



EMPIRICAL STUDY OF IMPACT OF BANK SPECIFIC DETERMINANT ON PROFITABILITY OF SELECTED INDIAN PUBLIC SECTOR BANKS

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Abstract:

Banking sector plays an important role within the economy of the country. Healthy banking industry is that the foundation of any economy. The growth of any economy depends on the banking performance. In the finance literature performance of bank is generally measured by its profitability. Increasing the profitability of banks denotes better performance. The present study aims to examine impacts of bank specific determinant on bank's profitability during the time period 2014-15 to 2018-19. Seven public sector banks are selected for the purpose of the study. Data has been analyzed through multiple regression model by using SPSS software. Bank's profitability is measured by return on assets (ROA), return on equity (ROE) and net interest margin (NIM). All these profitability measures are taken as dependent variables while bank specific variables such as size, capital adequacy (CAR), liquidity (LQ), deposit ratio (DP), asset management, operating efficiency (OPEF), leverage (LEV) and number of branches are taken as independent variables. The study found out that asset management has significant impacts on ROA and ROE while OPEF and LEV have significant impact on NIM. It is recommended that bank should concentrate more on their asset quality in order to improve their profitability.

Key Words: *profitability, public sector banks, multiple regression etc.*

1. INTRODUCTION

Banking sector plays an important role within the economy of the country. Healthy banking industry is that the foundation of any economy. The expansion of any economy depends on the banking performance. Within the finance literature performance of bank is usually measured by its gain. Increasing the gain of banks denotes higher performance. The standard within the operating of finance sector actually impacts the gain of banks that as an entire impacts the economy and gross domestic product of the country. Profitability of banks is important since the soundness of an industry is closely connected to the soundness of whole economy. Indian banking system includes of scheduled and non-scheduled banks, additional divided into private sector banks, public sector banks, foreign sector banks, rural regional banks and co-operative banks.



Profitability refers to a cash that a firm will turn out with the resources it has. The goal of most organization is profit maximization. Profit involves the capability to form edges from all the business operation of a company, firm or company. There are units several factors that affect the profit of banks. These factors aren't solely bank specific however additionally trade specific. Additionally several factors at small and macro level too; have an effect on bank's profit. Even the amount of development of securities market of a rustic affects the profit of banking system. Actually the list of issue that determines the profit of banks isn't complete.

2. REVIEW OF LITERATURE

- **Pankaj Sinha and Sakshi Sharma (2014)** in their research paper studies the impacts of bank specific, industry specific and macroeconomic factors affecting the profitability of Indian banks. The data had been analyzed by using Generalized Method of Moments. The study also tested the Structure Conduct Hypothesis by using Herfindahl-Hirschman Index. It was observed that the crisis period did not make any significant effect on profitability of banks. The study concluded that there is a moderate degree of persistence bank profits and most of the determinants of profits have a positive and a significant impact on profitability of banks which implies that Indian banks in the last decade have been moving towards efficiency and dynamism.
- **Naresh Kedia (2016)** analyzed the determinants of profitability of Indian public sector banks. Multiple regression model was applied for analyzing the data. He found out that only two independent variables i.e. credit deposit ratio and net interest income affect the net profitability of Indian public sector banks in a major way.
- **Mr. Adwita Maiti and Dr. Sebak kumar Jana (2017)** have examined the determinants of profitability of banks in India. The main objective of the study was to find the determinants of five major banks group in India. They used panel data regression to investigate the data. The empirical results have found strong evidence that profit per employee, net interest margin, net NPA, and non interest income have a significant impacts on profitability for all banks group.
- **Eissa A. Homaidi, Mosab I. Tabash, Najib H. S. Farhan et al (2018)** in their paper found out the determinants of Indian commercial bank's profitability. The study used set of independent variables such as bank specific factors which includes bank size, asset quality, capital adequacy etc and also macro-economic factors like GDP, inflation rate, exchange rate etc. The study indicated that all bank specific factors except number of branches exhibited significant impacts on profitability. The findings also showed that all macroeconomic variables were found to be significant with negative impacts on Indian commercial bank's profitability.
- **Bezawada Brahmaiah and Ranajee (2018)** examined the factors influencing the profitability of Indian commercial banks considering the increased globalization, intensified competition and enhanced concentration. ROA and ROE were used to measure



bank's profitability. The sample included panel dataset of 89 banks operating in India for the period of 2005 to 2015. The result indicated that the profitability of banks in India affected by both internal and external factors. The study found out that the factors like operating efficiency; ratio of banking deposit to GDP had significantly negatively influence on bank's profitability while bank size and ratio of priority loans to total loans do not have significant influence on the profitability. It was also found out that inflation and GDP growth have significantly negative relation with ROA and inflation has positive influence on ROE.

3. RESEARCH METHODOLOGY

- **Objectives of the Study:**

The objective of the study is examine the factors influencing on profitability of selected public sector banks in India during the period from 2009-10 to 2018-19.

- **Sampling method and Sample Size:**

Random Sampling method is used and sample size consists of five public sector banks in India namely Bank of Maharashtra, Bank of India, Corporation Bank, Punjab National Bank and Union Bank of India.

- **Research Design:**

The study is based on Descriptive research design.

- **Data Collection Source:**

The study is based on Secondary data. The data have been collected from the various journals, articles, websites, annual reports of the banks etc.

- **Tools & Techniques:**

The data have been analyzed through Multiple Regression Model by using SPSS software. In this model three profitability measures namely ROA, ROE and NIM are taken as Dependent variables. And Bank specific variables such as Size, CAR, Liquid ratio, deposit ratio, Asset management, operating efficiency, leverage ratio and number of branches are taken as independent variables. These variables are defined as follow:

Table 1: List of Variables

<i>Variables</i>	<i>Acronym</i>	<i>Formula</i>
Return on Asset	ROA	$\frac{\text{Net Profit}}{\text{Total Assets}}$
Return on Equity	ROE	$\frac{\text{Net Profit}}{\text{Total Equity}}$
Net Interest Margin	NIM	$\frac{\text{Net Interest Income}}{\text{Total Assets}}$
Size	Size	<i>Natural log of total assets</i>
Capital adequacy	CAR	$\frac{\text{Equity}}{\text{Total Assets}}$
Deposit ratio	DP	$\frac{\text{Deposits}}{\text{Total Assets}}$
Liquid ratio	LQ	$\frac{\text{Quick Assets}}{\text{Liabilites}}$
Asset management	Ass.Mgt	$\frac{\text{Operating profit}}{\text{Total Assets}}$
Operating efficiency	OPEF	$\frac{\text{Operating Expense}}{\text{Total Assets}}$
Leverage ratio	LEV	$\frac{\text{Debt}}{\text{Equity}}$
Branches	Branch	<i>Absolute Number of Branches</i>

The model can be mathematically expressed as follow:

➤ **Model 1:**

$$y_1 = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + u$$

➤ **Model 2:**

$$y_2 = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + u$$

➤ **Model 3:**

$$y_3 = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + u$$

Where,

y_1 = Return on Assets

y_2 = Return on Equity,

y_3 = Net Interest Margin

a = Constant

x_4 = Deposit ratio

x_6 = Operating efficiency

x_8 = Branch

$b_1, b_2, b_3, \dots, b_8$ = coefficients,

x_1 = size

x_2 = capital adequacy ratio,

x_3 = Liquid ratio

x_5 = Asset Mangement

x_7 = Leverage

u = error



4. DATA ANALYSIS

Table 2: Correlation Matrix of Model 1

VARIABLES	ROA	SIZE	CAR	LQ	DP	ASS.MGT	OPEF	LEV	BRANCH
ROA	1.00								
SIZE	0.34* (0.02)	1.00							
CAR	0.21 (0.12)	0.48* (0.00)	1.00						
LQ	-0.24 (0.09)	-0.47* (0.00)	-0.32 (0.03)	1.00					
DP	-0.25 (0.08)	-0.70* (0.00)	-0.51* (0.00)	0.58* (0.00)	1.00				
ASS.MGT	0.94* (0.00)	0.23 (0.09)	0.12 (0.25)	-0.15 (0.19)	-0.17 (0.17)	1.00			
OPEF	-0.19 (0.14)	0.29* (0.05)	0.37* (0.01)	-0.48* (0.00)	-0.45* (0.00)	-0.23 (0.10)	1.00		
LEV	-0.15 (0.19)	-0.49* (0.00)	-0.41* (0.01)	0.02 (0.45)	0.41* (0.01)	-0.13 (0.23)	-0.21 (0.11)	1.00	
BRANCH	0.31* (0.04)	0.93* (0.00)	0.50* (0.00)	-0.63* (0.00)	-0.78* (0.00)	0.21 (0.11)	0.44* (0.00)	-0.46* (0.00)	1.00

* Significant Correlation at $\alpha = 5\%$ Level of Significance



Table 3: Correlation Matrix of Model 2

VARIABLES	ROE	SIZE	CAR	LQ	DP	ASS.MGT	OPEF	LEV	BRANCH
ROE	1.00								
SIZE	0.34* (0.02)	1.00							
CAR	0.05 (0.40)	0.48* (0.00)	1.00						
LQ	0.06 (0.37)	-0.47* (0.00)	-0.32 (0.03)	1.00					
DP	-0.18 (0.15)	-0.70* (0.00)	-0.32* (0.00)	0.58 (0.00)	1.00				
ASS.MGT	0.78* (0.00)	0.23 (0.09)	-0.32 (0.25)	-0.15 (0.19)	-0.17 (0.17)	1.00			
OPEF	-0.30* (0.04)	0.29* (0.05)	0.12* (0.01)	-0.48* (0.00)	-0.46* (0.00)	-0.23 (0.10)	1.00		
LEV	-0.42* (0.01)	-0.49* (0.00)	0.37* (0.01)	0.02 (0.45)	0.41* (0.01)	-0.13 (0.23)	-0.21 (0.11)	1.00	
BRANCH	0.27 (0.06)	0.93* (0.00)	0.50* (0.00)	-0.63* (0.00)	-0.78* (0.00)	0.21 (0.11)	0.44* (0.00)	-0.46* (0.00)	1.00

* Significant Correlation at $\alpha = 5\%$ Level of Significance

Table 4: Correlation Matrix of Model 3

VARIABLES	NIM	SIZE	CAR	LQ	DP	ASS.MGT	OPEF	LEV	BRANCH
NIM	1.00								
SIZE	0.15 (0.20)	1.00							
CAR	0.26 (0.07)	0.48* (0.00)	1.00						
LQ	-0.34* (0.02)	-0.47* (0.00)	-0.32 (0.03)	1.00					
DP	-0.39* (0.01)	-0.70* (0.00)	-0.51* (0.00)	0.58* (0.00)	1.00				
ASS.MGT	-0.01 (0.47)	0.23 (0.09)	0.12 (0.25)	-0.15 (0.19)	-0.17 (0.17)	1.00			
OPEF	0.69* (0.00)	0.29* (0.05)	0.37* (0.01)	-0.48* (0.00)	-0.46* (0.00)	-0.23 (0.10)	1.00		
LEV	-0.42* (0.01)	-0.49* (0.00)	-0.41* (0.01)	0.02 (0.45)	0.41* (0.01)	-0.13 (0.23)	-0.21 (0.11)	1.00	
BRANCH	0.31* (0.04)	0.93* (0.00)	0.50* (0.00)	-0.63* (0.00)	-0.78* (0.00)	0.21 (0.11)	0.44* (0.00)	-0.46* (0.00)	1.00

* Significant Correlation at $\alpha = 5\%$ Level of Significance

➤ **Interpretation of Correlation Matrix Table:**

In table 2 ROA is taken as dependent variable. It is seen that size, CAR, asset management and branch are positively correlated with ROA. While the variables like LQ, DP, OPEF and leverage are negatively correlated. The values shown in the bracket are p values which indicate whether the variable has significant correlation with the dependent variable or not. If the p value is less than or equal to 0.05 then the correlation is significant. From the table 2 it can be seen that size, asset management and branch have positive significant correlation with ROA.

In table 3 ROE is taken as dependent variable. From the table 3 it is clear that the variables such as size, CAR, LQ, asset management and branch have positive correlation with ROE. And DP, OPEF and leverage have negative correlation with ROE. Further it is seen that size and asset management have positive significant correlation while OPEF and LEV have negative significant correlation with the ROE.

NIM is taken as dependent variable in the table 4. Size, CAR, OPEF and branch are positively correlated while LQ, DP, asset management and LEV are negatively correlated

with NIM. It is also seen that LQ, DP and LEV are have negative significant correlation while OPEF has positive significant correlation with NIM.

Further it can be also said that CAR and size are significant positively correlated with each other. LQ has negative significant relationship with size. OPEF has positive significant relationship with size and CAR while negative relationship with LQ and DP. Similarly Branch is positively related with size, CAR and OPEF while negatively correlated with LQ, DP and LEV. DP has positive relation with size and negative relation with CAR. LEV has significant negative relationship with size and CAR while significant positive relation with DP.

Table 5: Regression Analysis

VARIABLES	MODEL 1		MODEL 2		MODEL 3	
	B	P VALUE	β	P VALUE	B	P VALUE
CONSTANT	-2.345	-	168.06	-	4.852	-
SIZE (x_1)	0.259	0.22	2.518	0.84	-0.189	0.12
CAR (x_2)	0.052	0.39	-5.343	0.14	-0.024	0.50
LQ (x_3)	-0.011	0.31	0.865	0.19	-0.003	0.66
DP(x_4)	0.00	0.98	0.263	0.81	-0.006	0.51
ASST MGT (x_5)	0.917*	0.00	28.671*	0.00	0.042	0.31
OPEF (x_6)	-0.244	0.54	-31.458	0.19	0.888*	0.00
LEV (x_7)	0.007	0.78	-4.178*	0.01	-0.043*	0.00
BRANCH (x_8)	0.00	0.47	0.001	0.63	0.00	0.57
R SQUARE	0.902*		0.792*		0.649*	
DURBIN WATSON	1.952		1.369		1.671	
F TEST	30.015		12.388		6.016	
P VALUE	0.00		0.00		0.00	

Level of significance = 5%

➤ **Interpretation of Regression Analysis**

• **Model 1:**

Estimated Model:

$$y_1 = -2.345 + 0.259x_1 + 0.052x_2 - 0.011x_3 + 0.00x_4 + 0.917x_5 - 0.244x_6 + 0.007x_7 + 0.00x_8$$

In this model ROA is taken as dependent variable. From the above estimated model it is seen that size, CAR, asset management and leverage have positive impact while LQ and OPEF have negative impacts on ROA. Asset management has significant positive impact on the dependent variable. Asset management is the highest contributor in the

determination of ROA whereas the contribution of DP and branch is nil. The value of R square is 0.902 which indicates that around 90% variations in the ROA are explained by all these independent variables and hence the model is to be strong model. The value of Durbin Watson test is also near to 2 which represent there is no auto correlation. The p value (0.00) is less than the level of significance hence the R square is significant.

- **Model 2:**

Estimated Model:

$$y_2 = 168.06 + 2.518x_1 - 5.343x_2 + 0.865x_3 + 0.263x_4 + 28.671x_5 - 31.458x_6 - 4.178x_7 + 0.00x_8$$

In the above model ROE is taken as dependent variable. It can be seen that size, LQ, DP and asset management have positive impacts on ROE. While CAR, LEV and OPEF have negative impacts. It is also seen that asset management has significant positive impact while LEV has negative significant effect on ROE. The variable OPEF and asset management are comparatively higher contributor in the determination of ROE. The value of Durbin Watson is 1.369 which means there is positive autocorrelation. The value of R square is 0.792 which means around 79% variation in the dependent variable is explained by the independent variables and therefore the model is to be considered as good model. The p value is 0.00 which indicates that the value of R square is significant.

- **Model 3:**

Estimated Model:

$$y_2 = 4.852 - 0.189x_1 - 0.024x_2 - 0.003x_3 - 0.006x_4 + 0.042x_5 + 0.888x_6 - 0.043x_7 + 0.00x_8$$

Here NIM is taken as dependent variable. From the estimated model it is clear that variables such as size, CAR, LQ, DP and LEV have negative impacts on NIM while asset management and OPEF have positive effects on NIM. The contribution of OPEF is highest while the contribution of branch is almost nil in the determination of NIM. Further, OPEF has positive significant impact on NIM while LEV has significant negative impact. The value of Durbin Watson is 1.671 which means there is positive autocorrelation. The value of R square is 0.649 which indicates that around 65% variation in NIM is explained by all these independent variables and hence the model is considered to be good. The p value is 0.00 which is less than the level of significance and hence the value of R square is significant.

5. FINDINGS & CONCLUSION

Ever since the financial reforms of early 90's, the Indian banking industry has observed unprecedented changes in the structure. Most of these changes are notably occurred in terms of capital adequacy, non-performing assets and market



concentration. The present study investigated the impact of bank specific determinants on bank's profitability as measured by ROA, ROE and NIM of 7 public sector banks during a period from 2014-15 to 2018-19. Bank specific variables are taken as independent variables which comprise of size, CAR, LQ, DP, asset management, OPEF, LEV and branches. From the analysis it is found that size and branch is significant positively related with ROA. Size and asset management have significant positive correlation with ROE while OPEF and LEV have negative significant correlation. Further it is also found out that LQ, DP and LEV have negative significant correlation while Branch is significant positive correlation with NIM. From the regression analysis it is also seen that asset management has significant impacts on ROA and ROE while OPEF and LEV have significant impact on NIM. It is recommended that bank should concentrate more on their asset quality in order to improve their profitability.

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