

Profitability Valuation In Indian Banks – Emperics via David Cole Model

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Abstract: The ever changing business lines in the Indian Banking has been prompting the researchers to find out the best business line. Since banking sector is one of the most important instrument of the national development, it occupies a unique place in a nation's economy. Economic development of the country is evident through the soundness of the banking system. Deregulation in the financial market, market liberalization, economic reforms have witnessed astounding changes in banking industry leading to incredible competitiveness and technological sophistication leading to a new era of in banking. Since then, every bank is relentless in their endeavor to become financial strong and operationally efficient and effective. Ratio analysis in different ways has been interpreted for ascertaining the liquidity, profitability and solvency of a bank. DuPont analysis, a common form of financial statement analysis, decomposes return on net operating assets into two multiplicative components: profit margin and asset turnover. In case one has to rank a Bank, this method of David Cole comes a handy tool. The objective of this paper is to evaluate the sources and magnitude of performance, profitability and productivity of the listed Indian Banks in the Bank Nifty Group of National Stock Exchange visa vis the selected risk taken. Secondary data has been collected by the authors, data of succeeding financial years (2007-08), (2008-09), (2009-10), (2010-11), (2011-12), (2012-13), (2013-14) and (2014-15) has been massaged, interpolated and analyzed as per David Cole Model and then Chi square tool has been applied to ROA, ROE and EM as variables to the private sector Banks viz. ICICI Bank Ltd, Axis Bank Ltd and HDFC Bank Ltd vis a vis SBI group, Punjab National Bank and Bank of Baroda. The concepts of High performance Banks w.r.t cost advantages have been empirically explained by the authors in this vivid and lucid paper. We find that the Null hypothesis is accepted and the Overall Efficiency of the Banks does not depend on the Class of the Bank but depends on various financial variables in terms of asset utilization, Leverages and other key performance indicators.

Key words 1. UBPR- Uniform Bank Performance report
2. ROA = Return on Assets
3. ROE = Return on Equity
3. EM = Equity Multiplier
5 NIM = Net Interest Margin
6. ER = Efficiency Ratio

JEL classification – G2, G21, M4

I. Introduction

With the vivacious business that financial institutions enter in a modern day market and the culmination of complex tools that they use for making profits and survive in the fierce competition the congruency of the thought process becomes very difficult for measurement and evaluation of the performance of these institutions. The difficulty arises not only of the difficult operations and tools but the varied kind of institutions that are present and indulge in these activities being governed by different laws, practices and regulations and the various models that are present to evaluate the performance.

The most dominating among these institutions are the banks, no doubt, providing services and employment to large strata of population and performing the twin role of providing an infrastructural base for other business to prosper and also leading as commercial institutions that provide their shareholders with a high ROE. With the collapsing of major banks all over the world the trust ability of the financial statements of the same has become questionable both from an economic and social point of view. The major names like Lehman brothers, Merrill lynch AIG are common examples. Although it is largely believed and said that INDIAN banks have had an upper hand and have not been effected much by the saga but is it really so. The investors all over the world have lost trust, real or notional, in these prime institutes. The debate also goes on whether the public sector banks are better performers and evaluation measure of the economy or is it the private sector banks which

aim for high commercialization to generate profit maximization and lead the ideology of money making. To evaluate thus in Indian context the performance of banks we have used the widely accepted DAVID COLE model which uses various parameters in the form of ratios to analyze the banks performance and provide great insights which are specific to see in depth any operations of the bank whether it be incomes (fee based or non fee or treasury function) or the expenditures (operating, tax, non operating). The authors in the paper have taken 6 banks, i.e. 3 public (SBI, BOB and PNB) and 3 private sector banks (ICICI, HDFC, AXIS) and compared them on the DavidCole model and analyzed their performance on the basis of ROE, ROA and EQUITY MULTIPLIER.

David Cole Model

In 1972, David Cole introduced a procedure for evaluating bank performance via ratio analysis. It is based on DuPont system of financial analysis and it was adopted by Cole in 1972. It enables to evaluate the source and magnitude of bank profits relative to selected risk taken. It uses the return on equity model to analyze bank profitability, which shows the potential return on common stockholders, and identifies specific measures of credit, liquidity rate risk, and capital risk. The ratio is used to access the performance of the two or more banking organizations introduced earlier.

The ROE model simply relates ROE to ROA and Equity Multiplier then decomposes ROA into contributing elements like AU (asset utilization), expanses ratio, and tax ratio.

$$\text{ROE} = \text{Net Income} / \text{Average Total Equity}$$

ROE equals net income divided by average total equity and, thus, measures the percentage return on each rupee of stockholders' equity. It is the aggregate return to stockholders before dividends. ***The higher the return the better***, as bank can add more to retained earnings and pay more in cash dividends when profits are higher.

$$\text{ROA} = \text{Net Income} / \text{Average total assets}$$

ROA equals net income divided by average total assets and, thus, measures net income per rupee of average assets owned during the period.

ROE is linked to ROA by the equity multiplier, which equals average total assets divided by average total equity.

$$\text{EM} = \text{Average Total Assets} / \text{Average Total Equity}.$$

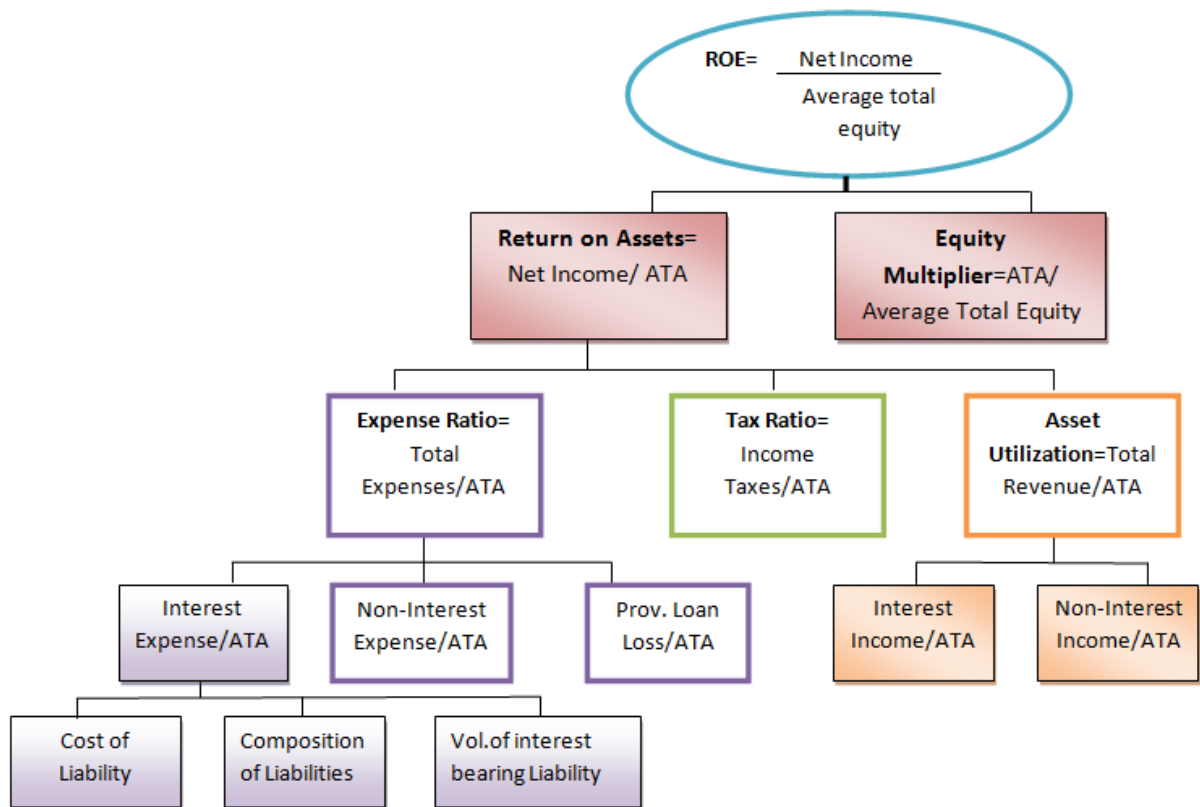
A banks equity multiplier compares assets with equity such that large values indicate a large amount of debt financing relative to stockholders' equity. EM thus measures financial leverage and represents both a profit and risk measure.

Via the following accounting identity:

$$\text{ROE} = \frac{\text{Net income} * \text{Average Total Assets}}{\text{Average Total Assets} * \text{Average Total equity}}$$

In the above equation **ROE= ROA*EM** which signifies the multiplier impact on ROA. EM affects a banks' profit because it has a multiplier impact on ROA to determine a banks' ROE. If the multiplier is high which signifies the high debt and a low equity in this case stockholders will get a higher earning as compare to a lower multiplier.

Return on Equity Model (DAVID Cole Model) – Dupont Analysis



II. Review Of The Literature

Sundararajan, 2002, p.20 stated that relying too heavily on just a few indicators of bank profitability can be misleading. While ROA, ROE, and interest margin (and noninterest expenses) to gross income remain the key measures, they should ideally be supplemented by the analysis of other operating ratios. (Avkiran, 1995) says financial performance of banks and other financial institution is the combination of financial ratio analysis, benchmarking, measuring performance against budget or mix of these methodologies Avkiran (1995) and Dietrich (1996) Different aspect of the DuPont financial ratios appears to be applicable to the banks and other financial institutions. Financial Markets Department (2000) affirmed that ratio analysis is a reflection of the true state of affairs of the performance of any business. Notwithstanding the usefulness of financial ratio analysis in providing useful insight to an entities performance it does have some important limitations as an analytical tool in bank performance analysis. Aarma et al (2003) indicated that banks financial performance of commercial bank measured in terms of capital adequacy and methodology used as ordinary least square method (Onaolopo and olufemi 2012). Jamal and Shariff (2012) attempted on dividend policy and to pay cash dividend implemented by US commercial banks as a possible alternative choice for dividend seeking investors. Most of the banks paid dividend at increasing rate and few banks have stopped. The study also indicated that the main predictor variables in predicting cash dividend are total assets, return on equity and equity to liability. ROE has been a deciding ratio for ascertaining the profits in a bank earned vis a vis the shareholder equity invested in a balance sheet. The higher is the ROE, the better profits re for the bank. Work by Nissim and Penman (2001) provides an approach to equity valuation using the residual income framework that gives a simple direct mapping of financial ratios to equity valuation. In particular they use DuPont analysis, which decomposes a firm's return on net operating assets (RNOA) into profit margin (PM) and asset turnover (ATO) where RNOA = PM * ATO. PM and ATO are accounting signals that measure different constructs about a firm's

operations. Velnamby, T. (2005) and Velnamby, T. (2013) have elaborated the indicators of profitability are Gross profit ratio (GPR); Net profit ratio (NPR); Return on assets (ROA); Return on equity (ROE)

III. Objectives of The Study :

1. To understand the David Cole model in depth and find out the critical importance of the same in analyzing any bank's performance.
2. To gain an in depth insight of the performances of various Indian banks which were decided on past results of the banking sector industry.
3. To see which banks performance is the best among all six and crucially examines the reasons for the same.
4. To evaluate through a chi-square test whether the bank's performance is dependent if it's private or public and if yes what are the reason for one better performing over the other.
5. To observe the entire spectrum of banking industry all over the world and compare the Indian bank's performance with the same and suggest any measures to be taken with the conclusions and recommendations.

IV. Methodology:

The data for the study have been taken from secondary resources such as bank nifty, financial statements and results obtained from various sources and compiled together and put in a format and then various ratios have been calculated as per the David Cole model for each of the banks. These include ROE, ROA, EQUITY MULTIPLIER, INTEREST EXPENSE RATIO, OPERATING EXPENSE RATIO, PROVISION FOR EXPENSE RATIO, INTEREST INCOME RATIO, NON INTEREST INCOME RATIO, ASSET UTILIZATION and NET INTEREST INCOME for a period spanning from 2007 to 2015. The aim of the authors was to evaluate each bank on various parameters as per the model and thus each ratio for each of the bank has been calculated separately in excel sheet and then also compared to various averages and analyzed the performance measures separately for public and private sectors. All the parameters are calculated over the years. The result has been presented in the forms of various charts, graphs, diagrams, and excels sheets. The snapshots of these sheets have been duly presented in the paper. Various insights have been developed for the same. The criticality of the study arose when we had to compare the performance of both the sectors and see which one was performing better and analyzed the reasons for the same. The test thus applied was the Chi Square to compare whether the bank's performance is based whether it belongs to a specific sector or not. There were various other performance measures included as well which are critical for any bank's performance, like spread, burden, net interest margin, operating leverage and financial leverage. All these measures applied and ratios thus calculated have helped in understanding a bigger scenario of the industry and analyze the root causes of performances of each bank on various parameters.

CHI SQUARE TEST

➤ Introduction

Chi-Square tests enable us to test more than two population proportions. If we classify a population into several categories with respect to two attributes (such as age and job performance) we can then use a chi-square test to determine whether the two attributes are independent of each other.

The Chi-square Test-statistic

Like t and F distributions, a χ^2 distribution is also a function of its degrees of freedom. This distribution is skewed to the right and the random variable can never take a negative value. Theoretically, its range is from 0 to ∞ as shown in figure later. The χ^2 -test statistic is given by

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

where O = an observed frequency in a particular category
 E = an expected frequency for a particular category

The degrees of freedom for the one-dimensional chi-square statistic are:

df = n - 1 Where n is the number of categories or levels of the independent variable.

The degrees of freedom for the two-dimensional chi-square statistic are:

$df = (c - 1)(r - 1)$ Where c is the number of columns or levels of the first variable and r is the number of rows or levels of the second variable.

➤ Decision Rule

The calculated value of χ^2 is compared with its critical value at a particular level of significance and degrees of freedom. If $\chi^2_{cal} > \chi^2_{critical}$, then the null hypothesis is rejected in favour of the alternative hypothesis, and it is concluded that the difference between two sets of frequencies is significant.

Since the mean of χ^2 -distribution is equal to the number of degrees of freedom, therefore skewness of this distribution is considerable when the number of degrees of freedom is small, but it reduces as the number of degrees of freedom increases as shown in figure earlier.

➤ Contingency Table Analysis:

Chi-Square Test of Independence

The χ^2 test of independence is used to analyze the frequencies of two qualitative variables or attributes with multiple categories to determine whether the two variables are independent. The chi-square test of independence can be used to analyze any level of measurement, but it is particularly useful in analyzing nominal data.

- Whether voters can be classified by gender is independent of the political affiliation
- Whether university students classified by gender are independent of courses of study
- Whether wage-earners classified by education level are independent of income
- Whether type of soft drink preferred by a consumer is independent of the consumer's age.
- Whether absenteeism is independent of job classification
- Whether an item manufactured is acceptable or not is independent of the shifts in which it was manufactured.
- The test of independence uses the contingency table format and is also referred to as a *contingency table Analysis* (or Test).

Table 11.1: Contingency Table

Variable B	Variable A				Total
	A_1	A_2	...	A_c	
B_1	O_{11}	O_{12}	...	O_{1c}	R_1
B_2	O_{21}	O_{22}	...	O_{2c}	R_2
.
.
.
B_r	O_{r1}	O_{r2}	...	O_{rc}	R_r
Total	C_1	C_2	...	C_c	N

The expected frequencies in each cell of the contingency table are calculated as follows:

$$E = \frac{\text{Row Total} * \text{Column Total}}{N}$$

The analysis of a two-way contingency table helps to answer the question whether the two variables are unrelated or independent of each other. Consequently, *the null hypothesis for a chi-square test of independence is that the two variables are independent*. If null hypothesis H_0 is rejected, then two variables are not

independent but are related. Hence, the χ^2 -test statistic measures how much the observed frequencies differ from the expected frequencies when the variables are independent.

Steps to conduct Chi-Square Test of Independence

Step 1: State the null and alternate hypothesis

H_0 : No relationship or association exists between two variables, i.e. they are independent

H_1 : A relationship exists, i.e. they are related

Step 2: Select a random sample and record the observed frequencies (O values) in each cell of the contingency table and calculate the row, column and grand totals.

Step 3: Calculate the expected frequencies (E values) for each cell:

$$E = \frac{\text{Row Total} * \text{Column Total}}{N}$$

Step 4: Compute the value of test-statistic

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Step 5: Calculate the degrees of freedom. The degrees of freedom for the chi-square test of independence are:

$$df = (\text{Number of rows} - 1) (\text{Number of columns} - 1) = (r - 1) (c - 1)$$

Step 6: Using a level of significance α and df, find the critical (table) value of χ^2_{α} .

This value of χ^2_{α} corresponds to an area in the right tail of the distribution.

Step 7: Compare the calculated and table values of χ^2 . Decide whether the variables are independent or not, using the decision rule:

- Accept H_0 if χ^2_{cal} is less than its table value $\chi^2_{\alpha, (r-1)(c-1)}$
- Otherwise reject H_0

Chi-Square Test for Goodness-of-Fit

On several occasions a decision-maker needs to understand whether an actual sample distribution matches or coincides with a known theoretical probability distribution such as binomial, poisson, normal, and so on. *The χ^2 test for goodness-of-fit is a statistical test of how well given data support an assumption about the distribution of a population or random variable of interest. The test determines how well an assumed distribution fits the given data.* The observed frequencies or values come from the sample and the expected frequencies or values come from the theoretical hypothesized probability distribution. The goodness-of-fit test now focuses on the differences between the observed values and the expected values. Large differences between the two distributions throw doubt on the assumption that the hypothesized theoretical distribution is correct. On the other hand, small differences between the two distribution may be assumed to be resulting from sampling error.

Steps to conduct Chi-Square Test for Goodness-of-Fit

Step 1: State the null and alternate hypothesis

H_0 : No difference between observed and expected sets of frequencies.

H_1 : There is a difference

Step 2: Select a random sample and record the observed frequencies (O values) for each category.

Step 3: Calculate the expected frequencies (E values) in each category by multiplying the category probability by the sample size.

Step 4: Compute the value of test-statistic

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Step 5: Calculate the degrees of freedom. The degrees of freedom for the chi-square test for goodness-of-fit are:

$$df = (\text{Number of category} - 1) = (n - 1)$$

Step 6: Using a level of significance α and df, find the critical (table) value of χ^2_{α} .

This value of χ^2_{α} corresponds to an area in the right tail of the distribution.

Step 7: Compare the calculated and table values of χ^2 . Decide whether the variables are independent or not, using the decision rule:

- Accept H_0 if χ^2_{cal} is less than its table value $\chi^2_{\alpha, (r-1)(c-1)}$
- Otherwise reject H_0
-

Null Hypothesis= Performance of the banks is independent whether it is private or public sector bank.

Alternate Hypothesis= Performance of the banks is not independent i.e. it is dependent on the class of the bank, private or public sector bank.

	ROA =NI/ATA	ROE=NET INCOME/AVG.EQUITY	EQUITY MULTIPLIER=ATA/ATE
ICICI BANK	2.29	17.98	7.85
AXIS BANK	2.65	29.61	11.16
HDFC BANK	2.98	32.02	10.76
Average	2.64	26.53	9.92
SBI	0.94	15.08	16.04
PNB	0.74	12.25	16.58
BANK OF BARODA	0.99	10.69	17.47
Average	0.89	12.67	16.69

	PRIVATE	PUBLIC	Row total
ROA	2.64	0.89	3.53
ROE	26.53	12.67	39.20
EM	9.92	16.69	26.61
Column total	39.09	30.25	Grand total 69.34

EXPECTED FREQUENCY TABLE(f_e)= Total Of Rows*Total Of Columns/Grand Total	
1.99	1.539
22.09	17.10
15.001	11.60

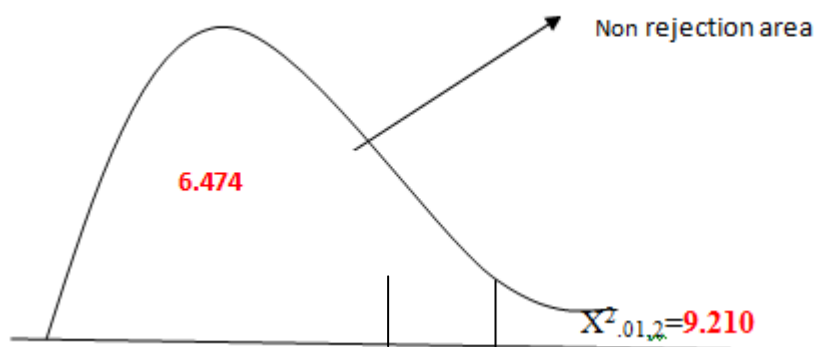
Calculation of chi square

$$X^2 = \sum \sum (f_o - f_e)^2 / f_e$$

(f_o)	(f_e)	X^2
2.64	1.99	0.212
26.53	22.09	0.892
9.92	15.001	1.72
0.89	1.539	0.273
12.67	17.10	1.147
16.69	11.60	2.23
	SUM	6.474

- Here the rows are 3 and columns are 2 therefore The degree of freedom is $(3-1)(2-1)=2$
- Alpha level is .01, the critical value of chi- square for $\alpha=.01$ is $X^2_{.01,2}=9.210$ (tabulated value given in chi- square table).

- The decision is, accept the null hypothesis because the calculated value of chi- square is less than the tabulated value.



TABLES :

Table :David Cole Analysis (Ratios)

RATIO	ICICI	HDFC	AXIS	SBI	PNB	Bank of Baroda	Average
ROA	2.29	2.98	2.65	0.94	0.74	0.99	1.77
ROE	17.98	32.02	29.61	15.08	12.25	10.69	19.60
FINANCIAL LEVERAGE	8.03	9.52	10.34	15.95	15.97	17.95	12.96
NET INTEREST MARGIN	4.05	6.84	5.33	4.13	4.15	4.03	4.76
AVERAGE YEILD	10.43	14.81	13.29	11.44	11.62	13.13	12.45
BURDEN	1.66	3.70	2.55	3.13	3.37	2.97	2.90
AVERAGE COST OF FUNDS	7.25	8.72	8.68	7.76	7.92	9.96	8.38
ASSET UTILIZATION	12.90	17.44	16.30	13.08	13.05	14.37	14.52
EQUITY MULTIPLIER	7.85	10.76	11.16	16.04	16.58	17.47	13.31

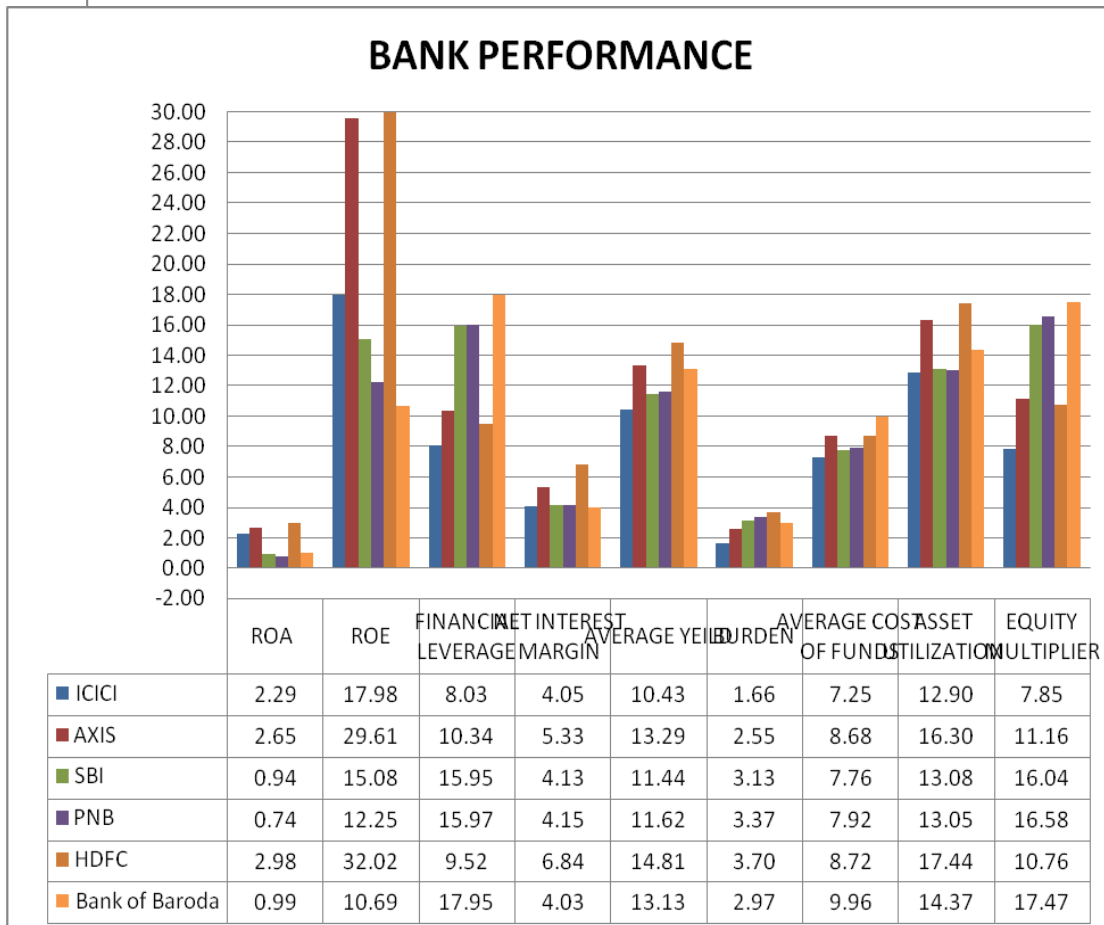
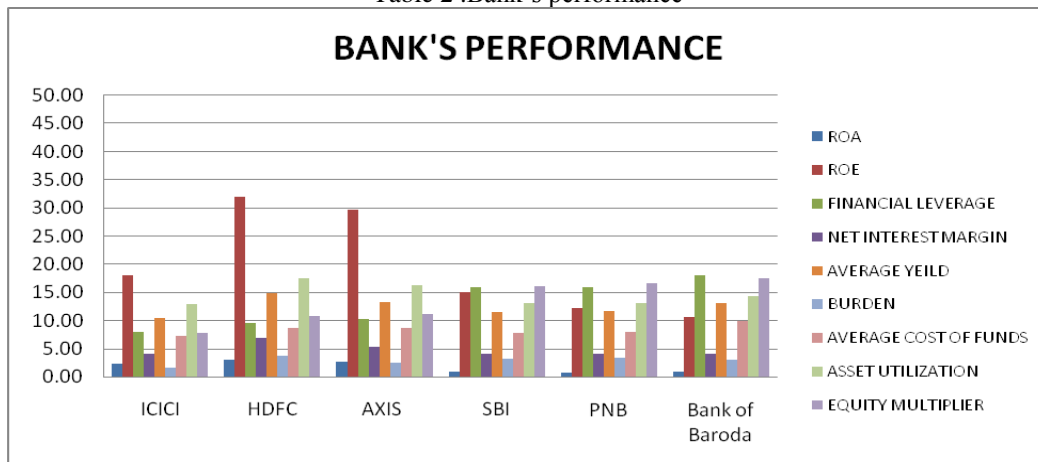
Du Pont analysis of various banks shows the respective decomposition of ROE into various other ratios. Such as the first level ROE decomposition shows that the ROE could be further divided into ROA and the equity multiplier. While ROA could further be divided into expense ratio and the asset utilisation. Further these terms would be decomposed based on interest , non interest and provision for loss expenses.

RATIO	ICICI	HDFC	AXIS	SBI	PNB	Bank of Baroda	Average
INTEREST EXP. RATIO	6.33	7.91	7.90	7.28	7.44	9.03	7.65
OPERATING EXP RATIO	2.42	4.24	3.42	2.89	2.62	2.33	2.99
PRO. EXP RATIO	1.80	2.18	2.24	1.93	2.22	1.98	2.06
INT. INCOME RATIO	10.34	14.71	13.19	11.39	11.58	13.04	12.37
NON INT. INCOME RATIO	2.56	2.73	3.11	1.69	1.47	1.34	2.15
ASSET UTILIZATION	12.90	17.44	16.30	13.08	13.05	14.37	14.52
TOTAL EXP RATIO	10.55	14.34	13.56	12.10	12.29	13.34	12.69
NET INT INCOME	4.01	6.80	5.29	4.11	4.14	4.00	4.72

The ratio analysis shows that Bank of Baroda has the highest interest expense ratio out of all the banks while it has the lowest operating expense ratio. As far as provisions expenses are concerned Axis plays very safely having 2.24 as the ratio of provision which is the highest amongst the banks selected. Axis bank also has the

highest asset utilisation among all the banks while HDFC has the largest net interest income ratio. Out of the public sector banks PNB has the highest net interest income.

Table 2 .Bank’s performance



ANALYSIS OF BANKS:

While analyzing the all six banks (consisting three major private sector banks namely ICICI Bank, AXIS Bank, HDFC and three major public sector banks namely SBI(STATE BANK OF INDIA),PNB(PUNJAB NATIONAL BANK), BOB (BANK OF BARODA). HDFC is the best performing bank among all six banks

with an ROE (Return on equity) 32.02% where as the industry average is 19.60%. The asset utilization ratio of HDFC bank is 17.44% which is also higher than the industry average 14.52%.

Axis bank having an ROE(Return on equity) 29.61 % which is much higher than the industry average of 19.60%. The bank also has the highest equity multiplier among the private sector bank 11.16% which leads to a higher ROE(Return on equity). The asset utilization ratio of the bank is 16.30% which higher than the industry average(14.52%). It maintains the highest expense for provision for loss at 2.24%.

Largest private sector bank ICICI has ROE of 17.98% which is the lowest among the private sector bank selected. Average cost of funds for ICICI bank is at 7.25 which is lowest among all the banks analyzed. Also it has lowest total expense ratio at 10.55 while the industry average is at 12.69.

Analyzing the public sector banks, SBI has the highest ROE at 15.08 followed by PNB at 12.25 and finally Bank of Baroda at 10.69%. SBI has the lowest expense ratio among the public sector bank at 12.10 with the highest operating expenses ratio of 2.89. BOB with highest ROA and interest expense ratio has equity multiplier of BOB stands at 17.47 which is the highest among all the six banks pointing towards higher debt part in BOB total assets and less equity with the highest financial leverage at 17.95 while the industry average is at 12.96

Net Interest Margin (NIM) is a measurement of the difference between the interest income generated by banks and the amount of interest paid out to their lenders(for example, deposits). It is expressed as a percentage of what the financial institutions are earning (its interest often from borrowing from other financial institutions like the Federal Reserve) minus the interest that it pays on borrowed funds to its investors. HDFC is the best performer in NIM at 6.84 followed by AXIS bank at 5.33 while the industry average is 4.76; PNB is the leading performer in NIM in public sector bank at 4.15.

INFERENCE:

As we can see that the burden of all the six banks is positive and quite higher which is not lucrative for banks. The reason for the higher burden can be the higher spending on operating activities just because of cut throat competition. Therefore banks should focus on this area and RBI should also take initiative and make some rules for the profitability of the banks.

V. Conclusions And Recommendations:

Over the years from 2007 to 2015, the following conclusion has been made and the recommendations suggested are as follows:

- Private Banks prefer more equity than debt as compared to public sector banks and pay higher cost of capital.
- Also the returns on assets as well as returns on equity are higher in case of private banks as compared to the public sector banks.
- The equity multiplier of public sector banks is far higher than the private sector banks on accounts of higher asset base of public sector banks.
- Interest expenses ratio for private banks is slightly lower than that for public banks. This is in accordance with the higher ratio of equity in private banks and greater financial leverage in the form of debt used by public sector banks.

So, we can also conclude that the growth of advances for public sector banks has far outpaced the growth in cheap current account and savings account deposits and thus the cost of funds for Public Sector Banks has increased over the years.

- Operating expenses ratio for private sector banks is higher than public sector banks because of cut throat competition between private sector banks and the appetite of the accounts for these banks has to spend a lot of money on marketing and field work which leads to high operating expenses.
- The non interest income ratio for private sector banks is far higher as compare to public sector banks. This signifies that private banks indulgence in a lot of treasury functions(hedging, options, derivatives) for increasing the non interest income.
- Performance of the banks is independent whether it is private or public sector bank. It doesn't depend on the class of the bank.
- Only DAVID COLE MODEL is not sufficient for analyzing the performance, there are other factors also which needs to be taken care.
- NPA's is also a part of analyzing the banks performance, but it is not included in this model so this is also a limitation of the paper.

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ANNEXURE:
Table1:

BANK	YEAR	INTEREST INCOME	INTEREST EXPENSES	NON INTEREST INCOME	OPERATING EXPENSES	PROVISION FOR LOSS LIABILITY	ASSETS	INTEREST EXP. RATIO	OPERATING EXP RATIO	PRO. EXP RATIO	INT. INCOME RATIO	NON INT. INCOME RATIO
ICICI BANK	2007-08	30788.3	23484.2	8878.9	10855.2	1170.1	399795.1	4.9	2.3	0.2	6.5	1.9
	2008-09	31092.6	22725.9	8117.8	10795.1	1931.1	379301.0	4.8	2.3	0.4	6.5	1.7
	2009-10	25706.9	17592.6	7292.4	10222.0	1159.8	363399.7	3.7	2.2	0.2	5.4	1.5
	2010-11	25974.1	16957.2	6647.9	6617.3	3896.2	406233.7	3.6	1.4	0.8	5.5	1.4
	2011-12	33542.7	22808.5	7502.8	7850.4	3921.2	473647.1	4.8	1.7	0.8	7.1	1.6
	2012-13	40075.6	26209.2	8345.7	9012.9	4873.8	536794.7	5.5	1.9	1.0	8.4	1.8
	2013-14	44178.2	27702.6	10427.9	10308.9	6784.1	594641.6	5.8	2.2	1.4	9.3	2.2
	2014-15	49091.1	30051.5	12176.1	11495.8	8544.6	646129.3	6.3	2.4	1.8	10.3	2.6
							474992.8					
AXIS BANK	2007-08	7005.3	4420.0	1750.6	2454.0	810.9	109577.8	1.6	0.9	0.3	2.6	0.7
	2008-09	10835.5	7149.3	2896.9	3590.4	1177.3	147722.1	2.7	1.3	0.4	4.0	1.1
	2009-10	11638.0	6633.5	3945.8	5066.8	1369.0	180647.9	2.5	1.9	0.5	4.3	1.5
	2010-11	15154.8	8591.8	4632.1	4779.4	3027.2	242713.4	3.2	1.8	1.1	5.6	1.7
	2011-12	21994.7	13976.9	5420.2	6007.1	3188.7	285627.8	5.2	2.2	1.2	8.2	2.0
	2012-13	27182.6	17516.3	6551.1	6914.2	4123.7	340560.7	6.5	2.6	1.5	10.1	2.4
	2013-14	30641.2	18689.5	7405.2	7900.8	5238.4	383244.9	6.9	2.9	1.9	11.4	2.8
	2014-15	35478.6	21254.5	8365.1	9203.7	6027.6	461932.4	7.9	3.4	2.2	13.2	3.1
							269003.4					
SBI	2007-08	48950.3	31929.1	9398.4	14609.6	5081.0	721526.3	2.4	1.1	0.4	3.7	0.7
	2008-09	63788.4	42915.3	12691.4	18123.7	6319.6	964432.1	3.2	1.4	0.5	4.8	0.9
	2009-10	70993.9	47322.5	14968.2	24941.0	4532.5	1053413.7	3.5	1.9	0.3	5.3	1.1
	2010-11	81394.4	48868.0	14930.4	23015.4	17071.1	1223736.2	3.7	1.7	1.3	6.1	1.1
	2011-12	106521.5	63230.4	14351.5	26069.0	19866.3	1335519.2	4.7	1.9	1.5	8.0	1.1
	2012-13	119657.1	75325.8	16034.8	29284.4	16976.7	1566261.0	5.6	2.2	1.3	8.9	1.2
	2013-14	136350.8	87068.6	18552.9	35725.9	21218.1	1792234.6	6.5	2.7	1.6	10.2	1.4
	2014-15	152397.1	97381.8	22575.9	38677.6	25811.9	2048079.8	7.3	2.9	1.9	11.4	1.7
							1338150.4					
PNB	2007-08	14265.0	8730.9	1997.6	3902.6	1580.4	197484.7	2.2	1.0	0.4	3.6	0.5
	2008-09	19326.2	12295.3	2919.7	5026.8	1832.9	245404.9	3.1	1.3	0.5	4.8	0.7
	2009-10	21466.9	12944.0	3563.3	5761.4	2421.5	295140.8	3.2	1.4	0.6	5.4	0.9

	2010-11	26986.5	15179.1	3612.6	6364.2	4622.2	376854.5	3.8	1.6	1.2	6.7	0.9
	2011-12	36428.0	23013.6	4202.6	7002.8	5730.1	456744.5	5.8	1.8	1.4	9.1	1.1
	2012-13	41893.3	27036.8	4215.9	8165.1	6159.7	477448.2	6.8	2.0	1.5	10.5	1.1
	2013-14	43223.3	27077.3	4576.7	9338.2	8041.9	549011.7	6.8	2.3	2.0	10.8	1.1
	2014-15	46315.4	29759.8	5890.7	10491.6	8893.2	601946.1	7.4	2.6	2.2	11.6	1.5
							400004.4					
HDFC BANK	2007-08	10115.0	4887.1	2205.4	3935.3	1907.8	133176.6	1.5	1.2	0.6	3.1	0.7
	2008-09	16332.3	8911.1	3290.8	5532.8	1356.2	183270.8	2.7	1.7	0.4	5.0	1.0
	2009-10	16172.9	7786.3	3807.6	5764.6	1545.1	222458.6	2.4	1.7	0.5	4.9	1.2
	2010-11	19928.2	9385.1	4335.2	7152.9	3799.0	277352.6	2.8	2.2	1.2	6.0	1.3
	2011-12	27286.4	14989.6	5243.7	8590.1	3783.3	337909.5	4.5	2.6	1.1	8.3	1.6
	2012-13	35064.9	19253.8	6852.6	11236.1	4701.3	400331.9	5.8	3.4	1.4	10.6	2.1
	2013-14	41135.5	22652.9	7919.6	12042.2	5881.7	491599.5	6.9	3.7	1.8	12.5	2.4
	2014-15	48469.9	26074.2	8996.4	13987.6	7188.6	590503.1	7.9	4.2	2.2	14.7	2.7
								329575.3				
								0.0	0.0	0.0	0.0	0.0
BANK OF BARODA	2007-08	11813.5	7901.7	2051.0	3370.3	1157.1	179599.5	2.4	1.0	0.4	3.6	0.6
	2008-09	15091.6	9968.2	2757.7	3844.7	1809.2	227406.7	3.0	1.2	0.5	4.6	0.8
	2009-10	16698.3	10758.9	2806.4	4711.2	976.3	278316.7	3.3	1.4	0.3	5.1	0.9
	2010-11	21885.9	13083.7	2809.2	4629.8	2739.9	358397.2	4.0	1.4	0.8	6.6	0.9
	2011-12	29673.7	19356.7	3422.3	5158.7	3573.7	447321.5	5.9	1.6	1.1	9.0	1.0
	2012-13	35196.7	23881.4	3630.6	5946.7	4518.4	547135.4	7.2	1.8	1.4	10.7	1.1
	2013-14	38939.7	26974.4	4462.7	7137.1	4749.9	659504.5	8.2	2.2	1.4	11.8	1.4
	2014-15	42963.6	29776.3	4402.0	7674.1	6516.7	714988.6	9.0	2.3	2.0	13.0	1.3
							426583.8					

Table2:
a)

BANK	YEAR	CAPITAL	RESE RVE	Networth=capita+reserve	TOTAL INCOME	TOTAL EXPENSES	INTEREST INCOME	INTEREST EXPENSES	NET INTEREST INCOME	NON INTEREST INCOME	OPERATING EXPENSES
ICICI BANK	2007-08	1462.68	45357.53	46820.21	39667.19	35509.47	30788.34	23484.24	7304.1	8878.85	10855.18
	2008-09	1463.29	48419.73	49883.02	39210.31	35452.17	31092.55	22725.93	8366.62	8117.76	10795.14
	2009-10	1114.89	50503.48	51618.37	32999.36	28974.37	25706.93	17592.57	8114.36	7292.43	10221.99
	2010-11	1151.82	53938.82	55090.64	32621.94	27470.57	25974.05	16957.15	9016.9	6647.89	6617.25
	2011-	1152.7	59250.	60402.86	41045.	34580.	33542.	22808.	10734.	7502.7	7850.44

	12	7	09		41	16	65	5	15	6	
	2012-13	1153.64	65547.84	66701.48	48421.3	40095.83	40075.6	26209.18	13866.42	8345.7	9012.89
	2013-14	1155.04	72051.71	73206.75	54606.02	44795.55	44178.15	27702.59	16475.56	10427.87	10308.86
	2014-15	1159.66	79262.26	80421.92	61267.27	50091.92	49091.14	30051.53	19039.61	12176.13	11495.83
				60518.15							
				625							
AXIS BANK	2007-08	357.71	8412.98	8770.69	8755.91	7684.87	7005.32	4419.96	2585.36	1750.59	2454.03
	2008-09	359.01	9855.79	10214.8	13732.37	11917	10835.49	7149.27	3686.22	2896.88	3590.42
	2009-10	405.17	15639.27	16044.44	15583.8	13069.27	11638.02	6633.53	5004.49	3945.78	5066.76
	2010-11	410.55	18588.28	18998.83	19786.94	16398.45	15154.81	8591.82	6562.99	4632.13	4779.43
	2011-12	413.2	22395.34	22808.54	27414.87	23172.66	21994.65	13976.9	8017.75	5420.22	6007.1
	2012-13	467.95	32639.91	33107.86	33733.68	28554.24	27182.57	17516.31	9666.26	6551.11	6914.23
	2013-14	469.84	37750.64	38220.48	38046.38	31828.71	30641.16	18689.52	11951.64	7405.22	7900.77
	2014-15	474.1	44202.41	44676.51	43843.65	36485.82	35478.6	21254.46	14224.14	8365.05	9203.74
					24105.26						
				875							
SBI	2007-08	631.47	48401.19	49032.66	58348.74	51619.62	48950.31	31929.08	17021.23	9398.43	14609.55
	2008-09	634.88	57312.82	57947.7	76479.78	67358.55	63788.43	42915.29	20873.14	12691.35	18123.66
	2009-10	634.88	65314.32	65949.2	85962.07	76796.02	70993.92	47322.48	23671.44	14968.15	24941.01
	2010-11	635	64351.04	64986.04	96324.78	88954.45	81394.36	48867.96	32526.4	14930.42	23015.44
	2011-12	671.04	83280.16	83951.2	120872.9	109165.61	106521.45	63230.37	43291.08	14351.45	26068.99
	2012-13	684.03	98199.65	98883.68	135691.94	121586.96	119657.1	75325.8	44331.3	16034.84	29284.42
	2013-14	746.57	117535.68	118282.25	154903.72	144012.55	136350.8	87068.63	49282.17	18552.92	35725.85
	2014-15	746.57	127691.65	128438.22	174972.96	161871.39	152397.07	97381.82	55015.25	22575.89	38677.64
					83433.86						
				875							
PNB	2007-08	315.3	12003.05	12318.35	16262.58	14213.8	14265.02	8730.86	5534.16	1997.56	3902.55
	2008-	315.3	14338.	14653.63	22245.	19154.	19326.	12295.	7030.8	2919.6	5026.81

	09		33		85	96	16	3	6	9		
	2009-10	315.3	15915.63	16230.93	25032.22	21216.87	21466.91	12944.02	8522.89	3563.31	5761.36	
	2010-11	316.81	19720.99	20037.8	30599.06	26165.56	26986.48	15179.14	11807.34	3612.58	6364.22	
	2011-12	339.18	26028.37	26367.55	40630.63	35746.43	36428.03	23013.59	13414.44	4202.6	7002.75	
	2012-13	353.47	30894.58	31248.05	46109.25	41361.57	41893.33	27036.82	14856.51	4215.92	8165.05	
	2013-14	362.07	34125.07	34487.14	47799.96	44457.38	43223.25	27077.28	16145.97	4576.71	9338.21	
	2014-15	370.91	37321.06	37691.97	52206.09	49144.51	46315.36	29759.79	16555.57	5890.73	10491.55	
				24129.4275								
HDFC BANK	2007-08	354.43	11142.8	11497.23	12320.38	10730.2	10115	4887.12	5227.88	2205.38	3935.28	
	2008-09	425.38	14627.35	15052.73	19622.8	17377.92	16332.26	8911.1	7421.16	3290.76	5532.82	
	2009-10	457.74	21064.75	21522.49	19980.52	17031.8	16172.91	7786.3	8386.61	3807.61	5764.55	
	2010-11	465.23	24911.13	25376.36	24263.36	20336.96	19928.21	9385.08	10543.13	4335.15	7152.91	
	2011-12	469.34	29455.04	29924.38	32530.04	27362.97	27286.35	14989.58	12296.77	5243.69	8590.07	
	2012-13	475.88	35738.26	36214.14	41917.49	35191.21	35064.87	19253.75	15811.12	6852.62	11236.12	
	2013-14	479.81	42998.82	43478.63	49055.17	40576.8	41135.53	22652.9	18482.63	7919.64	12042.2	
	2014-15	501.3	61508.12	62009.42	57466.25	47250.35	48469.9	26074.24	22395.66	8996.35	13987.55	
					30634.4225							
BANK OF BARODA	2007-08	365.53	10678.4	11043.93	13864.52	12428.99	11813.48	7901.67	3,911.81	2051.04	3370.27	
	2008-09	365.53	12470.01	12835.54	17849.24	15622.03	15091.58	9968.17	5,123.41	2757.66	3844.66	
	2009-10	365.53	14740.86	15106.39	19504.7	16446.37	16698.34	10758.86	5,939.48	2806.36	4711.23	
	2010-11	392.81	20650.73	21043.54	24695.11	20453.42	21885.92	13083.66	8,802.26	2809.19	4629.83	
	2011-12	412.38	27064.47	27476.85	33096.05	28089.1	29673.72	19356.71	10,317.01	3422.33	5158.72	
	2012-13	422.52	31546.92	31969.44	38827.27	34346.56	35196.65	23881.39	11,315.26	3630.62	5946.74	
	2013-14	430.68	35555	35985.68	43402.45	38861.37	38939.71	26974.36	11,965.35	4462.74	7137.07	
	2014-15	443.56	39391.79	39835.35	47365.56	43967.11	42963.56	29776.32	13,187.24	4402	7674.12	
				24,412.0								

b)

BANK	YEAR	TAX	PROVISIO N FOR LOSS LIABILITY	NET INCOME	ASSETS	Fixed assets	AVERAGE INTEREST EARNING ASSET	AVERAGE INTEREST BEARING LIABILITES	
ICICI BANK	2007-08	149.67	1170.05	4008.05	399795.07	4108.89	395686.18	352974.86	
	2008-09	151.21	1931.1	3606.93	379300.96	3801.62	375499.34	329417.94	
	2009-10	164.04	1159.81	3860.95	363399.71	3212.69	360187.02	311781.34	
	2010-11	202.28	3896.17	4949.09	406233.67	4744.26	401489.41	351143.03	
	2011-12	220.35	3921.22	6244.9	473647.09	4614.69	469032.40	413244.23	
	2012-13	231.25	4873.76	8094.22	536794.69	4647.06	532147.63	470093.21	
	2013-14	271.15	6784.1	9539.32	594641.6	4678.14	589963.46	521434.85	
	2014-15	292.16	8544.56	10883.19	646129.29	4725.52	641403.77	565707.37	
						474992.76		470676.15	414474.60
AXIS BANK	2007-08	0	810.88	1071.04	109577.84	794.37	108783.47	100807.15	
	2008-09	0	1177.31	1815.37	147722.06	1015.41	146706.65	137507.26	
	2009-10	0	1368.98	2514.53	180647.87	3901.06	176746.81	164603.43	
	2010-11	97.35	3027.2	3291.14	242713.37	2250.46	240462.91	223714.54	
	2011-12	111.83	3188.66	4130.38	285627.8	2188.56	283439.24	262819.26	
	2012-13	143.37	4123.7	5036.07	340560.67	2230.54	338330.13	307452.81	
	2013-14	161.44	5238.42	6056.23	383244.89	2310.54	380934.35	345024.41	
	2014-15	221.42	6027.62	7136.41	461932.39	2413.05	459519.34	417255.88	
						269003.36		266865.36	244898.09
SBI	2007-08	165.87	5080.99	6563.25	721526.32	3139.22	718387.10	672493.66	
	2008-09	248.03	6319.6	8873.2	964432.08	3574.41	960857.67	906484.38	

	2009-10	236.76	4532.53	8929.29	1053413.74	4117.73	1049296.01	987464.54
	2010-11	246.52	17071.05	7123.81	1223736.21	4431.96	1219304.25	1158750.17
	2011-12	296.49	19866.25	11410.8	1335519.24	5133.87	1330385.37	1251568.04
	2012-13	375.95	16976.74	13729.03	1566261.03	6595.71	1559665.32	1467377.35
	2013-14	298.45	21218.07	10592.72	1792234.6	8002.16	1784232.44	1673952.35
	2014-15	520.65	25811.93	12580.92	2048079.8	9329.16	2038750.64	1919641.58
					1338150.378		1332609.85	1254716.51
PNB	2007-08	69.66	1580.39	1979.12	197484.67	779.82	196704.85	185166.32
	2008-09	107.17	1832.85	2983.72	245404.88	883.37	244521.51	230751.25
	2009-10	116.43	2421.49	3698.92	295140.79	1021.48	294119.31	278909.86
	2010-11	113.07	4622.2	4320.43	376854.49	1634.84	375219.65	356816.69
	2011-12	121.05	5730.09	4763.15	456744.48	1719.33	455025.15	430376.93
	2012-13	162.2	6159.7	4585.48	477448.18	1928.83	475519.35	446200.13
	2013-14	58.66	8041.89	3283.92	549011.74	2011.56	547000.18	514524.60
	2014-15	106.72	8893.17	2954.86	601946.05	2163.93	599782.12	564254.08
					400004.41		398486.52	375874.98
	HDFC BANK	2007-08	51.2	1907.8	1538.98	133176.6	1175.13	132001.47
2008-09		72.29	1356.2	2172.59	183270.78	1706.73	181564.05	168218.05
2009-10		91.23	1545.11	2857.49	222458.56	2122.81	220335.75	200936.07
2010-11		124.53	3798.97	3801.87	277352.6	2170.65	275181.95	251976.24
2011-12		163.7	3783.32	5003.37	337909.51	2347.19	335562.32	307985.13
2012-13		222.48	4701.34	6503.8	400331.89	2703.08	397628.81	364117.75
2013-14		279.29	5881.7	8199.08	491599.5	2939.92	488659.58	448120.87
2014-15		408.21	7188.56	9807.69	590503.08	3121.73	587381.35	528493.66
					329575.315		327289.41	298940.89

BANK OF BARODA	2007-08	0	1157.05	1,435.53	179599.5	2427	177172.50	168555.57
	2008-09	0	1809.2	2,227.21	227406.73	2309.72	225097.01	214571.19
	2009-10	0	976.28	3,058.33	278316.71	2284.76	276031.95	263210.32
	2010-11	107.3	2739.93	4,134.39	358397.18	2299.72	356097.46	337353.64
	2011-12	117.97	3573.67	4,888.98	447321.46	2341.5	444979.96	419844.61
	2012-13	153.89	4518.43	4,326.82	547135.44	2453.12	544682.32	515166.00
	2013-14	160.43	4749.94	4,380.65	659504.53	2734.12	656770.41	623518.85
	2014-15	123.71	6516.67	3,274.74	714988.55	2874.85	712113.70	675153.20
						4,26,583.76		424118.16

c)

BANK	YEAR	ROA = NI/ATA	ROE = NET INCOME/AVG. EQUITY	FINANCIAL LEVERAGE	NET INTEREST MARGIN = NI/AEA	SPEREDS	AVERAGE YIELD = INT. REC./AVG. EARNING ASSETS	BURDEN = (NON-INT)/ATA	AVERAGE COST OF FUNDS	ASSET UTILIZATION = TR/ATA	EQUITY MULTIPLIER = AT/A
ICICI BANK	2007-08	0.84	6.62	8.54	1.55	0.88	6.54	0.66	5.67	8.35	7.85
	2008-09	0.76	5.96	7.60	1.78	1.12	6.61	0.97	5.48	8.25	7.85
	2009-10	0.81	6.38	7.04	1.72	1.22	5.46	0.86	4.24	6.95	7.85
	2010-11	1.04	8.18	7.37	1.92	1.43	5.52	0.81	4.09	6.87	7.85
	2011-12	1.31	10.32	7.84	2.28	1.62	7.13	0.90	5.50	8.64	7.85
	2012-13	1.70	13.37	8.05	2.95	2.19	8.51	1.17	6.32	10.19	7.85
	2013-14	2.01	15.76	8.12	3.50	2.70	9.39	1.40	6.68	11.50	7.85
	2014-15	2.29	17.98	8.03	4.05	3.18	10.43	1.66	7.25	12.90	7.85
AXIS BANK	2007-08	0.40	4.44	12.49	0.97	0.82	2.63	0.56	1.80	3.25	11.16

	2008-09	0.67	7.53	14.46	1.38	1.14	4.06	0.70	2.92	5.10	11.16
	2009-10	0.93	10.43	11.26	1.88	1.65	4.36	0.93	2.71	5.79	11.16
	2010-11	1.22	13.65	12.78	2.46	2.17	5.68	1.18	3.51	7.36	11.16
	2011-12	1.54	17.13	12.52	3.00	2.53	8.24	1.40	5.71	10.19	11.16
	2012-13	1.87	20.89	10.29	3.62	3.03	10.19	1.67	7.15	12.54	11.16
	2013-14	2.25	25.12	10.03	4.48	3.85	11.48	2.13	7.63	14.14	11.16
	2014-15	2.65	29.61	10.34	5.33	4.62	13.29	2.55	8.68	16.30	11.16
SBI	2007-08	0.49	7.87	14.72	1.28	1.13	3.67	0.77	2.54	4.36	16.04
	2008-09	0.66	10.64	16.64	1.57	1.37	4.79	0.88	3.42	5.72	16.04
	2009-10	0.67	10.70	15.97	1.78	1.56	5.33	1.08	3.77	6.42	16.04
	2010-11	0.53	8.54	18.83	2.44	2.21	6.11	1.88	3.89	7.20	16.04
	2011-12	0.85	13.68	15.91	3.25	2.95	7.99	2.36	5.04	9.03	16.04
	2012-13	1.03	16.45	15.84	3.33	2.98	8.98	2.26	6.00	10.14	16.04
	2013-14	0.79	12.70	15.15	3.70	3.29	10.23	2.87	6.94	11.58	16.04
	2014-15	0.94	15.08	15.95	4.13	3.67	11.44	3.13	7.76	13.08	16.04
PNB	2007-08	0.49	8.20	16.03	1.39	1.26	3.58	0.87	2.32	4.07	16.58
	2008-09	0.75	12.37	16.75	1.76	1.58	4.85	0.98	3.27	5.56	16.58
	2009-10	0.92	15.33	18.18	2.14	1.94	5.39	1.18	3.44	6.26	16.58
	2010-11	1.08	17.91	18.81	2.96	2.73	6.77	1.84	4.04	7.65	16.58
	2011-12	1.19	19.74	17.32	3.37	3.02	9.14	2.13	6.12	10.16	16.58
	2012-13	1.15	19.00	15.28	3.73	3.32	10.51	2.53	7.19	11.53	16.58
	2013-14	0.82	13.61	15.92	4.05	3.64	10.85	3.20	7.20	11.95	16.58
	2014-15	0.74	12.25	15.97	4.15	3.71	11.62	3.37	7.92	13.05	16.58

HDFC BANK	2007-08	0.47	5.02	11.58	1.60	1.46	3.09	1.10	1.63	3.74	10.76
	2008-09	0.66	7.09	12.18	2.27	2.01	4.99	1.57	2.98	5.95	10.76
	2009-10	0.87	9.33	10.34	2.56	2.34	4.94	1.65	2.60	6.06	10.76
	2010-11	1.15	12.41	10.93	3.22	2.95	6.09	2.01	3.14	7.36	10.76
	2011-12	1.52	16.33	11.29	3.76	3.32	8.34	2.16	5.01	9.87	10.76
	2012-13	1.97	21.23	11.05	4.83	4.27	10.71	2.76	6.44	12.72	10.76
	2013-14	2.49	26.76	11.31	5.65	4.99	12.57	3.04	7.58	14.88	10.76
	2014-15	2.98	32.02	9.52	6.84	6.09	14.81	3.70	8.72	17.44	10.76
BANK OF BARODA	2007-08	0.44	4.69	16.26	1.20	0.97	3.61	0.75	2.64	4.21	17.47
	2008-09	0.68	7.27	17.72	1.57	1.28	4.61	0.88	3.33	5.42	17.47
	2009-10	0.93	9.98	18.42	1.81	1.50	5.10	0.87	3.60	5.92	17.47
	2010-11	1.25	13.50	17.03	2.69	2.31	6.69	1.38	4.38	7.49	17.47
	2011-12	1.48	15.96	16.28	3.15	2.59	9.07	1.61	6.48	10.04	17.47
	2012-13	1.31	14.12	17.11	3.46	2.77	10.75	2.07	7.99	11.78	17.47
	2013-14	1.33	14.30	18.33	3.66	2.87	11.90	2.25	9.02	13.17	17.47
	2014-15	0.99	10.69	17.95	4.03	3.17	13.13	2.97	9.96	14.37	17.47