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**DETERMINANTS OF PROFITABILITY OF COMMERCIAL BANKS IN INDIA**

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**ABSTRACT**

*In the changing economic environment of financial sector reforms, profitability is assuming greater importance. The financial viability of banks largely depends on the adequacy of Profits and Profitability, The aim of this study is to identify the determinants of profitability of major Scheduled Commercial Banks in India. We Include the Scheduled banks given in the official Annual RBI publication. The data is related to the year 2009-10. The result of the empirical study showed the Low Profitable Banking groups the major determinants of profitability are profit per employee, Non-Interest Income/Total Assets, Wage Bill/Total Assets. Similarly for the High Profitable group the major determinants of profitability are Non-Interest Income/Total asset, Wage Bill/Total expense, Capital Adequacy Ratio, and Non-Performing Assets.*

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**G21**

**KEYWORDS**

Commercial Banks, Non-Performing Assets, Profitability.

**1. INTRODUCTION****1.1 INDIAN BANKING INDUSTRY**

Financial Sector Reforms set in motion in 1991 have greatly changed the face of Indian Banking. The banking industry has moved gradually from a regulated environment to a de-regulated market economy. The market developments kindled by liberalization and globalization have resulted in changes in the intermediation role of banks. The pace of transformation has been more significant in recent times with technology acting as a catalyst. While the banking system has done fairly well in adjusting to the new market dynamics, greater challenges lie ahead. Financial Sector would be opened up for greater international competition under WTO Banks will have to gear up to meet stringent prudential capital adequacy norms under Basel II. Banks will also have to cope with challenges posed by technological innovations in banking. Banks need to prepare for the changes.

**1.2 MEASUREMENT OF BANK PROFITABILITY**

Several methods can be used to measure bank profitability of, all of which have some advantages and as well as some short comings. A popular method is to relate profitability to total bank assets. The rate of return is a valuable measure when comparing the profitability of one bank with another or with the commercial banking system.

The traditional measures of the profitability of any business are its return on assets (ROA) Assets are used by business to generate income, loans and Securities are a bank's assets and are used to provide most of a bank's income. However, to make loans and to buy securities, a bank must have money, which comes primarily from the bank's owners in the form of bank capital, from depositors and from money that it borrows from other banks or by selling debt securities – a bank buys assets primarily with funds obtained from its liabilities as can be seen from the following classic accounting equation:

Assets = Liabilities + Bank Capital (Owner's equity)

However, not all assets can be used to earn income, because banks must have cash to satisfy cash withdrawal requests of customers. This vault cash is held in its vaults, in other places on its premises such as teller's drawers and inside its automated teller machines (ATMs) and thus, earns no interest. Banks also have to keep funds in their accounts at the Federal Reserve that, before October, 2008, paid no interest. However, because of the credit crisis that was occurring at that time, the Federal Reserve Started paying interest on bank's reserves, although it is much less than market rates. A bank must also keep a separate account – Loan loss reserves – to cover possible losses when borrowers are unable to pay back their loans. The money held in a loan loss reserve account cannot be counted as revenue and, thus, does not contribute to profit

The ROA is determined by the amount of fees that it earns on its services and its net interest income:

**Net interest income** = Interest received on Assets – Interest paid on liabilities

= Interest earned on Securities + loan – Interest paid on deposits and Borrowings

Net interest income depends partly on the interest rate spread, which is the average interest rate earned on its assets minus the average interest rate paid on its liabilities.

**Interest Rate spread** = Average Interest Rate Received on Assets – Average Interest Rate Paid on liabilities

Net interest margin shows how well the bank is earning income on its assets. High net interest income and margin indicate a well-managed bank and also indicate future profitability.

**Net interest margin** =  $\frac{\text{Net Interest Income}}{\text{Average Total Assets}}$

ROA =  $\frac{\text{Fee Income} + \text{Net Interest Income} - \text{Operating Costs}}{\text{Average Total Assets}}$

ROA =  $\frac{\text{Net Income}}{\text{Average Total Assets}}$

**THE ROA FOR BANKS**

Because income is calculated over a time period, but assets, as a balance sheet factor, are determined at a particular time, average assets are used:

**Average Total Assets** =  $\frac{\text{Total assets at the end of fiscal year} - \text{Total assets at start of fiscal year}}{2}$

The rate of return on assets is a valuable measure when comparing the profitability of one bank with another to with the commercial banking system. A low rate of return might be the result of conservative lending and investment policies or excessive operating expenses. If savings accounts comprise an unusually large proportion of total deposits, interest expense may be higher than average. Banks could attempt to offset this by adopting more aggressive lending and investment policies to generate more income. A high rate of return on assets may be the result of efficient operations, of a low ratio of time and savings deposits to total deposits, or of high yields earned on the assets. If the last case is true, the bank may be assuming a high level of risk, for the higher returns yielded by the assets, the more likely they are to embody higher degrees of risk. This is not necessarily bad, for the bank may be doing a good job of managing its assets, although it may be subjecting itself to large potential losses.

## 2. REVIEW OF LITERATURE

**Elivia and Bansal** (1993) came to the conclusion that unprofitable expansion of bank branches in rural areas have led to lower profitability. They used regression model in their study to compare the effect of various factors on the profitability of twenty five scheduled commercial banks.

**Parasuraman** (2001) attempted to measure the performance of major banks in India in the year 1998-00 under the criteria of EVA. The study found that ranking of banks under Return of Assets assumes close resemblance to the ranking under EVA, whereas the ranking under other criteria like total income, interest, as percentage of total assets, spread, and net profits do not match with the ranking under EVA.

**Das** (2002) has studied the inter-relationships among capital, non-performing loans and productivity using data on public sector banks for period 1995-96 through 2001-01 and finds the three parameters to be intertwined, with each reinforcing and to a degree, completing the other.

**Bodia and Verma** (2007) attempted to identify the key determinants of profitability of Public Sector Banks in India. The analysis is based on step-wise multivariate regression model used on temporal data from 1991-92 to 2003-04. The study has indicated that the variables such as non-interest income, operating expenses, provision and contingencies and spread have significant relationship with net profits.

**Mittal and Dhade** (2007) compared various categories of banks on their productivity and profitability. They found no remarkable difference in the spread ratio but they found a significant difference in Burden ratio among the public sector and private sector & Foreign banks. Also according to them, those public sector banks that have been able to increase the productivity found themselves at par with the private sector banks.

**Ramchandran and Kavitha** (2009) conducted a census study to analyse the profitability of the Indian scheduled commercial banks by covering all the Indian Scheduled Commercial Banks, which have been divided into three groups viz., the SBI group, the Nationalized Banks group and the Private Banks group with two sessions, i.e., Period I and Period II by dividing the 10 year-study period into the first five years and the last five years. The step-wise multiple regression analysis was adopted for the study. An analysis of the SBI group reveals that in both the periods of study, the variable provisions and contingencies to total expenses occupied a prominent place. The nationalized banks group showed a position of provisions and contingencies to total expenses in the first half of the study period and Capital Adequacy Ratio (CAR) during the second half of the study period. In relation to the private banks group, it has changed from other interest expenses ratio to capital adequacy ratio.

**Sayilgan and Yildirim** (2009) conducted a study to find out the determinants of profitability of in Turkish Banking sector for the period of 2002-07. Return on assets and return on equity were explored using multivariable single equation regression method. Regression results demonstrated that consumer price index inflation and first difference of ratio of offbalancesheet transactions to total assets affect the profitability indicators negatively in a significant manner.

**Dhaliwal and Arora** (2009) analyzed the profitability of RRBs operating in Punjab and compared it with RRBs operating in India. The indicators selected to study the profitability and financial efficiency of the banks were return of funds, return on advances, cost of funds, cost of deposits, financial margin, non-interest income, operating cost, risk cost, net margin, credit deposit ratio, coverage ratio and gross NPA ratio for the period from 1994-95 to 2005-06 and was based on secondary data collected from annual reports of the banks and various publication of NABARD. Percentage analysis has been applied to calculate various profitability and efficiency indicators.

## 3. NEED AND SIGNIFICANCE OF THE STUDY

As discussed earlier the financial viability of the banks depends on the profitability. So, it becomes important to determine the prime determinants that affect the profitability of banks. Economic crises in the past have shown that problems in banking sector can spread to overall economy and lead to big-scale crises. It is for sure that as the share of banking sector in financial system increases, the role of the sector in macroeconomic stability and economic growth also becomes prominent.

Resilience of a banking sector is undoubtedly closely related to its profitability which can be used to strengthen capital structure through auto-financing. Profitability assumes greater importance in the changing scenario of autonomy and financial sector reforms. The viability of banks depends largely on the adequacy of profits and profitability. Profitability in banking parlance denotes the efficiency with which a bank deploys its total resources to optimize its net profits and thus serve as an index to the degree of asset utilization and managerial efficiency.

It becomes important to identify the factors that directly affect the profitability of the banks. Moreover very scanty work has been done with the objective of identifying the determinants of profitability of banks in India. So in order to fill this gap this topic was chosen.

## 4. OBJECTIVES OF THE STUDY

In the light of the above discussion and of the serious concern of the monetary authorities and the bank management about declining profitability of banks, the study attempts to examine the various factors having an impact on bank profitability so as to suggest the ways to improve their profitability.

In particular the three broad objectives pursued are:

1. To identify the determinants that influences the profitability of Indian Commercial Banks.
2. To identify the most critical profitability ratios
3. To suggest measures to improve the profits and profitability.

## 5. RESEARCH METHODOLOGY

### 5.1 SOURCES OF THE DATA

The sources of data is the secondary sources such as official website of Reserve Bank of India ([www.rbi.org.in](http://www.rbi.org.in)) and the audited balance sheet and Income and expenditure statement of each bank under study.

### 5.2 SAMPLING

The study is confined to the major scheduled commercial banks in India. The sample includes all the Scheduled banks given in the official Annual RBI Publication.

The sample consists of 78 banks -

• SBI & Its Associates	7
• Nationalized Banks	20
• Other Scheduled Commercial Banks (Private Banks)	21
• Foreign Banks	30
All Banks	78

The data is related to the year 2009-10.

The source of data is the official website of Reserve Bank of India

**5.3 TOOLS TO ANALYSE THE DATA****5.3.1 CORRELATION ANALYSIS**

Correlation analysis attempts to study the relationship between two or more variables. The correlation coefficient of the selected independent variables with the bank profitability has been worked out in order to identify the most important variables or the variables which have higher association with the dependent variable.

Also, the correlation coefficient among the different variables has been worked out so as to arrive at a correlation matrix which incorporates correlation coefficients of all the selected variables with the dependent variable, as well as correlation coefficient among different independent variables. The test of significance has also been applied in order to identify the variables which have significant correlation.

**5.3.2 REGRESSION ANALYSIS**

Regression analysis attempts to study the functional relationship between the variables and provides a mechanism for prediction. As profitability of the banks is the result of several variables, the impact of each selected variable on bank profitability has been studied through multiple regression analysis.

**5.3.3 MULTIPLE REGRESSION ANALYSIS**

In order to investigate the effect of several independent variables (X), a multiple regression model has been used. The Linear Multiple regression model involving the dependent variable Y and independent variables (X<sub>2</sub>, X<sub>3</sub>,.....X<sub>p</sub>) can be written as

$$Y_i = \alpha + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_p X_{pi} + e_i$$

Where,

$\alpha$  denotes the intercepts,  $\beta_2, \dots, \beta_p$  are the partial regression coefficients,  $i = 1, \dots, n$  observations and  $e_i$  is the residual term associated with the 'i'<sup>th</sup> observation. Thus the multiple regression model gives the expected value of Y conditional upon the fixed values of X<sub>2</sub>, X<sub>3</sub>, X<sub>p</sub> plus the error component.

**5.3.4 STEP- WISE REGRESSION PROCEDURE**

Many procedures have been developed to estimate the regression coefficients of selected independent variables. Forward selection starts with constant and adds variables that result in the largest R<sup>2</sup> increase. Backward elimination begins with a model containing all independent variables and removes the variables that changes R<sup>2</sup> the least. Stepwise selection, the most popular method, combines forward and backward sequential approaches. The independent variable that contributes most to explaining the dependent variable is added first. Subsequent variables are included based on their incremental contribution over the first variable and on whether they meet the criterion for entering the equation ( e.g., a significance level of .01). Variables may be removed at each step if they meet the removal criterion, which is a larger significance level than that for entry.

**ASSUMPTIONS OF MULTIPLE REGRESSIONS**

Classical linear regression models rest on five assumptions:

- (1) the dependent variable can be calculated as a linear function of a specific set of independent variables and as a disturbance term;
- (2) the error has a zero expected value, that is,  $E(\epsilon) = 0$ ;
- (3) the error terms have constant variance for all the observations, that is,  $E(\epsilon^2) =$
- (4) the random variables  $e_i$  are statistically independent of each other, that is,  $E(\epsilon_i, \epsilon_j) = 0$  for all  $i \neq j$ ; and
- (5) the number of observations is greater than the number of independent variables, and there is no exact linear relationship between the independent variables.

If the error term has a constant variance (as assumed above), it is called *homoskedastic*; if the error variance is itself variable, the error is *heteroskedastic* (see heteroskedasticity). Further, if the error terms corresponding to different observations are correlated, they are called *autocorrelated* error terms. (This is common with time-series data.) If two or more independent variables are approximately linearly related in the sample data, then there is a problem of multicollinearity. Statistical analysis can test whether the standard assumptions hold. Where any of the above problems appear, new estimators are needed.

**DEPENDENT AND INDEPENDENT VARIABLE**

Indian banking has the distinction of being driven by the dual forces of the government interventions in the form of RBI ( Reserve Bank of India) stipulations, and the efficiency of internal bank management. This is in addition to the investment behavior of the consumers and the trend of public savings in the economy. Two of the major RBI interventions: Capital Adequacy Ratio and Priority Lending Norms. Higher CRAR indicates that a bank's large amount of money is stuck in provisions or risk management, meaning that there will be fewer money left for investment or for the continuation of the activity. Priority advances/Net Advances shrinks the bottom line of these individual banks because the return on advances is relatively less.

The factors which are internal to the banks include various efficiency and operational parameters. These parameters can be broadly be classified on four broad parameters. These are as follows:

- a) **Liquidity of the bank (L)**: Liquidity for a bank means the ability to meet its financial obligations as they come due. Bank lending finances investments in relatively illiquid assets, but it fund its loans with mostly short term liabilities. Thus one of the main challenges to a bank is ensuring its own liquidity under all reasonable conditions.
- b) **Return Performance (RP)**: The three basic parameters that measure returns generated by bank are : Interest income, Non-Interest income and net interest spread, all divided by total assets. Net interest spread is the difference between interest income and interest expenditure. Higher the net spread, higher the profitability.
- c) **Expense Parameters (EP)**: Two parameters are used under this. They are wage bill/ total expenses and cost of deposits. Both of these have normally a negative effect on the profitability.
- d) **Operational Efficiency (OE)**: Non- performing assets ( as a percentage of net advances) and profit per employee are usually the prime measure of operational efficiency. Higher figures in any may erode the long term profitability of the bank concerned.

The Functional relationship

The Return on Assets is related to the above said exogenous and endogenous factors by the following relationship:

$$ROA = f ( RBI, L, RP, EP, OE)$$

Where,

RBI denotes the interventions of the Reserve Bank of India. Only one parameter i.e., Capital Risk Adequacy Ratio is studied under this.

L stands for Liquidity of the banks

RP stands for Return Performance

EP stands for Expense Parameters

OE stands for Operational Efficiency

**INDEPENDENT VARIABLES**

The independent variable is typically the variable representing the value being manipulated or changed. In the given study we have taken eleven independent financial ratios relating to the year 2009-10.

The eleven independent variables being considered are given below:

- I. Independent variable due to RBI intervention –
  1. CRAR
- II. Independent variable due to the banks internal operations/ management
  - A. **Liquidity of the bank ( L )**
    2. Credit/Deposit Ratio
    3. Investment / Total Deposit Ratio
  - B. **Return Performance ( RP )**

- 4. Interest Income/Total Assets
- 5. Non- Interest Income /Total Assets
- 6. Net Interest spread/ Total Assets
- 7. Return on Advances
- C. Expense Parameter ( EP)**
- 8. Wage Bill Total expense
- 9. Cost of Deposits
- D. Operational Efficiency f OE)**
- 10. Non-Performing Assets/ Net Advances
- 11. Profit per Employee

**THE DEPENDENT VARIABLE**

The dependent variable is the observed result of the independent variable. In the given study the dependent variable is Return on assets (ROA). ROA is considered as the measure of the profitability of banks. So we are trying to see the relationship of ROA with respect to other independent variables.

**6. ANALYSIS AND FINDINGS**

The data for all scheduled banks in India (78 banks in all) were entered in an excel file and all the 11 independent variables were calculated for the year 2009.

The model constructed for finding the determinants of ROA is as follows:

$$ROA = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9$$

$\beta_0$  represents the constant term, and  $\beta_1$  .....  $\beta_{11}$  n represents the Coefficients of the Independent Variables  $X_1, X_2, \dots, X_{11}$  respectively.

As we have used Standardized Coefficients of beta.

$\beta_0 = 0$ , And  $X_1, \dots, X_{11}$  represents the 11 Independent Variables used in the study which have been explained earlier.

Now, multi-variable, single-equation regression model was applied using SPSS 17.0 Software Package. Firstly, the SPSS code file was Split on the basis of the Group where 0 was the Low Profitable Group (having ROA less than 1) and 1 was High Profitable Group (having ROA equal to or more than 1). The coefficients of the model taken from the regression results for the year 2009-10 are as below:

a) Low Profitable Group

We know that the regression procedure, via the least square method of estimation, gives us the line that fits the points better than any other. But in this situation also a question arises that how good is the fit. It may well be the case that the best fitting line is not especially close to all points at all.

Model Summary<sup>d</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.684 <sup>a</sup>	.468	.450	.85245
2	.951 <sup>b</sup>	.904	.897	.36881
3	.958 <sup>c</sup>	.919	.910	.34478

a. Predictors: (Constant), Non-Interest Income/Total Assets

b. Predictors: (Constant), Non-Interest Income/Total Assets, Profit per Employee

c. Predictors: (Constant), Non-Interest Income/Total Assets, Profit per Employee, Wage Bill/ Total Expense

d. Group = low profitable

This part of regression output- the model summary- reports a statistic that measures "goodness of fit." The statistic is called the coefficient of determination, represented by R square. It is square of r, the coefficient of correlation. As this is a multiple regression so, we will ignore R Square but Adjusted R Square will be used.

R square can range from 0.0000 to 1.0000, and indicates the extent to which the line fits the points; 1.000 is a perfect fit, such that each point is on the line. The higher the value of adjusted R square, the better. So, in this year we can see that changes in Non-Interest Income /total assets accounts for 45% of the variation in ROA, but when all the three variables are taken together their total effect in 91.0 percent. Rest of this is because of the other variables which are otherwise insignificant. Also, in this study, Stepwise regression technique is used.

Coefficients<sup>ab</sup>

	B	Std. Error	Beta		
1 (Constant)	.500	.165		3.031	.005
Non-Interest Income/Total Assets	-.160	.031	-.684	-5.133	.000
2 (Constant)	.399	.072		5.555	.000
Non-Interest Income/Total Assets	-.158	.013	-.678	-11.771	.000
Profit per Employee	.078	.007	.660	11.457	.000
3 (Constant)	.770	.176		4.371	.000
Non-Interest Income/Total Assets	-.151	.013	-.648	-11.689	.000
Profit per Employee	.076	.006	.644	11.861	.000
Wage Bill/ Total Expense	-.023	.010	-.127	-2.276	.031

a. Group = low profitable

b. Dependent Variable: ROA

The Regression equation is:

$$ROA = 0.770 - 0.151 X_5 + 0.076 X_{11} - 0.023 X_8$$

We now have one intercept (constant) and 3 slopes, one for each of the three explanatory variables. The intercept represents the value of ROA when all of the 3 variables are equal to zero. Each slope represents the marginal change in ROA associated with a one unit change in the corresponding independent variable, if other variables were to remain constant. Also by using this equation we can predict the value of ROA if we know the values of the other independent variables.

The coefficient table also reports standardized coefficients, or betas for each variable. The equation using the betas is:

$$ROA = -0.648 X_5 + 0.644 X_{11} - 0.127 X_8$$

These betas (or beta weights) allow us to compare the relative importance of each independent variable. In this case:

Signs for Coefficients for Independent Variables:

- Sign Independent Variables
- Positive Profit Per Employee
- Negative Non-Interest Income/total assets, wage bill/ total assets

So, the results of this empirical study shows that for the Low Profitable Banking group the major determinant of Profitability are Profit per Employee, Non-Interest Income/total assets, wage bill/ total assets. The Return on Assets was affected positively by Profit per Employee. This means as the profit per Employee increase the ROA also increases. This is very obvious as banking industry is a service industry and also labour intensive so, as the profit per employee increases ROA also increases. Now, Non-Interest Income/total assets, wage bill/ total assets have a negative beta coefficient. The Return on assets was affected negatively by the Non-Interest income/total assets. This means as the Non-Interest income/total assets for a bank increases its ROA decreases. This is also very logical as for any bank, if it has high level of this ratio, it has a direct affect on its profitability because for a low profitable bank if the major source of income in the Non-Interest income then it is matter of great concern because for a low profitable bank the major source of income should be the interest income and for a low

profitable bank it is not possible to continue other investments to earn this Non-Interest income. So, in future its investments decrease the profitability will be affected to a great extent. So, More the Non-Interest income/total Assets of a bank, lesser the ROA and less profitable it is. Similarly, Wage Bill/ Total Expense have a Negative coefficient. This means that as this ratio increases the ROA decreases and vice versa. This happens because as the wage bill increases the profit per employee and the total expense increases which hampers the profitability of any bank. So, if the percentage of wage bill in the total expense will be more the profitability will be less.

b) High Profitable Group

**Model Summary<sup>6</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.699 <sup>a</sup>	.488	.472	.58981
2	.873 <sup>b</sup>	.762	.748	.40795
3	.917 <sup>c</sup>	.842	.826	.33838
4	.933 <sup>d</sup>	.880	.864	.29929
5	.957 <sup>e</sup>	.917	.902	.25404
6	.970 <sup>f</sup>	.941	.928	.21740

- a. Predictors: (Constant), Net Interest Spread/Total Assets
- b. Predictors: (Constant), Net Interest Spread/Total Assets, Non-Interest Income/Total Assets
- c. Predictors: (Constant), Net Interest Spread/Total Assets, Non-Interest Income/Total Assets, Wage Bill/ Total Expense
- d. Predictors: (Constant), Net Interest Spread/Total Assets, Non-Interest Income/Total Assets, Wage Bill/ Total Expense, Profit per Employee
- e. Predictors: (Constant), Net Interest Spread/Total Assets, Non-Interest Income/Total Assets, Wage Bill/ Total Expense, Profit per Employee, CRAR
- f. Predictors: (Constant), Net Interest Spread/Total Assets, Non-Interest Income/Total Assets, Wage Bill/ Total Expense, Profit per Employee, CRAR, Non-Performing Assets/Net Advances
- g. Group = high profitable

R square can range from 0.0000 to 1.0000, and indicates the extent to which the line fits the points; 1.000 is a perfect fit, such that each point is on the line. The higher the value of adjusted R square, the better. So, in this year we can see that changes Net Interest Spread/Total Assets for 47.2% of the variation in ROA, but when all the six variables are taken together their total effect in 92.8 percent. Rest of this is because of the other variables which are otherwise insignificant. Also, in this study, Stepwise regression technique is used.

**Coefficients<sup>a,b</sup>**

Model	Unstandardized coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.365	.233		1.567	.127
Net Interest Spread/Total Assets	.345	.061	.699	5.608	.000
2 (Constant)	.350	.161		2.168	.038
Net Interest Spread/Total Assets	.295	.043	.597	6.807	.000
Non-Interest Income/Total Assets	.051	.008	.534	6.081	.000
3 (Constant)	.805	.177		4.552	.000
Net Interest Spread/Total Assets	.294	.036	.596	8.188	.000
Non-Interest Income/Total Assets	.069	.008	.719	8.295	.000
Wage Bill/ Total Expense	-.031	.008	-.337	-3.938	.000
4 (Constant)	.805	.156		5.148	.000
Net Interest Spread/Total Assets	.266	.033	.539	8.061	.000
Non-Interest Income/Total Assets	.072	.007	.754	9.732	.000
Wage Bill/ Total Expense	-.034	.007	-.375	-4.896	.000
Profit per Employee	.011	.003	.206	3.103	.004
5 (Constant)	1.015	.145		6.986	.000
Net Interest Spread/Total Assets	.281	.028	.569	9.913	.000
Non-Interest Income/Total Assets	.075	.006	.781	11.801	.000
Wage Bill/ Total Expense	-.035	.006	-.388	-5.961	.000
Profit per Employee	.013	.003	.261	4.466	.000
CRAR	-.015	.004	-.204	-3.555	.001
6 (Constant)	1.074	.126		8.558	.000
Net Interest Spread/Total Assets	.315	.026	.638	12.007	.000
Non-Interest Income/Total Assets	.099	.009	1.033	11.092	.000
Wage Bill/ Total Expense	-.042	.005	-.456	-7.706	.000
Profit per Employee	.020	.003	.386	6.223	.000
CRAR	-.019	.004	-.258	-4.994	.000
Non-Performing Assets/Net Advance	-.156	.046	-.309	-3.406	.002

- a. Group = high profitable
- b. Dependent Variable: ROA

The Regression equation is:

$$ROA = 1.074 + 0.315 X_6 + 0.099 X_5 - 0.42 X_8 + 0.20 X_{11} - 0.19 X_1 - 0.156 X_{10}$$

We now have one intercept ( constant) and 6 slopes, one for each of the three explanatory variables. The intercept represents the value of ROA when all of the 6 variables are equal to zero. Each slope represents the marginal change in ROA associated with a one unit change in the corresponding independent variable, if other variables were to remain constant. Also by using this equation we can predict the value of ROA if we know the values of the other independent variables.

The coefficient table also reports standardized coefficients, or betas for each variable. The equation using the betas is:

$$ROA = 0.638 X_6 + 1.033 X_5 - 0.456 X_8 + 0.386 X_{11} - 0.258 X_1 - 0.309 X_{10}$$

These betas (or beta weights) allow us to compare the relative importance of each independent variable. In this case:

Signs for Coefficients for Independent Variables in the Descending Order of their affect on the Profitability:

- Sign Independent Variables
- Positive Non-Interest Income/Total Assets, Net InterestIncome/Total Assets, Profit per Employee
- Negative Wage bill/Total Expense, CRAR, Non-Performing Assets

Now, for the High Profitable group the Major Determinants of profitability for the year 2009-10 are Non-Interest Income/Total Assets, Net Interest Income/total assets. Profit per Employee, Wage Bill/Total Expense, CRAR, and Non-Performing Assets .The signs of their coefficients are shown in the above table. Non-Interest income/total assets affect the ROA positively and to the most significant Extent. This was expected as for a high profitable bank other investments are very important. All the high profitable banks have more or less same level of interest income. So, the profitability game rests on the shoulder of investments. As

these high profitable banks have huge capital that they can invest so, better their other investments like stocks, bonds etc. Better is their profitability. But we have seen above that in case of low profitable banks, it was just the opposite. Net interest income/total assets affect the ROA positively and to the most significant Extent. This was expected as the interest is the major source of income for the banks. So, it has to be a major profitability measure. So, as the net interest income/total assets increases the ROA of the high profitable bank increases. Similarly, The Return on Assets was affected positively by Profit per Employee. This means as the profit per Employee increase the ROA also increases. This is very obvious as banking industry is a service industry and also labours intensive so, as the profit per employee increases ROA also increases. Wage Bill/ Total Expense have a Negative coefficient. This means that as this ratio increases the ROA decreases and vice versa. This happens because as the wage bill increases the profit per employee and the total expense increases which hampers the profitability of any bank. So, if the percentage of wage bill in the total expense will be more the profitability will be less. Similarly, Non-Performing assets and CRAR adversely affects the ROA or the profitability of the bank.

## 7. SUMMARY AND CONCLUSION

A well planned, organized, efficient and viable banking system is a necessary concomitant of economic and social infrastructure of the economy. Banking occupies a crucial place in undertaking the development effort and acts as a vehicle for socio- economic transformation as well as a catalyst to economic growth. In the post reform period, Indian banking system has become quite complex and varied. Banks have evolved into a technology for delivering a wide range of financial services and are no longer a merely an institution of financial intermediation. The activities of bank have encompassed advisory roles as well as a monitoring function with a distinct disciplining base. Demands of innovativeness and creativity have been placed on bankers to such an extent that commercial banks are considered as one of the basic infrastructural points in promoting development.

In the study, bank profitability was measured by the net returns generated out of total resources deployed. This is given by Return on Assets i.e. net profits as percentage of total assets. An attempt was made to identify the most critical profitability ratios using stepwise multiple regression analysis.

The objective of the study was to identify the determinants that influence the profitability of Indian Commercial Banks and also identify the most critical profitability ratios. For the purpose of this analysis few representative determinants were chosen. For data collection secondary data collected from RBI publication were referred. The sample included all scheduled commercial banks in India. The study was done for the financial year 2009-10.

The results of the empirical study for the year 2009-10 showed that for the low Profitable Banking group the major determinant of Profitability are Profit per Employee, Non-Interest Income/total assets, wage bill/ total assets. The Return on Assets was affected positively by Profit per Employee whereas it was negatively affected by Non-Interest Income/total assets, wage bill/ total assets.

Similarly for the High Profitable group the Major Determinants of profitability for the year 2009-10 are Non-Interest Income/Total Assets, Net Interest Income/total assets, Profit per Employee, Wage Bill/Total Expense, CRAR, and Non-Performing Assets. Out of these Interest Income/Total Assets, Net Interest Income/total assets, Profit per Employee affect ROA positively whereas Wage Bill/Total Expense, CRAR, and Non-Performing Assets have a negative effect on the ROA.

Finally in order to conclude the banks should focus on the various factors that have a positive impact on the overall profitability such as Non-Interest Income/Total Assets, Net Interest Income/total assets, Profit per Employee and Cost of Funds as improving these financial ratios will in turn improve the overall profitability whereas Banks should try to eliminate factors that have a negative impact such as wage bill/ total expense, CRAR and Non-Performing Assets.

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