

**SUMMARY OF FINDINGS AND CONCLUSION**

In a liberalizing economy, the banking and financial sector assume top priority. Globalization requires adhering to standards and yardsticks that are universally applicable. Although, prospects for the Indian banking industry remain optimistic, it is being affected by the dynamic and highly competitive global banking environment. Therefore, the banks are needed to perform to the core to ensure their existence in the challenging milieu. Thus, the present study entitled “A Multiple Criteria Decision Making Approach to Evaluate the Financial Performance of Scheduled Commercial Banks in India” was undertaken to assess the financial performance and stability of the Scheduled Commercial Banks with the following objectives:

- ✓ To assess the financial performance of select Scheduled Commercial Banks in India,
- ✓ To identify the determinants of profitability of the Scheduled Commercial Banks in India,
- ✓ To rank the banks on the basis of the multiple criteria decision making approach, and
- ✓ To find the consistency in the performance of the banks over the years.

The hypotheses framed in support of the study are

Hypotheses  $H_{01}$  to  $H_{05}$  were framed to find if there was any difference in the financial performance of the scheduled commercial banks before (1999-2000 to 2006-2007) and after (2008-2009 to 2014-2015) global financial crisis.

- $H_{01}$ : There is no difference in the capital adequacy of select scheduled commercial banks.
- $H_{02}$ : There is no difference in the asset quality of select scheduled commercial banks.

- H<sub>03</sub>: There is no difference in the management ability of select scheduled commercial banks.
- H<sub>04</sub>: There is no difference in the earning efficiency of select scheduled commercial banks.
- H<sub>05</sub>: There is no difference in the liquidity capability of select scheduled commercial banks.
- H<sub>06</sub>: There is no significant difference in discriminating variables between top and lower ranked banks.

### 5.1 FINDINGS OF THE STUDY

The summary of the major outcome of the research is presented under the following heads:

- i. Financial performance of Scheduled Commercial Banks in India,
- ii. Determinants of profitability of Scheduled Commercial Banks in India,
- iii. Ranking the banks based on the multiple criteria decision making approach– TOPSIS Method,
- iv. Discrimination of top and low ranked banks and identification of the impact of discriminating variables, and
- v. Consistency in the financial performance of the Scheduled Commercial Banks in India.

#### i. FINANCIAL PERFORMANCE OF SCHEDULED COMMERCIAL BANKS IN INDIA

The major components that measure the financial performance namely capital adequacy, asset quality, management ability, earning efficiency and liquidity management were evaluated and the major findings are presented below:-

##### ➤ Capital Adequacy of the Scheduled Commercial Banks in India

- The average capital adequacy ratio of Corporation Bank (14.33 percent), Tamilnadu Mercantile Bank (16.84 percent), State Bank of Hyderabad

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(12.92 percent) and Hongkong and Shanghai Bank (14.33 percent) ensured stronger capital base while Dena Bank (10.91 percent), South Indian Bank (12.45 percent), State Bank of Mysore (11.92 percent) and Standard Chartered Bank (10.72) held least CAR in their respective groups.

- The average debt – equity ratio was found to be lower in Oriental Bank of Commerce(14.24 times), ICICI Bank (8.73 times), State Bank of India (15.36 times) and Deutsche Bank (5.39 times) among their group indicating that the banks are operating with lower risk.
- The aggressiveness in lending was measured using advances to assets ratio and the average of Bank of India (59.38 percent), Karur Vysya Bank (59.74 percent), State Bank of Mysore (57.96 percent) and Standard Chartered Bank (47.42 percent) was observed be higher while it was found to be lower in United Bank of India (45.61 percent),HDFC Bank (48.12 percent), State Bank of India (52.30 percent) and HSBC Bank (36.05 percent) in their respective groups.
- The risk in investments by the banks was observed through investments in government securities to total assets ratio and was found that investments of Vijaya Bank (30.34 percent), Karnataka Bank (26 percent), State Bank of Hyderabad (29.41 percent) and HSBC Bank (25.63) were safer, while it was found to be lower in Bank of India (19.43 percent), ICICI Bank (19.43 percent), State Bank of Patiala (25.04 percent) and Standard Chartered Bank (17.92 percent).
- The risk taking ability of the banks was examined through ratio of government securities to total investments. The average of the ratio was observed to be higher in Andhra Bank (87.60 percent), South Indian Bank (81.69 percent), State Bank of Bikaner and Jaipur (91.49 percent) and Citi Bank (89.24 percent) and lower in Bank of Baroda (75.21 percent), Axis Bank (56.50 percent), State Bank of India (79.33) and HSBC Bank (70.14 percent) in their respective groups.

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➤ **Asset Quality of the Scheduled Commercial Banks in India**

- The average return on investments of majority of Scheduled Commercial Banks was observed to be more than 8 percent but it was found lower in ICICI Bank (6.57 percent).
- Return on advances which indicate the effective business operations of banks was observed to be higher in Andhra Bank (10.75 percent), Axis Bank (12.49 percent), State Bank of Mysore (10.47 percent) and Standard Chartered Bank (11.46 percent) amidst their group when the average returns on the advances dispersed was found to be lower in Bank of Baroda (8.65 percent), ING Vysya Bank (9.21 percent), State Bank of India (8.99 percent) and Deutsche Bank (9.48 percent).
- Net NPA to net advances is a key indicator of quality of loan assets and was found to be lower in Corporation Bank (1.30 percent), HDFC Bank (0.34 percent), State Bank of Patiala (1.72 percent) and Deutsche Bank (0.16 percent) stating that the banks were efficient in collecting their debts and controlling their NPAs. The average was observed to be high in Dena Bank (5.79 percent), South Indian Bank (2.97 percent), State Bank of India (2.75 percent) and Citibank (1.19 percent).
- The average lending of advances to the priority sectors to total advances was registered to be higher in Allahabad Bank (37.67 percent), Tamilnadu Mercantile Bank (44.29 percent), State Bank of Bikaner and Jaipur (37.48 percent) and Deutsche Bank (27.07 percent). The average was found to be lower in Bank of Baroda (25.51 percent), ICICI Bank (21.54 percent), State Bank of India (26.98 percent) and HSBC Bank (24.08 percent).
- The average interest income to total assets was found to be higher in Oriental Bank of Commerce (8.97 percent), Tamilnadu Mercantile Bank (10.21 percent), State Bank of Mysore (8.87 percent), Standard Chartered Bank (8.03 percent). The least average among the concerned groups was registered by Bank of Baroda (7.50 percent), ICICI Bank

(7.40 percent), State Bank of India (7.97 percent) and HSBC Bank (7.04 percent).

- Paired t-test was applied to identify if there was difference in the asset quality indicators. The results showed that AQ4 (priority sector advances to advances) did not vary before and after the crisis while the variables namely AQ1 (Return on investments), AQ2 (Return on advances), AQ3 (Net NPA to advances) and AQ5 (interest income to total assets) showed variations in the ratio.

#### ➤ **Management Ability of the Scheduled Commercial Banks in India**

- The average deposits in current and savings account to total deposits was observed to be higher in Punjab National Bank (26.62 percent), HDFC Bank (44.47 percent), State Bank of India (26.69 percent) and Deutsche Bank (92.57 percent) and was found to be lower in Bank of India (19.04 percent), South Indian Bank (12.49 percent), State Bank of Travancore (16.18 percent) and Standard Chartered Bank (8.72 percent) in their corresponding groups.
- Average total advances to total deposits of Bank of India (71.67 percent), ICICI Bank (93.25 percent), State Bank of Mysore (71.27 percent) and Standard Chartered Bank (91.42 percent) was found to be more. United Bank of India (53.16 percent), Jammu & Kashmir Bank Ltd (58.23 percent), State Bank of Hyderabad (65.44 percent) and HSBC Bank (60.99 percent) recorded lower ratio in their respective groups.
- Business per employee indicating productivity of the employees was found to be high in Corporation Bank (₹ 95.30 mn), Axis Bank (₹ 110.31 mn), State Bank of Hyderabad (₹ 67.47 mn) and Citi Bank (₹ 180.52 mn) while the average business per employee was found to be lower in Central Bank of India (₹ 50.33 mn), ING Vysya Bank (₹ 47.19 mn), State Bank of Bikaner & Jaipur (₹ 47.96 mn), Standard Chartered Bank (₹ 109.87 mn).

- The average profit per employee was observed to be more in Corporation Bank (₹ 0.57 mn), ICICI Bank (₹ 1.07 mn), State Bank of Hyderabad (₹ 0.45 mn), Deutsche Bank (₹ 3.72 mn) in their respective groups. The least average was recorded by Central Bank of India (₹ 0.12 mn), ING Vysya Bank (₹ 0.27 mn), State Bank of Mysore (₹ 0.27 mn), HSBC Bank (₹ 2.07 mn).
- The administrative and operation costs measured through intermediation cost to total assets was observed to be low in Oriental Bank of Commerce (1.57 percent), Jammu and Kashmir Bank (1.52 percent), State Bank of Mysore (1.78 percent) and HSBC Bank (2.70 percent) while it was found to be higher in Punjab and Sind Bank (2.37 percent), HDFC Bank (2.68 percent), State Bank of Mysore (2.51 percent) and Deutsche Bank (3.61 percent).
- The average burden to total assets was observed to be less in Corporation Bank (0.21 percent), Axis Bank and ICICI Bank (-0.10 percent), State Bank of Hyderabad (0.51 percent) and Deutsche Bank (-0.47 percent) stating the efficiency of banks in earning more non-interest income besides meeting the non-interest expenditure.

➤ **Earning Efficiency of the Scheduled Commercial Banks in India**

- The average net interest margin was found to be higher in Punjab National Bank (3.33 percent), HDFC Bank (4 percent), State Bank of Bikaner and Jaipur (3.20 percent) and Citi Bank (4.41 percent) while the lower ratio was recorded by UCO Bank (2.42 percent), ICICI Bank (2.14 percent), State Bank of Travancore (2.69 percent) and Standard Chartered Bank (3.62 percent).
- The average return on assets was found to be higher in Corporation Bank (1.22 percent), HDFC Bank (1.66 percent), State Bank of Hyderabad (1 percent) and Citi Bank (2.52 percent). The average of the ratio was found to be lower in Central Bank of India (0.43 percent), Central Bank of India

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(0.66 percent), State Bank of Travancore (0.81 percent) and Standard Chartered Bank (1.36 percent).

- The average return on equity was observed to be higher in Andhra Bank (21.56 percent), City Union Bank (21.71 percent), State Bank of Hyderabad (21.16 percent) and Standard Chartered Bank (22.05 percent) and the lower average was recorded by United Bank of India (7.54 percent), ING vysya Bank (9.05 percent), State Bank of India (15.71 percent) and HSBC Bank (12.62 percent).
- The non-interest income to total assets was found to be higher in Andhra Bank (1.37 percent), Axis Bank (2.09 percent), State Bank of Mysore (1.63 percent) and Deutsche Bank (4.08 percent) while Central Bank of India and Corporation Bank (0.89 percent) Jammu and Kashmir Bank (0.91 percent), State Bank of Patiala (1.20 percent) and HSBC Bank (2.41 percent) took the lowest position.
- The average operating profits to total assets was observed to be higher in Corporation Bank (2.40 percent), HDFC Bank (3.05 percent), State Bank of Hyderabad (2.39 percent) and Deutsche Bank (4.51 percent) while Central Bank of India (1.41 percent), ING Vysya Bank (1.60 percent), State Bank of Travancore (1.98 percent) and HSBC Bank (3.29 percent) recorded lower average.

➤ **Liquidity Management of the Scheduled Commercial Banks in India**

- The average cash-deposit ratio was registered higher in Punjab National Bank (8.40 percent), Axis Bank (8.22 percent), State Bank of Bikaner & Jaipur (9.19 percent) and Deutsche Bank (11.86 percent). Bank of Baroda (4.98 percent), South Indian Bank (5.48 percent), State Bank of Travancore (6.44 percent) and Standard Chartered Bank (6.91 percent) recorded the lowest average.
- The term deposits to total deposits of Oriental Bank of Commerce (73.60 percent), Indusind Bank (80.28 percent), State Bank of Travancore (69.80 percent) and Standard Chartered Bank (58.85

percent) held the highest mean value. Punjab National Bank (57.61 percent), HDFC Bank (50.78 percent), State Bank of India (57.07 percent) and Deutsche Bank (41.76 percent) held the least term deposits to total deposits in their respective groups.

- Liquid assets in proportion to the total assets was found to be high in Bank of Baroda (14.08 percent), Jammu and Kashmir Bank (11.25 percent), State Bank of India (10.91) and Deutsche Bank (18.66 percent). Allahabad Bank (7.99 percent), Federal Bank (7.21 percent), State Bank of Patiala (7.60 percent) and Standard Chartered Bank (6 percent) registered lower liquid assets.
- Liquid assets to demand deposits was found higher in Bank of Baroda (193.4 percent), South Indian Bank (225.1 percent), State Bank of Travancore (162.8 percent) and Citi Bank (87.82 percent). The lower mean value was recorded by Corporation Bank (97.08 percent), HDFC Bank (60.61 percent), State Bank of Hyderabad (83.61 percent) and Standard Chartered Bank (45.28 percent).
- The average liquid assets to total deposits was found to be high in Bank of Baroda (16.60 percent), ICICI Bank (17.39 percent), State Bank of India (14.36 percent) and Deutsche Bank (48.06 percent) while the average was found to be low in Allahabad Bank (9.16 percent), Federal Bank (8.66 percent), State Bank of Patiala (9.38 percent) and Standard Chartered Bank (11.62 percent).

## ii. DETERMINANTS OF PROFITABILITY OF SCHEDULED COMMERCIAL BANKS IN INDIA

The determinants of the profitability indicators, namely, net interest margin, return on assets and return on equity are narrated below:

### ➤ Correlation of internal and external variables with Net Interest Margin

- Investment in Government Securities to Assets (CA4), Intermediation Cost to Total Assets (MA5), Return on Investments (AQ1), CASA (MA1) and Liquid

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Assets to Total Deposits (LM5) are positively correlated with NIM while inflation, Capital Adequacy Ratio (CA1), Ratio of Advances to Assets (CA3), Business per Employee (MA3) and Term Deposits to Total Deposits (LM2) are negatively correlated.

➤ **Correlation of internal and external variables with Return on Assets**

- Return on Equity (EE3) and Operating Profits to Total Assets (EE5) and Non-Interest Income to Total Assets (EE4) are positively correlated with Return on Assets while Burden to Total Assets (MA6) is negatively correlated.

➤ **Correlation of internal and external variables with Return on Equity**

- Investment in Government Securities to Assets (CA4), CASA (MA1), Return on Assets (EE2) and Non-Interest Income to Total Assets (EE4) are highly correlated with Return on Equity while Burden to Total Assets (MA6) and Operating Profits to Total Assets (EE5) and Business per Employee (MA3) are negatively correlated.

➤ **Step- wise multiple regression result of Net Interest Margin**

- The net interest margin is highly influenced by liquid assets to assets (-0.070) while it is affected by intermediation cost to assets (1.168) and debt equity ratio (-0.089).

➤ **Step- wise multiple regression result of Return on Assets**

- The increase in return on equity (0.051), advances to assets (0.012) and net interest margin (0.091) has a considerable effect on the return on assets.

➤ **Step- wise multiple regression result of Return on Equity**

- The contribution of operating profits to assets (-3.410), cash-deposit ratio (0.359) and return on assets (0.359) increases the return on equity significantly.

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**iii. RANKING THE BANKS BASED ON THE MULTIPLE CRITERIA DECISION MAKING APPROACH**

- The most representative and comprehensive criteria selected for TOPSIS analysis are capital adequacy ratio, investment in government securities to investments, interest income to total assets, priority sector advances to advances, intermediation cost to total assets, business per employee, operating profits to total assets, return on equity, liquidity assets to total deposits and liquidity assets to demand deposits.
- The top ranked banks and the low ranked banks were classified using the mean rank obtained by the banks during the study period. Citi bank, South Indian Bank, Deutsche Bank, State Bank of Travancore and Bank of Baroda are identified to be the top ranked banks while Jammu and Kashmir Bank, United Bank of India, HDFC Bank, Standard Chartered Bank and Axis Bank were identified to be the low ranked banks.

**iv. DISCRIMINATION OF TOP AND LOW RANKED BANKS AND IDENTIFICATION OF THE IMPACT OF DISCRIMINATING VARIABLES**

- The most discriminating variables that differentiate top and low ranked banks are liquid assets to demand deposits, intermediation cost to total assets, business per employee, priority sector advances to advances, return on investments, return on equity, investment in government securities to total investments, return on advances and liquid assets to total deposits.
- Classification results of the banks as top and low ranked banks are observed to be correctly classified at 93.9 percent.
- The difference in the mean value between top and low ranked banks was found in investments in government securities to total investments, priority sector advances to total advances, intermediation cost to total assets, liquid assets to demand deposits and liquid assets to total deposits, while

return on investments, return on advances, business per employee and return on equity do not have difference in the mean value of the variables.

**v. CONSISTENCY IN THE FINANCIAL PERFORMANCE OF SCHEDULED COMMERCIAL BANKS IN INDIA**

- In foreign banks group, Citibank and Deutsche Bank were more consistent and competitive by maintaining the highest position throughout the period.
- Bank of Baroda, Bank of India and Canara Bank in nationalized banks group were consistent in maintaining their positions compared to other banks in the group.
- In private banks group, South Indian Bank and City Union Bank proved to be more efficient by maintaining the top positions.
- When SBI group is considered, State Bank of Travancore and State Bank of Bikaner & Jaipur were consistent in their performance.
- Among the select Scheduled Commercial Banks in India, the banks in private sector were more consistent in retaining their position throughout the study period followed by nationalized banks, foreign banks and SBI group.

**5.2 CONCLUSION**

The performance of banks is measured through their sustainability, efficiency in managing the funds and earning returns by proper application of the available resources. At the same time, the banks must have adequate liquid assets to meet the requirements of their customers and economy. Further, the disbursements made by the banks must be secured in order to avoid adverse loan impairment. Thus, the strategies worked out by the banks must be able to balance the risks in the business operations. The findings of the present study, using the multiple criteria decision making approach, has considered the major

components of financial performance to comprehend the managerial ability of the banks and is identified that the banks that effectively reduces their risks garners more profit and upholds consistency in their business.

### 5.3 SUGGESTIONS

The suggestions proposed on the basis of research findings to enhance the operational efficiency of the low ranked banks are as follows:

- Liquid assets to demand deposits ratio of the top ranked banks is exceptionally high in contrast to the low ranked banks which insists that the low ranked banks must increase their liquid assets to meet the obligations of its demand depositors,
- The ratio of intermediation cost to total assets is comparatively low in the top ranked banks while it is slightly high in low ranked banks. Hence, the low ranked banks are suggested to have control on their operating expenses,
- Investment in government securities is very high in top ranked banks indicating safe investments of the banks and is found to be lower in the low ranked banks. Thus, the low ranked banks are suggested to opt for more risk – free investments.
- Business per employee of the low ranked banks is significantly lower when compared to the top ranked banks. Hence, the productivity of the employees should be enhanced through effective management of the banks,
- Priority sector advances to advances ratio of the top ranked banks is higher witnessing more advances disbursed to the priority sector while it is observed to be lesser in the low ranked banks. Thus, the banks are suggested to disburse more debts to priority sectors which in turn will lead to economic development,
- Return on investments and return on equity of the low ranked banks is higher than that of top ranked banks, but the standard deviation of the low ranked banks are registered to be very high when compared to the top

ranked banks. Hence, the low ranked banks are suggested to improve their returns on investments,

- Return on advances of the top ranked banks is faintly higher compared to the low ranked banks indicating the better quality of advances offered by the top ranked banks, and
- Liquid assets to total deposits ratio of the top ranked banks is considerably higher insisting the availability of the liquid assets with the banks for meeting its debt (total deposits). Thus, low ranked banks must increase their liquid assets by increasing their deposits and short term investments.

#### **5.4 SCOPE FOR FURTHER RESEARCH**

The related researches in the banking industry that require attention are listed below:

- Researches on the impact of non-performing assets on the profitability on the banks are of prime concern,
- Researches to examine the performance of a particular bank and its branches could be done using multiple criteria decision making technique to identify the branches that excel in their performance and those that need concern. Hence, corrective measures could be taken to strengthen the weak branches to enhance their overall profitability,
- Qualitative criteria could be formed by applying multiple criteria decision making approach to improve the productivity of employees and to provide improved services to the customers, and
- Researches on the performance and efficiency of the banks after consolidation could be carried out.