Measuring Operational Efficiency of Public Sector Banks in India

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Abstract

In recent days, the growing Universalisation and internationalization of banking operations, driven by a combination of factors, such as the continuing deregulation, heightened competition and technological advancements have altered the face of the banks from mere intermediator to provider of quick, efficient and consumer friendly services. The use of mass customization in banks and other service companies can meet the market demand and enhance the competitiveness by customized products that are designed and provided for individual customers to meet their individual needs. Moreover, banks today have to adopt strategies that embrace both a closer reaction to the customers' needs and efficiency by custom-tailored services to meet customers' diversified and changing needs at near mass production price. Therefore, this research paper is to explore the possibility of getting more deposits by an efficient and timely services and measure the impact of variables of E-banking products on customer satisfaction and five service quality dimensions namely reliability, responsiveness, assurance, empathy and tangibles have been established based on the need and requirement of the customers.

The study is based on the sound methodology which covering both primary and secondary data. Extensive reviews have been made on the available banking products introduced by banks globally and the growth of deposits of sample banks has been analyzed with ten years data of the sample banks of three categories namely, private sector, public sector and foreign banks performed in India. Primary data has been collected by well framed comprehensive questionnaire and monitored on selected sample respondents who are really representatives of the universe.

Keyword: *Customization, E- banking products, Consumer satisfaction, Service Quality.*

INTRODUCTION

The shape of the Indian Banking Industry has changed due to the World Trade Organization, increasing international risk triggered by Basel III norms (laid down by Basel committee under the supervision of Bank for International Settlements (BIS)) ,Free Trade Agreements (FTAs) and the Reserve bank of India guidelines. It needs every banker to design innovative banking products and uses information technology

to reduce their cost of operation. New concepts like personal banking, retail banking, bankassurance, internet banking, phone banking, mobile banking, and rural banking have emerged. In this situation, the banks have to track their performance to improve their profitability by paying attention to the key influencing factors for its timely correction and for future growth.

Statement of the problem

With increased competition in the banking Industry, the Net Interest Margin (NIM) of banks have come down over the last one decade. Hence, it is necessary to improve their operational efficiency while meeting the customer requirements. Product innovations and process re-engineering will be the order of the day. All banks therefore to go for rejuvenating their costing and pricing to segregate profitable and non-profitable business. Banking industry is fragmented in its structure and has restrictions on capital availability and deployment, lack of institutional support infrastructure, restrictive labor laws, weak corporate governance and ineffective regulations. Besides this, increase in the number of foreign players' poses threat to both public and private sector Banks. Therefore, it is appropriate to know the answer for the following research questions:

1. Is there any possibility of finding the factor influencing the profitability?
2. Is there any possibility of improving the profitability?
3. Is there any avenue to identify the efficient bankers?

OBJECTIVES

The study has been carried out with the following objectives**:**

1. To examine the input and out variables of the banking companies.
2. To identify the significant factors influencing the profitability and efficiency.
3. To measure the operational efficiency of the banks.

REVIEW OF LITERATURE

There are numerous empirical studies conducted on the issue of measuring the efficiency of the banks both in India and abroad. Some of them are given below:

Swamy **(**2001) studied the comparative performance of different bank groups since 1995-96 to 1999-2000. An attempt was made by researcher to identify factors which could have led to changes in the position of individual banks in terms of their share in the overall banking industry. He concluded that in many respects nationalized public sectors banks are much better than private banks, even they are better than foreign banks.

Samwel Kakuku Lopoyetum (2005) in his article elaborated that the profitability performance of the UCBs can be improved by strengthening the magnitude of burden ratio. The spread ratio can be increased by increasing the interest receipts faster than the interest payments. The burden ratio can be lowered by decreasing the manpower expenses, other expenses and increasing other incomes.

The Indian viewpoint alluding to the concepts of 'credit culture' owing to Reddy (2004) and '**lazy banking**' owing to Mohan (2003a) has an international perspective since several studies in the banking literature agree that ***banks' lending policy is a major driver of non-performing loans*** (McGoven, 1993, Christine 1995, Sergio, 1996, Bloem and Gorters, 2001).

Namita Rajput and Harish Handa (2011) in their article "Banking effiency :An application of DEA" have examined the efficiency of the banking sector in India and concluded that, as the economy grows and more and more opportunities come into the system, banks must focus on increasing their efficiency so that they can provide a firm support in the financial market for the industries to develop.

IMPORTANCE OF THE STUDY

An efficient banker can leverage the opportunities to meet the challenges to the best of their abilities. Hence, it is necessary to study the operational efficiency of the banks to frame strategies for their survival. The study compares the efficiency of 21 public sector banks. It first finds relationship between the profitability and factors affecting profitability and also identifies significant factors influencing the profitability. The performance of the banking sector has to be compared with the Benchmarking of the bankers to find the gap for taking steps to improve their efficiency.

RESEARCH DESIGN

The study covers a period of 5 years from 2006-07 to 2010-11 of 21 public sector banks in India. The data required for the study has been collected from the IBA bulletin and statistics published by Reserve bank of India.

The variables like total deposits, total advances, total assets, NPA's, total incomes and operating profit and various ratios such as Return on Assets, Spread to Total Assets NPA to Net Advances, PA to Total Assets, Capital Adequacy ratio, are taken for the analysis.

TOOLS USED

Multiple Regression Analysis is used to find the relationship between operating profit and other variables. Similarly profitability ratio and other variables. DEA-Data

Envelopment Analysis is used to measure the relative efficiency of banks having same multiple input and multiple output units.

FACTORS INFLUENCING THE OPERATING PROFIT

Multiple Regression Analysis has been used to build the model to establish the relationship between operating profit and the influencing factors of banks.
The functional form of regression model is:

$$Y = b_0 + b_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8.$$

Here the dependent variable is operating profit (Y) and independent variables are $x_{1=}$.Deposit, $x_{2=}$. Advances,. $x_{3=}$ Total assets, $x_{4=}$ Total expenses, $x_{5=}$.Net NPA, $x_{6=}$ Total income, $x_{7=}$.business and $x_{8.=}$.spread.
The results of the regression and the influence of co-efficient on operational profit of the 21 banks are given in the table1.

The study shows that NPA, Total Income, Total Expenses and Spread are the most significant factors influencing the operational profit. The result shows the variable wise number of banks showing the influence on operating profit as:

Deposits	*Advances*	*Total Assets*	*Total expenses*	*NPA*	*Total Incomes*	*Spread*
9 Banks	*7 Banks*	*6 Banks*	*16 Banks*	*9 Banks*	*5 Banks*	*18 Banks*

To test the validity of the model, the following hypothesis has been framed.

Table-1

Regression Co-efficient, t value and level of influence

No.	Bank	Constant	Deposit	Advances	Total Assets	Total Expenses	Net NPA	Total Income	Spread
1.	Allahabad bank	-470.224			0.024 (t=17.251)*				
2.	Andhra Bank	-215.828			0.014 (t=-12.166),*				0.328 (t=-8.599),*,
3.	Bank of Baroda	-321.83		0.0131 (t=19.143), *					
4.	Bank of India	-0.001				-1.000 (t=-163083.57),*		1.000 (t=207967.397),*	
5.	Bank of Maharashtra	0.005	1.016E-7 (t=-,)*.,			-1.000 (t=--),*		1.000 (t=--),*	-1.457E-5 (t=--),*,
6.	Canara Bank	749.901	0.025 . (t=--)*			-0.113 (t=--),*	-1.495 (t=--),*	1.000 (t=--),*	-1.143 (t=--),*
7.	Central Bank of India	857.03	0.010 (t=--)*			-0.024 (t=--)*	-0.869 (t=--)*		0.185 (t=--)*
8.	Corporation Bank	859.592		-0.070 (t=--)*		1.078 (t=--)*	12.333 (t=--)*		-1.875 (t=--)*
9.	Dena Bank	360.739		0.072 (t=--)*		-0.548 (t=--)*	-0.249 (t=--)*		0.095 (t=--)*
10.	Indian Bank	-333.697	0.004 (t=--)*			-0.039 (t=--)*	-1.465 (t=--)*		1.011 (t=--)*
11.	Indian Overseas Bank	-940.715	-0.035 (t=--)*				-0.640 (t=--)*	0.451 (t=--)*	0.885 (t=--)*
12.	Oriental Bank of Commerce	-463.174		0.045 (t=--)*		-0.185 (t=--)*	-0.671 (t=--)*		0.429 (t=--)*
13.	Punjab & Sind Bank	-72.295			0.007 (t=--)*	-0.042 (t=--)*	-1.587 (t=--)*		0.755 (t=--)*
14.	Punjab National Bank	-1486.829	0.076 (t=--)*			-0.563 (t=--)*	-1.307 (t=--)*		0.133 (t=--)*
15.	Syndicate Bank	-21.217		-0.012 (t=--)*		0.110 (t=--)*	-0.221 (t=--)*		0.321 (t=--)*
16.	UCO Bank	-310.361			-1.0119E-5 (t=--)*	0.060 (t=--)*	-0.145 (t=--)*		0.700 (t=--)*
17.	Union Bank of India	352.593	-0.016 (t=--)*				0.527 (t=--)*	0.469 (t=--)*	-0.384 (t=--)*
18.	United Bank of India	-194.441			0.004 (t=--)*	-0.089 (t=--)*	0.103 (t=--)*		0.810 (t=--)*
19.	Vijaya Bank	1254.415			-0.028 (t=--)*	0.207 (t=--)*	1.545 (t=--)*		-0.073 (t=--)*
20.	IDBI Bank Ltd.	1393.991	0.031 (t=--)*			-0.456 (t=--)*	0.864 (t=--)*		0.758 (t=--)*
21.	TOT.SBI Groups	-7080.625	0.010 (t=--)*	-0.127 (t=--)*		0.780 (t=--)*			1.833 (t=--)*
			9 banks	7 banks	6 banks	16 banks	9 banks	5 banks	18banks

*=Significant;**=Not Significant; Co-efficient and t values.

Hypothesis.1 :

There is no significant relationship between operating profit and eight independent variables.

ANOVA tests the validity of the regression model fit and the output is given in the following table.

Table 2
ANOVA

	Name of the Bank	R^2	F	Anova. Fit.Sig	Remarks
1.	Allahabad bank	0.990	297.586	0.000	Adequate
2.	Andhra Bank	1.000	2433.59	0.000	Adequate
3.	Bank of Baroda	0.992	366.446	0.000	Adequate
4.	Bank of Maharashtra	1.000	9.596E10	0.000	Adequate
5.	Bank of India	1.000	-	0.000	Adequate
6.	Canara Bank	1.00	-	0.000	Adequate
7.	Central Bank of India	1.00	-	0.000	Adequate
8.	Corporation Bank	1.00	-	0.000	Adequate
9.	Dena Bank	1.00	-	0.000	Adequate
10.	Indian Bank	1.00	-	0.000	Adequate
11.	Indian Overseas Bank	1.00	-	0.000	Adequate
12.	Oriental Bank of Commerce	1.00	-	0.000	Adequate
13.	Punjab & Sind Bank	1.00	-	0.000	Adequate
14.	Punjab National Bank	1.00	-	0.000	Adequate
15.	Syndicate Bank	1.00	-	0.000	Adequate
16.	UCO Bank	1.00	-	0.000	Adequate
17.	Union Bank of India	1.00	-	0.000	Adequate
18.	United Bank of India	1.00	-	0.000	Adequate
19.	Vijaya Bank	1.00	-	0.000	Adequate
20.	IDBI Bank Ltd.	1.00	-	0.000	Adequate
21.	TOT.SBI Groups	1.00	-	0.000	Adequate

From the table it is observed that the co-efficient of Multiple determination- R^2 explains 98% of the variation in the dependent variable. The F and P value shows the model adequately fits the data at 1% level of significance.

Hence, the hypothesis is rejected. That is, there is significant relationship between the dependent variable-operational profit and other independent variables.

Measuring the Performance of the Public Sector Banks:

To measure the performance of the banks, five years average ratios of the variables have been considered. It is shown in the table. Based on this data, the relationship between dependent variable-Profitability and independent variables – Return on Assets, Spread to Total Assets, NPA to Net Advances, Cost to Income, Advances to Deposits and Capital Adequacy ratios are found out by using Multiple Regression Analysis.

Table-3

Five years Average Ratio of Public Sector Banks

Banks	ROA	SP/TA	NPA/ NetAdv.	Profitability (S-B)/ Business	Cost-Income	Advance-Assets	Advance-Deposits	CPL-ADQ
Allahabad Bank	1.15	2.33	0.81	1.28	77.11	60.38	69.30	10.86
Andhra Bank	1.26	2.62	0.21	1.34	76.30	62.27	72.12	12.42
Bank of Baroda	1.06	2.31	0.41	1.21	75.59	61.57	71.88	12.69
Bank of India	1.02	2.31	0.83	1.29	75.69	61.76	73.32	12.39
Bank of Maharashtra	0.68	2.34	1.17	0.90	83.20	59.15	67.43	11.35
Canara Bank	1.14	2.20	1.01	1.20	78.34	61.77	71.44	13.97
Central Bank of India	0.59	1.96	1.15	0.78	84.72	58.40	66.24	10.83
Corporation Bank	1.26	2.12	0.37	1.40	74.44	57.72	69.91	13.28
Dena Bank	0.96	2.31	1.29	1.14	78.79	60.45	67.98	11.90
Indian Bank	1.58	3.15	0.31	1.75	71.25	58.51	67.89	13.12
Indian Overseas Bank	1.01	2.53	1.24	1.25	78.40	60.24	72.64	13.09
Oriental Bank of Commerce	1.01	2.12	0.80	1.14	79.64	60.18	69.42	11.96
Punjab & Sind Bank	1.14	2.57	0.45	1.21	79.09	58.40	68.68	12.00
Punjab National Bank	1.27	2.95	0.59	1.57	72.56	61.81	73.37	12.51
Syndicate Bank	0.80	2.21	0.91	0.98	81.37	62.70	71.87	12.01
UCO Bank	0.62	1.86	1.66	0.84	83.84	61.29	69.12	10.92
Union Bank of India	1.15	2.43	0.69	1.32	76.09	61.15	71.82	12.56
United Bank of India	0.57	2.09	1.47	0.91	82.99	55.02	62.93	12.07
Vijaya Bank	0.75	2.05	0.98	0.97	82.61	57.84	65.81	11.98
IDBI Bank Ltd.	0.69	0.91	1.08	0.90	85.60	60.85	103.64	12.05
TOT.SBI Groups	3.88	2.38	4.17	1.33	77.40	59.86	76.70	12.21

Source: IBA bulletin

The initial results of the regression and the influence of co-efficient on Profitability of the 21 banks are given in the table.

Table.4.

Initial Regression Co efficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.257	.535		7.956	.000
	Return on Assets	.355	.069	.989	5.138	.000
	spread to Total Assets	.135	.032	.239	4.176	.001
	NPA to Net Advances	-.372	.073	-1.235	-5.072	.000
	Cost to Income ratio	-.036	.005	-.576	-7.396	.000
	Advances to Total Assets	-.025	.004	-.188	-5.991	.000
	Advances to Deposit Ratio	.008	.001	.246	5.611	.000
	NPA to Total Assets	.725	.146	.718	4.973	.000
	Capital Adequacy Ratio	-.005	.010	-.016	-.497	.628

The study shows that Capital Adequacy ratio is not significant, whereas all others are Significant at 1 percent level of significance. It shows that Return on Assets

ratio and NPA to Total Assets ratio are showing most significant positive influence on profitability whereas the NPA to Net Advances is showing the most negative influence. The final results obtained from the stepwise regression and the influence of co-efficient on profitability is given in the following table::

Table 5

Stepwise Regression Co-efficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	5.872	.290		20.268	.000	5.265	6.478		
Cost to Income ratio	-.060	.004	-.966	-16.226	.000	-.067	-.052	1.000	1.000

To test the validity of the model, the following hypothesis has been framed.

Hypothesis.2:

There is no significant relationship between-Profitability and Return on Assets, Spread to Total Assets, NPA to Net Advances, Cost to Income, Advances to Deposits and Capital Adequacy.

ANOVA tests the validity of the regression model fit and the output is given in the following table:

Table-6

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.206	8	.151	200.985	.000[a]
	Residual	.009	12	.001		
	Total	1.215	20			

It is observed that the co-efficient of multiple determination- R^2 explains 99.3 percent of the variation in the dependent variable at the initial stage whereas at the stepwise regression final stage R^2 is 93.3 percent.The F and P value shows the model adequately fits the data at 1% level of significance.

Hence, the hypothesis is rejected. That is, there is significant relationship between the dependent variable-Profitability and other independent variables.

The final result from the stepwise regression shows that cost to income is the only one **dominant factor** contributing to its profitability. It shows that for one unit

increase in cost to income, the profitability gets deceased by 0.06 units and vise versa. Based on the cost to income the top and bottom three banks are identified as :

Table -7

Top and Bottom banks

No.	Top Three Bank	Profitability	Cost-to Income
1.	Indian Bank	1.75	71.25
2.	Punjab national Bank	1.57	72.56
3.	Corporation Bank	1.40	74.44
No.	**Bottom Three Bank**	**Profitability**	**Cost-to Income**
1.	IDBI Bank Ltd	0.90	85.60
2.	Central Bank of India	0.78	84.72
3.	UCO bank	0.84	83.84

Measuring the relative efficiency using DEA

DEA has been used as a measurement tool for measuring the relative efficiency. It is also called as the CCR model after the researchers Charnes, Cooper and Rhodes. The present study suggests that banks produce certain inputs to produce certain outputs. The efficiency of bank is measured in terms of how efficiently they are able to utilize their inputs given their outputs.

Data Envelopment Analysis (DEA) is a powerful method widely used in the evaluation of performance of Decision Making Units (DMUs). The efficiency of each DMU is the ratio (sum of weighted outputs)/(sum of weighted inputs), adjusted to be a number between 0 and 1. This is a very common definition of productivity. Those DMUs which do attain an efficiency of 1 form a mathematical space (the "efficient frontier") which "envelops" all the other DMU points, hence the name Data Envelopment Analysis. This frontier is very precisely defined and allows the calculation of potential improvements for the inefficient DMUs. Apart from the efficiency scores, it also provides guidelines for improvement and specific targets for the inefficient DMUs.

To find out the efficient and inefficient scores of the public sector banks, they are grouped into small size banks and large banks based on the average deposits of all the 21 banks of the year 2006-07. On this basis, we have 12 small banks and 9 large banks. The average of five years data have been taken as input and output variables and presented under the small and large size banks.

Table-6

Public sector Banks—Small size Banks

Banks	INPUTS -Indian Rs. In Cr.					OUTPUTS. - Indian Rs.in Crs.	
	Deposits	Advances	Total Assets	Total Exp.	Net NPA	Total income	Operating Profit
Allahabad Bank	97069.21	68438.00	104247.33	6617.88	493.73	8634.62	2016.74
Andhra Bank	68539.22	51481.63	74369.14	4752.97	109.91	6252.79	1499.82
Bank of Maharashtra	51616.28	37693.01	58737.75	3854.21	416.86	4604.05	749.83
Corporation Bank	76249.28	59437.67	92280.01	5276.13	200.38	7065.51	1789.38
Dena Bank	44047.52	33048.11	49395.58	3119.10	374.02	3941.61	822.51
Indian Bank	74950.11	57175.01	86777.14	5478.05	167.28	7735.20	2257.15
Oriental Bank of Commerce	99906.67	75615.93	115199.71	7557.70	571.86	9531.17	1973.47
Punjab & Sind Bank	37540.82	29558.90	43898.21	2845.77	115.40	3572.55	726.78
UCO Bank	102536.63	76365.27	115408.19	7494.00	1140.37	8994.18	1500.18
United Bank of India	56939.68	39771.03	65141.38	4107.68	540.08	4956.90	849.22
Vijaya Bank	55054.21	39345.63	62564.49	4270.60	388.17	5142.49	871.89
IDBI Bank Ltd.	115381.18	120235.23	178776.97	11559.21	1167.61	13652.86	2093.65

xl DEA version 2.0 software is used to process the data. The following are the contents of the **Scores sheet** of the banks based on the output-oriented, variable returns-to-scale model:

Table-7

Scale Efficiencies-Small Size Banks

Efficiency scores			Scale efficiencies	Returns-to-scale	CCR score	NIRS score
Allahabad Bank	0.9808		0.9508	decreasing	0.9326	0.9808
Andhra Bank	1.0000		1.0000	constant	1.0000	1.0000
Bank of Maharashtra	0.9506		0.9498	increasing	0.9028	0.9028
Corporation Bank	0.9528		0.9954	increasing	0.9484	0.9484
Dena Bank	0.9842		0.9095	increasing	0.8952	0.8952
Indian Bank	1.0000		1.0000	constant	1.0000	1.0000
Oriental Bank of Commerce	1.0000		0.9317	decreasing	0.9317	1.0000
Punjab & Sind Bank	1.0000		0.9181	increasing	0.9181	0.9181
UCO Bank	0.9405		0.9296	decreasing	0.8743	0.9405
United Bank of India	0.9593		0.9604	increasing	0.9213	0.9213
Vijaya Bank	1.0000		0.9661	increasing	0.9661	0.9661
IDBI Bank Ltd.	1.0000		1.0000	constant	1.0000	1.0000

The efficient units are :Andhra Bank,Indian Bank,oriental Bank of Commerce, Punjab& Sind Bank,Vijaya Bank and IDBI Bank have scores 1 and are shown in cells with a blue background.

The CCR score is a kind of "global" efficiency measurement in which inefficiencies due to pure technical reasons are confounded by inefficiencies due to the scale of operations. Variable Returns-to-Scale (VRS) score represents a more strict "local" definition of efficiency, devoid of the scale effect, and so it is always larger. The last column, “NIRS score” (from Non-Increasing Returns-to-Scale) contains the score obtained by an auxiliary model which is required to obtain this characterization.

Table-8
Public Sector Banks-Large Size

	INPUTS- Indian Rs. In Crs.					Outputs- Indian Rs.in Crs.	
Banks	Deposits	Advances	Total Assets	Total Exp.	Net NPA	Total income	Operating Profit
Bank of Baroda	203209.69	147603.95	237373.26	12946.80	567.49	17259.89	4313.09
Bank of India	197649.99	144617.70	234457.55	13523.35	1236.93	17851.75	4328.40
Canara Bank	202394.11	145152.90	233391.18	15006.57	1496.12	19207.26	4200.68
Central Bank of India	133166.26	89077.00	151409.61	9737.22	915.00	11461.36	1724.14
Indian Overseas Bank	101841.07	74635.90	123008.77	8031.40	988.72	10189.56	2158.16
Punjab National Bank	215661.18	159901.79	256663.90	15471.26	952.71	21421.25	5949.99
Syndicate Bank	108462.26	78888.40	124451.01	8050.96	727.91	9895.11	1844.15
Union Bank of India	140048.54	100697.79	163758.31	10023.26	764.70	13148.75	3125.49
TOT.SBI Groups	953668.12	733537.76	1221389.83	76585.61	10649.33	99162.89	22577.27

The following are the contents of the **Scores sheet** with the banks based on the output-oriented, Variable Returns-to-Scale model.

Table-9

Scale Efficiencies- Size Banks

Efficiency scores		Scale efficiencies	Returns-to-scale	CCR score	NIRS score
Bank of Baroda	1.0000	1.0000	constant	1.0000	1.0000
Bank of India	0.9660	0.9870	increasing	0.9534	0.9534
Canara Bank	0.9867	0.9998	increasing	0.9865	0.9865
Central Bank of India	0.9598	0.9895	increasing	0.9497	0.9497
Indian Overseas Bank	1.0000	1.0000	constant	1.0000	1.0000
Punjab National Bank	1.0000	1.0000	constant	1.0000	1.0000
Syndicate Bank	1.0000	0.9527	increasing	0.9527	0.9527
Union Bank of India	1.0000	0.9705	increasing	0.9705	0.9705
TOT.SBI Groups	1.0000	1.0000	constant	1.0000	1.0000

The efficient units-Bank of Baroda, Indian Overseas Bank , Punjab National Bank, Syndicate Bank, Union Bank of India and Total of State Bank of India Groups have scores 1 and are shown in cells with a blue background.

RESULTS OF THE STUDY:

The researcher has found the following results from the study:

1. The Hypothesis.1 shows that there is a significant relationship between operating profit and eight independent variables. The most significant factors influencing the operating profit have been identified as NPA, Total Income, Total Expenses and Spread. Out of 21 banks, 18 banks were influenced by spread and 16 banks by total expenses.
2. The Hypothesis.2 shows that there is a significant relationship between profitability and six independent variables. Except Capital Adequacy ratio all others are significantly influencing the profitability. NPA to Total Assets and ROA are key factors as they highest positive co-efficient. Similarly, NPA to Net Advances are key factors as it has highest negative co-efficient. The stepwise regression reveals that cost-to income is the dominant factor for tuning the profitability.
3. DEA has identified 6 banks out of the 12 small size banks and 6 banks out of the 9 large size banks as efficient banks.

SUGGESTIONS:

The following suggestions may be considered for improving productivity, profitability and operational efficiency of the banks:

1. **Innovative product designing**: It is needed to suit the needs of the customers and to have sustainable growth. Examples are: Loans to Small and Medium Enterprises (SME's) to build more entrepreneurs' for booting the economy, Super Savings accounts, Zero base accounts,ATM cards tie up with other banks, Mobile banking etc. RTGS and NEFT system of fund transfers etc.
2. **Development of new technology:** Banks have to interact constantly with the industry bodies, trade associations, farming community, academic / research institutions and initiate studies, pilot projects, etc. for evolving better financial models. Solar powered ATM technology save costs.
3. **Consolidation of players through mergers and acquisitions**: To achieve the optimal cost in operation and to get the economies of scale, every

bank has to make changes in its structure by mergers/acquisitions and other measures in the best interests of the business. This strategy increases the healthiness of the banks and can reduce the operating cost with the increased volume of business.

4. **Rural and Social Banking**: The banking system is expected to reorient its approach to rural lending. "**Going Rural" could be the new market mantra**. Rural market comprises 74% of the population, 41% of Middle class and 58% of disposable incomes. Bankers have to concentrate on rural banking as consumer growth is taking place at a fast pace in 17,113 villages in India with a population of more than 5000.

5. **Banc assurance** is catching up. Banks/ Financial Institutions have started entering insurance business. From mere offering of insurance products through network of bank branches, the business is likely to expand through self-designed insurance products after necessary legislative changes.

6. **Reducing overstaffing** and strategic tie with banks and financial institutions would bring more possibility of revenue generation**.** This strategy **would** increase the productivity of the banks.

7. **Corporate Governance: G**ood corporate governance would bring financial stability and reduces high profile breakdowns. The transparency of the operations of the banks is emphasized by the corporate governance. Following the Good Governance Practices is essential for the building public confidence and faithful reporting.

CONCLUSION:

The study has clearly identified the most influencing factors affecting the operating profit and profitability and also the efficient bankers. Besides this,Enhancement of customer service and corporate governance ; application of technology; implementation of Basel III; improvement of risk management systems; implementation of new accounting standards; enhancement of transparency & disclosures; and compliance with KYC(Know Your Customers) aspects would help the bankers to improve their operational efficiency. The changes in interest rates announced by Reserve Bank of India makes the NIM(Net Interest Margin) under pressure and deteriorates the Quality of Assets.Hence,the bankers always have to concentrate on Cost to Income-the interplay of Interest Income and operating expenses and bring efficiency. Department of Post has identified providing banking services through the proposed "Post Bank of India"(PBI) as a sort of financial inclusion. It has the network of 1.55 lakh post offices of which 1.39 lakh are in rural areas. The

present all India average population served by commercial banks per branch is 13,053(as on 31march 2011).Whereas each post office on an average covers 5,992 people.Bringing "Rural Thrust " by postal department is another threat to the bankers.

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