been rated on Fair position which lies in the category of (‘3’ or B).

In the year 2020-21 after the merger, ICICI bank, HDFC bank & Axis Bank has been rated on excellent position which lies in the category of (‘1’ OR A+’). Indian Bank, Karnataka Bank & Canara Bank have been rated on Fair position which lies in the category of Rating ‘3’ or B. Union Bank of India & Punjab National Bank have been rated on Poor position which lies in the category of Rating ‘4’ OR C. the result of rating analysis supports the others findings [23][18][21].

This paper mainly studied the effectiveness of merger on banking performance and found that merger strategies of public sector banks have not shown any major difference in their overall functioning. Therefore, Performance benchmarks setup by the private banks are better than merged nationalized banks.

8. SUGGESTION :

CAMEL model showed, non-performing assets are the major concerns of public sector banks and also it lacks in other parameter except liquidity and maintaining high liquidity is the major concern for private banks therefore they must focus on improving the asset quality and maintaining high liquidity position. Management's efficiency also has a huge impact on the banking performance so component of accountability should be strictly followed by each bank and it must be reflected through its service quality [24]. At the same time use of technology in banking will help the management in order to improve their efficiency and to encourage more and more customers as future of bank will be customer-friendly institution with digitalization in order to accomplish continual business position [25]. Hence, technology can also contribute to the improvement of overall performance of banks.

9. CONCLUSION :

After the banking reforms in India, major improvements are witnessed. This improvement can be critically evaluated using CAMELS model where the comparison between public and private banks have shown the high financial ability of the later bank due to its efficient management, earning and profitability [26-28]. At the same time our study has also found that there is significant difference in the performance of selected merged public sector banks and private banks and it was found that even after the merger of public sector banks it is not able to strive against private sector banks in their overall performance. Overall functioning of public banks has not shown any progress even after the merger as the rating analysis has revealed the downward rating of selected merged banks. But private banks have shown constant progress in its overall functioning as per the rating analysis. There are many related previous works which showed high financial standard set by private banks as compared to public banks but this study found the need to identify the major changes in public banks after the merger by comparing it with private standards but found no remarkable improvement in its progress. As banking sector contributes to major part of the country's GDP it is essential to bring innovative strategies, constant growth and survival in a global market. Hence there is a need to improve banking efficiency and take effective measures to tackle any banking related issues. At the same time involvement of weaker section of the society in accessing finance provided by financial institution also helps the economic development of a country [29]. Hence, along with adopting various strategies like merger it is essential to encourage all the section of society to keep their stake in the banking institutions. Improvement in its overall performance plays a vital role in encouraging the customers to invest their interest in banks.

10. UTILITARIAN IMPLICATION :

This study will be valuable to the investors in order to make their investment decision. At the same time this study is pragmatic to banking sectors, government, employees, customers, management and society as a whole to maintain their stake in these selected banks.

11. SCOPE FOR FURTHER RESEARCH :

Further research can be undertaken at a different time period as the effectiveness of merger can be experienced in the future years. The study period for CAMEL's model is only 2 years i.e., 2019-20 to 2020-21, hence more number of years can be evaluated to see the trend series of its performance. 8 banks are selected for the study representing the whole public and private sector banks, this is a limitation as selection of few banks may not give appropriate representation of the whole banking sector therefore further research can be initiated by evaluating more banks from each sector.

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