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A sectoral analysis of traditional financial performance matrices of Indian banking industry

Dr. Jasvir S Sura

Abstract

The rationale behind the study lies in the facts that about the superiority of value-based (modern) financial measures over traditional matrices is mixed and was focused on manufacturing sector only. So, there is an obvious requirement to examine the usefulness of traditional (accounting based) financial performance measures in an alternative institutional milieu. With reference to mentioned hypothesis (H_0) of the study, the average traditional financial performance measures of public and private sector banks are not significantly different, independent sample t-test has been applied on the pooled data (from 1996 to 2009) of 37 (20 public and 17 private) banks. Results of test reveal that null hypothesis is rejected at five percent level of significant that Profit after tax (PAT), earning per share (EPS), and return on investment (ROI) are significantly different as offered by the public and private banks. The insignificant t-values indicate that the average return on capital employed (ROCE), and return on net worth offered by the public sector and private sector banks was not significantly different during the study period.

Keywords: Financial performance, value-based financial measures, Indian banks, t-test

Introduction

Today financial services industry operates in increasingly complex, competitive and global environment place emphasis on shareholder value maximization as the main objective, shareholder value being derived in terms of market valuation of a firm in the capital market. Thus, the principle of shareholder value maximization provides a conceptual and operational framework for evaluating the performance of firms. Shareholder value, defined as the market valuation of a firm, is dependent on several factors. A firm's current profitability, its risk, its growth, which is a proxy for the potential future earning streams of the firm, and the existence of speculative bubbles are the four major factors that impinge upon the market valuation of a firm (Branch & Bradley, 1983) [8]. There are, however, arguments (Brief & Lawson, 1992; and Peasnell, 1996) [9, 19] that accounting-based measures of financial performance are a sufficient predictor of a firm's market-based valuation and returns.

So, there is an obvious requirement to examine the usefulness of traditional (accounting based) financial performance measures in an alternative institutional milieu. In this paper, an attempt has been made to arrive at concerning traditional financial performance measures (Profit after Taxes, Earning per Share, Return on Capital Employed, Return on Net worth, and Return on Investment) and its relation to bank-wise yearly disclosures of sample banks as whole, and public and private sector comparison using statistical trend.

The literature regarding modern financial performance measures has been giving an assorted view, as stated by Lehen and Makhija (1997) [15], "EVA is seen by its proponents as providing the most reliable year-to-year indicator of a market-based performance measure known as Market Value Added... Despite wide interest in EVA, little is known empirically about the efficacy of this measure versus traditional financial measures of performance... The evidence from these studies is mixed, however, and has not be resolved the debate over performance measures". Maditinos, *et al.* (2009) [16], Biddle, *et al.* (1997) [7], Tong *et.al* (2009) [22], Dimitris (2007) [10], Ismail (2006) [13], Ralph (2006) [20], Kim (2006) [14], Bao and Bao (1999), Biddle *et al.*, (1999) [6] also arrived at similar conclusion. Dodd and Chen (1997) [11] similarly raised another dimension of EVA and conclude that Economic value Added has been acclaimed to the most recent and exciting innovation in company performance measures.

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They gave three conclusions from the examination: (a) although improving EVA performance is associated with a higher stock return, the association is not as perfect as acclaimed by EVA advocates (b) EVA is more powerful than traditional measures of accounting profit in explaining stock return; however, accounting earnings are still of significant incremental information value in addition to EVA; and (c) not only is EVA similar to residual income in concept, they are empirically comparable. The profounder and some academicians like Anand, *et al.* (1998) [1], Banerjee and Jain (1998) [4], Ehrbar, A. (1998) [12], Pattanayak and Mukherjee (1998) [18], Bacidore, *et al.* (1997) [2], Banerjee (1997) [3], and Teitebaum (1997) [21] etc. also join thought of Dodd and Chen (1997) [11]. Further, most of the studies on financial performance appear from the developed countries like UK, Canada, Germany, Australia, and France etc. and considering only manufacturing sector. So, it is imperative to study the traditional financial performance measures for Indian banking industry.

Objectives of the Study

The rationale behind the study lies in the facts that about the superiority of value-based (modern) financial measures over traditional matrices is mixed and was focused on manufacturing sector only. So, there is an obvious requirement to examine the usefulness of traditional (accounting based) financial performance measures in an alternative institutional milieu. With this broad objective in mind, the present study intends to achieve the following specific objective:

to access and compare the sectoral analysis of traditional financial performance measures (PAT, EPS, ROCE, RONW, and ROI) of Indian banking industry.

Hypothesis

In synchronization with the above-mentioned objectives, the study intends to test the following null hypothesis (H₀):

H₀ The average traditional financial performance measures of public and private sector banks are not significantly different.

Database and Sources

The data used to calculate ROCE, ROWN, PAT, EPS and ROI etc. have yearly frequency i.e. collected from 1st April to the 31st March of fourteen financial years i.e. 1996-2009. The data has been collected from most worthy database ‘PROWESS’ of Centre for monitoring Indian Economy (CMIE).

Tools of Analysis

Yearly data were used to calculate the select variables as stated in the previous sections. The significance of the difference between select variables of public and private sector banks are tested with the help of independent samples t-test where,

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{\text{Sp} \left[\left(\frac{1}{n_1} \right) + \left(\frac{1}{n_2} \right) \right]^{\frac{1}{2}}} \text{ And } S_p^2 = \frac{n_1 S_1^2 + n_2 S_2^2}{n_1 + n_2 - 2}$$

Where S_p² is pooled variance, n₁ is a number of observations in sample 1 and n₂ are a number of observations in sample 2, (μ₁-μ₂) are the difference between two population means and (X̄₁ - X̄₂) is the difference between sample means.

Results and Discussions

Profit after Taxes (Pat)

Profit after Taxes (PAT) also called net income or earnings is an accounting concept can be defined as the amount a business earns after subtracting all expenses necessary from its revenue for the particular financial year. To put it in equation form: Profit after Taxes (PAT) = Revenue - Expenses.

Table 1: Frequency Distribution of Profit after Tax of Indian Banking Industry

| Frequency Years | Negative | Up to Rs.-100 Crore | Rs. 100-500 Crore | Rs. 500-1000 Crore | Above 1000 Crore | Total |
|--------------------|----------|---------------------|-------------------|--------------------|------------------|------------|
| Mar-96 | 4 (10.8) | 25 (67.6) | 6 (16.2) | 1 (2.7) | 1 (2.7) | 37 (100.0) |
| Mar-97 | 2 (5.4) | 25 (67.6) | 8 (21.6) | - | 2 (5.4) | 37 (100.0) |
| Mar-98 | 3 (8.1) | 22 (59.5) | 9 (24.3) | 1 (2.7) | 2 (5.4) | 37 (100.0) |
| Mar-99 | 3 (8.1) | 23 (62.2) | 9 (24.3) | - | 2 (5.4) | 37 (100.0) |
| Mar-00 | 2 (5.4) | 19 (51.4) | 13 (35.1) | 2 (5.4) | 1 (2.7) | 37 (100.0) |
| Mar-01 | 2 (5.4) | 19 (51.4) | 14 (37.8) | 1 (2.7) | 1 (2.7) | 37 (100.0) |
| Mar-02 | 4 (10.8) | 12 (32.4) | 16 (43.2) | 4 (10.8) | 1 (2.7) | 37 (100.0) |
| Mar-03 | 2 (5.4) | 9 (24.3) | 19 (51.4) | 4 (10.8) | 3 (8.1) | 37 (100.0) |
| Mar-04 | 3 (8.1) | 7 (18.9) | 16 (43.2) | 6 (16.2) | 5 (13.5) | 37 (100.0) |
| Mar-05 | 3 (8.1) | 8 (21.6) | 15 (40.5) | 7 (18.9) | 4 (10.8) | 37 (100.0) |
| Mar-06 | - | 11 (29.7) | 13 (35.1) | 9 (24.3) | 4 (10.8) | 37 (100.0) |
| Mar-07 | - | 6 (16.2) | 16 (43.2) | 7 (18.9) | 8 (21.6) | 37 (100.0) |
| Mar-08 | 1 (2.7) | 3 (8.1) | 18 (48.6) | 5 (13.5) | 10 (27.0) | 37 (100.0) |
| Mar-09 | 1 (2.7) | 2 (5.4) | 15 (40.5) | 9 (24.3) | 10 (27.0) | 37 (100.0) |

Note: Figures in bracket are in percentage of the total.

Table-1 put forward the frequency distribution of profit after tax (PAT) of select sample banks. The table shows that only four banks registered negative PAT during 1996, and up to 2009 only one bank was having negative PAT. During 1996, twenty-five banks were in the category of the second group

and six banks were in the third group, and the assorted pattern is exhibited by the table up to 2009. There were only two banks in the second category, and fifteen banks registered profit between Rs 100-500 Crore. The table further reveals that there were only two banks out of thirty-

seven sample banks with a PAT of Rs 500 Crore. Up to 2009, there was a phenomenal increase in the number of profit earner banks in the fifth group.

Table-2 put forward the final audited result of profit after tax of twenty public sector banks. In 1996, public sector banks account Rs 126.63 Crore of profit, which further increases to Rs 312.17 Crore in 1998. There were declines in average PAT to Rs 227.68 Crore in 1999. It further increases to Rs 547.52 Crore in 2003 and exhibit increasing trend through rest of study period. The table further reveals that among public sector banks only UCO Bank and Dena Bank suffered a loss for some initial financial years. Up to 2002, public sector bank shows more or less, the same scattered from average PAT. The variability in 2003 was Rs 547.52 Crore which further shows increasing trend to Rs 1526.37 Crore in 2009. This shows that the aggregate PAT of public sector banks was affected by some of high PAT earner banks. IDBI, State Bank of India, Punjab National Bank, Canara Bank, and Bank of India were the sample

public banks having a higher contribution to aggregate PAT of sample banks through the study period.

Table-3 presents PAT of seventeen private sector banks in respective financial years. In 1996 private banks accounts only Rs 27.98 Crore average PAT, which marginally increases to Rs 29.90 Crore in 1997, and exhibits upward trend to Rs 667.44 Crore in 2009. The variability among private sector banks from average PAT was also remaining somehow stable up 2000. In 2001 Rs 60.78 Crore variation in term of standard deviation which further shows higher scattered through rest of study period reached to Rs 1038.29 Crore in 2009. The range statistics result also exhibits identical scattered among private sector banks through the study period. It means that after 2001 some of the private banks were showing a phenomenal increase in the profit. ICICI Bank Ltd., HDFC Bank Ltd, ING Vysya bank Ltd, and Karur Vysya Banks Ltd among the few banks that greatly affected the aggregate PAT of private sector Banks.

Table 2: Profit after Taxes (PAT) - PSU Banks

(Values are in Crore Rupees)

| Banks Name | Mar-96 PAT | Mar-97 PAT | Mar-98 PAT | Mar-99 PAT | Mar-00 PAT | Mar-01 PAT | Mar-02 PAT | Mar-03 PAT | Mar-04 PAT | Mar-05 PAT | Mar-06 PAT | Mar-07 PAT | Mar-08 PAT | Mar-09 PAT |
|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Allahabad Bank | 5.62 | 64.3 | 129.2 | 129.37 | 69.33 | 39.91 | 80.21 | 165.99 | 463.38 | 541.79 | 706.13 | 750.14 | 974.74 | 768.6 |
| Andhra Bank | 11.07 | 35.69 | 75.25 | 90.03 | 120.59 | 121.19 | 202.27 | 402.99 | 463.5 | 520.1 | 485.5 | 475.08 | 575.57 | 635.05 |
| Bank Of Baroda | 208.27 | 231.36 | 461.35 | 342.21 | 502.77 | 274.66 | 545.92 | 772.78 | 967 | 676.84 | 826.96 | 1026.46 | 1435.52 | 2227.2 |
| Bank Of India | 276.48 | 360.02 | 364.51 | 201.14 | 172.82 | 251.88 | 505.22 | 851 | 1008.32 | 340.05 | 701.44 | 1123.17 | 2009.4 | 3007.35 |
| BIM | 12.6 | 47.26 | 110.14 | 51.89 | 90.14 | 45.19 | 145.41 | 222.02 | 304.55 | 177.12 | 50.79 | 271.84 | 328.39 | 375.17 |
| Canara Bank | 252.52 | 147.4 | 203.02 | 160.01 | 236.05 | 280.3 | 741.4 | 1018.89 | 1338.01 | 1109.5 | 1343.22 | 1420.81 | 1565.01 | 2072.42 |
| Corporation Bank | 104.74 | 125.13 | 166.86 | 176.29 | 232.44 | 261.84 | 308.1 | 415.99 | 504.14 | 402.17 | 444.46 | 536.14 | 734.99 | 892.77 |
| Dena Bank | 51.69 | 72.91 | 82.2 | 81.44 | 112.39 | -266.13 | -158.64 | 90.45 | 204.2 | 61 | 72.99 | 201.56 | 359.79 | 422.66 |
| IOB | 3.19 | 104.52 | 113.06 | 55.34 | 40.34 | 115.93 | 230.21 | 416.1 | 512.76 | 651.36 | 783.34 | 1008.43 | 1202.34 | 1325.79 |
| IDBI | 1007.28 | 1144.17 | 1501.29 | 1258.87 | 679.2 | 690.97 | -2075.98 | 401.41 | | 307.26 | 560.89 | 630.31 | 729.46 | 858.54 |
| OBC | 172.75 | 180.24 | 210 | 230.12 | 278.62 | 202.89 | 320.55 | 456.95 | 686.07 | 726.07 | 557.16 | 580.81 | 353.22 | 905.42 |
| PNB | -95.92 | 237.71 | 501.25 | 334.07 | 408.13 | 463.64 | 562.39 | 842.2 | 1108.69 | 1410.12 | 1439.31 | 1540.08 | 2048.76 | 3090.88 |
| SBBJ | 25.79 | 40.48 | 90.48 | 91.88 | 120.42 | 105.37 | 164.5 | 203.28 | 301.52 | 205.65 | 145.03 | 305.8 | 315 | 403.45 |
| SBI | 831.6 | 1349.25 | 1861.2 | 1027.8 | 2051.55 | 1604.25 | 2431.62 | 3105 | 3681 | 4304.52 | 4406.67 | 4541.31 | 6729.12 | 9121.23 |
| SBM | 25.63 | 40.24 | 50.54 | 33.58 | 48.24 | 25.72 | 65.9 | 115.42 | 175.38 | 205.26 | 215.72 | 248.23 | 317.35 | 335.41 |
| SBT | 26.21 | 40.25 | 63.3 | 43.27 | 66.44 | 97.49 | 120.93 | 171.04 | 244.6 | 247.13 | 258.68 | 326.28 | 386.11 | 607.84 |
| Syndicate Bank | 20.17 | 66.96 | 82.66 | 142.59 | 215.65 | 234.94 | 250.55 | 344.13 | 434.13 | 402.9 | 536.49 | 716.06 | 848.07 | 912.82 |
| Uco Bank | -236.66 | -176.23 | -96.22 | -67.77 | 36.64 | 33 | 164.52 | 207.49 | 435.42 | 345.65 | 196.65 | 316.1 | 412.16 | 557.72 |
| UBI | 80.49 | 215.67 | 250.09 | 153.63 | 101.24 | 155.47 | 314.13 | 552.69 | 712.05 | 719.06 | 675.18 | 845.39 | 1387.03 | 1726.55 |
| Vijaya Bank | -250.95 | 18.96 | 23.31 | 17.89 | 52.84 | 70.73 | 130.9 | 194.56 | 411.31 | 380.57 | 126.88 | 331.34 | 361.28 | 262.48 |
| Average | 126.63 | 217.31 | 312.17 | 227.68 | 281.79 | 240.46 | 252.51 | 547.52 | 734.53 | 686.71 | 726.67 | 859.77 | 1153.67 | 1526.37 |
| SD (σ) | 303.48 | 370.33 | 493.48 | 330.92 | 449.71 | 373.18 | 759.59 | 659.61 | 783.77 | 911.52 | 946.48 | 951.06 | 1430.15 | 1983.37 |
| Skew ness | 1.91 | 2.46 | 2.53 | 2.49 | 3.55 | 2.77 | -0.29 | 3.35 | 3.24 | 3.62 | 3.38 | 3.33 | 3.40 | 3.25 |
| Range | 1258.23 | 1525.48 | 1957.42 | 1326.64 | 2014.91 | 1870.38 | 4507.6 | 3014.55 | 3505.62 | 4243.52 | 4355.88 | 4339.75 | 6414.12 | 8858.75 |

Source: CMIE database Prowess calculated with proposed adjustments.

Table 3: Profit after Taxes (PAT) - Private Banks

(Values are in Crore Rupees)

| Banks Name | Mar-96 PAT | Mar-97 PAT | Mar-98 PAT | Mar-99 PAT | Mar-00 PAT | Mar-01 PAT | Mar-02 PAT | Mar-03 PAT | Mar-04 PAT | Mar-05 PAT | Mar-06 PAT | Mar-07 PAT | Mar-08 PAT | Mar-09 PAT |
|---------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Axis Bank Ltd.* | 11.21 | 15.02 | 16.03 | 31.08 | 51.06 | 86.12 | 136.53 | 192.19 | 278.31 | 334.58 | 485.08 | 659.03 | 1071.03 | 1815.36 |
| Bank Of Rajasthan | 43.4 | 4.15 | -86.05 | -70.87 | 12.08 | 32.22 | 36.41 | 68.42 | 69.04 | 35.01 | 15.26 | 110.57 | 115.2 | 117.71 |
| Centurion Bank | 9.64 | 16.25 | 20.07 | 26.48 | 34.33 | 7.02 | -161.84 | -25.36 | -112.95 | 25.11 | 87.8 | 121.38 | ** | ** |
| City Union Bank | 9.54 | 11.11 | 11.45 | 12.25 | 20.06 | 21.3 | 28.44 | 33.37 | 57.04 | 46.32 | 56.37 | 71.81 | 101.73 | 122.13 |
| Dhanalakshmi Bank | 4.72 | 7.91 | 8.4 | 3.87 | 11.29 | 6.77 | 10.07 | 15.01 | 17.48 | -21.6 | 9.52 | 16.14 | 28.46 | 57.45 |
| Federal Bank Ltd. | 45.19 | 46.23 | 50.28 | 2.53 | 46.39 | 61.04 | 82.01 | 105.01 | 136.31 | 90.09 | 225.21 | 292.73 | 368.05 | 500.49 |
| H D F C Bank Ltd. | 20.28 | 40.5 | 63.15 | 82.4 | 120.04 | 210.12 | 297.04 | 387.6 | 509.5 | 665.3 | 870.78 | 1141.4 | 1590.1 | 2244.9 |
| I C I C I Bank Ltd. | 16.51 | 40.13 | 50.22 | 63.35 | 105.3 | 161.1 | 258.3 | 1206.2 | 1637.1 | 2005.2 | 2540.1 | 3110.2 | 4157.7 | 3758.1 |
| I N G Vysya Bank | 105.71 | 65.77 | 75.52 | 30.54 | -2.69 | 37.2 | 42.99 | 75.63 | 59 | -38.18 | 9.06 | 88.91 | 156.93 | 188.78 |
| Indusind Bank Ltd. | 45.62 | 73.32 | 91.12 | 34.25 | 56.09 | 34.02 | 50.75 | 90.17 | 262.06 | 205.52 | 36.82 | 67.23 | 75.05 | 148.34 |
| J & K Bank | 18.39 | 25 | 50.69 | 85.45 | 120.17 | 167.56 | 261.72 | 337.75 | 406.33 | 115.07 | 176.84 | 274.49 | 360 | 409.84 |
| Karnataka Bank Ltd. | 25.24 | 40.71 | 58.16 | 42.45 | 40.71 | 45.41 | 91.13 | 110.12 | 133.17 | 147.15 | 176.03 | 177.03 | 241.74 | 266.71 |
| Karur Vysya Bank | 32.24 | 35.7 | 43.55 | 37.04 | 71.14 | 72.05 | 108.51 | 124.97 | 161.05 | 105.34 | 135.35 | 160.01 | 208.33 | 235.84 |
| Kotak Mahindra Bank | 45.37 | 30.15 | 21.11 | 12.18 | 62.14 | 49.6 | 54.52 | 44.96 | 78.73 | 84.89 | 118.23 | 141.37 | 293.93 | 276.1 |
| Lakshmi Vilas Bank | 10 | 18.65 | 22.17 | 15.15 | 26.83 | 26.74 | 30.22 | 34.16 | 41.05 | 3.34 | 22.47 | 17.58 | 25.27 | 50.3 |
| South Indian Bank | 4.62 | 7.77 | 20.74 | 2.68 | 25.6 | 41.5 | 62.41 | 72.33 | 84.33 | 8.7 | 50.9 | 104.12 | 151.62 | 183.04 |
| Yes Bank Ltd. | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A | -3.76 | 55.32 | 94.37 | 200.02 | 303.84 |
| Average | 27.98 | 29.90 | 32.29 | 25.68 | 50.03 | 66.24 | 86.83 | 179.53 | 238.60 | 224.00 | 298.30 | 391.08 | 571.58 | 667.44 |

| | | | | | | | | | | | | | | |
|-----------|--------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| SD (σ) | 25.65 | 20.58 | 39.87 | 36.59 | 37.95 | 60.78 | 112.22 | 295.31 | 403.48 | 489.38 | 617.30 | 754.71 | 1042.65 | 1038.29 |
| Skew ness | 1.98 | 0.73 | -1.61 | -0.75 | 0.77 | 1.42 | 0.18 | 3.16 | 3.10 | 3.41 | 3.40 | 3.33 | 3.11 | 2.28 |
| Range | 101.09 | 69.17 | 177.17 | 156.32 | 122.86 | 203.35 | 458.88 | 1231.54 | 1750.06 | 2043.38 | 2531.01 | 3094.08 | 4132.46 | 3707.83 |

Source: CMIE database Prowess calculated with proposed adjustments.

* UTI Bank Ltd. turns to be Axis Bank Ltd. in April 2007.

** On 23 February 2008, Centurion Bank of Punjab Ltd merged with HDFC Bank Ltd.

Table 4: Independent Samples t-Test of Profit after Taxes (PAT) for Public and Private Sector Banks

| Levene's Test for Equality of Variances | | | t-test for Equality of Means | | | | | | |
|---|-------|------|------------------------------|-----|-----------------|-----------------|-----------------------|---|---------|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| Equal Variances | 21.21 | 0.00 | 4.99 | 504 | 0.00 | 355.54 | 71.253 | 215.553 | 495.533 |
| Equal variances not assumed | | | 5.26 | 451 | 0.00 | 355.54 | 67.507 | 222.876 | 488.210 |

Further, an attempt has been made to test the hypothesis that there is no significant difference in average PAT of public and private sector banks. To test this claim Independent Sample t-test has been applied on the pooled data of 37 banks. Table-4 exhibit results of two tests- *Levene's test of equality of variances* and *t-test for equality of means*. The table contains that there is significantly different in the average PAT of the public and private banks, the test has 5.267 of t-value which is significant at one percent and the null hypothesis is false. So, may be observed that average PAT offered by public and private sector banks is significantly different.

Earning Per Share (EPS)

It is generally believed that earning per share have an effect on the share price and consequently on Market Value Added (MVA). This is defined as:

$$EPS = \frac{\text{Profit after Taxes} - \text{Dividend on Preference Shares}}{\text{Number of outstanding Equity Shares}} \times 100$$

Table-5 exhibits yearly frequency distribution of earning per share. The table shows that most of the banks during the study period were lying in first and second class intervals. There were only three banks having EPS more than Rs 80, and this number goes to six up to end of study period.

Table-6 put forward EPS calculation of public sector banks. In 1996 the average EPS of public banks was Rs 29.65, shows increasing trends up to 2008 with EPS Rs 139.18, and then decrease to Rs 47.18 in 2009. The standard deviation is also presented in the table, which describes the variation, among public sector banks to average EPS. In 1996 standard deviation stands Rs 30.54, which further increase to Rs 44.84 in 1998, and showing continuous increasing trends to Rs 270.56 in 2008 State Bank' associate banks, Oriental Bank of Commerce and Bank of Baroda were the few banks having a higher contribution to the aggregate EPS of public sector banks. These banks were affecting the average EPS through the study period. In 2009, public banks showing lesser variability from the average EPS as compared to rest of study period. It may be due to that all public banks responding in a like manner to the global economic slowdown.

Table 5: Frequency Distribution of Earnings per Share of Indian Banking Industry

| Years | Frequency | 0.0-20.0 Rupees | 20.0-40.0 Rupees | 40.0-60.0 Rupees | 60.0-80.0 Rupees | Above 80.0 Rupees | Total |
|--------|-----------|-----------------|------------------|------------------|------------------|-------------------|------------|
| Mar-96 | 15 (41.7) | 15 (41.7) | 1 (2.8) | 5 (13.9) | | | 36 (100.0) |
| Mar-97 | 19 (52.8) | 11 (30.6) | | 3 (8.3) | 3 (8.3) | | 36 (100.0) |
| Mar-98 | 18 (50.0) | 10 (27.8) | 3 (8.3) | 2 (5.6) | 3 (8.3) | | 36 (100.0) |
| Mar-99 | 25 (69.4) | 5 (13.9) | 2 (5.6) | 1 (2.8) | 3 (8.3) | | 36 (100.0) |
| Mar-00 | 21 (58.3) | 11 (30.6) | | | 4 (11.1) | | 36 (100.0) |
| Mar-01 | 23 (63.9) | 9 (25.0) | | 1 (2.8) | 3 (8.3) | | 36 (100.0) |
| Mar-02 | 20 (55.6) | 8 (22.2) | 3 (8.3) | 1 (2.8) | 4 (11.1) | | 36 (100.0) |
| Mar-03 | 18 (50.0) | 11 (30.6) | 2 (5.6) | 2 (5.6) | 3 (8.3) | | 36 (100.0) |
| Mar-04 | 15 (42.9) | 12 (34.3) | 1 (2.9) | 2 (5.7) | 5 (14.3) | | 35 (100.0) |
| Mar-05 | 22 (59.5) | 8 (21.6) | 3 (8.1) | | 4 (10.8) | | 37 (100.0) |
| Mar-06 | 22 (59.5) | 9 (24.3) | 1 (2.7) | 1 (2.7) | 4 (10.8) | | 37 (100.0) |
| Mar-07 | 20 (54.1) | 11 (29.7) | 2 (5.4) | | 4 (10.8) | | 37 (100.0) |
| Mar-08 | 18 (48.6) | 11 (29.7) | 2 (5.4) | 2 (5.4) | 4 (10.8) | | 37 (100.0) |
| Mar-09 | 18 (48.6) | 6 (16.2) | 6 (16.2) | 1 (2.7) | 6 (16.2) | | 37 (100.0) |

Note: Figures in bracket are in percentage of the total.

Table-7 presents the EPS calculation of seventeen private sector banks. The average EPS of private banks was Rs 18.78 in 1996 and then showing declining trends to Rs 18.75 in 2000. In 2001 EPS marginally increase to Rs 20.21 and then also showing the increasing trends to Rs 29.26 in 2004. In 2005 it drastically declined to Rs 10.34, and then again showing increasing trends to Rs 23.86 in 2009. Private sector banks exhibit a zigzag pattern of EPS through the

study period. In 1996 the standard deviation and range were Rs 22.51 and Rs 64.73 respectively, then slight decrease to Rs 17.34 and Rs 58.77 and showing more scattered through rest of study period to Rs 23.86 and Rs 83.82 in 2009 respectively. Jammu and Kashmir Bank Ltd. ING Vysya Bank Ltd, Karur Vysya Bank Ltd., and Federal Bank Ltd were the few banks responsible for variability.

Table 6: Earning Per Share (EPS) - PSU Banks

(Values are in Percentage)

| Banks Name | Mar-96 EPS | Mar-97 EPS | Mar-98 EPS | Mar-99 EPS | Mar-00 EPS | Mar-01 EPS | Mar-02 EPS | Mar-03 EPS | Mar-04 EPS | Mar-05 EPS | Mar-06 EPS | Mar-07 EPS | Mar-08 EPS | Mar-09 EPS |
|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Allahabad Bank | NA | 2.61 | 5.24 | 5.47 | 2.81 | 1.62 | 3.25 | 4.79 | 12.98 | 15.63 | 15.81 | 16.79 | 21.82 | 17.21 |
| Andhra Bank | NA | NA | NA | NA | NA | 2.69 | 4.49 | 10.07 | 11.59 | 13 | 10.01 | 11.09 | 11.87 | 13.46 |
| Bank Of Baroda | NA | 9.34 | 15.5 | 14.24 | 16.99 | 9.28 | 18.44 | 26.11 | 32.97 | 23.08 | 22.7 | 28.18 | 39.41 | 58.53 |
| Bank Of India | 4.75 | 5.63 | 5.7 | 3.15 | 2.7 | 3.94 | 10.41 | 17.42 | 20.69 | 6.98 | 14.39 | 23.04 | 38.26 | 57.26 |
| BIM | NA | NA | NA | NA | NA | NA | NA | NA | 7.07 | 4.11 | 1.18 | 6.31 | 7.63 | 8.71 |
| Canara Bank | NA | NA | NA | NA | NA | NA | NA | 24.85 | 32.63 | 27.06 | 32.76 | 34.65 | 38.17 | 50.55 |
| Corporation Bank | NA | 10.43 | 13.91 | 16 | 19.37 | 21.82 | 21.48 | 29 | 35.15 | 28.04 | 30.99 | 37.38 | 51.24 | 62.24 |
| Dena Bank | NA | 3.53 | 5.08 | 5.32 | 3.04 | -12.87 | 0.55 | 5.52 | 11.14 | -0.17 | 1.8 | 7.03 | 11.07 | 14.74 |
| IOB | NA | NA | NA | NA | NA | 2.61 | 5.18 | 9.35 | 9.41 | 11.96 | 14.38 | 18.51 | 22.07 | 23.08 |
| IDBI | 14.96 | 17 | 22.3 | 18.7 | 14.07 | 10.58 | 6.2 | 24.25 | NA | 6.41 | 7.75 | 8.7 | 10.07 | 11.85 |
| OBC | 8.97 | 9.36 | 10.91 | 11.95 | 14.47 | 10.54 | 16.65 | 23.73 | 35.63 | 43.26 | 32.06 | 33 | 31.85 | 30.27 |
| PNB | NA | 67.81 | 22.49 | 17.53 | 19.23 | 21.84 | 21.2 | 31.74 | 41.79 | 44.72 | 45.65 | 48.84 | 64.98 | 98.03 |
| SBBJ | 70.85 | 111.21 | 180.96 | 183.76 | 240.84 | 210.74 | 329 | 406.56 | 603.04 | 411.3 | 290.06 | 611.6 | 630.00 | 80.69 |
| SBI | 24.32 | 25.64 | 35.36 | 19.53 | 38.98 | 30.48 | 46.2 | 59 | 69.94 | 81.79 | 83.73 | 86.29 | 106.56 | 143.67 |
| SBM | 71.19 | 111.78 | 140.39 | 93.28 | 134 | 71.44 | 183.06 | 322 | 489.94 | 572.94 | 602 | 692.31 | 871.14 | 83.90 |
| SBT | 74.86 | 115 | 126.6 | 86.9 | 132.88 | 194.98 | 215.6 | 322.46 | 489.2 | 494.26 | 517.36 | 652.56 | 772.22 | 121.57 |
| Syndicate Bank | 0.15 | 0.52 | 0.49 | 4.11 | 4.57 | 4.98 | 5.31 | 7.29 | 9.2 | 8.54 | 10.28 | 13.72 | 16.25 | 17.49 |
| Uco Bank | NA | NA | NA | NA | NA | NA | NA | 3.46 | 5.45 | 4.32 | 2.46 | 3.95 | 4.02 | 10.15 |
| UBI | 23.81 | 63.81 | 73.99 | 47.4 | 29.95 | 4.6 | 9.29 | 12.01 | 15.48 | 13.29 | 13.37 | 16.74 | 27.46 | 34.18 |
| Vijaya Bank | 2.61 | NA | NA | NA | NA | 1.97 | 3.93 | 5.89 | 9.49 | 8.78 | 2.93 | 6.7 | 7.60 | 6.05 |
| Average | 29.65 | 39.55 | 47.07 | 37.67 | 48.14 | 34.78 | 52.96 | 70.82 | 102.25 | 90.97 | 87.58 | 117.87 | 139.18 | 47.18 |
| SD (σ) | 30.54 | 44.84 | 59.38 | 51.24 | 70.75 | 65.86 | 95.05 | 126.10 | 191.06 | 176.19 | 173.90 | 231.43 | 270.56 | 40.50 |
| Skew ness | 0.78 | 0.92 | 1.40 | 2.14 | 1.99 | 2.29 | 2.18 | 2.07 | 2.17 | 2.17 | 2.42 | 2.11 | 2.18 | 1.03 |
| Range | 74.71 | 114.48 | 180.47 | 180.61 | 238.14 | 223.61 | 328.45 | 403.1 | 597.59 | 573.11 | 600.82 | 688.36 | 867.12 | 137.62 |

Source: CMIE database Prowess calculated with proposed adjustments.

NA =Non availability of data

Table 7: Earning Per Share (EPS) - Private Banks

(Values are in Crore Rupees)

| Banks Name | Mar-96 EPS | Mar-97 EPS | Mar-98 EPS | Mar-99 EPS | Mar-00 EPS | Mar-01 EPS | Mar-02 EPS | Mar-03 EPS | Mar-04 EPS | Mar-05 EPS | Mar-06 EPS | Mar-07 EPS | Mar-08 EPS | Mar-09 EPS |
|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Axis Bank Ltd.* | 0.97 | 1.33 | 1.39 | 2.36 | 3.87 | 6.53 | 6.99 | 8.35 | 12.02 | 12.22 | 17.41 | 23.4 | 29.94 | 50.57 |
| Bank Of Rajasthan | 26.01 | 1.85 | -48.98 | -10.75 | 1.81 | 3 | 3.75 | 6.36 | 6.42 | 3.25 | 1.11 | 10.28 | 8.57 | 7.3 |
| Centurion Bank | 0.95 | 2.07 | 2.27 | 1.81 | 2.25 | 0.46 | -10.61 | -1.66 | -1.85 | 0.25 | 0.17 | 0.77 | 0.77 | ** |
| City Union Bank | 17.63 | 20.54 | 6.36 | 5.1 | 8.36 | 8.88 | 21.28 | 13.9 | 23.77 | 19.3 | 23.49 | 28.5 | 3.18 | 3.82 |
| Dhanalakshmi Bank | 2.78 | 4.66 | 4.95 | 2.28 | 6.64 | 4.93 | 3.14 | 4.69 | 5.45 | -9.57 | 2.97 | 5.03 | 4.44 | 8.96 |
| Federal Bank Ltd. | 20.38 | 20.85 | 22.68 | 1.14 | 20.92 | 27.53 | 36.99 | 47.37 | 61.48 | 13.73 | 26.31 | 34.2 | 21.49 | 29.22 |
| H D F C Bank Ltd. | 1.01 | 2.02 | 3.16 | 4.12 | 4.93 | 8.64 | 10.56 | 13.74 | 17.89 | 21.48 | 27.81 | 35.74 | 44.87 | 52.77 |
| I C I C I Bank Ltd. | 1.1 | 2.67 | 3.04 | 3.84 | 5.35 | 8.19 | 7.62 | 9.19 | 26.45 | 27.22 | 28.55 | 34.59 | 37.37 | 33.76 |
| I N G Vysya Bank | 63.42 | 39.45 | 43.03 | 17.4 | 22.39 | 17.01 | 30.39 | 38.11 | 26 | -8.07 | 0.99 | 9.74 | 13.33 | 18.4 |
| Indusind Bank Ltd. | 3.8 | 6.11 | 4.65 | 2.3 | 3.51 | 2.53 | 3.17 | 5.61 | 11.9 | 7.23 | 1.27 | 2.13 | 2.11 | 4.18 |
| J & K Bank | 65.68 | 35.71 | 16.9 | 17.62 | 24.78 | 34.55 | 53.57 | 69.64 | 83.78 | 23.74 | 36.48 | 56.62 | 74.26 | 84.54 |
| Karnataka Bank Ltd. | 18.72 | 30.19 | 43.13 | 31.48 | 30.19 | 33.67 | 67.57 | 27.25 | 32.94 | 12.14 | 14.52 | 14.59 | 19.92 | 21.94 |
| Karur Vysya Bank | 53.73 | 60.1 | 72.57 | 61.73 | 118.57 | 120.08 | 180.85 | 69.51 | 89.58 | 58.59 | 75.28 | 29.65 | 38.53 | 43.72 |
| Kotak Mahindra Bank | 12.35 | 8.21 | 5.75 | 3.32 | 16.31 | 12.62 | 9.21 | 7.59 | 13.22 | 6.88 | 3.82 | 4.33 | 8.53 | 7.99 |
| Lakshmi Vilas Bank | 8.69 | 16.23 | 11.84 | 12.86 | 22.9 | 23.23 | 26.26 | 29.68 | 35.46 | -24.78 | 9.33 | 2.47 | 5.15 | 10.26 |
| South Indian Bank | 3.25 | 5.47 | 10.48 | 1.7 | 7.15 | 11.58 | 17.37 | 20.2 | 23.58 | 1.82 | 7.23 | 14.79 | 17.07 | 17.23 |
| Yes Bank Ltd. | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 2.05 | 3.37 | 6.76 | 10.23 |
| Average | 18.78 | 16.09 | 12.70 | 9.89 | 18.75 | 20.21 | 29.26 | 23.10 | 29.26 | 10.34 | 16.40 | 18.25 | 19.78 | 23.86 |
| SD (σ) | 22.51 | 17.34 | 25.81 | 16.78 | 28.22 | 28.74 | 45.19 | 22.46 | 26.86 | 18.67 | 19.27 | 16.06 | 19.74 | 22.74 |
| Skew ness | 1.34 | 1.32 | 0.14 | 2.22 | 3.29 | 3.12 | 2.81 | 1.19 | 1.35 | 0.73 | 1.91 | 0.86 | 1.49 | 1.39 |
| Range | 64.73 | 58.77 | 121.55 | 72.48 | 116.76 | 119.62 | 191.46 | 71.3 | 91.43 | 83.37 | 75.11 | 55.85 | 73.49 | 83.82 |

Source: CMIE database Prowess calculated with proposed adjustments.

NA =Non availability of data

* UTI Bank Ltd. turn to be Axis Bank Ltd. in April 2007.

** On 23 February 2008 Centurion Bank of Punjab Ltd merged with HDFC Bank

Table 8: Independent Samples t-Test of Earnings per Share (EPS) for Public and Private Sector Banks

| Levene's Test for Equality of Variances | | | t-test for Equality of Means | | | | | | |
|---|-------|------|------------------------------|-----|-----------------|-----------------|-----------------------|---|--------|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| Equal Variances | 74.41 | 0.00 | 5.34 | 463 | 0.00 | 53.277 | 9.965 | 33.695 | 72.860 |
| Equal variances not assumed | | | 5.446 | 249 | 0.000 | 53.277 | 9.784 | 34.008 | 72.547 |

Further an attempt also has been made to test a hypothesis that there is no significant different in average EPS of public and private sector banks. To test this claim independent sample t-test has been applied. Table-8 reveals that Levene’s test F-ratio value, which is significant at one percent, indicates that both the group has unequal variances. The results t-test that does no assume equal variances were considered to test the hypothesis. The table indicates that there was a significant difference in the average EPS offered by public and private sector banks because there is 5.446 t-value which is significant at one percent. It also further confirmed from the table that 95 percent confidence interval is 48.439. That is 34.008 is lower and 72.547 is upper confidence interval differences. So, it further observed that null hypothesis is false and EPS of public and private sector banks were significantly different.

Return on Capital Employed (ROCE)

In the conventional accounting, for calculating profitability, ROCE is considered as the most fitting method for calculating long-term profitability. This is calculated as:

$$ROCE = \frac{\text{Profit after Taxes (Net of Non-recurring Items)}}{\text{Average Capital Employed}} \times 100$$

Accordingly, counting ROCE as an independent variable is quite commonsensical with the logic that the market appraises the bank on the basis of its long-term profitability and ROCE is the best presented long-term profitability measures.

Table-9 exhibits the frequency distribution of ROCE of select sample banks. Table presents that in 1996 fifteen banks having ROCE less than five percent, eleven banks having ROCE in between 5 to 10 percent, and only two banks were having ROCE more than 20 percent.

In the end of study period, i.e. in 2009 seven banks were having EPS below 5 percent, thirteen banks having ROCE in between 5 to 10 percent and fourteen banks having ROCE more than ten, and less than fifteen percent. The Table-9 further reveals that majority of the bank were having ROCE in between 5 to 15 percent and only few bank affecting the aggregate ROCE of sample bank through the study period.

Table 9: Frequency Distribution of Return on Capital Employed (ROCE) of Sample Banks

| Frequency Years | Below 5.0 Percent | 5.0-10.0 Percent | 10.0-15.0 Percent | 15.0-20.0 Percent | Above 20.0 Percent | Total |
|--------------------|-------------------|------------------|-------------------|-------------------|--------------------|------------|
| Mar-96 | 15 (41.7) | 11 (30.6) | 5 (13.9) | 3 (8.3) | 2 (5.6) | 36 (100.0) |
| Mar-97 | 11 (30.6) | 14 (38.9) | 8 (22.2) | 2 (5.6) | 1 (2.8) | 36 (100.0) |
| Mar-98 | 13 (36.1) | 12 (33.3) | 4 (11.1) | 6 (16.7) | 1 (2.8) | 36 (100.0) |
| Mar-99 | 13 (36.1) | 11 (30.6) | 7 (19.4) | 5 (13.9) | | 36 (100.0) |
| Mar-00 | 8 (22.2) | 16 (44.4) | 4 (11.1) | 7 (19.4) | 1 (2.8) | 36 (100.0) |
| Mar-01 | 12 (33.3) | 10 (27.8) | 9 (25.0) | 3 (8.3) | 2 (5.6) | 36 (100.0) |
| Mar-02 | 8 (22.2) | 6 (16.7) | 8 (22.2) | 12 (33.3) | 2 (5.6) | 36 (100.0) |
| Mar-03 | 8 (22.2) | 2 (5.6) | 10 (27.8) | 10 (27.8) | 6 (16.7) | 36 (100.0) |
| Mar-04 | 7 (20.0) | 1 (2.9) | 9 (25.7) | 13 (37.1) | 5 (14.3) | 35 (100.0) |
| Mar-05 | 14 (37.8) | 9 (24.3) | 7 (18.9) | 6 (16.2) | 1 (2.7) | 37(100.0) |
| Mar-06 | 12 (32.4) | 16 (43.2) | 7 (18.9) | 2 (5.4) | | 37 (100.0) |
| Mar-07 | 9 (24.3) | 17 (45.9) | 9 (24.3) | 2 (5.4) | | 37 (100.0) |
| Mar-08 | 7 (18.9) | 15 (40.5) | 12 (32.4) | 2 (5.4) | 1 (2.7) | 37 (100.0) |
| Mar-09 | 7 (18.9) | 13 (35.1) | 14 (37.8) | 3 (8.1) | | 37 (100.0) |

Note: Figures in bracket are in percentage of total

Table-10 put forward the ROCE calculations of public sector banks. The average ROCE of twenty public sector banks in 1996 was 4.94 percent, and 5.62 percent in 1997, registered increasing trend through 2004 to 15.20 percent. In 2005 it decreases to 10.08, and it was 9.05 percent in 2009. ROCE of public sector banks through study period was not stable registered upward and downward moments. The variability from average ROCE is also presented in the table

4.13 in term of standard deviation and range. The scattered of public sector banks from average ROCE was very high up 2005. In 2007, 2008, and 2009 ROCE witnessed less variability among public sector bank. This shows that the average ROCE of public sector banks were affecting by some of participating banks like corporation Bank, Bank of India, and Oriental Bank of Commerce.

Table 10: Return on Capital Employed (ROCE) - PSU Banks

(Values are in Percentage)

| Banks Name | Mar-96 ROCE | Mar-97 ROCE | Mar-98 ROCE | Mar-99 ROCE | Mar-00 ROCE | Mar-01 ROCE | Mar-02 ROCE | Mar-03 ROCE | Mar-04 ROCE | Mar-05 ROCE | Mar-06 ROCE | Mar-07 ROCE | Mar-08 ROCE | Mar-09 ROCE |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Allahabad Bank | 3.23 | 7.41 | 9.37 | 14.49 | 6.16 | 3.79 | 8.19 | 4.75 | 2.99 | 23.95 | 19.2 | 13.72 | 16.05 | 9.89 |
| Andhra Bank | 3.13 | 8.1 | 8.46 | 11.91 | 15.86 | 13.1 | 17.86 | 21.82 | 18.5 | 17.4 | 12.63 | 1.99 | 12.35 | 10.91 |
| Bank Of Baroda | 8.2 | 9.62 | 6.25 | 9.77 | 13.21 | 6.12 | 1.64 | 14.18 | 13.82 | 8.56 | 4.28 | 7.34 | 8.69 | 9.68 |
| Bank Of India | 11.81 | 12.89 | 1.5 | 0.5 | 3.39 | 5.69 | 1.24 | 12.36 | 11.13 | 3.18 | 5.53 | 7.31 | 10.83 | 12.48 |
| BIM | 2.49 | 9.29 | -1.53 | 8.3 | 1.93 | 4.46 | 12.9 | 13.34 | 14.75 | 5.6 | 1.6 | 7 | 8.48 | 8.58 |
| Canara Bank | 8.87 | 4.27 | 4.49 | 5.6 | 6.33 | 7.73 | 17.83 | 18.98 | 18.91 | 1.92 | 13.8 | 1.73 | 9.52 | 10.11 |
| Corporation Bank | 21.47 | 2.00 | 2.98 | 16.51 | 17.11 | 16.1 | 11.87 | 12.85 | 13.83 | 8.35 | 7.59 | 7.18 | 8.93 | 9.64 |
| Dena Bank | 6.53 | 8.94 | 9.21 | 6.44 | 3.79 | -19.85 | 1.33 | 11.6 | 17.52 | -0.2 | -1.9 | 7.46 | 7.55 | 11.34 |
| IOB | 0.4 | 8.74 | 12.5 | 1.6 | 4.28 | 9.98 | 17.72 | 22.7 | 18.53 | 17.4 | 14.8 | 13.8 | 12.54 | 10.66 |
| IDBI | 2.6 | 2.54 | 3 | 2.9 | 1.29 | 1.9 | -3.56 | 0.63 | N.A | 0.44 | -2.6 | 0.83 | 1.36 | 1.68 |
| OBC | 13.67 | 14.74 | 18.82 | 18.25 | 16.99 | 11.9 | 15.65 | 16.23 | 19.58 | 17.61 | 9.58 | 5.28 | 5.06 | 10.02 |

| | | | | | | | | | | | | | | |
|----------------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| PNB | -4.7 | 7.88 | 6.35 | 18.4 | 15.7 | 13.62 | 15.4 | 15.36 | 16.8 | 14.2 | 7.31 | 9.22 | 10.74 | 13.24 |
| SBBJ | 5.75 | 9.41 | 16 | 9.67 | 15.49 | 14.66 | 22.53 | 21.18 | 2.55 | 3.74 | 9.66 | 12.3 | 7.71 | 8.36 |
| SBI | 4.93 | 7.7 | 5.75 | 5.26 | 9.36 | 6.46 | 8.86 | 11.1 | 11.1 | 8.53 | 7.98 | 6.8 | 6.71 | 7.1 |
| SBM | 6.76 | 7.98 | 7.34 | 7.33 | 7.47 | 4.2 | 12.13 | 17.3 | 2.95 | 13.37 | 5.9 | 9.79 | 8.66 | 6.35 |
| SBT | N.A | 1.92 | -1.3 | 4.73 | 7.81 | 12.59 | 11.79 | 15.77 | 18.48 | 11.38 | 8.73 | 6.84 | 6.94 | 9.16 |
| Syndicate Bank | 2.69 | 9.38 | 1.65 | 16.15 | 21.4 | 15.5 | 15.62 | 24.48 | 23.4 | 15.72 | 13.21 | 11.29 | 11.53 | 10.28 |
| Uco Bank | -3.96 | -37.37 | -24.59 | -1.47 | 3.31 | 3.46 | 19.14 | 18.2 | 21.99 | 12.71 | 4.87 | 4.32 | 4.5 | 6.19 |
| UBI | 6.97 | 12.23 | 16.74 | 13.2 | 6.15 | 7.6 | 14.73 | 2.32 | 17.54 | 1.19 | 9.18 | 8.78 | 10.1 | 11.48 |
| Vijaya Bank | -6.96 | 4.68 | 0.62 | 2.74 | 6.73 | 1.42 | 18.86 | 18.34 | 24.46 | 16.56 | 4.83 | 8.86 | 7.33 | 3.86 |
| Average | 4.94 | 5.62 | 5.18 | 8.61 | 9.19 | 7.02 | 12.09 | 14.67 | 15.20 | 10.08 | 7.81 | 7.59 | 8.78 | 9.05 |
| SD (σ) | 6.63 | 10.69 | 9.10 | 6.08 | 6.02 | 7.87 | 7.11 | 6.45 | 6.56 | 6.98 | 5.41 | 3.64 | 3.22 | 2.84 |
| Skew ness | -3.48 | -3.73 | -1.65 | 0.17 | 0.54 | -2.06 | -0.83 | -0.75 | -0.86 | 0.09 | -0.03 | -0.11 | -0.06 | -1.12 |
| | 28.43 | 52.11 | 43.41 | 19.87 | 20.11 | 35.95 | 26.09 | 23.85 | 21.91 | 24.15 | 21.8 | 12.97 | 14.69 | 11.56 |

Source: CMIE database Prowess calculated with proposed adjustments.

NA =Non availability of data

Table 11: Return on Capital Employed (ROCE) - Private Banks

(Values are in Percentage)

| Banks Name | Mar-96 ROCE | Mar-97 ROCE | Mar-98 ROCE | Mar-99 ROCE | Mar-00 ROCE | Mar-01 ROCE | Mar-02 ROCE | Mar-03 ROCE | Mar-04 ROCE | Mar-05 ROCE | Mar-06 ROCE | Mar-07 ROCE | Mar-08 ROCE | Mar-09 ROCE |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Axis Bank Ltd.* | NA | 8.32 | 9.83 | 1.21 | 9.84 | 1.82 | 12.46 | 11.9 | 13.35 | 8.93 | 8.32 | 7.1 | 7.1 | 7.8 |
| Bank Of Rajasthan | 11.37 | 2.82 | -48.8 | -7.6 | 12.66 | 22.12 | 17.4 | 22.2 | 17.91 | -5.28 | -2.3 | 18.9 | 13.72 | 13.38 |
| Centurion Bank | 18.4 | 12.93 | 1.97 | 6.36 | 5.88 | 0.72 | -23.17 | -7.66 | -65.7 | -7.47 | -5.68 | 7.56 | ** | ** |
| City Union Bank | 12.65 | 13.86 | 14.86 | 11.52 | 14.96 | 14.88 | 19.5 | 2.3 | 27.94 | 18.69 | 18.4 | 19.15 | 21.31 | 19.85 |
| Dhanalakshmi Bank | 9.8 | 1.12 | 9.2 | 3.85 | 9.7 | 5.23 | 8.12 | 1.74 | 1.4 | -11.63 | 5.12 | 8.5 | 14.33 | 15.87 |
| Federal Bank Ltd. | 12.64 | 9.14 | 9.55 | 0.37 | 5.53 | 6.83 | 9.5 | 12.4 | 13.25 | 6.84 | 1.69 | 9.27 | 6.72 | 6.85 |
| H D F C Bank Ltd. | 9.72 | 11.41 | 14.33 | 13.4 | 1 | 11.9 | 11.91 | 12.5 | 14.21 | 12.6 | 11.5 | 11.27 | 10.58 | 10.77 |
| I C I C I Bank Ltd. | 8.8 | 17.59 | 16.1 | 11.93 | 9.45 | 8.71 | 0.79 | NA | 3.36 | 3.77 | 4.17 | 3.79 | 3.62 | 2.49 |
| I N G Vysya Bank | 16.4 | 1.93 | 13.65 | 5.16 | -0.35 | 4.29 | 6.82 | 8.44 | 4.59 | -4.74 | 0.33 | 3.74 | 5.47 | 4.63 |
| Indusind Bank Ltd. | 2.74 | 22.28 | 2.18 | 5.6 | 5.63 | 3.72 | 4.35 | 8.11 | 17.59 | 7.16 | -2.5 | -0.22 | 1.22 | 4.16 |
| J & K Bank | 1.34 | 8.96 | 18.8 | 17.59 | 19.69 | 22.17 | 23.72 | 25.95 | 25.61 | 6.22 | 8.61 | 11.49 | 13.41 | 11.86 |
| Karnataka Bank Ltd. | 9.87 | 13.49 | 19.87 | 12 | 9.76 | 9.78 | 17.93 | 17.13 | 16.37 | 14.2 | 14.1 | 12 | 14.51 | 14.85 |
| Karur Vysya Bank | 21.92 | 17.22 | 21.54 | 1.93 | 15.72 | 16.17 | 2.42 | 17.1 | 19.78 | 12.62 | 14.14 | 13.59 | 15.08 | 16.79 |
| Kotak Mahindra Bank | 4.5 | 2.3 | 2.21 | 1.34 | 6.61 | 4.55 | 6.72 | 4.97 | 7.73 | 9.23 | 9.15 | 4.14 | 4.43 | 2.8 |
| Lakshmi Vilas Bank | 8.97 | 13.89 | 9.89 | 9.44 | 12.56 | 11.34 | 12.75 | 12.61 | 12.22 | 0.88 | 5.59 | 3.22 | 2.52 | 8.1 |
| South Indian Bank | 2.58 | 2.39 | 6.1 | 0.2 | 8.34 | 12.18 | 16.57 | 17.5 | 15.97 | 1.39 | 6.94 | 11.81 | 13.18 | 14.42 |
| Yes Bank Ltd. | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 9.3 | 7.55 | 8.69 | 8.26 |
| Average | 10.11 | 9.98 | 7.58 | 8.89 | 9.19 | 9.78 | 9.24 | 11.15 | 9.10 | 4.59 | 6.29 | 8.99 | 9.74 | 10.18 |
| SD (σ) | 5.89 | 6.48 | 16.26 | 20.31 | 5.25 | 6.61 | 10.79 | 8.59 | 21.25 | 8.53 | 6.52 | 5.33 | 5.62 | 5.34 |
| Skew ness | 0.33 | 0.11 | -3.05 | -3.53 | 0.08 | 0.61 | -1.78 | -0.41 | -3.21 | -0.36 | -0.10 | 0.38 | 0.24 | 0.14 |
| Range | 20.58 | 21.16 | 70.34 | 89.19 | 20.04 | 21.45 | 46.89 | 33.61 | 93.64 | 30.32 | 24.08 | 19.37 | 20.09 | 17.36 |

Source: CMIE database Prowess calculated with proposed adjustments.

NA =Non availability of data

* UTI Bank Ltd. turns to be Axis Bank Ltd. in April 2007.

** On 23 February 2008, Centurion Bank of Punjab Ltd merged with HDFC Bank Ltd.

Table-11 enumerates ROCE of Seventeen private sector bank is respective financial years the average ROCE of private banks was 10.11 percent in 1996, and 9.98 percent in 1997, and also showing upward and downward movements through rest of study period. It was 10.18 percent in 2009. The variability from the average ROCE of private sector banks also presented in the table in terms of standard

deviation and range statistics. In 1996 standard deviation and range was 5.89 percent and 20.58 percent respectively. This variation goes decreasing up to end of the study period and registered 5.34 percent and 17.36 percent respectively in 2009. Karur Vysya Bank Ltd., Bank of Rajasthan Ltd., City Union Bank Ltd., and Federal bank Ltd. were the banks responsible for the variability.

Table 12: Independent Samples t-Test of Return on Capital Employed (ROCE) for Public and Private Sector Banks

| Levene's Test for Equality of Variances | | | t-test for Equality of Means | | | | | | |
|---|-------|------|------------------------------|-----|-----------------|-----------------|-----------------------|---|-------|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| Equal Variances | 2.257 | 0.13 | 0.447 | 500 | 0.655 | 0.384 | 0.860 | -1.305 | 2.074 |
| Equal variances not assumed | | | 0.435 | 412 | 0.664 | 0.384 | 0.884 | -1.353 | 2.121 |

Further, a step also has been made to test the hypothesis that there is no significant difference in average ROCE of public and private banks. Table-12 presents results of independent sample t-test on sample banks ROCE. An insignificant p-value associated with Levene's test indicates that both the group i.e. public and private bank have equal variances and

offer to use the results of t-test that assumes equal variances. The results of t-test indicate that null hypothesis is true and average ROCE of public and private sector banks was not significantly different with a t-value 0.447, which is insignificant at levels.

Return on Net worth (RONW)

The term net worth is used to for the sum of share capital and reserve and surpluses, i.e. the owners’ equity. The term is misleading. It connotes the erroneous meaning that owners; equity are “worth” something. The term net worth implies market, or real value, while owners; in the balance sheet recorded at book value. This term is a measure of

profitability of a bank. It is calculation is arrived at using following formula:

$$RONW = \frac{\text{Profit after Taxes(Net of Non - recurring Items)}}{\text{Average Net worth}} \times 100$$

Table 13: Frequency Distribution of Return on Net worth (RONW) of Sample Banks

| Frequency Years | Below 5.0 Percent | 5.0-10.0 Percent | 10.0-15.0 Percent | 15.0-20.0 Percent | Above 20.0 Percent | Total |
|--------------------|-------------------|------------------|-------------------|-------------------|--------------------|------------|
| Mar-96 | 6 (16.7) | 7 (19.4) | 5 (13.9) | 6 (16.7) | 12 (33.3) | 36 (100.0) |
| Mar-97 | 2 (5.6) | 4 (11.1) | 9 (25.0) | 9 (25.0) | 12 (33.3) | 36 (100.0) |
| Mar-98 | 5 (13.9) | 4 (11.1) | 9 (25.0) | 8 (22.2) | 10 (27.8) | 36 (100.0) |
| Mar-99 | 7 (19.4) | 6 (16.7) | 9 (25.0) | 10 (27.8) | 4 (11.1) | 36 (100.0) |
| Mar-00 | 2 (5.6) | 8 (22.2) | 7 (19.4) | 8 (22.2) | 11 (30.6) | 36 (100.0) |
| Mar-01 | 4 (11.1) | 10 (27.8) | 7 (19.4) | 6 (16.7) | 9 (25.0) | 36 (100.0) |
| Mar-02 | 3 (8.3) | 3 (8.3) | 4 (11.1) | 11 (30.6) | 15 (41.7) | 36 (100.0) |
| Mar-03 | 2 (5.6) | 3 (8.3) | 2 (5.6) | 9 (25.0) | 20 (55.6) | 36 (100.0) |
| Mar-04 | 1 (2.9) | 1 (2.9) | 2 (5.7) | 4 (11.4) | 27 (77.1) | 35 (100.0) |
| Mar-05 | 9 (24.3) | 4 (10.8) | 5 (13.5) | 11 (29.7) | 8 (21.6) | 37 (100.0) |
| Mar-06 | 7 (18.9) | 6 (16.2) | 9 (24.3) | 10 (27.0) | 5 (13.5) | 37(100.0) |
| Mar-07 | 2 (5.4) | 3 (8.1) | 12 (32.4) | 11 (29.7) | 9 (24.3) | 37 (100.0) |
| Mar-08 | 3 (8.1) | 3 (8.1) | 8 (21.6) | 14 (37.8) | 9 (24.3) | 37 (100.0) |
| Mar-09 | 1 (2.7) | 6 (16.2) | 6 (16.2) | 18 (48.6) | 6 (16.2) | 37 (100.0) |

Note: Figures in bracket are in percentage of

Table-13 exhibits the frequency distribution of return on net worth of sample banks in respective financial years. In this table, the bank was categorized in term of level of RONW into four class intervals. The table reveals that there was uniformity in respective all groups except the fifth group having more number of banks in the class. In 1996 one third

banks were having more than twenty percent RONW and same were exhibited in 1997. In 2002, fifteen banks were having RONW more than twenty percent, and it increases to twenty-seven banks in 2004. In 2009, only six banks were having more than twenty percent RONW.

Table 14: Return on Net Worth (RONW) - PSU Banks

(Values are in Percentage)

| Banks Name | Mar-96 RONW | Mar-97 RONW | Mar-98 RONW | Mar-99 RONW | Mar-00 RONW | Mar-01 RONW | Mar-02 RONW | Mar-03 RONW | Mar-04 RONW | Mar-05 RONW | Mar-06 RONW | Mar-07 RONW | Mar-08 RONW | Mar-09 RONW |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Allahabad Bank | 6.85 | 12.15 | 11.36 | 15.9 | 7.33 | 4.37 | 8.45 | 5.19 | 26.14 | 27.93 | 21.5 | 16.31 | 20.1 | 13.88 |
| Andhra Bank | 7.83 | 14.43 | 12.16 | 16.63 | 22.42 | 18.09 | 24.66 | 39.28 | 36.08 | 31.62 | 20.51 | 15.66 | 17.96 | 18.91 |
| Bank Of Baroda | 12.55 | 14.84 | 8.67 | 12.3 | 16.39 | 8.34 | 14.47 | 18.81 | 19.14 | 12.58 | 7.44 | 12.19 | 14.5 | 18.63 |
| Bank Of India | 23.89 | 22.5 | 15.65 | 0.95 | 7.03 | 9.69 | 18.39 | 26.64 | 26.38 | 8.02 | 14.84 | 20.35 | 24.38 | 24.97 |
| BIM | 5.09 | 15.24 | -1.90 | 10.05 | 17.61 | 8.04 | 22.55 | 22.96 | 22.85 | 8.65 | 1.82 | 13.58 | 18.5 | 16.88 |
| Canara Bank | 13.76 | 6.11 | 5.17 | 6.76 | 9.4 | 10.34 | 23.57 | 26.71 | 27.06 | 15.64 | 19 | 16.25 | 15 | 18.25 |
| Corporation Bank | 37.36 | 34.47 | 26.71 | 18.93 | 21.09 | 21.01 | 16.69 | 17.31 | 17.97 | 11.52 | 11.43 | 11.79 | 15.14 | 17.58 |
| Dena Bank | 15.99 | 18.7 | 15.67 | 13.17 | 8.27 | 8.84 | 2.05 | 18.29 | 31.09 | -0.04 | -1.65 | 10.26 | 11.34 | 16.62 |
| IOB | 0.13 | 19.96 | 17 | 11.25 | 5.43 | 13.73 | 22.22 | 32 | 28.87 | 27.74 | 25.72 | 26.8 | 27.12 | 20.93 |
| IDBI | 18.63 | 15.95 | 19.27 | 14.21 | 9.08 | 7.49 | -26.6 | 5.32 | NA | 4.36 | -23.98 | 6.16 | 8.18 | 9.27 |
| OBC | 22.52 | 20.41 | 20.74 | 19.88 | 20.95 | 13.6 | 20.23 | 24.51 | 28.65 | 24.19 | 11.42 | 6.2 | 7.08 | 13.55 |
| PNB | -7.95 | 12.53 | 7.68 | 18.61 | 18.59 | 18.75 | 18.58 | 19.95 | 24.51 | 21.4 | 12.55 | 15.54 | 18 | 23.52 |
| SBBJ | 22.36 | 23.08 | 25.65 | 13.84 | 20.44 | 18.61 | 24.17 | 24.57 | 29.39 | 5.92 | 18.68 | 28.49 | 18.34 | 18.94 |
| SBI | 16.31 | 20.07 | 11.33 | 10.28 | 18.19 | 12.53 | 16.45 | 19.08 | 19.43 | 16.07 | 16.81 | 15.29 | 16.72 | 16.95 |
| SBM | 28.47 | 25.16 | 16.99 | 14.31 | 18.25 | 8.92 | 20.4 | 29.69 | 34.81 | 23.3 | 12.04 | 23.51 | 24.42 | 16.5 |
| SBT | NA | 19.65 | -1.94 | 7.73 | 12.61 | 20.5 | 19.27 | 25.5 | 29.62 | 18.21 | 17.95 | 18.4 | 22.81 | 25.64 |
| Syndicate Bank | 6.1 | 14.69 | 12.01 | 16.45 | 22.79 | 18.6 | 17.61 | 22.68 | 23.13 | 19.57 | 20.11 | 20.4 | 21.42 | 19.62 |
| Uco Bank | -2.16 | -38.8 | -16.04 | -9.35 | 3.66 | 3.86 | 17.64 | 18.71 | 28.12 | 17.86 | 8.56 | 10.2 | 11.34 | 14.02 |
| UBI | 8.79 | 10.43 | 11.55 | 9.41 | 5.88 | 8.65 | 15.9 | 23.66 | 25.2 | 18.27 | 19.7 | 20.54 | 21.19 | 21.24 |
| Vijaya Bank | 2.36 | 8.31 | 0.66 | 3.52 | 9.56 | 12.94 | 20.67 | 26.38 | 38.3 | 26.03 | 7.79 | 13.92 | 14.6 | 7.4 |
| Average | 12.57 | 14.49 | 10.92 | 11.24 | 13.75 | 12.35 | 15.87 | 22.36 | 27.20 | 16.94 | 12.11 | 16.09 | 17.41 | 17.67 |
| SD (σ) | 11.35 | 14.08 | 10.17 | 6.97 | 6.50 | 5.33 | 11.33 | 7.87 | 5.53 | 8.67 | 10.93 | 6.05 | 5.40 | 4.63 |
| Skew ness | -3.02 | -2.96 | -0.88 | -1.46 | -0.05 | -3.23 | -3.1 | -0.47 | 0.24 | -0.23 | -2.02 | 0.34 | -0.19 | -0.39 |
| Range | 45.31 | 73.27 | 42.75 | 29.23 | 19.13 | 17.15 | 51.26 | 34.09 | 20.33 | 31.66 | 49.7 | 22.33 | 20.04 | 18.24 |

Source: CMIE database Prowess calculated with proposed adjustments.

NA =Non availability of data

Table 15: Return on Net Worth (RONW) - Private Banks

| Banks Name | Mar-96 RONW | Mar-97 RONW | Mar-98 RONW | Mar-99 RONW | Mar-00 RONW | Mar-01 RONW | Mar-02 RONW | Mar-03 RONW | Mar-04 RONW | Mar-05 RONW | Mar-06 RONW | Mar-07 RONW | Mar-08 RONW | Mar-09 RONW |
|---------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Axis Bank Ltd.* | NA | 11.23 | 11.63 | 16.91 | 22.96 | 32.01 | 32.32 | 25.42 | 26.53 | 17.63 | 17.73 | 20.3 | 17.11 | 17.78 |
| Bank Of Rajasthan | 20.96 | 4.23 | 5.59 | 6.3 | 15.41 | 22.51 | 18.22 | 23.65 | 22.48 | -8.5 | -3.65 | 27.37 | 15.19 | 11.88 |
| Centurion Bank | 8.99 | 13.97 | 15.94 | 14.04 | 17.86 | 3.24 | 8.73 | -3.46 | -10.36 | -12.62 | -7.67 | 10.21 | ** | ** |
| City Union Bank | 40.01 | 33.06 | 22.69 | 15.93 | 20.63 | 19.18 | 21.81 | 21.73 | 31.04 | 20.88 | 21.37 | 21.93 | 21.81 | 19.89 |
| Dhanalakshmi Bank | 14.02 | 15.9 | 14.24 | 5.9 | 16.09 | 8.91 | 10.52 | 12.73 | 13.72 | -17.66 | 7.66 | 11.43 | 20.32 | 19.19 |
| Federal Bank Ltd. | 24.89 | 16.72 | 14.46 | 0.7 | 13.58 | 15.73 | 18.95 | 21.42 | 23.13 | 11.31 | 17.6 | 16.36 | 9.8 | 8.9 |
| H D F C Bank Ltd. | 1.4 | 17.41 | 23.91 | 26.4 | 21.76 | 24.87 | 20.68 | 18.3 | 20.51 | 18.31 | 17.65 | 19.43 | 17.73 | 17.14 |
| I C I C I Bank Ltd. | 12.52 | 23.73 | 22.41 | 22.07 | 14.46 | 13.1 | 6.4 | -0.04 | 20.43 | 17.51 | 14.06 | 12.69 | 11.21 | 6.97 |
| I N G Vysya Bank | 35.49 | 15.55 | 15.76 | 6.61 | -0.52 | 6.21 | 10.2 | 12.34 | 8.04 | -9.37 | 0.65 | 7.91 | 11.39 | 11.37 |
| Indusind Bank Ltd. | 23.22 | 28.76 | 23.02 | 7.08 | 10.62 | 7.46 | 9.17 | 15.44 | 35.12 | 15.4 | -5.33 | -0.51 | 2.78 | 9.96 |
| J & K Bank | 14.73 | 10.54 | 20.06 | 23.13 | 24.42 | 27.3 | 31.47 | 31 | 28.66 | 7.06 | 10.12 | 14.42 | 17.62 | 16.06 |
| Karnataka Bank Ltd. | 27.67 | 25.41 | 28.66 | 17.32 | 14.16 | 13.69 | 23.07 | 21.49 | 20.81 | 17.59 | 16.87 | 15.09 | 18.46 | 18.1 |
| Karur Vysya Bank | 45.48 | 28.44 | 30.79 | 20.37 | 31.25 | 24.44 | 28.59 | 25.3 | 25.35 | 14.3 | 16.59 | 16.53 | 17.96 | 18.28 |
| Kotak Mahindra Bank | 16.77 | 9.83 | 8.28 | 3.85 | 14.99 | 9.13 | 10.76 | 8.44 | 13.61 | 12.37 | 14.55 | 11.15 | 11.14 | 6.73 |
| Lakshmi Vilas Bank | 17.54 | 26.6 | 15.79 | 15.1 | 23.19 | 20.25 | 19.51 | 18.94 | 18.82 | 1.45 | 8.65 | 4.7 | 3.68 | 10.94 |
| South Indian Bank | 6.41 | 5.61 | 10.82 | 0.34 | 14.58 | 20.45 | 25.29 | 24.29 | 23.58 | 2.02 | 9.19 | 15.26 | 15.57 | 16.3 |
| Yes Bank Ltd. | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 14.09 | 13.88 | 18.97 | 20.52 |
| Average | 20.67 | 17.94 | 17.75 | 12.63 | 17.22 | 16.78 | 18.48 | 17.31 | 20.09 | 6.73 | 10.01 | 14.01 | 14.42 | 14.38 |
| SD (σ) | 12.43 | 8.77 | 7.13 | 8.29 | 7.09 | 8.40 | 8.43 | 9.39 | 10.56 | 12.60 | 8.94 | 6.57 | 5.61 | 4.73 |
| Skew ness | 0.57 | 0.16 | 0.17 | 0.02 | -0.50 | 0.06 | 0.17 | -0.98 | -1.60 | -0.77 | -0.88 | -0.22 | -0.91 | -0.35 |
| Range | 44.08 | 28.83 | 25.20 | 26.06 | 31.77 | 28.77 | 25.92 | 34.46 | 45.48 | 38.54 | 29.04 | 27.88 | 19.03 | 13.79 |

Source: CMIE database Prowess calculated with proposed adjustments.

NA =Non availability of data

* UTI Bank Ltd. turn to be Axis Bank Ltd. in April 2007.

** On 23 February 2008 Centurion Bank of Punjab Ltd merged with HDFC Bank

Table-14 put forward the calculated results of return on net worth of public sector banks. The average RONW of twenty public sector banks in 1996 was 12.57 percent, and in 1997 it was 14.49 percent. The financial year 2004 registered 27.20 percent highest average RONW. It stood 17.67 percent in 2009. In some initial years, public sector banks were exhibiting higher variability from average RONW. After 2003, there was less variability among public sector banks in terms of RONW. Bank of India, Corporation bank, Oriental Bank of Commerce, State Bank of Mysore was having a higher contribution to aggregate RONW of public sector banks.

Table-15 enumerates return on net worth (RONW) of seventeen private sector banks. The average RONW of

private sector banks was 20.67 percent in 1996 which marginally decreases to 17.22 percent in 2000. After 2001, it registered increasing trend to 20.09 percent in 2004. In 2005 RONW was significantly decreasing to 6.73 percent and again showing increasing trends to 14.38 percent in 2009. In this table, standard deviation and range statistic is also presented to study the scattered among private sector banks from average RONW. In 1996, standard deviation and range was 12.43 percent and 44.08 percent respectively, decreases to 17.94 percent and 28.83 percent in 1997. The private sector banks were showing less variability from average RONW through rest of study period which was 4.73 percent and 13.79 percent respectively in 2009.

Table 16: Independent Samples t-Test of Return on Net worth (RONW) for Public and Private Sector Banks

| Levene's Test for Equality of Variances | | | t-test for Equality of Means | | | | | | |
|---|-------|------|------------------------------|-----|-----------------|-----------------|-----------------------|---|-------|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| Equal Variances | 2.357 | 0.12 | 1.188 | 501 | 0.235 | 2.052 | 1.727 | -1.342 | 5.446 |
| Equal variances not assumed | | | 1.122 | 330 | 0.263 | 2.052 | 1.829 | -1.545 | 5.649 |

The Table-16 narrates that insignificant value associated with Levene's F-ratio (2.357) indicates that two groups have equal variances and direct to use the result that assumes equal variances. The t-test value 1.88 percent which is insignificant indicate that null hypothesis is true that there is no significant difference in average RONW offered by the public sector and private sector banks.

Return on Investment (ROI)

The term investment may refer to total assets or net assets. The fund employed in net assets is known as capital employed. Net assets equal to net fixed assets plus current assets minus current liabilities excluding loans. Alternatively, capital employed is equal to net worth plus total debt.

Table 17: Frequency Distribution of Return on Investment of Indian Banking Industry

| Years \ Frequency | Below 3.0 Percent | 3.0-6.0 Percent | 6.0-9.0 Percent | Above 9.0 Percent | Total |
|-------------------|-------------------|-----------------|-----------------|-------------------|------------|
| Mar-96 | | 4 (11.1) | 25 (69.4) | 7 (19.4) | 36 (100.0) |
| Mar-97 | 1 (2.8) | 14 (38.9) | 18 (50.0) | 3 (8.3) | 36 (100.0) |
| Mar-98 | | 17 (47.2) | 16 (44.4) | 3 (8.3) | 36 (100.0) |
| Mar-99 | | 19 (52.8) | 14 (38.9) | 3 (8.3) | 36 (100.0) |
| Mar-00 | 1 (2.8) | 18 (50.0) | 16 (44.4) | 1 (2.8) | 36 (100.0) |
| Mar-01 | | 24 (66.7) | 11 (30.6) | 1 (2.8) | 36 (100.0) |
| Mar-02 | 1 (2.8) | 27 (75.0) | 8 (22.2) | | 36 (100.0) |
| Mar-03 | | 30 (83.3) | 5 (13.9) | 1 (2.8) | 36 (100.0) |
| Mar-04 | 3 (8.3) | 30 (83.3) | 3 (8.3) | | 36 (100.0) |
| Mar-05 | 5 (13.5) | 31 (83.8) | 1 (2.7) | | 37 (100.0) |
| Mar-06 | 5 (13.5) | 31 (83.8) | 1 (2.7) | | 37 (100.0) |
| Mar-07 | | 34 (91.9) | 2 (5.4) | 1 (2.7) | 37 (100.0) |
| Mar-08 | 2 (5.4) | 35 (94.6) | | | 37 (100.0) |
| Mar-09 | 1 (2.7) | 36 (97.3) | | | 37(100.0) |

The conventional approach of calculating return on investment (ROI) is to divide PAT by investment. The investment represents a pool of funds supplied by shareholder and lenders, while PAT represents the residual income of shareholders; therefore, it is conceptually unsound to use PAT in the calculation of ROI. It is,

therefore, more appropriate to use the following measure of ROI for comparing the operational efficiency of banks:

$$ROI = \frac{\text{Profit before Interest and Taxes} \times (1 - \text{Tax Rate})}{\text{Total Assets}} \times 100$$

Table 18: Return on Investment (ROI) - PSU Banks

(Values are in Percentage)

| Banks Name | Mar-96 ROI | Mar-97 ROI | Mar-98 ROI | Mar-99 ROI | Mar-00 ROI | Mar-01 ROI | Mar-02 ROI | Mar-03 ROI | Mar-04 ROI | Mar-05 ROI | Mar-06 ROI | Mar-07 ROI | Mar-08 ROI | Mar-09 ROI |
|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Allahabad Bank | 6.0 | 7.0 | 7.0 | 6.0 | 6.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.0 | 5.0 |
| Andhra Bank | 7.0 | 7.0 | 6.0 | 5.0 | 5.0 | 6.0 | 6.0 | 6.0 | 5.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 |
| Bank Of Baroda | 7.0 | 6.0 | 5.0 | 5.0 | 5.0 | 4.0 | 5.0 | 4.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 |
| Bank Of India | 7.0 | 6.0 | 5.0 | 4.0 | 5.0 | 5.0 | 5.0 | 5.0 | 4.0 | 3.0 | 3.0 | 4.0 | 5.0 | 5.0 |
| BIM | 7.0 | 6.0 | 7.0 | 6.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 4.0 |
| Canara Bank | 7.0 | 4.0 | 5.0 | 4.0 | 5.0 | 4.0 | 5.0 | 5.0 | 5.0 | 4.0 | 4.0 | 5.0 | 6.0 | 5.0 |
| Corporation Bank | 7.0 | 8.0 | 7.0 | 6.0 | 6.0 | 5.0 | 5.0 | 5.0 | 5.0 | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 |
| Dena Bank | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 4.0 | 4.0 | 5.0 | 4.0 | 3.0 | 5.0 | 4.0 |
| IOB | 7.0 | 9.0 | 7.0 | 5.0 | 4.0 | 6.0 | 6.0 | 6.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 |
| IDBI | 8.0 | 8.0 | 9.0 | 10.0 | 9.0 | 10.0 | 6.0 | 8.0 | 0.0 | 4.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| OBC | 8.0 | 8.0 | 7.0 | 7.0 | 7.0 | 6.0 | 5.0 | 5.0 | 4.0 | 6.0 | 4.0 | 4.0 | 3.0 | 6.0 |
| PNB | 6.0 | 5.0 | 6.0 | 5.0 | 6.0 | 6.0 | 5.0 | 5.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 5.0 |
| SBBJ | 6.0 | 6.0 | 5.0 | 6.0 | 5.0 | 4.0 | 5.0 | 4.0 | 4.0 | 3.0 | 2.0 | 4.0 | 4.0 | 4.0 |
| SBI | 6.0 | 4.0 | 5.0 | 4.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 |
| SBM | 7.0 | 4.0 | 5.0 | 5.0 | 7.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 4.0 | 4.0 | 4.0 | 5.0 |
| SBT | 9.0 | 5.0 | 5.0 | 7.0 | 5.0 | 6.0 | 5.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 5.0 | 5.0 |
| Syndicate Bank | 6.0 | 7.0 | 6.0 | 7.0 | 6.0 | 6.0 | 6.0 | 5.0 | 3.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 |
| Uco Bank | 4.0 | 6.0 | 6.0 | 6.0 | 5.0 | 6.0 | 6.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 5.0 | 6.0 |
| UBI | 7.0 | 6.0 | 6.0 | 7.0 | 6.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 4.0 | 4.0 | 5.0 | 5.0 |
| Vijaya Bank | 3.0 | 4.0 | 5.0 | 5.0 | 6.0 | 6.0 | 7.0 | 7.0 | 5.0 | 5.0 | 3.0 | 4.0 | 5.0 | 4.0 |
| Average | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 5.0 | 5.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 |
| SD (σ) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Skew ness | -117.0 | 13.0 | 113.0 | 129.0 | 151.0 | 173.0 | 54.0 | 141.0 | -12.0 | 36.0 | 43.0 | 59.0 | 11.0 | 29.0 |
| Range | 6.0 | 5.0 | 4.0 | 6.0 | 5.0 | 6.0 | 3.0 | 4.0 | 2.0 | 3.0 | 4.0 | 3.0 | 3.0 | 2.0 |

Source: CMIE database Prowess calculated with proposed adjustments.

Table 19: Return on Investment (ROI) - Private Banks

(Values are in Percentage)

| Banks Name | Mar-96 ROI | Mar-97 ROI | Mar-98 ROI | Mar-99 ROI | Mar-00 ROI | Mar-01 ROI | Mar-02 ROI | Mar-03 ROI | Mar-04 ROI | Mar-05 ROI | Mar-06 ROI | Mar-07 ROI | Mar-08 ROI | Mar-09 ROI |
|---------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Axis Bank Ltd.* | 9.0 | 8.0 | 5.0 | 6.0 | 5.0 | 7.0 | 6.0 | 5.0 | 4.0 | 3.0 | 3.0 | 5.0 | 4.0 | 4.0 |
| Bank Of Rajasthan | 8.0 | 3.0 | 6.0 | 6.0 | 8.0 | 8.0 | 6.0 | 4.0 | 3.0 | 3.0 | 2.0 | 3.0 | 4.0 | 5.0 |
| Centurion Bank | 9.0 | 5.0 | 9.0 | 10.0 | 6.0 | 3.0 | 5.0 | 5.0 | 3.0 | 4.0 | 4.0 | 4.0 | ** | ** |
| City Union Bank | 8.0 | 9.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 | 5.0 | 6.0 | 6.0 | 5.0 | 4.0 | 5.0 | 5.0 |
| Dhanalakshmi Bank | 8.0 | 5.0 | 6.0 | 6.0 | 7.0 | 6.0 | 5.0 | 5.0 | 4.0 | 2.0 | 3.0 | 3.0 | 5.0 | 5.0 |
| Federal Bank Ltd. | 8.0 | 9.0 | 8.0 | 10.0 | 8.0 | 6.0 | 6.0 | 5.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 |
| H D F C Bank Ltd. | 9.0 | 6.0 | 5.0 | 6.0 | 3.0 | 5.0 | 4.0 | 4.0 | 3.0 | 3.0 | 3.0 | 4.0 | 4.0 | 5.0 |
| I C I C I Bank Ltd. | 9.0 | 7.0 | 6.0 | 5.0 | 5.0 | 4.0 | 2.0 | 13.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 5.0 |
| I N G Vysya Bank | 11.0 | 9.0 | 9.0 | 9.0 | 8.0 | 6.0 | 5.0 | 5.0 | 5.0 | 4.0 | 2.0 | 4.0 | 4.0 | 4.0 |
| Indusind Bank Ltd. | 10.0 | 8.0 | 8.0 | 7.0 | 6.0 | 5.0 | 4.0 | 7.0 | 6.0 | 5.0 | 3.0 | 4.0 | 5.0 | 5.0 |
| J & K Bank | 6.0 | 3.0 | 4.0 | 5.0 | 5.0 | 5.0 | 6.0 | 6.0 | 5.0 | 4.0 | 3.0 | 3.0 | 4.0 | 5.0 |
| Karnataka Bank Ltd. | 8.0 | 6.0 | 7.0 | 7.0 | 7.0 | 6.0 | 5.0 | 6.0 | 5.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 |

| | | | | | | | | | | | | | | |
|---------------------|-------|------|------|------|------|-------|--------|-------|-----|-------|------|-------|-----|-----|
| Karur Vysya Bank | 10.0 | 7.0 | 7.0 | 7.0 | 8.0 | 7.0 | 7.0 | 6.0 | 6.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.0 |
| Kotak Mahindra Bank | 13.0 | 13.0 | 9.0 | 4.0 | 10.0 | 7.0 | 6.0 | 5.0 | 3.0 | 3.0 | 3.0 | 5.0 | 4.0 | 4.0 |
| Lakshmi Vilas Bank | 8.0 | 7.0 | 6.0 | 7.0 | 6.0 | 7.0 | 6.0 | 5.0 | 5.0 | 0.0 | 6.0 | 7.0 | 3.0 | 4.0 |
| South Indian Bank | 8.0 | 6.0 | 7.0 | 9.0 | 5.0 | 5.0 | 5.0 | 5.0 | 4.0 | 3.0 | 4.0 | 4.0 | 4.0 | 5.0 |
| Yes Bank Ltd. | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5.0 | 9.0 | 5.0 |
| Average | 9.0 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 5.0 | 6.0 | 5.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 |
| SD (σ) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 |
| Skew ness | 103.0 | 56.0 | -3.0 | 44.0 | 12.0 | -48.0 | -138.0 | 318.0 | 0.0 | -87.0 | 35.0 | 161.0 | 0.0 | 6.0 |
| Range | 7.0 | 10.0 | 5.0 | 6.0 | 7.0 | 5.0 | 5.0 | 9.0 | 3.0 | 6.0 | 4.0 | 6.0 | 3.0 | 2.0 |

Source: CMIE database Prowess calculated with proposed adjustments.

NA =Non availability of data

* UTI Bank Ltd. turn to be Axis Bank Ltd. in April 2007.

** On 23 February 2008, Centurion Bank of Punjab Ltd merged with HDFC Bank Ltd.

Table-17 exhibits yearly frequency distribution of return on investment. Table-18 put forward ROI calculation of public sector banks. In 1996 the average ROI of public banks was 6.0 percent, shows horizontal trend up to 2000, and then decrease to 5.0 percent in 2001 and remain same up to the end of the study period. The standard deviation is also presented in the table, which describes the variation, among public sector banks from the average ROI. The standard deviation stands 1.0 percent through the study period. The average ROI of public banks was not unduly affecting by extreme values through the study period means all public sector banks were having more or less same level of ROI. Table-19 presents the ROI calculation of seventeen private sector banks. The average ROI of private banks was 9.0

percent in 1996 and then showing decreasing trends 4.0 percent to 2006. In 2001 ROI marginally increase to 5.0 percent and remain same up to the end of study period. Private sector banks exhibit a zigzag pattern of ROI through the study period. The standard deviation and range also presented in the table show scattered among private bank from average ROI. In 1996 the standard deviation and range were 2.0 and 7.0 percent respectively, then slight decrease to 2.0 and 1.0 percent in 1997, and showing less scattered through rest of study period to 1.0 and 2.0 percent in 2009 respectively. ING Vysya Bank Ltd., Karur Vysya Bank Ltd., Lakshmi Vilas Bank Ltd., Axis Bank Ltd., Centurion Bank of Punjab Ltd., City Union Bank Ltd, and Kotak Mahindra Bank Ltd were the few banks responsible for variability.

Table 20: Independent Samples t-Test of Return on Investment (ROI) for Public and Private Sector Banks

| Levene's Test for Equality of Variances | | | t-test for Equality of Means | | | | | | |
|---|--------|-------|------------------------------|-----|-----------------|-----------------|-----------------------|---|--------|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| Equal Variances | 35.695 | 0.000 | 3.137 | 503 | 0.002 | -0.005 | 0.002 | -0.008 | -0.002 |
| Equal variances not assumed | | | 3.002 | 367 | 0.003 | -0.005 | 0.002 | -0.008 | -0.002 |

Table-20 put forward the results of a t-test of private and public sector banks. A significance value of Levene's F-test indicates that both the group has unequal variances and support to use the results that do not assume equal variances for the t-test. The table indicates that there was a significant difference in the average ROI of public and private sector banks. It has -3.002 t-value which is significant at one percent and the null hypothesis was false. Thus, the average EPS offered by public and private sector banks were significantly different during the study period.

Conclusion

During the study period, most of the sample banks earned profit except Centurion Bank of Punjab Ltd., Dena Bank which registered a loss for some financial years. State Bank of India, IDBI, Canara Bank, Bank of India, Bank of Baroda, and Oriental Bank of Commerce, ICICI Bank Ltd. and HDFC Bank Ltd. were the few banks, which registered higher profit through the study period. There were there was a phenomenal increase in the category of more than Rs 1000 Crore of profit earner banks after 2009. In 2009 earnings per share drastically decreases. This decline may be due to the effect of global recession during the period on Indian banking industry. State Bank India and its associate banks, Oriental Bank of Commerce and Bank of Baroda were the few banks having a higher contribution to the aggregate EPS

of public sector banks. Jammu and Kashmir Bank Ltd. ING Vysya Bank Ltd, Karur Vysya Bank Ltd., and Federal Bank Ltd were the few banks private banks having higher EPS. The average ROCE of public sector banks were disproportionately affecting by some of participating banks like corporation Bank, Bank of India, and Oriental Bank of Commerce. Karur Vysya Bank Ltd., Bank of Rajasthan Ltd., City Union Bank Ltd., and Federal bank Ltd. were the banks responsible for the higher ROCE among private banks. In 2009, only six banks were having more than twenty percent RONW. City Union Bank, Corporation Bank, Bank of India, Federal Bank Ltd., Karnataka bank Ltd., Karur Vysya Bank Ltd. State Bank of Jaipur and Bikaner, State Bank of Mysore were the banks having a higher contribution to aggregate RONW of sample banks. ING Vysya Bank Ltd., Karur Vysya Bank Ltd., Lakshmi Vilas Bank Ltd., Axis Bank Ltd., Centurion Bank of Punjab Ltd., City Union Bank Ltd, and Kotak Mahindra Bank Ltd were among few out of sample banks, which was contributing a most to aggregate ROI of sample banks. With reference to mentioned hypothesis (H_0) of the study, the average traditional financial performance measures of public and private sector banks are not significantly different, independent sample t-test has been applied on the pooled data (from 1996 to 2009) of 37 (20 public and 17 private) banks. Results of test reveal that null hypothesis is

rejected at five percent level of significant that Profit after tax (PAT), earning per share (EPS), and return on investment (ROI) are significantly different as offered by the public and private banks. The insignificant t-values indicate that the average return on capital employed (ROCE), and return on net worth offered by the public sector and private sector banks was not significantly different during the study period.

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