**International Research Journal of Management and Commerce**
**ISSN: (2348-9766)**
**Impact Factor 5.564 Volume 5, Issue 1, January 2018**

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# A Comparative Analysis of Financial Performance of Public and Private Sector Banks in India

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**Abstract**

Banks plays a vital role in the mobilization of resources by collecting funds from various sources which has surplus funds and providing credit facilities to different sectors of an economy for its development.Banks act as a lubricant for the entire monetary and financial system and ensure smooth operations. A healthy and competitive banking system can provide better services for the development of nation's economy in today's globalised era. Hence, it is of utmost importance that banks should generate sufficient resources to run its operations and for expansion & modernization programmes. The present study is thus undertaken to make a comparative analysis of financial performance of public and private sector banks during the period 2005-2017 with the help of ratio analysis and ANOVA. The study shows that private sector banks are performing better than their public counterparts in terms of Operating Profit to Total Assets Ratio, Profit per Employee, Return on Advances Ratio and Returns on Assets. However, public sector banks are performing better than their private sector counterparts in terms of Return on Investment Ratio. HDFC Bank is earning the highest Return on Equity and the variations in its earning are also at the lowest level.The difference between the ratios of various banks was statistically significant in all cases except in case of Return on Equity where it was statistically insignificant.

**Key Words: Bank, Financial Performance, Ratio Analysis, Public Sector, Private Sector**

## Introduction

Banks plays a vital role in the mobilization of resources for the development of an economy. They collect the funds from public and provide credit facilities for economic development of the nation. The Indian banking system consists of 27 public sector banks, 26 private sector banks, 46 foreign banks, 56 regional rural banks, 1,574 urban cooperative banks and 93,913 rural cooperative banks, in addition to cooperative credit institutions upto 31$^{st}$ march, 2017. Public-sector banks control more than 70 per cent of the banking system assets, thereby leaving a comparatively smaller share for its private peers. Banks constitute the backbone of a nation's financial system, performing manifold functions through liquidity, maturity and risk transformation. Indeed, it needs no gainsaying that the health of the economy is, in a way, the mirror reflection of the banking system, especially in bank-based financial systems. A bank is like heart of the human body and the capital it provides is akin to the blood in it. So long as the blood circulates seamlessly, the organs remain sound and healthy. However, if for any reason, the blood were not supplied to any organ, then that part would be rendered useless. Not surprisingly therefore, there is always a conscious attempt on the part of the Reserve Bank to provide adequate liquidity and credit to all productive sectors of the economy. Banks act as a lubricant for the entire monetary and financial system and ensure smooth operations. Hence, it is of utmost importance that banks should generate sufficient resources to run its operations and for expansion & modernization programmes. The present study is thus undertaken to make a comparative analysis of financial performance of public and private sector banks.

## Review of Literature

Nathwani (2004) in their doctoral thesis examined the financial performance of all commercial banks covering the period 1997-98 to 2001-02. The study found that the difference in operational efficiency in all the banking groups was statistically significant. Capital Adequacy Ratio of SBI group was comparatively higher than RBI guidelines but some other nationalized banks were little bit behind to the minimum standard fixed by RBI. Further, the overall profitability of Indian Banking Sector was significantly differed in all the five groups of commercial banks. The Return on Assets in SBI group indicated the fluctuating trend as compared to other banks. In this study, the significant difference was found among all the five banking groups regarding all the ratios relating to credit efficiency.

Kumar, Kumar and Duhan (2012) in their study revealed that there was no significant difference in the growth rate of per employee amount of Public Sector Banks and Private

Sector Banks. The performance of Private Sector Banks was somewhat better than Public Sector Banks.

Singh andTandon (2012) in their paper studied the financial performance of SBI and ICICI on the basis of selected ratios. The period of their study was 2008-2012. Credit Deposit Ratio, Interest Expenses to Total Expenses Ratio, Interest Income to Total Income Ratio, Other Income to Total Income Ratio, Net Profit Margin, Net Worth Ratio, Percentage change in Net Profit, Percentage change in Total Income, Percentage Change in Total Expenditure, Percentage Change in Deposits and Percentage change in Advances were used by the researchers to measure the financial performance of the SBI and ICICI banks. The study concluded that the customers have more trust on the public sector banks as compared to private sector banks.

Tandon, Anjum and Julee (2014) discussed the financial performance of top five public sector banks covering the period from 2009-2014. Ratio analysis was used by the researchers for measuring the financial health of the banks. It was found that PNB has the highest return on net worth and return on capital employed. State Bank of India has the highest EPS and Bank of Baroda has the highest Capital Adequacy Ratio among the sampled banks. Further SBI has highest Dividend Payout Ratio among the sampled banks.

Islam (2014) in his paper anlysed the financial performance of National Bank Limited of Bangladesh for the period 2008-13. The researcher used the financial ratio analysis and it was found that NBL achieved a worthy performance in all core areas of banking operations. The results indicate that the overall bank performance in terms of profitability, liquidity and credit performance was improved from 2008 to 2011 and then declined during 2012 and 2013. Further bank increased the size of their portfolio during the period.

Shah and Jan (2014) in their paper studied the financial performance of top ten private banks in Pakistan. ROA and interest income were taken as dependent variables with bank size, assets management and operational efficiency as the independent variables. Results showed that the ROA of the banks were strongly and negatively influenced by the bank size. Operational efficiency was negatively associated with ROA and other dependent variable i.e. interest income was strongly positively influenced by the bank size and was found statistically significant.

Nagarkar (2015) had studied the financial performance with principle component analysis of fifteen banks taking five each from public, private and foreign banks. The data was collected for the period 2003 to 2013 and it was divided in two period as 2003-08 and period 2009-13. The study shows that with the down fall in deposits, the credit growth rate is not affected because large national banks were able to withstand business cycles better than regional banks. The study justified the objective of government to create bigger national level banks by merging smaller banks.

Singh andPawan (2016) in their paper studied the financial performance of PNB and HDFC banks. Various ratios like Capital Adequacy Ratio, Credit Deposit Ratio, Net Profit Ratio etc. were used by the researchers for measuring the financial performance of these banks. The study shows that PNB faces the problem to generate the income and NPAs of PNB were increasing. The study further shows that the financial performance of HDFC bank was better than PNB during the period of study.

Chandulal (2016) in his doctoral thesis made an attempt to compare the financial performance of private and public sector banks with special reference to affecting factors and their impact on performance indicators. Out of total 29 parameters studied, 10 parameters showed significant financial difference at all three levels of data analysis. Among these 10 parameters private sector banks proves superiority over public sector banks in 4 parameters while public sector banks proves superiority over private sector banks in remaining 6 parameters.

Rao and Ibrahim (2017) in their paper compared the financial performance of IDBI bank with industry's average on the basis of financial ratios for the period 2011-2012 to 2015-16. It was found that the solvency position of IDBI Bank and the employment of assets was in tune with the industry averages. Net profit margin of IDBI Bank indicates that the profit of the bank is declining and is well below the industry averages which suggest that the operations of the bank are needed to be improved. Further, the ROA of IDBI Bank is showing a declining trend as compared to industry average.

**Objectives of the Study**

The present study is undertaken with the objective to compare the financial position of public sector banks and private sector banks.

**Period and Scope of the Study**

The present study covers the period from 2005 to 2017. Three top banks viz. State Bank of India, Bank of Baroda and Punjab National Bankfrom public sector and three top banks viz. ICICI Bank, HDFC Bank and Kotak Mahindra Bank from private sector in terms of market capitalization were taken for the present study.

**Data Collection**

Secondary sources of data were taken for the present study. The data was primarily collected from the Annual Reports of the banks and RBI publications.

**Research Methodology**

Mainly ratio analysis and ANOVA were used to compare the financial performance of the banks. The following ratios were used for the comparison:

1. Operating Profit to Total Assets
2. Profit per Employee
3. Return on Investment
4. Return on Advances
5. Return on Equity
6. Return on Assets
7. Net Interest Income to Total Assets

One way ANOVA was used to measure the difference within the returns of various banks.

**Hypotheses**

The following hypotheses have been evaluated using one way ANOVA in the present study:

$H_0$ : There is no significant difference between ratios of Operating Profit to Total Assets of different banks.

$H_0$ : There is no significant difference between ratios of Profit per Employee of different banks.

$H_0$ : There is no significant difference between ratios of Return on Investment of different banks. $H_0$ : There is no significant difference between ratios of Return on Advances of different banks. $H_0$ : There is no significant difference between ratios of Return on Equity of different banks.

$H_0$ : There is no significant difference between ratios of Net Interest Income to Total Assets of different banks.

**Discussion**

**1. Operating Profit to Total Assets Ratio**

Ratio of operating profit to total assets indicates operating profit as percentage of total assets. Operating profit is excess of interest income over operating expenses. Higher ratio shows better financial health of the bank.

**Table 1: Operating Profit to Total Assets Ratio**

| Year | STATE BANK OF INDIA | PUNJAB NATIONAL BANK | BANK OF BARODA | HDFC BANK | ICICI BANK | KOTAK MAHINDRA BANK LTD | Average | Std. Deviation |
|---|---|---|---|---|---|---|---|---|
| 2005 | 2.53 | 2.10 | 2.56 | 2.87 | 2.02 | 2.16 | **2.37** | **0.33** |
| 2006 | 2.37 | 2.15 | 1.84 | 3.17 | 1.86 | 2.52 | **2.32** | **0.50** |
| 2007 | 1.89 | 2.35 | 1.88 | 3.11 | 1.97 | 2.17 | **2.23** | **0.47** |
| 2008 | 2.04 | 2.22 | 1.81 | 3.36 | 2.14 | 2.78 | **2.39** | **0.57** |
| 2009 | 2.13 | 2.55 | 2.12 | 3.27 | 2.29 | 2.09 | **2.41** | **0.46** |
| 2010 | 1.82 | 2.70 | 1.95 | 3.17 | 2.62 | 3.92 | **2.70** | **0.78** |
| 2011 | 2.23 | 2.68 | 2.19 | 3.09 | 2.35 | 3.00 | **2.59** | **0.39** |
| 2012 | 2.47 | 2.54 | 2.13 | 3.05 | 2.32 | 2.84 | **2.56** | **0.34** |
| 2013 | 2.14 | 2.33 | 1.81 | 3.10 | 2.57 | 2.89 | **2.47** | **0.48** |
| 2014 | 1.91 | 2.21 | 1.54 | 3.22 | 2.93 | 3.01 | **2.47** | **0.68** |
| 2015 | 2.10 | 2.07 | 1.44 | 3.22 | 3.18 | 3.10 | **2.52** | **0.75** |
| 2016 | 1.96 | 1.78 | 1.27 | 3.21 | 3.49 | 2.71 | **2.41** | **0.87** |
| 2017 | 2.01 | 2.10 | 1.61 | 3.21 | 3.55 | 2.94 | **2.57** | **0.77** |
| **Average** | **2.12** | **2.29** | **1.86** | **3.16** | **2.56** | **2.78** | | |
| **Std. Deviation** | **0.22** | **0.27** | **0.35** | **0.12** | **0.57** | **0.49** | | |

Source: RBI Publications

Table 1 show that the ratio of private sector banks is superior to public sector banks with HDFC Bank at top followed by Kotak Mahindra and ICICI Bank. The profits of HDFC Bank shows least fluctuation over the time and operating profit of ICICI Bank shows the highest fluctuations during the study period. The public sector banks are showing downward trend in long term whereas private sector banks are trying to stabilize their operating profit. Table 2 shows that the difference between the operating profits of various banks is statistically significant.

**Table 2: Results of ANOVA in r/o Operating Profit to Total Assets Ratio**

| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
|---|---|---|---|---|---|---|
| Between Groups | 14.32032074 | 5 | 2.864064147 | 21.07497606 | 6.4509E-13 | 2.3418275 |
| Within Groups | 9.784714249 | 72 | 0.135898809 | | | |
| | | | | | | |
| Total | 24.10503498 | 77 | | | | |

Source: Calculated from the data of Table 1

**2. Profit per Employee**

This parameter indicates the amount of profit generated per employee of banks. Higher the profit per employee, higher will be efficiency of the bank.Table 3 shows that the private sector banks are performing more efficiently in comparison to public sector banks. ICICI Bank is top performer in terms of profit per employee followed by HDFC Bank whereas PNB and SBI are the worst performers among the sampled banks. Private sector banks are showing upward trend in the ratio. Wide variations are visible in the trend of profit per employee of Bank of Baroda.

**Table 3: Profit per Employee Ratio**

| Year | STATE BANK OF INDIA | PUNJAB NATIONAL BANK | BANK OF BARODA | HDFC BANK | ICICI BANK | KOTAK MAHINDRA BANK LTD | Average | Std. Deviation |
|---|---|---|---|---|---|---|---|---|
| 2005 | 0.21 | 0.24 | 0.70 | 0.88 | 1.10 | 0.54 | **0.61** | **0.35** |
| 2006 | 0.22 | 0.25 | 0.21 | 0.74 | 1.00 | 0.42 | **0.47** | **0.33** |
| 2007 | 0.24 | 0.27 | 0.27 | 0.61 | 0.90 | 0.31 | **0.43** | **0.27** |
| 2008 | 0.37 | 0.37 | 0.39 | 0.50 | 1.00 | 0.40 | **0.51** | **0.25** |
| 2009 | 0.47 | 0.56 | 0.60 | 0.42 | 1.10 | 0.30 | **0.58** | **0.28** |
| 2010 | 0.45 | 0.73 | 0.80 | 0.60 | 0.90 | 0.70 | **0.70** | **0.16** |
| 2011 | 0.39 | 0.84 | 1.10 | 0.74 | 1.00 | 0.80 | **0.81** | **0.25** |
| 2012 | 0.53 | 0.84 | 1.20 | 0.80 | 1.10 | 0.90 | **0.90** | **0.24** |
| 2013 | 0.65 | 0.81 | 1.00 | 1.00 | 1.40 | 1.00 | **0.98** | **0.25** |
| 2014 | 0.49 | 0.50 | 1.00 | 1.20 | 1.40 | 1.00 | **0.93** | **0.37** |
| 2015 | 0.60 | 0.50 | 0.70 | 1.00 | 1.60 | 1.10 | **0.92** | **0.41** |
| 2016 | 0.47 | -0.60 | -1.00 | 1.50 | 1.40 | 0.70 | **0.41** | **1.03** |
| 2017 | 0.51 | 0.20 | 2.60 | 1.60 | 1.20 | 1.10 | **1.20** | **0.85** |
| **Average** | **0.43** | **0.42** | **0.74** | **0.89** | **1.16** | **0.71** | | |
| **Std. Deviation** | **0.14** | **0.39** | **0.80** | **0.36** | **0.22** | **0.30** | | |

Source: RBI Publication

Table 4 further shows that the difference between profit per employee of various banks is statistically significant.

**Table 4: Results of ANOVA in r/o Profit per Employee Ratio**

| ***Source of Variation*** | ***SS*** | ***Df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
|---|---|---|---|---|---|---|
| Between Groups | 5.158331949 | 5 | 1.03166639 | 5.765698308 | 0.00015686 | 2.3418275 |
| Within Groups | 12.88308477 | 72 | 0.178931733 | | | |
| | | | | | | |
| Total | 18.04141672 | 77 | | | | |

Source: Calculated from the data of Table 3

**3. Return on Investment Ratio**

Ratio of return on investment indicates profit as percentage of total investment. It showsthe investment efficiency of banks.

**Table 5: Return on Investment Ratio**

| Year | STATE BANK OF INDIA | PUNJAB NATIONAL BANK | BANK OF BARODA | HDFC BANK | ICICI BANK | KOTAK MAHINDRA BANK LTD | Average | Std. Deviation |
|---|---|---|---|---|---|---|---|---|
| 2005 | 8.37 | 8.56 | 7.96 | 6.79 | 4.75 | 3.86 | **6.72** | **1.99** |
| 2006 | 7.77 | 8.79 | 8.05 | 6.84 | 6.05 | 7.19 | **7.45** | **0.96** |
| 2007 | 6.71 | 7.63 | 7.31 | 6.98 | 6.13 | 5.78 | **6.76** | **0.70** |
| 2008 | 7.05 | 7.28 | 6.95 | 7.18 | 7.37 | 8.85 | **7.45** | **0.70** |
| 2009 | 6.69 | 7.27 | 6.87 | 7.41 | 6.90 | 6.12 | **6.88** | **0.46** |
| 2010 | 6.20 | 6.46 | 6.43 | 6.78 | 5.77 | 6.72 | **6.40** | **0.37** |
| 2011 | 6.71 | 6.52 | 7.20 | 7.22 | 6.19 | 6.46 | **6.72** | **0.42** |
| 2012 | 7.88 | 7.10 | 8.00 | 7.72 | 6.58 | 6.75 | **7.34** | **0.61** |
| 2013 | 8.20 | 7.55 | 7.32 | 7.48 | 6.65 | 7.41 | **7.44** | **0.50** |
| 2014 | 8.52 | 7.50 | 7.32 | 7.77 | 6.63 | 7.54 | **7.55** | **0.61** |
| 2015 | 8.03 | 7.22 | 8.10 | 7.23 | 6.32 | 7.88 | **7.46** | **0.68** |
| 2016 | 8.00 | 7.82 | 9.00 | 8.13 | 6.67 | 8.65 | **8.04** | **0.80** |
| 2017 | 7.19 | 7.30 | 8.47 | 7.77 | 7.07 | 7.64 | **7.57** | **0.52** |
| **Average** | **7.49** | **7.46** | **7.61** | **7.33** | **6.39** | **6.99** | | |
| **Std. Deviation** | **0.76** | **0.67** | **0.72** | **0.43** | **0.66** | **1.30** | | |

Source: RBI Publications

Table 5 shows that the public sector banks are earning more returns on their investment in comparison to private sector banks. Bank of Baroda is the topper in the list followed by SBI and PNB. The ratio of ICICI Bank is the lowest among sampled banks.

**Table 6: Results of ANOVA in r/o Return on Investment Ratio**

| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
|---|---|---|---|---|---|---|
| Between Groups | 13.47935632 | 5 | 2.695871264 | 4.19823946 | 0.0021005 | 2.3418275 |
| Within Groups | 46.23431628 | 72 | 0.642143282 | | | |
| | | | | | | |
| Total | 59.71367259 | 77 | | | | |

Source: Calculated from the data of Table 5

Further Table 6 shows that the difference between the returns on investment of different banks is statistically significant.

### 4. Return on Advances Ratio

Ratio of return on advances indicates profit as percentage of total advances. It shows theefficiency of banks in terms of utilizing its advances.

**Table 7: Return on Advances Ratio**

| Year | STATE BANK OF INDIA | PUNJAB NATIONAL BANK | BANK OF BARODA | HDFC BANK | ICICI BANK | KOTAK MAHINDRA BANK LTD | Average | Std. Deviation |
|---|---|---|---|---|---|---|---|---|
| 2005 | 7.24 | 7.89 | 7.35 | 7.68 | 8.77 | 10.46 | **8.23** | **1.22** |
| 2006 | 7.62 | 7.91 | 7.31 | 8.91 | 8.59 | 10.40 | **8.46** | **1.12** |
| 2007 | 8.29 | 8.93 | 8.27 | 10.57 | 9.41 | 11.62 | **9.52** | **1.34** |
| 2008 | 9.34 | 9.66 | 8.84 | 12.62 | 10.72 | 13.61 | **10.80** | **1.92** |
| 2009 | 9.67 | 10.64 | 8.96 | 14.96 | 10.06 | 15.50 | **11.63** | **2.84** |
| 2010 | 8.62 | 9.77 | 7.88 | 10.77 | 8.70 | 13.51 | **9.88** | **2.05** |
| 2011 | 8.64 | 9.85 | 8.02 | 10.56 | 8.26 | 12.83 | **9.69** | **1.82** |
| 2012 | 9.98 | 10.61 | 8.67 | 11.89 | 9.42 | 14.23 | **10.80** | **2.01** |
| 2013 | 9.46 | 10.57 | 8.40 | 12.33 | 10.05 | 14.04 | **10.81** | **2.05** |
| 2014 | 9.09 | 9.84 | 7.69 | 11.68 | 9.99 | 13.15 | **10.24** | **1.93** |
| 2015 | 8.95 | 9.54 | 7.47 | 11.12 | 9.81 | 12.53 | **9.90** | **1.75** |
| 2016 | 8.37 | 8.69 | 7.34 | 10.80 | 9.47 | 13.49 | **9.69** | **2.19** |
| 2017 | 7.88 | 7.92 | 7.18 | 10.22 | 8.81 | 10.52 | **8.75** | **1.36** |
| **Average** | **8.71** | **9.37** | **7.95** | **11.08** | **9.39** | **12.76** | | |
| **Std. Deviation** | **0.82** | **1.02** | **0.63** | **1.77** | **0.73** | **1.59** | | |

Source: RBI publication

Table 7 shows that the private sector banks are utilizing their advances in more efficient way in comparison to public sector banks. The Kotak Mahindra Bank is the top performer followed by HDFC Bank. ICICI Bank and PNB are at third position. Bank of Baroda is the worst performer among the sampled banks. Further Table 8 shows that there is statistically significant difference among the returns on investment of different banks.

**Table 8: Results of ANOVA in r/o Return on Advances Ratio**

| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
|---|---|---|---|---|---|---|
| Between Groups | 199.630936 | 5 | 39.92618721 | 28.84807908 | 6.0849E-16 | 2.3418275 |
| Within Groups | 99.64911256 | 72 | 1.384015452 | | | |
| | | | | | | |
| Total | 299.2800486 | 77 | | | | |

Source: Calculated from the data of table 7

## 5. Return on Equity

Return on equity is also one of the important parameters for measuring profitability of thebanks. Return on Assets measures profit as percentage of total assets while Return on Equitymeasures profit as percentage of equity capital of banks.

**Table 9: Return on Equity**

| Year | STATE BANK OF INDIA | PUNJAB NATIONAL BANK | BANK OF BARODA | HDFC BANK | ICICI BANK | KOTAK MAHINDRA BANK LTD | Average | Std. Deviation |
|---|---|---|---|---|---|---|---|---|
| 2005 | 19.43 | 21.41 | 12.58 | 18.45 | 18.86 | 12.46 | **17.20** | **3.76** |
| 2006 | 17.04 | 16.41 | 12.28 | 17.74 | 14.33 | 14.58 | **15.40** | **2.04** |
| 2007 | 15.41 | 15.55 | 12.45 | 19.46 | 13.17 | 11.19 | **14.54** | **2.95** |
| 2008 | 16.75 | 18.01 | 14.58 | 17.74 | 11.63 | 11.19 | **14.98** | **3.02** |
| 2009 | 17.05 | 22.92 | 18.62 | 17.17 | 7.80 | 7.36 | **15.15** | **6.24** |
| 2010 | 14.80 | 24.12 | 21.86 | 16.30 | 7.96 | 13.29 | **16.39** | **5.88** |
| 2011 | 12.62 | 22.60 | 23.47 | 16.74 | 9.65 | 14.39 | **16.58** | **5.52** |
| 2012 | 15.72 | 19.80 | 20.64 | 18.69 | 11.20 | 14.65 | **16.78** | **3.59** |
| 2013 | 15.43 | 15.70 | 15.07 | 20.34 | 13.10 | 15.60 | **15.87** | **2.39** |
| 2014 | 10.03 | 9.75 | 13.36 | 21.28 | 14.02 | 13.82 | **13.71** | **4.16** |
| 2015 | 10.62 | 8.17 | 8.96 | 19.37 | 14.55 | 14.12 | **12.63** | **4.21** |
| 2016 | 7.30 | -10.27 | -13.48 | 18.26 | 11.43 | 10.97 | **4.03** | **12.86** |
| 2017 | 6.31 | 3.31 | 3.44 | 17.95 | 10.33 | 13.23 | **9.09** | **5.84** |
| **Average** | **13.73** | **14.42** | **12.60** | **18.42** | **12.16** | **12.83** | | |
| **Std. Deviation** | **4.04** | **9.68** | **9.54** | **1.41** | **3.01** | **2.21** | | |

Source: RBI Publication

Table 9 shows that the HDFC Bank is consistently generating the highest average returns on equity capital and further followed by PNB and SBI with wide deviations from year to year. The returns of public sector banks show more deviations in comparison to private sector banks. The returns of SBI and PNB are showing downward trend whereas returns of Bank of Baroda shows upward trend upto the year 2011 and thereafter shows downward trend. Further, Table 10 shows that the difference between returns on equity of different banks was statistically insignificant.

**Table 10: Results of ANOVA in r/o Return on Equity**

| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
|---|---|---|---|---|---|---|
| Between Groups | 344.5558804 | 5 | 68.91117609 | 1.904996254 | 0.10404797 | 2.3418275 |
| Within Groups | 2604.522013 | 72 | 36.17391684 | | | |
| | | | | | | |
| Total | 2949.077893 | 77 | | | | |

Source: Calculated from the data of Table 9

## 6. Return on Assets

Returns on Asset Ratio is the ratio of net income (profits) generated by the bank on its total assets (including fixed assets). The higher the proportion of earnings assets, the better would be the resulting returns on total assets. Return on Assets is one of the important parameters for measuring profitability of the banks. This ratio indicates the return as percentage of total assets.

**Table 11: Return on Assets**

| Year | STATE BANK OF INDIA | PUNJAB NATIONAL BANK | BANK OF BARODA | HDFC BANK | ICICI BANK | KOTAK MAHINDRA BANK LTD | Average | Std. Deviation |
|---|---|---|---|---|---|---|---|---|
| 2005 | 0.99 | 1.17 | 0.75 | 1.47 | 1.59 | 1.56 | **1.26** | **0.34** |
| 2006 | 0.89 | 1.09 | 0.79 | 1.38 | 1.30 | 1.39 | **1.14** | **0.26** |
| 2007 | 0.84 | 1.03 | 0.80 | 1.33 | 1.09 | 0.94 | **1.01** | **0.19** |
| 2008 | 1.01 | 1.15 | 0.89 | 1.32 | 1.12 | 1.10 | **1.10** | **0.14** |
| 2009 | 1.04 | 1.39 | 1.09 | 1.28 | 0.98 | 1.03 | **1.14** | **0.16** |
| 2010 | 0.88 | 1.44 | 1.21 | 1.53 | 1.13 | 1.72 | **1.32** | **0.30** |
| 2011 | 0.71 | 1.34 | 1.33 | 1.58 | 1.35 | 1.77 | **1.35** | **0.36** |
| 2012 | 0.88 | 1.19 | 1.24 | 1.77 | 1.50 | 1.83 | **1.40** | **0.37** |
| 2013 | 0.97 | 1.00 | 0.90 | 1.90 | 1.70 | 1.81 | **1.38** | **0.47** |
| 2014 | 0.65 | 0.64 | 0.75 | 2.00 | 1.78 | 1.80 | **1.27** | **0.65** |
| 2015 | 0.68 | 0.53 | 0.49 | 2.02 | 1.86 | 1.98 | **1.26** | **0.76** |
| 2016 | 0.46 | -0.61 | -0.78 | 1.89 | 1.49 | 1.19 | **0.61** | **1.11** |
| 2017 | 0.41 | 0.19 | 0.20 | 1.88 | 1.35 | 1.73 | **0.96** | **0.78** |
| **Average** | **0.80** | **0.89** | **0.74** | **1.64** | **1.40** | **1.53** | | |
| **Std. Deviation** | **0.20** | **0.58** | **0.55** | **0.28** | **0.28** | **0.35** | | |

Source: RBI Publication

Table 11 shows that the performance of private sector banks is superior to public sector banks in terms of use of their assets in generating returns. HDFC Bank is the top performer followed by Kotak Mahindra and ICICI Bank. Bank of Baroda is the worst performer amongst the sampled banks. The long term trend of public sector banks is downward whereas the private sector banks except ICICI Bank are showing a slight upward trend during the period of study. Table 12 further reveals that the difference between return on assets of different banks is statistically significant.

**Table 12: Results of ANOVA in r/o Return on Assets**

| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
|---|---|---|---|---|---|---|
| Between Groups | 10.4339641 | 5 | 2.086792821 | 13.05251295 | 4.787E-09 | 2.3418275 |
| Within Groups | 11.51112308 | 72 | 0.159876709 | | | |
| | | | | | | |
| Total | 21.94508718 | 77 | | | | |

**Source: Calculated from the data of Table 11**

**7. Net Interest Income to Total Assets Ratio**

The ratio of Interest Income to Total Assets indicates interest income as percentage of total assets. It is also known as net interest margin. Total Assets includes cash in hand, balances with RBI, balances with banks inside/outside India, money at call, investments, advances, fixed Assets and other Assets.

### Table 13: Net Interest Income to Total Assets Ratio

| Year | STATE BANK OF INDIA | PUNJAB NATIONAL BANK | BANK OF BARODA | HDFC BANK | ICICI BANK | KOTAK MAHINDRA BANK LTD | Average | Std. Deviation |
|---|---|---|---|---|---|---|---|---|
| 2005 | 3.21 | 3.51 | 3.31 | 3.79 | 1.94 | 3.66 | **3.24** | **0.67** |
| 2006 | 3.27 | 3.44 | 3.05 | 4.08 | 2.25 | 4.55 | **3.44** | **0.81** |
| 2007 | 2.84 | 3.39 | 2.79 | 4.21 | 1.89 | 4.12 | **3.21** | **0.88** |
| 2008 | 2.64 | 3.06 | 2.42 | 4.66 | 1.96 | 5.08 | **3.31** | **1.27** |
| 2009 | 2.48 | 3.06 | 2.52 | 4.69 | 2.15 | 5.33 | **3.37** | **1.32** |
| 2010 | 2.35 | 3.12 | 2.35 | 4.13 | 2.19 | 5.62 | **3.29** | **1.35** |
| 2011 | 2.86 | 3.50 | 2.76 | 4.22 | 2.34 | 4.75 | **3.41** | **0.93** |
| 2012 | 3.38 | 3.21 | 2.56 | 4.19 | 2.40 | 4.31 | **3.34** | **0.80** |
| 2013 | 3.06 | 3.17 | 2.28 | 4.28 | 2.70 | 4.29 | **3.30** | **0.83** |
| 2014 | 2.93 | 3.14 | 1.98 | 4.14 | 2.91 | 4.34 | **3.24** | **0.87** |
| 2015 | 2.86 | 2.87 | 1.92 | 4.14 | 3.07 | 4.36 | **3.20** | **0.91** |
| 2016 | 2.60 | 2.41 | 1.84 | 4.15 | 3.11 | 4.63 | **3.12** | **1.07** |
| 2017 | 2.44 | 2.16 | 1.98 | 4.13 | 2.91 | 3.99 | **2.94** | **0.93** |
| **Average** | **2.84** | **3.08** | **2.44** | **4.22** | **2.45** | **4.54** | | |
| **Std. Deviation** | **0.33** | **0.40** | **0.45** | **0.23** | **0.44** | **0.54** | | |

Source: RBI Publication

Table 13 shows that the performance of Kotak Mahindra Bank is the best among the sampled banks regarding Net Interest Income to Total Assets Ratio. HDFC Bank is at second place and PNB is at third place. Bank of Baroda and ICICI Bank are at the lowest level among the sampled banks. Again public sector banks are showing downward trend whereas private sector banks are showing slightly upward trend in the ratio. Further Table 14 shows that the difference of ratios between various banks is statistically significant.

### Table 14: Results of ANOVA in r/o Net Interest Income to Total Assets Ratio

| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
|---|---|---|---|---|---|---|
| Between Groups | 53.20516162 | 5 | 10.64103232 | 62.3703361 | 8.6268E-25 | 2.3418275 |
| Within Groups | 12.2839538 | 72 | 0.17061047 | | | |
| | | | | | | |
| Total | 65.48911543 | 77 | | | | |

Source: Calculated from the data of Table 13

## Conclusion

From the above discussion it can be concluded that private sector banks are performing better than their public counterparts in terms of Operating Profit to Total Assets Ratio, Profit per Employee, Return on Advances Ratio and Returns on Assets. However, public sector banks are performing better than their private sector counterparts in terms of Return on Investment Ratio. HDFC Bank is earning the highest Return on Equity and the variations in its earning are also at the lowest level. PNB is second best performer in terms of Return on Equity but there are wide fluctuations in its returns. The returns of SBI and PNB are showing downward trend whereas returns of Bank of Baroda shows upward trend upto the year 2011 and thereafter shows downward trend. The returns of HDFC Bank and Kotak Mahindra Bank shows almost constant trend with little upward and downward fluctuations. Kotak Mahindra Bank and HDFC Bank are generating higher ratio of Net Interest Income to Total Assets Ratio. Further the long term trend of Net Interest Income to Total Assets Ratio is downward which is a matter of concern for the respective banks. The difference between the ratios of various banks was statistically significant in all cases except in case of Return on Equity where it was statistically insignificant.

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