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Research Article

Assessment of Select Indian Commercial Banks Using Camel Model with Social Banking

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ABSTRACT

Banking stability has a direct impact on the real output and employability which revolves around the financial stability of an economy ***(Rajput and Goyal, 2019).*** *Banking is a highly sensitive sector. To survive the intense competition, there is a need for the adoption of the latest technology, continuous innovation in the products, and focus on investors' interests, etc* ***(Khuntia & Pradhan 2019)****. It is obligatory to undertake periodic monitoring, supervision, and regulation of commercial banks to make sure that they are financially healthy and sound* ***(Desta, 2016)****. The CAMEL model was chosen for banks' performance evaluation. Performances are also measured in terms of Social Banking. 4 Banks, SBI and BoB from the Public sector and ICICI and HDFC in Private Sector, have been selected for the study. In the overall performance under the CAMEL Model, HDFC Bank is the best while in the Social Banking aspect the performances of SBI and BoB are appreciable.*

Keywords: *CAMEL Model, Social Banking, Public and Private Sector Banks.*

Introduction:

Financial institutions such as banks play a prominent role in boosting the economy **(Murthy, 2020).** When a country has a strong banking sector, the growth of an economy is certain. The genuine development of the banking sector's actions promotes economic activities and its growth by encouraging savings and mobilizing public savings. Thus, when the banking sector performs well, the whole economy will succeed. (**AL-Najjar and Assous, 2021**). Since the banking sector plays an important role in an economy, if there is a problem in this sector, there is a risk that this problem may spread to other sectors in that economy. **(Yuksel, Dincer and Hacioglu, 2015)**. A modern economy cannot be imagined without the services of a bank. The banking business has been shaped as a global business since the functions of banking business have reached beyond the border of a country **(Islam and Rahaman 2018).** After the financial inclusion scheme of the Government of India (2016), the banking sector could reach every corner including rural areas and unbanked areas **(Shelly and Singhal 2020)**. CAMEL rating model was first applied by the USA in 1979 and it is currently used by three watchdogs i.e., The Federal Reserve System, the Office of Comptroller of Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC). In the financial crisis of 2008, the US government used the CAMEL rating system and found it to be helpful as an efficient tool for coping with the crisis **(Dang 2011).**

Review of literature:

In his study CAMEL-VS Model, Jindal (2018) uncovered that social banking pressurized the public sector bank and on the other hand it acts to cushioned private banks. Financial decisions involving more risk decrease the value of a firm, and the decisions which increase the profitability, increase the value of the firm. A study based on BSC model by (Khuntia & Pradhan (2019) mentioned that banks that are performing great financially can't be concluded as the best banks. The concept of intellectual capital or value creation by knowledge is not being valued by knowledge-driven industries in India (Khan, 2017). Public sector banks, over the years, are steadily losing their market to private and foreign banks, and NBFCs **(**Shelly and Singhal, 2020). Private Banks are

better defenders than Public Banks, which have attained the least position in all parameters of the CAMEL model (Jha & Natarajan, 2021). The size of equity is considered to have the most powerful and positive impact on the performance of Vietnamese commercial banks (Nguyen *et al.*, 2020).
Dang (2011) revealed that the CAMEL rating system is a useful supervisory tool. A sixth component relating to Sensitivity to market risk has been added to the CAMEL rating to make the rating system more risk-focused (Gupta, 2014). CAMELS rating model is a model to analyze the strength and weaknesses of banks and CAMELS rating can be an efficient tool to manage and control (Rostami, 2015). After the global financial crisis in 2001, the financial data showed that the efficiency of the banking sector in the financial markets has increased in parallel with the economic changes. This increase depicts the expansion of banks in the financial sector day after day (Fleifal, 2020). Murthy (2020) evaluated the in-depth performance of SBI pre-merger from FY 2011-12 to 2015-16 using CAMEL and concluded that merger could put HR in big trouble to maintain the integration of responsibility, roles, salary, pension structure, etc. In measuring the efficacy of finance flow through DCCBs in Odisha by using the CAMEL model, Rout *et al.* (2019) concluded that the efficacy of finance flow is not 100% satisfactory, it is moderate. Riyani (2020) observed that Foreign Banks outperformed public sector and private sector banks concerning the CAMEL framework. Saminathan & Madhankumar (2020) check the financial performance of selected MFIs in India through CAMEL Model Approach. Shankar & Roopa (2020) studied 10 public banks which were merged into 4 big banks using CAMELS Rating and observed that GOI is trying to improve the governance of these banks though, they had challenges in profitability and liquidity. Desta (2016) analyzed the financial performance of seven African banks and concluded that almost all banks exhibit supervisory concern when rated in terms of asset quality, management quality, and liquidity Lad & Ghorpade (2022) analyzing with CAMEL Model found that overall, Bank of Maharashtra has performed best amongst the selected 18 public sector banks. Investigating Saudi Banks using CAMEL Model, AL-Najjar and Assous, (2021) observed that capital measured by CAR, management as an efficiency ratio, earning with ROE proxy, and liquidity as loans to deposits have positive effects on banks' total deposits. Meanwhile, earnings as net interest income to net revenue and liquidity calculated by CASA had a negative effect on banks' total deposits. Finally, asset quality ratios and the rest of the ratios have no significant effect on banks' total deposits.

Research Gap

The previous Literature Review lacks a comparative analysis of the selected banks (SBI, BOB, ICICI and HDFC) from 2012 to 2021 based on the CAMEL model. It also lacks any social edges to compare with the CAMEL model. Simply being involved in financial activities is not enough, banks are operating in the social environment too. It needs them to create more specialized financial services to satisfy changing needs of the customers while reaching more areas and more customers. Therefore, the researchers have chosen this particular study.

Objectives:

i. To analyze the financial performance of the selected banks based on the CAMEL model.
ii. To compare the results of the CAMEL Model with the Social Banking Ratio.

Hypotheses:

i. H0: Performances among the selected banks have no significant difference based on the CAMEL Model.
H1: Performances among the selected banks have a significant difference based on the CAMEL Model.
ii. H0: Performances among the selected banks have no significant difference based on Social Banking Ratios.
H1: Performances among the selected banks have a significant difference based on Social Banking Ratios.

Materials and Methodology:

In this present study, a systematic approach has been employed for the collection of data. This includes an exhaustive procurement of secondary data sources such as annual reports, publication materials from the Reserve Bank of India, and other databases that are readily available. The study's analysis is confined to a period of ten years, explicitly from 2012 through 2021. A key analytical tool utilized in this research is the CAMEL Model, which has been applied to analyze the collected data for assessing the stability and performance of banking institutions. Additionally, Social Banking Ratios have been utilized for comparative analysis to gauge the societal impact of banking activities. The data thus collected are meticulously analyzed using the MS-EXCEL data analysis package, capitalizing on its diverse functions to efficiently interpret and represent complex datasets.

Table- 1: Camel Parameters

Capital Adequacy	1.	Capital Adequacy Ratio
	2.	Tier I %
	3.	Tier II %
	4.	Total Advanced to Total Assets Ratio
Assets Quality	1.	Net NPA/Net Advances Ratio
	2.	Gross NPA/Total Advances Ratio

	3.	Total Investment to Total Assets
	4.	Gross NPA to Total Assets
Management Capability	1.	Business Per Employee
	2.	Profit Per Employee
	3.	Return on Equity
	4.	Return on Assets Ratio
Earning Ability	1.	Net Profit to Total Assets Ratio
	2.	Net profit margin
	3.	Dividend Payout ratio
	4.	Net Profit to Total Income
Liquidity	1.	Cash to Deposit Ratio
	2.	Govt. Securities to Total Assets%
	3.	Total Investment to Total Deposits

Table-2: Social Banking parameters

Social Banking	1. Rural and Semi-Urban Branches to Total Branches Ratio
	2. Priority Sector Advances to Total Advances Ratio

Data Analysis and Interpretation:

Capital Adequacy

Under Capital adequacy, four sub-parameters have been analyzed and interpreted. Capital adequacy is assessed by Capital Adequacy Ratio (CAR), Tier I, Tier II, and Total Advances to Total Assets Ratio. As per RBI norms, Indian scheduled commercial banks are required to maintain a CAR of 9% while Indian public sector banks are emphasized to maintain a CAR of 12%. Higher CAR shows a bank's higher ability to absorb the losses arising out of financial and economic instability.

CAR= {(Tier I Capital + Tier II Capital)/ Risk-Weighted Assets} *100

Table- 3: Capital Adequacy and Its Sub-Parameters:

Year	Capital Adequacy Ratio				Tier I %			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	13.86	14.67	18.5	16.52	9.79	10.83	12.68	11.60
2013	12.92	13.30	18.74	16.80	9.49	10.13	-12.8	11.08
2014	12.44	12.28	17.70	16.07	9.72	9.28	12.78	11.77
2015	12	12.60	17.02	16.79	9.6	9.87	12.78	13.66
2016	13.12	13.17	16.64	15.53	9.92	10.79	13.09	13.22
2017	13.11	12.24	17.39	14.55	10.35	9.93	14.36	12.79
2018	12.6	12.13	18.42	14.82	10.36	10.46	15.92	13.25
2019	12.72	13.42	16.89	17.11	10.65	11.55	15.09	15.78
2020	13.06	13.3	16.11	18.52	11	10.71	14.72	17.23
2021	13.74	14.99	19.12	18.79	11.44	12.65	18.06	17.56
Mean	**12.96**	**13.21**	**17.65**	**16.55**	**10.23**	**10.62**	**14.23**	**13.79**
SD	**0.56**	**0.98**	**1.01**	**1.40**	**0.65**	**0.95**	**1.78**	**2.31**
Rank	**4**	**3**	**1**	**2**	**4**	**3**	**1**	**2**
ANOVA F-Value	52.64278079				17.70456888			
F- Critical Value	2.866265551				2.866265551			
p-value	3.03997E-13				3.15213E-07			
Null Hypothesis	**Rejected**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Table- 4: Capital Adequacy and Its Sub-Parameters:

Year	Total Advances / Total Assets Ratio (TATAR)				Tier II %			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	64.96	64.24	53.57	57.83	4.07	3.84	5.84	4.92
2013	66.76	59.98	54.07	59.88	3.43	3.17	5.94	5.72
2014	67.48	60.20	56.96	61.64	2.72	3.00	4.92	4.30
2015	63.48	59.87	59.98	61.90	2.4	2.73	4.24	3.13

2016	62.08	57.16	60.40	65.54	3.2	2.38	3.55	2.31
2017	58.06	55.16	60.15	64.20	2.76	2.31	3.03	1.76
2018	56.01	59.37	58.28	61.88	2.24	1.67	2.5	1.57
2019	59.38	60.03	60.83	65.84	2.07	1.87	1.8	1.33
2020	58.85	59.60	58.75	64.93	2.06	2.59	1.39	1.29
2021	54.02	61.13	59.63	64.85	2.3	2.32	1.06	1.23
Mean	61.11	59.67	58.26	62.85	2.73	2.59	3.43	2.76
SD	4.57	2.36	2.60	2.66	0.66	0.64	1.78	1.67
Rank	2	3	4	1	3	4	1	2
ANOVA F-Value	3.830515039				0.831763786			
F- Critical Value	2.866265551				2.866265551			
P-value	0.01767879				0.4852117			
Null Hypothesis	Rejected				Accepted			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Inferences: Under sub-parameter CAR, ICICI bank ranked 1st with an average CAR of (17.65) and SD of (1.01) followed by HDFC bank got 2nd ranked (16.55) with an SD of (1.40). As for Public sector banks with more Regulations, BOB ranked 3rd (13.21) and SBI ranked 4th (12.96). For CAR, P-values = 3.04E-13 < 0.05; for Tier I, P-values = 3.15E-07 < 0.05; and for TATAR, P-values = 0.018 < 0.05. Therefore, in three variables, ANOVA shows that there is not enough evidence to prove that CAR, Tier I, and TATAR of four banks are not significant since the P-value of CAR is less than 0.05. The null hypothesis failed to reject only Tier II, since P-value = 0.49 > 0.05.

Asset quality

Table- 5: Asset Quality and Its Sub-Parameters

	Net NPAs to Net Advances % (NNPANA)				**Total Investment to Total Assets (TITA)**			
Year	**SBI**	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	1.82	0.54	0.73	0.18	23.38	18.60	33.69	28.85
2013	2.1	1.28	0.77	0.20	22.4	22.19	31.93	27.88
2014	2.57	1.52	0.97	0.27	22.25	17.61	29.77	24.60
2015	2.12	1.89	1.61	0.25	23.52	17.11	28.88	25.68
2016	3.81	5.06	2.98	0.28	24.42	17.94	22.26	23.12
2017	3.71	4.72	5.43	0.33	28.31	18.66	20.93	24.83
2018	5.73	5.49	5.43	0.40	30.71	22.66	23.09	22.76
2019	3.01	3.33	2.29	0.39	26.27	23.34	21.54	23.55
2020	2.23	3.13	1.54	0.36	26.50	23.72	22.72	25.60
2021	1.50	3.09	1.24	0.40	29.81	22.61	22.86	25.40
Mean	**2.86**	**3.01**	**2.30**	**0.31**	**25.76**	**20.44**	**25.77**	**25.23**
SD	**1.27**	**1.70**	**1.79**	**0.08**	**3.06**	**2.66**	**4.77**	**1.95**
Rank	**3**	**4**	**2**	**1**	**2**	**4**	**1**	**3**
ANOVA F-Value	8.0626953				6.195443158			
F- Critical Value	2.866265551				2.866265551			
p-value	0.000308608				0.00166591			
Null Hypothesis	**Rejected**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Table- 6: Asset Quality and Its Sub-Parameters

Year	**Gross NPA to total advance %**				**Gross NPA to Total Assets**			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	4.57	1.55	3.77	1.03	2.97	1.00	2.02	0.59
2013	4.9	2.43	3.32	0.99	3.3	1.46	1.80	0.59
2014	5.09	2.99	3.12	1.02	3.44	1.80	1.77	0.63
2015	4.36	3.80	3.93	0.99	2.77	2.27	2.36	0.61
2016	6.71	10.56	6.14	0.95	4.16	6.04	3.71	0.62
2017	11.32	11.15	9.17	1.06	6.57	6.15	5.51	0.68

2018	11.55	13.21	10.55	1.31	6.47	7.84	6.15	0.81
2019	7.90	10.29	7.89	1.37	4.69	6.18	4.80	0.90
2020	6.41	10.05	6.42	1.27	3.77	5.99	3.77	0.83
2021	5.16	9.44	5.64	1.33	2.79	5.77	3.36	0.86
Mean	**6.80**	**7.55**	**5.99**	**1.13**	**4.09**	**4.45**	**3.53**	**0.71**
SD	2.68	4.33	2.57	0.17	1.42	2.51	1.57	0.12
Rank	3	4	2	1	3	4	2	1
ANOVA F-Value	10.3123				10.68413974			
F- Critical Value	2.866266				2.866265551			
p-value	**4.84E-05**				**3.63E-05**			
Null Hypothesis	**Rejected**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Inferences: Under the Asset Quality parameter, four sub-parameters have been taken into consideration and analyzed, and interpreted. (NNPANA) Net NPAs to Net Advances indicate the effective and efficient management of lending loans. Lower the ratio of NNPANA, higher the effective and efficient management of Net Advances. So is for all NPAs. In NNPANA, Gross NPAs to Total Advances, and Gross NPAs to Total Assets, HDFC bank ranked 1st with a mean score of (0.31), (1.13), and (0.71) respectively followed by ICICI ranked 2nd, SBI ranked 3rd, and BOB ranked 4th among four banks with a mean score of (3.01), (7.55) and (4.45) respectively. Under Total Investment to Total Assets (TITA), BoB had the lowest ratio with (20.44) on average and an SD of (2.66), and ICICI bank scored the highest ratio with (25.77) on average and an SD of (4.77). In NNPANA, P-value = 0.0003 < 0.05. In TITA, P-value = 0.0016 < 0.05. In Gross NPAs to Total Advances, P-value = 4.84E-05 < 0.05. And for Gross NPAs to Total Assets P-value = 3.63E-05 < 0.05. Therefore, ANOVA shows that there is not enough evidence to prove that all the variables of Asset Quality parameters in four banks are not significant since the p-value is less than 0.05.

Management Efficiency:

Table- 7: Management Efficiency and Its Sub-Parameters

Year	**Profit per Employee (PPE)**				**Business per Employee (BPE)**			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	5.31	11.87	11	8.12	7.98	14.66	7.08	6.54
2013	6.5	10.39	14	10	9.44	16.89	7.35	7.5
2014	4.85	9.87	14	12	10.64	18.65	7.47	8.9
2015	6.02	6.88	16	10	12.34	18.89	8.32	10.1
2016	4.70	-10.37	14	15	14.11	16.80	9.43	11.39
2017	5.11	2.64	12	16	16.24	17.49	9.89	12.36
2018	-2.43	-4.37	8	20	16.70	17.66	10.78	15.08
2019	0.33	0.78	4	23	18.77	18.88	12.22	16.87
2020	5.79	0.65	8	24	21.05	18.77	12.75	17.49
2021	8.28	1	17	26	23.73	19.57	14.92	19.3
Mean	**4.44**	**2.93**	**11.80**	**16.41**	**15.10**	**17.83**	**10.02**	**12.55**
SD	3.14	7.02	4.08	6.48	5.15	1.45	2.63	4.44
Rank	**3**	**4**	**2**	**1**	**2**	**1**	**4**	**3**
ANOVA F-Value	13.62278849				8.137371135			
F- Critical Value	2.866265551				2.866265551			
p-value	**4.28085E-06**				**0.000289347**			
Null Hypothesis	**Rejected**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Table- 8: Management Efficiency and Its Sub-Parameters

Year	**Return on Assets Ratio (ROA)**				**Return on Equity Ratio (ROE)**			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	0.88	1.12	1.5	1.77	14.36	19.04	11.1	19
2013	1.0	0.82	1.7	1.90	15.9	14.59	13.1	20
2014	0.65	0.69	1.78	2.00	10.49	13.00	14.02	21

2015	0.68	0.48	1.86	2.02	11.17	9.21	14.55	19
2016	0.46	-0.80	1.49	1.92	7.74	-17.64	11.43	18
2017	0.41	0.20	1.35	1.88	7.25	4.53	10.33	18
2018	-0.19	-0.34	0.87	1.93	-3.78	-7.64	6.61	18
2019	0.02	0.06	0.39	1.90	0.48	1.18	3	16
2020	0.38	0.05	0.81	2.01	7.74	1.23	7	16
2021	0.48	0.07	1.42	1.97	9.94	1.50	12.56	16.61
Mean	**0.47**	**0.24**	**1.32**	**1.93**	**8.13**	**3.90**	**10.37**	**18.16**
SD	**0.36**	**0.57**	**0.48**	**0.08**	**5.96**	**10.92**	**3.72**	**1.66**
Rank	**3**	**4**	**2**	**1**	**3**	**4**	**2**	**1**
ANOVA F-Value	35.75954195				8.360649764			
F- Critical Value	2.866265551				2.866265551			
p-value	6.79372E-11				0.000238944			
Null Hypothesis	**Rejected**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Inferences: Under the Management efficiency parameter four ratios have been taken into consideration as sub-parameters. Under Profit per Employee (PPE), Return on Assets (ROA), and Return on Equity (ROE). HDFC bank shows the highest average PPE of (16.41), ROA of (1.93), and ROE of (18.16). Followed by ICICI bank 2nd rank, SBI 3rd rank, and BoB 4th rank in aforesaid three sub parameters. BOB has the lowest mean score of PPE (2.93), ROA (0.24,) and, ROE (3.9). Business per Employee (BPE) shows the productivity of the bank. Higher the BPE, the higher productivity. BOB shows the highest mean score of (17.83) and a standard deviation of (1.45). ICICI bank shows the lowest mean score of (10.02) and a standard deviation of (2.63). For PPE, P-value = 4.28E-06 < 0.05; Under BPE, P-value = 0.0002 < 0.05; Under ROA, P-value = 6.79E-11 < 0.05; and Under ROE, P-value = 0.0002 < 0.05; in the Management Efficiency parameter. Therefore, there is not enough evidence to prove that the Management efficiency parameter of four banks is not significant since P-value is less than 0.05.

Earning Capacity:

Table- 9: Earning Capacity and Its Sub-Parameters

Year	Dividend Payout Ratio (DPR)				Net Profit to Total Income (NPTI)			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	20.06	16.22	32.45	22.7	9.69	15.13	15.75	15.35
2013	20.1	23.65	30.58	22.77	10.4	11.54	17.19	16.05
2014	20.56	23.86	29.89	22.68	7.03	10.46	17.97	17.28
2015	20.21	25.06	28.75	23.62	7.49	7.17	18.24	17.78
2016	20.28	0.00	33.03	23.51	5.19	-11.00	14.29	17.33
2017	20.11	24.06	16.39	23.26	4.97	2.83	13.31	17.83
2018	0.00	0	14.34	23.26	-2.47	-4.83	26.55	18.32
2019	0.00	0	19.34	23.36	0.31	0.77	4.32	18.08
2020	0.00	0	0.00	0	4.79	0.63	8.69	19.02
2021	17.49	0	8.45	11.54	6.61	1.00	16.51	21.30
Mean	**13.88**	**11.29**	**21.32**	**19.67**	**5.40**	**3.37**	**15.28**	**17.83**
SD	**9.62**	**12.13**	**11.41**	**7.82**	**3.95**	**7.91**	**5.93**	**1.62**
Rank	**3**	**4**	**1**	**2**	**3**	**4**	**2**	**1**
ANOVA F-Value	2.082357772				17.63157621			
F- Critical Value	2.866265551				2.866265551			
p-value	0.119731724				3.29235E-07			
Null Hypothesis	**Accepted**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Table- 10: Earning Capacity and Its Sub-Parameters

Year	Net Interest Margin (NIM)				Net Profit/Total Assets (NPTA)			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	3.85	2.97	2.73	4.2	0.88	1.12	1.36	1.529
2013	3.34	2.66	3.11	4.5	0.9	0.82	1.55	1.680

2014	3.17	2.36	3.33	4.4	0.61	0.69	1.65	1.725
2015	3.16	2.31	3.48	4.4	0.64	0.48	1.73	1.730
2016	2.96	2.05	3.49	4.3	0.42	-0.80	1.35	1.735
2017	2.84	2.19	3.25	4.3	0.39	0.20	1.27	1.684
2018	2.50	2.43	3.23	4.3	-0.19	-0.34	0.77	1.644
2019	2.78	2.72	3.42	4.3	0.02	0.06	0.35	1.694
2020	2.97	2.73	3.73	4.3	0.37	0.05	0.72	1.716
2021	3.26	2.71	3.69	4.1	0.45	0.07	1.32	1.781
Mean	**3.08**	**2.51**	**3.35**	**4.31**	**0.45**	**0.23**	**1.21**	**1.69**
SD	**0.37**	**0.29**	**0.29**	**0.11**	**0.34**	**0.57**	**0.45**	**0.07**
Rank	**3**	**4**	**2**	**1**	**3**	**4**	**2**	**1**
ANOVA F-Value	71.2170336				28.38157825			
F- Critical Value	2.866265551				2.866265551			
p-value	3.30002E-15				1.35245E-09			
Null Hypothesis	**Rejected**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Inference: Under the Earning Capacity parameter four ratios have been analyzed and interpreted for four selected banks. Under the Dividend payout ratio (DPR), ICICI bank shows the highest mean score of (21.32) and a standard deviation of (11.41) however BOB shows the lowest mean score of (11.29) and a standard deviation of (12.13). Under Net Profit to Total Income (NPTI**)** HDFC bank shows the highest mean score of (17.83) and a standard deviation of (1.62) however BOB shows the lowest mean score of (3.37) and a standard deviation of (7.91). Under Net Interest Margin (NIM) sub-parameter HDFC shows the highest mean score of (4.31) and a standard deviation of (0.11) however BOB shows the lowest mean score of (2.51) and a standard deviation of (0.29). Under Net profit to Total Assets (NPTA), HDFC shows the highest mean score of (1.69) and a standard deviation of (0.07) however BOB shows the lowest mean score of (0.23) and a standard deviation of (0.57). For DPR, P-values = 0.11 > 0.05; for NPTI, P-values = 3.29E-07 < 0.05; and for NIM, P-values = 3.30E-15 < 0.05; for NPTA, P-values = 1.35E-09 < 0.05. Therefore, in the three variables, ANOVA shows that there is not enough evidence to prove that the NPTI, NIM, and NPTA of four banks are not significant since the P-value of are less than 0.05. The null hypothesis failed to reject only DPR, since p-value = 0.11 > 0.05.

Liquidity:

Table- 11: Liquidity And Its Sub-Parameters

Year	Cash to deposit Ratio (CDR) %				Govt. Securities to Total Assets% (GSTA)				Total Investment to Total Deposits (TITD)			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	5.18	5.63	8.01	6.08	19.30	15.70	18.45	22.56	29.91	21.62	62.45	39.51
2013	5.5	2.84	6.51	4.94	17.4	18.85	17.33	21.21	29.2	25.62	58.57	37.68
2014	6.09	3.27	6.57	6.90	17.38	14.67	16.13	19.25	28.60	20.41	53.33	32.93
2015	7.35	3.64	7.10	6.10	18.72	13.83	16.62	20.39	30.55	19.81	51.60	33.64
2016	7.49	3.78	6.43	5.50	19.92	15.44	15.65	17.73	33.26	20.98	38.06	29.99
2017	6.26	3.79	6.47	5.89	21.58	16.43	14.58	18.80	37.46	21.54	32.96	33.32
2018	5.56	3.84	5.90	13.27	24.86	20.14	16.10	17.74	39.20	27.60	36.19	30.71
2019	6.08	4.17	5.80	5.07	21.01	20.83	15.55	19.31	33.22	28.54	31.82	31.75
2020	5.14	3.45	4.58	6.29	20.76	21.43	17.41	21.16	32.30	29.03	32.37	34.15
2021	5.79	4.02	4.94	7.29	23.67	20.02	18.59	20.14	36.72	27.01	30.16	33.24
Mean	**6.04**	**3.84**	**6.23**	**6.73**	**20.46**	**17.73**	**16.64**	**19.83**	**33.04**	**24.22**	**42.75**	**33.69**

SD	**0.82**	**0.73**	**0.99**	**2.41**	**2.47**	**2.81**	**1.30**	**1.56**	**3.69**	**3.67**	**12.36**	**2.93**
Rank	**3**	**4**	**2**	**1**	**1**	**3**	**4**	**2**	**3**	**4**	**1**	**2**
ANOVA F-Value	8.177215363				7.008163279				12.16589408			
F-Critical Value	2.866265551				2.866265551				2.866265551			
p-value	0.000279592				0.00078536				1.19793E-05			
Null Hypothesis	**Rejected**				**Rejected**				**Rejected**			

Sources: Annual Reports and statistical tables of the banks from 2012 to 2021.

Inferences: Under the Liquidity Parameter, three sub-parameters were taken into consideration and analyzed and interpreted. As per Table 5, HDFC shows the highest Credit deposits Ratio (CDR) with an average of (6.73) and a standard deviation of (2.41) however BOB shows the lowest average of (3.84) and a standard deviation of (0.73). Under the sub-parameter Government Securities to Total Asset Ratio (GSTA), SBI ranked 1st with an average ratio of (20.46) however ICICI shows the lowest mean score of (16.64) and a standard deviation of (1.30). ICICI bank shows the maximum Total Investment to Total Deposit Ratio (TITD) ratio with an average of (42.75) and a standard deviation of (12.36) however BOB shows the minimum TITD ratio with an average of (24.22) and a standard deviation of (3.67). Credit deposits Ratio (CDR), P-value = 0.00028 < 0.05; Government Securities to Total Asset Ratio (GSTA), P-value = 0.00079 < 0.05; Total Investment to Total Deposit Ratio (TITD) P-value = 1.197E-05 < 0.05; Therefore, there is not enough evidence to claim that Liquidity among four select bank is not significant.

Social Banking:

Table- 12: Social Banking and Its Sub-Parameters:

Year	**Rural and Semi-Urban Branches to Total Branches**				**Priority Sector Advances to Total Advances Ratio**			
	SBI	**BOB**	**ICICI**	**HDFC**	**SBI**	**BOB**	**ICICI**	**HDFC**
2012	85.87	55.34	40.77	40.21	28.84	23.85	23.37	32.68
2013	86.9	56.83	43.68	47.66	25.3	24.38	20.60	32.01
2014	87.32	58.84	49.17	52.59	23.21	23.61	19.06	29.58
2015	88.26	59.54	49.44	52.46	7.65	24.14	19.67	29.03
2016	88.11	59.57	49.51	52.05	9.87	29.48	21.24	30.72
2017	87.57	59.67	49.98	52.33	21.72	33.31	22.95	29.31
2018	63.95	59.78	50.01	52.44	23.17	35.01	18.14	26.26
2019	64.73	59.25	50.11	51.70	23.82	31.38	28.92	26.53
2020	64.75	55.42	49.94	50.44	22.65	32.80	29.58	25.58
2021	64.89	58.32	50.30	49.86	23.05	35.29	27.69	22.73
Mean	**78.23**	**58.25**	**48.29**	**50.17**	**20.93**	**29.32**	**23.12**	**28.44**
SD	**11.77**	**1.75**	**3.29**	**3.84**	**6.72**	**4.88**	**4.21**	**3.12**
Rank	**1**	**2**	**4**	**3**	**4**	**1**	**3**	**2**
ANOVA F-Value	44.87246538				6.892385125			
F- Critical Value	2.866265551				2.866265551			
p value	3.00307E-12				0.00087263			
Null Hypothesis	**Rejected**				**Rejected**			

Sources: Annual Reports and RBI periodical tables of the banks from 2012 to 2021.

Inferences: Under the Social Banking parameter, two sub-parameters were analyzed and interpreted. Under Rural and Semi-Urban Branches to Total Branches (RSURTB), SBI shows the highest number of branches with an average of (78.23) and a standard deviation of (11.77) followed by BOB with a mean score of (58.25) and a deviation of (1.75), HDFC bank 3rd with (50.17) average branches. ICICI bank shows the lowest number of branches with an average of (48.29). Under Priority Sector Advances to Total Advances Ratio (PSATA), BOB shows the highest priority sector advances with an average of (29.32) and a standard deviation of (4.88) followed by HDFC bank 2nd with an average of (28.44), ICICI bank ranked 3rd and SBI ranked 4th. ANOVA reveals the p-value of the two sub-parameters i.e., Rural and Semi-Urban Branches to Total Branches (RSURTB), P-value = 3.003E-12 < 0.05; and Priority Sector Advances to Total Advances Ratio (PSATA) P-

value = 0.0008< 0.05; Therefore, there is not enough evidence to prove that there is not a significant difference among the selected banks based on Social Banking.

Findings:

Table 13: Parameters of CAMEL and Social Banking Rating

List of Parameters	Selected Sub-Parameters	1st Rank	4th Rank
Capital Adequacy	Capital Adequacy Ratio	ICICI	SBI
	Tier I %	ICICI	SBI
	Tier II %	No significant difference	
	Total Advanced to Total Assets Ratio	HDFC	ICICI
Asset Quality	Net NPAs to Net Advances	HDFC	BOB
	Total Investment to Total Assets	ICICI	BOB
	Gross NPA to Total Advance %	HDFC	BOB
	Gross NPA to Total Assets	HDFC	BOB
Management Efficiency	Profit per Employee (PPE)	HDFC	BOB
	Business per Employee (BPE)	BOB	ICICI
	Return on Assets Ratio (ROA)	HDFC	BOB
	Return on Equity Ratio (ROE)	HDFC	BOB
Earning Capacity	Dividend Payout Ratio (DPR)	No significant difference	
	Net Profit to Total Income (NPTI)	HDFC	BOB
	Net interest margin % (NIM)	HDFC	BOB
	Net Profit to Total Assets	HDFC	BOB
Liquidity	Cash to deposit Ratio (CDR	HDFC	BOB
	Govt. Securities to Total Assets%	SBI	ICICI
	Total Investment to Total Deposits	ICICI	BOB
Social Banking	Rural and Semi-Urban Branches to Total Branches	SBI	ICICI
	Priority Sector Advances to Total Advances Ratio	BOB	SBI

Sources: Analyzed and Compiled by the Researchers.

According to Table 13 overall performance of HDFC bank is very excellent and secured most of the 1st Rank. However, BOB is very weak in its overall ranking. BOB being a public sector banking company could attain the RBI's norm of a 12% mandatory Capital Adequacy Ratio (CAR). NPAs of BOB is very high among the other three banks which need urgent attention as a result revenue-generating item of BOB is thereby affected and it is performing very poorly compared to the other three selected banks. Poor rating on Profit per employee (PPE), Return on Asset (ROA), Return on Equity (ROE), Net profit margin (NIM), Net Profit, Credit Deposit Ratio (CDR), and Total Investment to Total Deposits are the items of the reason behind BOB poor performance which need immediate attention. Priority Sector Advances is the highest provided by BOB which does not offer much higher returns. While comparing Public Sector banks with Private Sector banks, Private banks i.e., HDFC bank and ICICI bank are ahead in revenue-generating as indicators like Net Profit, NIM, ROA, and ROE are higher than the public sector banks. The reason is that Private Bank's NPAs were quite consistently kept low which means Private Banks could recover the advances much faster. Also, for the survival of cut-throat competition among the banks, Private banks are required to be profit-oriented and be ahead. Although HDFC gets 1st rank in CAMEL rating, in Social Banking HDFC is not up to the mark, which indicates HDFC being a private bank does not focus more on societal banking needs. In social banking public banks are focusing a lot to cover up the unbanked areas and give importance to priority sector lending.

Conclusion:

The study shows that from 2012 to 2021 there is not enough evidence to prove that there is not a significant difference among the selected banks based on CAMEL rating and Social Banking. As per CAMEL rating, HDFC bank's performance is very excellent, and private banks are performing better than public sector banks. But on Social Banking ratio, public banks perform better than private banks. Poorly performing banks are necessitated to keep in continuous check their weak sub-parameters and related banking activities. RBI may instruct the private sector banks to perform certain social banking also.

Implication of the Study:

The findings of the study can be considered as important information in taking business decisions by the management. Differences in the CAMEL parameters and Social Banking among Public and Private sector banks can be taken as an eye-opening matter for policymakers. Investors, rather than blind investing and taking tips, could use the findings of the present study. From an academic point of view, it can be an addition to the stock of knowledge in the field of financial performance analysis, and the need for Social Banking aspect while evaluating financial institutions can be seen as a new approach. e.g., NBFCs co-operative banks, etc. of India as well as while analyzing different types of banks of other nations.

References:

1. Abbas, A. A., Obayes, A. K., & Abdulkadhim, A. Q. (2019). Use of CAMELS Standard in the Assessment of Iraqi Commercial Banks. International Journal of Multicultural and Multireligious Understanding, 6(3), 24-48. doi:http://dx.doi.org/10.18415/ijmmu.v6i3.812
2. Afroj, F. (2022). Financial strength of banking sector in Bangladesh: a CAMEL framework analysis. Asian Journal of Economics and Banking. Retrieved from https://doi.org/10.1108/AJEB-12-2021-0135
3. AL-Najjar, D., & Assous, H. F. (2021). Key Determinants of deposits volume using CAMEL rating system: The Case of Saudi banks. PLoS ONE, 16(12), 1-15. doi:https://doi.org/10.1371/journal.pone.0261184
4. Dang, U. (2011). The CAMEL rating system in banking supervision: A case Study. Arcada University of Applied Science. Retrieved from https://www.theseus.fi/bitstream/handle/10024/38344/Dang_Uyen.pdf
5. Desta, S. T. (2016). Financial Performance of "The Best African Banks": A Comparative Analysis Through Camel Rating. Journal of Accounting and Management, 16(1), 1-20. Retrieved from https://hrcak.srce.hr/file/240231
6. Dey, S., & Kabir, A. (2012). A. Performance Analysis through CAMEL Rating: A Comparative Study of Selected Private Commercial Banks in Bangladesh. Journal of Politics & Governance, 1(2/3), 16-25.
7. Festa, G., Rossi, M., & Marinelli, L. (2020). The contribution of intellectual capital to financial stability in Indian pharmaceutical companies. Journal of Intellectual Capital, 22(2), 337-359. Retrieved from http://dx.doi.org/10.1108/JIC-03-2020-0091
8. Fleifal, A. A. (2020). The Role of Camel Model in Evaluating the Performance of Iraqi Banks. Journal of critical reviews, 7(14), 2654-2666. doi:10.31838/jcr.07.19.516
9. Goyal, A. K., & Rajput, N. (2019). Indian Banking Sector a Major Contributor to Economy: Constancy Major Concern. International Journal of Recent Technology and Engineering, 8(4), 11596-11608.
10. Gupta, R. (2014). An analysis of Indian public sector banks using camel approach. IOSR Journal of Business and Management, 16(1), 94-102. Retrieved from http://iosrjournals.org/iosr-jbm/papers/Vol16-issue1/Version-4/L0161494102.pdf
11. Jha, P., & Natarajan, S. (2021). Asset Quality Evaluation of Select Indian Banks: A Camel Model. Orissa Journal of Commerce, 42(1), 59-76. Retrieved from https://www.ojcoca.org/issues.html
12. Jindal, S. (2018). Finanacial Performance of the Banking Sector. (Doctoral Thesis). Aligarh: Aligarh Muslim University. Retrieved May 16, 2022, from https//:shodhganga.inflibnet.ac.in
13. Jindal, S. (2018). Financial Performance of the Banking Sector in India: A case study of Punjab National Bank.
14. Khan, A. M. (n.d.). Financial Performance Appraisal of Selected IT Companies in India. (doctoral dissertation). Aligarh Muslim University. Retrieved from shodhganga.inflibnet.ac.in
15. Khuntia, R., & Pradhan, P. K. (2019). Devising Balanced Scorecard to Evaluate Banks' Performance: An Empirical Study of Selected Indian Banks. Orissa Journal of Commerce, 40(4), 20-33. Retrieved from https://www.ojcoca.org/otherissues
16. Lad, R., & Ghorpade, N. (2022). An Analysis of Financial Performance of Public Sector Banks in India Using Camel Rating System. International Research Journal of Humanities and Interdisciplinary Studies, 3(6), 15-29. doi:03.2021-11278686
17. Madhankumar, R., & Saminathan, R. (2020). Financial Performance Analysis of Selected Indian Micro-Finance Companies- A Camel Model Approach. International Journal of Management, 11(11), 3483-3491. Retrieved from https://iaeme.com/Home/issue/IJM?Volume=11&Issue=11
18. Maude, F. A., & Dogarawa, A. B. (2016). Critical Review of Empirical Studies on Assessing Bank Performance using CAMEL Framework. Nigerian Journal of Management Technology and Development, 7(2), 1-21.
19. Murthy, S. D. (2020). Operational Efficacy of State Bank of India During Pre-Merger – An Analysis by Using Camel Model. Journal of critical reviews, 7(19), 5375-5387. doi:10.31838/jcr.07.19.626
20. Namita, R., & Anil Kumar, G. (2019). Indian Banking Sector a mojor Contributor to Economy: Constancy Major Concern. International Journal of Recent Technology and Engineering, 11596-11608.
21. Nguyen, A. U., Nguyen, H. T., & Pham, H. T. (2020). Applying the CAMEL model to assess the performance of commercial banks: empirical evidence from Vietnam. Banks and Bank Systems, 15(2), 177-186. Retrieved from http://dx.doi.org/10.21511/bbs.15(2).2020.16

22. Offor, E. (2009). A Critical Review of Distress Syndrome in Nigerian Banks with a View to Preventing Recurrence. SSRN. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1508335
23. Rahman, Z., & Islam, S. (2018). Use of CAMEL Rating Framework: A Comparative Performance Evaluation of Selected Bangladeshi Private Commercial Banks. International Journal of Economics and Finance, 10(1), 120-128. Retrieved from https://doi.org/10.5539/ijef.v10n1p120
24. Riiyani, R. J. (2020). A Comparative Study on Financial Performance of Public, Private and Foreign Banks in India Through Camel Rating System. International Journal of Management, 11(1), 876-889. Retrieved from http://iaeme.com/Home/issue/IJM?Volume=11&Issue=10
25. Rostami, M. (2015). Camels' Analysis in Banking Industry. Global Journal of Engineering Science and Research Management, 2(11), 10-26. Retrieved from http://www.gjesrm.com
26. Rout, K. C., Swain, K. P., & Dash , M. (2019). Predictive Analytics in Harnessing Financial Efficacy of Banks Using Camel Model. International Journal of Management, 10(6), 177-190. Retrieved from http://iaeme.com/Home/issue/IJM?Volume=10&Issue=6
27. Shankar, G. U., & Roopa, P. (2020). Financial Statement Analysis of Public Sector Banks Selected for Mergers Using Camels Rating System. International Journal of Management, 11(10), 1383-1394. Retrieved from http://iaeme.com/Home/issue/IJM?Volume=11&Issue=10
28. Shelly, & Singhal, P. K. (2020). An Analysis of Public Sector Banks' Performance using CAMEL Rating Model. International Journal of Financial Management, 10(2 & 3), 24-37. Retrieved from http://www.publishingindia.com/ijfm