

Measuring Performance of Private Sector Banks in India: A CAMELS Model Approach

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Abstract— In stimulation of capital formation, innovation and monetization in addition to facilitation of monetary policy is encouraged by banking sector. It is important to carefully evaluate and analyse the performance of banks to ensure a healthy financial system and an efficient economy. The present study attempts to evaluate the performance of private sector banks in India using CAMEL Rating Model for a five-year period from 2017-21. It is concluded from the study that INDUSIND is performing well in all six parameters of model whereas ICICI has poor performance compare to other banks. The study is limited to analysing five private banks of India, based on market capitalisation, it can be further expanded for other banks too.

Keywords— CAMEL Rating Model, Parameters, Private Sector Banking.

I. INTRODUCTION

During the pandemic period banking sector remained resilient globally and assisted by extraordinary policy initiatives by central banks and government. With the effect of pandemic, the adoption of digital technology leads to multiple opportunities in financial sector. While it also has certain challenges of tackling cybersecurity/ frauds to all stakeholders including regulators and supervisors. The ever-changing feature of nature, climate and World at large emerged as a predominant concern to all aspects of human life, including financial sector (RBI Report on Trend and Progress of Banking in India 2020-21). Under the name of Uniform Financial Institutions Rating System (UFIRS) the concept of CAMELS rating was initially adopted in 1979 by Federal Financial Institutions Examination Council (FFIEC). CAMELS was later modified to add a sixth component as sensitivity to market risk.

II. REVIEW OF LITERATURE

By reviewing different aspects of a bank based on a variety of information sources such as a financial statement, funding sources, macroeconomic data, budget and cash flow CAMEL rating ensures bank's healthy condition (Barr et. Al. 2002). For examiners and regulators CAMEL rating become a concise and indispensable tool. The study in Bangladesh conducted to examine the CAMEL model for regulation and supervision of Islamic banks of the central bank enabled the regulators and supervisors to supervise and inspect Islamic banks and Islamic financial institutions from an Islamic perspective to get a Shariah benchmark (Sarker 2005). The results of study conducted to analyse the performance of state bank group found that there is no statistically significant difference between the CAMEL ratios though the ranking of ratios is different for different banks in state bank group (Mishra and Aspal 2013). The failure of the bank could be predicted by CAMEL(S) ratios. Adequacy ratio, asset quality, management, earnings, liquidity and bank size are statistically significant in explaining bank failure (Nurazi and Evans 2005). The study conducted with objective to assess the performance of Indian private sector banks using CAMEL model and gave rating to top five and bottom five banks (Gupta and Kaur 2008). The CAMEL model was adopted to examine the overall performance of Andhra Pragathi Grameena bank and Saphthagiri Grameena Bank during reorganization period to discuss the financial performance of rural bank (Reddy and Prasad 2011). Siva and Natarajan (2011) has studied SBI group performance and reached to a conclusion that CAMEL model is helpful to banks to identify financial health. Risk management, NPA level, effective cost management and financial inclusion are the key players identified by the study conducted to analyse the impact of financial reforms on soundness of Indian banking through its impact on asset quality (Chaudhry and Singh 2012).

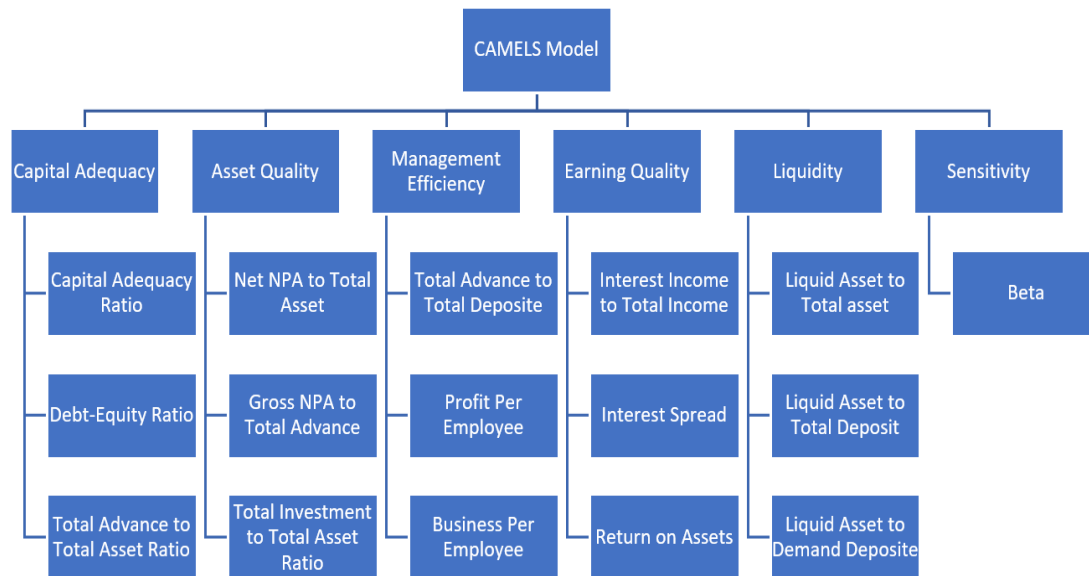
III. RESEARCH METHODOLOGY

The present study aims to analyse and evaluate the performance of top five Indian private sector banks on the basis of market capitalisation for the period of January to December 2021. The banks which secured first five positions as per the above given criteria are HDFC, Axis, ICICI, Kotak Mahindra and INDUSIND. The study is purely an analytical research design as it has relied basically on the secondary data of financial information of the selected banks for the period of financial year 2016-17 to 2020-21. The information from other secondary sources such as textbooks, research articles and research papers are used in this study. Data collected from the annual reports of the selected banks and from the website of stock exchange, only CAMEL Model have been used to examine the financial strength of the selected banks with regard to capital adequacy, asset quality, management efficiency, earning ability, liquidity and sensitivity. For the comparative analysis, the parameter has been interpreted through the rank, based

on average of ratios of each parameter of CAMELS. The sum of ranks was then taken to arrive at the group average of individual banks for each parameter of CAMEL. After computing the group averages, composite rankings for the banks can be found.

IV. DATA ANALYSIS

CAMELS is basically ratio-based model for evaluation and analysis of banks. To assess each parameter of CAMELS model, following are the ratios taken into consideration.



i) Capital Adequacy

Whether the bank has enough capital to absorb unexpected losses can be assessed by capital adequacy. To maintain depositors’ confidence and preventing the bank from going bankrupt (Reddy 2012). It is an indicator of financial health of the bank. As prescribed by Reserve Bank of India banks need to maintain a minimum Capital to risk-weighted Assets Ratio (CRAR) of 9 % with regard to credit risk, market risk and operational risk on an ongoing basis, as against 8 % prescribed in Basel documents.

Camels Rating (2016-2021): Capital Adequacy

Banks	Capital Adequacy Ratio		Debt-Equity Ratio		Advance To Asset		Composite	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
HDFC	16.76	4	1.15	1	0.65	1.5	2.17	1.5
ICICI	17.59	2	1.26	5	0.59	5	4	5
AXIS	16.80	3	1.22	3	0.62	3.5	3.17	4
KOTAK MAHINDRA	18.54	1	1.15	2	0.62	3.5	2.17	1.5
INDUSIND	15.38	5	1.25	4	0.64	1.5	3.5	3

On the basis of group averages of three sub-parameters of capital adequacy, HDFC and Kotak Mahindra Bank was at the top position with group average of 2.17. ICICI Bank of India stood at the last position with average 4 due to its poor performance in CAR and Advances to assets.

ii) Asset Quality

How much risky assets banks are having to its total asset is expressed by asset quality. In measuring financial strength, the quality of assets is an important parameter. “Most of the bank failures are caused by Poor asset quality” (Grier, 2007, cited in Dang, 2011)

Camels Rating (2016-2021): Asset Quality

Banks	Net NPA to Total Asset		Gross NPA to Total Advance		Total Investment to Total Asset		Composite	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
HDFC	0.06	5	0.01	1	0.24	1	2.3	1
ICICI	0.03	4	0.08	5	0.22	3	4	5
AXIS	0.01	3	0.06	4	0.21	4	3.67	4
KOTAK MAHINDRA	0.06	2	0.03	3	0.24	2	2.33	2
INDUSIND	0.007	1	0.01	2	0.21	5	2.67	3

On the basis of group averages of sub-parameters of assets quality, HDFC has the highest group average of 2.3, followed by Kotak Mahindra Bank (2.33) and INDUSIND Bank (2.67). ICICI (4) was positioned last in terms of assets quality

iii) Management Efficiency

Bank’s ability to determine, measure and control the risks of activities, and to ensure the safe, proper and effective operation in a way that suits the regulations is measured by its management efficiency. The quality of the management is linked to the bank’s success (Ghasempour & Salami, 2016).

Camels Rating (2016-2021): Management Efficiency

Banks	Total Advance to Total Deposit		Profit per Employee		Business per Employee		Composite	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
HDFC	0.86	4	0.22	3	16.22	1	2.67	3
ICICI	0.88	2.5	0.21	4	13.96	3	3.17	4
AXIS	0.88	2.5	0.60	1	15.95	2	1.83	1
KOTAK MAHINDRA	0.86	5	0.12	5	9.28	5	5	5
INDUSIND	0.93	1	0.29	2	12.48	4	2.3	2

On the basis of group averages of 3 sub-parameters of Management Quality, Axis Bank was at the top position with group average of 1.83, followed by INDUSIND (2.3) and Kotak Mahindra (5) were at the last position.

iv) Earning Quality

The sustainability and growth of future earnings, value of a banks lucrativeness and its competency to maintain quality and earn consistently is represented by the quality of earnings. Earnings and profitability are examined as against interest income and total income.

Camels Rating (2016-2021): Earning Quality

Banks	Interest Income to Total Income		Interest Spread		Return on Assets		Composite	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
HDFC	0.84	1	3.77	1	1.94	1	1	1
ICICI	0.79	4.5	2.88	4	0.97	4	4.16	4
AXIS	0.80	3	2.82	5	0.52	5	4.33	5
KOTAK MAHINDRA	0.83	2	3.74	2	1.77	2	2	2
INDUSIND	0.79	4.5	3.52	3	1.34	3	3.5	3

On the basis of group averages of three sub-parameters of Earnings Quality, HDFC Bank was at the top followed by Kotak Mahindra and INDUSIND. Axis bank was at the last position due to poor performance in ROA.

v) Liquidity

“The degree to which bank is capable of fulfilling its respective obligations is known as liquidity”. Banks makes money by mobilizing short-term deposits at lower interest rate, and lending or investing these funds in long-term at higher rates, so it is hazardous for banks mismatching their lending interest rate.

Camels Rating (2016-2021): Liquidity

Banks	Liquid Asset to Total Asset		Liquid Asset to Total Deposit		Liquid Asset to Demand Deposit		Composite	
	Avg.	Rank	Avg.	Rank	Avg.	Rank	Avg.	Rank
HDFC	0.17	1.5	0.23	2	1.47	3	2.17	2
ICICI	0.16	3.5	0.23	3	1.55	2	2.83	3
AXIS	0.15	5	0.22	4	1.28	4	4.33	4
KOTAK MAHINDRA	0.16	3.5	0.22	5	1.235	5	4.5	5
INDUSIND	0.17	1.5	0.24	1	1.72	1	1.17	1

On the basis of group averages of sub-parameters of Liquidity, INDUSIND was at the top followed by HDFC and ICICI bank. Kotak Mahindra was at the last position.

vi) Sensitivity

One of the tools used to evaluate a bank’s earnings exposure to interest rate movements is GAP analysis. The difference between risk-sensitive assets and risk-sensitive liabilities is known as GAP. When the amount of maturing assets exactly offset by the repricing liabilities the ratio will be equal to 1.0. Ratio less than one indicates that the bank is liability sensitive which means liability matures earlier than assets and ratio greater than one means banks assets mature earlier than liability in other word bank is asset sensitive (Boateng, K. 2019).

Camels Rating (2016-2021): Sensitivity

Particular	Average	Rank
HDFC	1.0726	2
ICICI	1.0453	3
AXIS	0.9907	5
KOTAK MAHINDRA	1.129	1
INDUSIND	1.043	4

On the basis of group averages sensitivity, Kotak Mahindra is asset sensitive secured first position with average of 1.129, followed by HDFC (1.0726) and Axis (0.9907) are at the last position during the given period.

Composite Ranking (Overall Performance)

Bank	C	A	M	E	L	S	Average	Rank
HDFC	2.17	2.3	2.67	1	2.17	1.0726	1.89	1
ICICI	4	4	3.17	4.16	2.83	1.0453	3.20	5
AXIS	3.17	3.67	1.83	4.33	4.33	0.9907	3.05	4
KOTAK MAHINDRA	2.17	2.33	5	2	4.5	1.129	2.85	3
INDUSIND	3.5	2.67	2.3	3.5	1.17	1.043	2.36	2

V. CONCLUSION

The changes in the working of banks due to pandemic leads to digitalization. To analyse the performance of the bank CAMELS Ratings are largely used. The study ended up with composite ranking based on each parameter of CAMEL. With the assessment of banks using CAMELS model, the study reached to the conclusion that HDFC bank with good capital adequacy which means it has enough capital to bear unexpected losses arising in the future, Asset Quality and Earning efficiency shows secured first position. Being on the Second rank, INDUSIND has better management efficiency and good liquidity position in cash and bank. While Kotak Mahindra bank having third position with good sensitivity and earning quality.

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Table 1.1 Capital Adequacy Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	18.79	18.52	17.11	14.82	14.55
ICICI	19.12	16.11	16.89	18.42	17.39
AXIS	19.12	17.53	15.84	16.57	14.95
KOTAK MAHINDRA	22.3	17.9	17.5	18.2	16.8
INDUSIND	17.38	15.04	14.16	15.03	15.31

Table 1.2 Debt-Equity Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	1.13	1.16	1.16	1.19	1.10
ICICI	1.14	1.24	1.27	1.32	1.31
AXIS	1.23	1.26	1.30	1.34	1.28
KOTAK MAHINDRA	1.11	1.15	1.16	1.15	1.19
INDUSIND	1.21	1.30	1.25	1.26	1.21

Table 1.3 Total Advance to Total Asset Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.65	0.65	0.66	0.62	0.64
ICICI	0.59	0.58	0.60	0.58	0.60
AXIS	0.63	0.62	0.62	0.63	0.62
KOTAK MAHINDRA	0.58	0.60	0.65	0.64	0.63
INDUSIND	0.58	0.67	0.67	0.65	0.63

Table 1.4 Net NPA to Total Asset Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.06028	0.05950	0.06435	0.05645	0.04678
ICICI	0.02578	0.02813	0.03341	0.02890	0.02195
AXIS	0.00702	0.01022	0.01407	0.02399	0.01434
KOTAK MAHINDRA	0.07054	0.04324	0.04947	0.06284	0.08006
INDUSIND	0.01189	0.01061	0.00611	0.00432	0.00344

Table 1.5 Gross NPA to Total Advances Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.01331	0.01273	0.01369	0.01307	0.01061
ICICI	0.05638	0.06417	0.07890	0.1055	0.09166
AXIS	0.04058	0.05290	0.06020	0.07789	0.05704
KOTAK MAHINDRA	0.03319	0.02287	0.02172	0.02253	0.02629
INDUSIND	0.02725	0.02488	0.02117	0.01176	0.00932

Table 1.6 Total Investment to Total Asset Ratio

Particular	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.2540	0.2560	0.2355	0.2276	0.2482
ICICI	0.2286	0.2271	0.2153	0.2308	0.2092
Axis	0.2270	0.1712	0.2184	0.2225	0.2141
Kotak Mahindra	0.3039	0.2083	0.2280	0.2452	0.2100
Indusind	0.1920	0.1953	0.2133	0.2259	0.2054

Table 1.7 Total Advance to Total Deposit Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.8485	0.8659	0.8876	0.8346	0.8616
ICICI	0.7868	0.8369	0.8984	0.9134	0.9473
AXIS	0.8818	0.8927	0.9021	0.9691	0.9003
KOTAK MAHINDRA	0.7986	0.8361	0.9106	0.8809	0.8644
INDUSIND	0.8297	1.023	0.9565	0.9559	0.8934

Table 1.8 Profit per Employee Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.26	0.24	0.23	0.20	0.16
ICICI	0.21	0.18	0.21	0.23	0.21
AXIS	0.86	0.24	0.76	0.47	0.66
KOTAK MAHINDRA	0.14	0.13	0.12	0.12	0.11
INDUSIND	0.96	0.14	0.11	0.14	0.11

Table 1.9 Business per Employee Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	19.30	17.49	16.87	15.08	12.36
ICICI	16.87	14.25	14.28	12.9	11.51
AXIS	17.13	17.27	16.53	14.84	14.00
KOTAK MAHINDRA	9.70	9.36	9.96	9.04	8.35
INDUSIND	15.22	13.00	13.46	11.54	9.16

Table 1.10 Interest Income to Total Income Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.83	0.83	0.85	0.84	0.85
ICICI	0.81	0.82	0.81	0.76	0.73
AXIS	0.81	0.80	0.81	0.81	0.79
KOTAK MAHINDRA	0.83	0.83	0.84	0.83	0.83
INDUSIND	0.81	0.80	0.80	0.78	0.77

Table 1.11 Interest Spread Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	3.71	3.67	3.87	3.76	3.83
ICICI	3.16	3.02	2.80	2.61	2.81
AXIS	2.93	2.75	2.71	2.69	3.00
KOTAK MAHINDRA	4.00	3.74	3.60	3.59	3.78
INDUSIND	3.72	3.92	3.18	3.38	3.39

Table 1.12 Return on Assets Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	1.97%	2.01%	1.90%	1.93%	1.88%
ICICI	1.42%	0.81%	0.39%	0.87%	1.35%
AXIS	0.70%	0.20%	0.63%	0.04%	0.65%
KOTAK MAHINDRA	1.85%	1.87%	1.69%	1.73%	1.73%
INDUSIND	1.03%	0.54%	1.39%	1.90%	1.86%

Table 1.13 Liquid Asset to Total Asset Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.22	0.18	0.16	0.15	0.16
ICICI	0.22	0.17	0.15	0.12	0.12
AXIS	0.20	0.17	0.15	0.11	0.11
KOTAK MAHINDRA	0.25	0.16	0.13	0.12	0.12
INDUSIND	0.26	0.17	0.14	0.13	0.15

Table 1.14 Liquid Asset to Total Deposit Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	0.29	0.24	0.22	0.20	0.21
ICICI	0.30	0.24	0.22	0.19	0.19
AXIS	0.28	0.24	0.22	0.18	0.17
KOTAK MAHINDRA	0.34	0.22	0.18	0.17	0.17
INDUSIND	0.36	0.25	0.20	0.19	0.22

Table 1.15 Liquid Asset to Demand Deposit Ratio

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	1.82	1.61	1.42	1.33	1.19
ICICI	2.03	1.78	1.49	1.18	1.29
AXIS	1.74	1.70	1.36	0.83	0.79
KOTAK MAHINDRA	1.81	1.32	1.05	1.01	0.97
INDUSIND	2.59	1.80	1.33	1.43	1.44

Table 1.16 Bank Rate Sensitive Assets to Rate Sensitive Liabilities

PARTICULAR	2020-21	2019-20	2018-19	2017-18	2016-17
HDFC	1.087	1.083	1.100	1.007	1.086
ICICI	1.076	1.048	1.022	1.03	1.05
AXIS	1.011	0.939	1.00	1.00	1.003
KOTAK MAHINDRA	1.171	1.125	1.126	1.124	1.099
INDUSIND	1.042	1.023	1.034	1.038	1.078