

SUMMARY OF FINDINGS AND CONCLUSION

The banking landscape in India is rapidly evolved by changes in regulatory environment, technological advancements, greater competition and issues in banks operating system. The banks need to be agile, innovative and adaptable to overcome the challenges. The success in such endeavors would entirely depend upon the bank's financial position, capital base and aspirations for the future and organizational capabilities. The present study entitled "Prediction of Financial Distress Condition of Scheduled Commercial Banks – An Application of Survival Analysis" was carried out with the following objectives:

- To evaluate the performance of select scheduled commercial banks,
- To analyze the trends in non-performing assets of the banks,
- To rank the banks based on multi-criterion approach (VIKOR), and
- To predict the financial distress condition of select banks using survival analysis.

The study covered a period of 15 years from 2003-2004 to 2017-2018. 44 Scheduled commercial Banks - 19 Public Sector Banks, 17 Private Sector Banks and 8 Foreign Banks were selected based on the level of advances and continuous availability of data for 15 years. The required data was primarily collected from secondary source and the experts opinion was gathered to assign weights to criterion (ratios). The statistical tools used in the study include Financial Ratios, Descriptive Statistics (Arithmetic Mean, Standard Deviation, Coefficient of Variance), t-test, Cluster Analysis, Analytical Hierarchical Process (AHP), VIKOR Method, Path Analysis and Cox Proportional Hazard model.

The following null hypotheses were framed to support the study:

H₀₁: There is no significant mean difference of select scheduled commercial banks in respect of Capital Adequacy, Asset Quality, Management Ability, Earnings Efficiency, Liquidity Management and Sensitivity to Risk of select scheduled commercial banks.

H₀₂: There is no significant mean difference in trends of non-performing assets of select scheduled commercial banks.

H₀₃: There is no link between credit risk variables with operational risk, profitability and other specific variables.

H₀₄: There is no link between operational risk variables with profitability and other specific variables.

H₀₅: There is no link between profitability variables and other specific variables.

H₀₆: There is no significant relationship between predictor variables and financial distress condition of Indian scheduled commercial banks.

FINDINGS OF THE STUDY

The summary of the findings that emerged from the research is presented objective wise:

- Financial performance of select scheduled commercial banks,
- Trends in non-performing assets of select banks,
- Ranking the banks based on multi-criterion approach – VIKOR method, and
- Prediction of financial distress condition of select banks using survival analysis

FINANCIAL PERFORMANCE OF SELECT SCHEDULED COMMERCIAL BANKS

The financial performance of the select banks is assessed using CAMELS component namely Capital adequacy, Asset quality, Management ability, Earnings efficiency, Liquidity and Sensitivity to risk. t-test was applied to know the significance mean difference in the components of select Scheduled Commercial Banks in India.

Capital Adequacy of Select Scheduled Commercial Banks in India

The capital base provides a caution to the banks to withstand the credit and other risks in business. The capital adequacy of banks were measured and the results are presented below.

- **Capital Adequacy Ratio:** It measures the financial capability of banks to meet the amount of uncertainty of risk, which is absorbed by its capital. Indian Bank (13.25 percent), RBL Bank (23.29 percent) and DBS Bank (21.43 percent) registered the stronger average capital base whereas lower average was reported by Central Bank of India (11.16 percent), Dhanalaxmi Bank (11.04 percent) and Standard Chartered Bank (12.45 percent) in respective group. In 2017-2018, among all select banks Allahabad Bank, Corporation bank, Indian Overseas Bank, Punjab National Bank and Central Bank of India under public sector banks failed to report minimum required CAR ratio of 10.875 percent under Basel III norms.
- **Debt to Equity Ratio:** It measures the degree of debt being used by banks to finance their assets. The higher degree of leverage was reported by UCO Bank (21.78 times), Catholic Syrian Bank (19.19 times) and DBS Bank (6.88 times), indicating the banks used more debt which may lead to distress condition. The average ratio was found to be the lowest in Indian Bank at 12.76 times, Kotak Mahindra Bank (6.97 times) and Standard Chartered Bank (0.35 times), indicating the banks have lower operating risk during the study period.
- **Advances to Total Assets:** The average aggressiveness in lending was found to be the highest in Syndicate Bank (62.51 percent), Karur Vysys Bank (63.32 percent) and Standard Chartered Bank (48.48 percent) while the lowest average were observed in United Bank of India (50.94 percent), RBL Bank (52.18 percent) and Barclays Bank (30.00 percent). It showed that the banks have lower lending exposure.
- **Government Securities to Total Investment:** The ratio exposes the risk taking ability of banks. The average ratio of Andhra Bank (88.96 percent), City Union Bank (88.12 percent) and City Bank (93.95 percent) were observed to be the highest, indicating the banks preferences for low risk in investments. The lowest average was reported by Punjab and Sind Bank (76.24 percent), Axis Bank (63.04 percent) and Barclays Bank (57.23 percent)
- One sample t-test was applied and the P-values of capital adequacy variables, namely, Capital adequacy ratio, Debt equity ratio, Advances to total assets and Government securities to total investments, were found to be significant at one

percent level. It reflects a significance mean difference in the select capital adequacy variables of scheduled commercial banks in India.

Asset Quality of Select Scheduled Commercial Banks in India

Asset quality determines the level of credit risk which is associated with the banks financial assets. The quality of assets is measured and the results are presented below.

- **Gross NPA to Gross Advances:** The ratio evaluates the overall quality of banks assets. The highest mean value was observed in Central Bank of India (8.06 percent), DCB Bank (5.74 percent) and Standard Chartered Bank (6.04 percent) implying that the banks have inadequate credit control over asset quality. Indian Bank and Vijaya Bank reported the lowest mean value of gross NPA to gross advances at 3.37 percent and 3.76 percent respectively. HDFC Bank (1.30 percent) and Bank of America (0.17 percent) indicating that the banks are more concerned in collection of debts and have well managed risk return profile.
- **Net NPA to Net Advances:** The ratio measures the quality of advances granted by banks. The average ratio was found to be the highest in United Bank of India (4.60 percent), Catholic Syrian Bank (2.88 percent) and BNP Paribas Bank (5.43 percent) showing that the banks are facing deteriorated asset quality and facing difficulties due to raising portfolio of NPAs. The lower average was found to be same in Indian Bank and Vijaya Bank at 1.81 percent, HDFC Bank (0.32 percent) and Bank of America (0.01 percent) signifying the banks ability in providing quality advances.
- **Net NPA to Total Assets:** It measures how effectively banks are managing their credit risk. Indian Overseas Bank (2.48 percent), Lakshmi Vilas Bank (1.61 percent) and DBS Bank (0.66 percent) reported the highest average, indicating that the banks are facing more deficiency in quality assets. While, Oriental Bank of Commerce (0.02 percent), HDFC Bank (0.18 percent) and Bank of America (0.01 percent) held lowest ratio in their respective group.
- **Earnings Base Ratio:** It measures how effectively management is using their assets to produce revenue. The ratio of earnings base was observed to be highest in

Indian Bank (89.27 percent), Karnataka Bank (89.89 percent) and Bank of America (79.92 percent) reflecting that the banks have strong earnings base to yield return. Bank of Baroda (81.79 percent), RBL Bank (82.39 percent) and Barclays Bank (68.56 percent) reported the lowest average in their respective group.

- One sample t-test was applied and the P-values of asset quality variables, namely, Gross non-performing assets to gross advances, Net non-performing assets to net advances, Non-performing assets to total assets and Earnings base ratio, were found to be significant at one percent level. So, there is a significance mean difference in the select asset quality variables of scheduled commercial banks in India during the period of study.

Management Ability of Select Scheduled Commercial Banks in India

Effective management is important for the proper functioning of banking sector on a sustainable basis. The ability of the management is measured using select ratios and the results are presented below.

- **Total Advances to Total Deposits:** The ratio measures the interest earning capacity of banks and the highest average was registered by Union Bank of India (72.26 percent), Kotak Mahindra Bank (89.81 percent) and Bank of America (104.43 percent). The lowest average was observed in United Bank of India (57.74 percent), Catholic Syrian Bank (62.23 percent) and HDBC Bank (59.22 percent).
- **Profit Per Employee:** It measures the effective utilization of employees to generate revenue. The ratio was found to be the highest in Indian Bank (Rs. 0.06 Cr, Axis Bank and ICICI Bank reported an average of (Rs. 0.11 Cr) and Bank of America Rs. 1.15 Cr indicating the banks have higher contribution of employees to yield return. The lowest average was reported by UCO Bank (Rs. -1.22 Cr), Dhanalaxmi Bank (Rs. -0.10 Cr) and Barclays Bank (Rs. 0.89 Cr). In 2017-2018 almost all the public sector banks registered negative ratio except Indian Bank, Vijaya Bank and United Bank of India.
- **Business Per Employee:** The ratio measures the efficacy of employees productivity. The ratio of Business Per Employee was found to be the highest in

Corporation Bank (Rs. 13.12 Cr), Axis Bank (Rs. 11.99 Cr) and BNP Paribas Bank (Rs. 44.27 Cr) indicating the banks motivated their employees to generate revenue to the banks. The lower average was found in Central Bank of India (Rs. 7.45 Cr), Catholic Syrian Bank (Rs. 5.37 Cr) and Standard Chartered Bank (Rs. 13.57 Cr).

- **Return on Equity:** The highest average of return on equity was recorded by Indian Bank (14.72 percent), City Union Bank (18.66 percent) and City Bank (15.43 percent) implying that the banks used their investments appropriately to produce better return. The lowest average was reported by Central Bank of India (3.62 percent), DBS Bank (3.94 percent) and Dhanalaxmi Bank (-5.01 percent) indicating that the banks have higher debt and credit growth, which may lead to lower profitability. In 2017-2018, almost all the banks reported lower ratio. In public sector, all the select banks reported negative return on equity ratio except Indian Bank and Vijaya Bank. All banks in private sector and foreign banks reported lower returns and Catholic Syrian Bank, Lakshmi Vilas Bank, Dhanalaxmi Bank and DSB Bank reported negative return in 2017-2018.
- **Current Account and Savings Account Ratio:** It reflects the capacity of banks in raising funds, which helps to improve their earning efficiency. The average CASA to total assets ratio was found to be the highest in United Bank of India (42.15 percent), HDFC Bank (50.10 percent) and Duetshe Bank (58.30 percent). It showed that the banks used more lower cost funds. The lowest average was observed in Vijaya Bank (25.77 percent), Lakshmi Vilas Bank (19.21 percent) and DBS Bank (6.23 percent) implying that the banks depend more on time deposits which might increase their interest expenditure.
- One sample t-test was applied and the P-values of management ability variables, namely, Total advances to total assets, Business per employee, Return on equity, Current account and savings account ratio were found to be highly significant at one percent level. Profit per employee alone was significant at 5 percent level. There is a significant mean difference in the select management ability variables of select scheduled commercial banks.

Earnings Efficiency of Select Scheduled Commercial Banks in India

Earning efficiency of banks were measured using ratios and the results are presented below.

- **Operating Profit to Total Assets Ratio:** It measures the banks potential in utilizing assets to earn more return. The average ratio of operating profit to total assets was found to be the highest in Andhra Bank (2.83 percent), HDFC Bank (3.12 percent) and Bank of America (5.01 percent) indicating that the banks have higher return from core operations of business. The lower average was reported by Punjab and Sind Bank (1.34 percent), Dhanalaxmi Bank (0.82 percent) and DBS Bank (2.11 percent) indicating that the banks have higher operating costs, which consistently reduce their earnings.
- **Net Interest Margin:** The ratio evaluates the banks ability to manage interest rate risk. The average net interest margin was found to be the highest in Punjab National Bank (2.86 percent), Karur Vysya Bank (3.92 percent) and Citi Bank (4.20 percent) implying that the banks have better control over interest expenditure to earn higher return. The lowest net interest margin was recorded by UCO Bank (2.10 percent), Karnataka Bank (2.20 percent) and DBS Bank (2.21 percent) in their respective group.
- **Interest Income to Total Assets:** Interest Income is the primary source of revenue to the banks. It measures the capability of banks in generating income from lending process. The highest average was reported by Punjab and Sind Bank (7.95 percent), Tamilnad Mercantile Bank (9.21 percent) and Standard Chartered Bank (6.87 percent) implying that the banks have the ability to earn through lending exposure. The lowest average was reported by Bank of Baroda (6.37 percent), Axis Bank (6.87 percent) and Barclays Bank (5.32 percent).
- **Non-Interest Income to Total Assets:** Non-interest income is an additional source of income to the banks. The highest average was reported by Indian Bank (1.17 percent), ICICI Bank (2 percent) and Bank of America (4.03 percent), indicating that the banks are earning high income through agency service. The

lowest average was reported by UCO Bank (0.77 percent), Jammu and Kashmir Bank (0.70) and DBS Bank (0.83 percent).

- **Burden Ratio:** It measures how banks are neutralizing burden out of available spread. The more burden was reported by Central Bank of India (0.54 percent), Dhanalaxmi Bank (0.43 percent) and DBS Bank (0.39 percent), whereas, the less burden was reported by Indian Bank (0.87 percent), ICICI Bank (1.54 percent) and Barclays Bank (3.39 percent) implying that the banks are controlling their non-interest expenditure.
- **Efficiency Ratio:** It measures the banks' ability to control non-interest expenses relating to its operating revenue. The average non-operating expenses relative to operating revenue was found to be the highest in Dena Bank (11.14 percent) Lakshmi Vilas Bank (32.18 percent) and DBS Bank (22.37 percent). DBS Bank recorded the ratio at 59.30 percent in 2017-2018, indicating that the banks should take efforts to control its non-interest expenses to improve its profit margin . Indian Bank (7.63 percent), Jammu and Kashmir Bank (6.20 percent) and Bank of America (5.64 percent) registered the lowest average in their respective group.
- **Return on Assets:** It measures the income of banks available out of total assets. The average return on assets was observed to be higher in Indian Bank (1.02 percent), HDFC Bank (1.45 percent) and Bank of America (5.20 percent) implying that the banks used theirs assets more productively. The lowest average was reported by Central Bank of India (0.13 percent), Dhanalaxmi Bank (-0.20 percent) and DBS Bank (0.37 percent) implying that the banks have weak profitability. During 2017-2018, all the public sector banks reported negative return on assets except Indian Bank.
- One sample t-test was applied and the P-values of management ability variables, namely, Operating Profit to Total Assets, Net Interest Margin, Interest Income to Total Assets, Non-Interest Income to Total Assets, Burden Ratio, Efficiency Ratio and Return on Assets, were found to be significant at one percent level. There is a significant mean difference in the select variables of earnings efficiency of scheduled commercial banks during the study period.

Liquidity of Select Scheduled Commercial Banks in India

Liquidity is an essential component to assess the financial performance of banking system. Thus, the following ratios were measured and the results are presented below:

- **Liquid Assets to Demand Deposits:** The ratio measures the ingenuity of banks to meet the requirement of demand depositors. The average ratio was found to be the highest in Bank of India (235.42 percent), Catholic Syrian Bank (236.24 percent) and Barclays Bank (2253.45 percent) indicating the banks have adequate liquidity to meet the requirement of funds. The lowest average was reported by Corporation Bank (90.10 percent), HDFC Bank (55.57 percent) and Bank of America (41.93 percent).
- **Liquid Assets to Total Deposits:** The ratio measures the banks potential to meet the obligations of debtors out of available liquidity. The average ratio was observed to be the highest in Bank of Baroda (16.79 percent), RBL Bank (18.93 percent) and Barclays Bank (56.17 percent) implying that the banks have adequate liquidity to pay off their deposits. Vijaya Bank (7.93 percent), Karnataka Bank (7.30 percent) and Standard Chartered Bank (3.34 percent) recorded the lowest average in the respective group.
- **Liquid Assets to Total Assets:** It measures the liquidity position of banks to meet the expected and unexpected demand from depositors. The ratio was found to be the highest in Bank of Baroda (14.51 percent), RBL Bank (14.25 percent) and Duetsche Bank (19.38 percent) indicating the banks have adequate liquidity to meet the obligations of short term demand from depositors. The lowest average was recorded by Vijaya Bank (7 percent), Tamilnad Mercantile Bank (6.39 percent) and Standard Chartered Bank (6.29 percent).
- **Government Securities to Total Assets:** The ratio measures the amount of risk-free investments in relation to total assets. The highest average of the ratio was reported by United Bank of India (28.38 percent), Catholic Syrian Bank (25.45 percent) and Bank of America (30.59 percent). It showed that the banks prefer more risk free investments in their portfolio. The lowest average was reported by

Bank of India (19.30 percent), Dhanalaxmi Bank (25.09 percent) and Standard Chartered Bank (19.29 percent).

- One sample t-test was applied and the P-values of liquidity variables, namely, Liquid Assets to Demand Deposits, Liquid Assets to Total Deposits, Liquid Assets to Total Assets and Government Securities to Total Assets ratio, were found to be significant at one percent level. There is a significant mean difference in the select variables of liquidity of select scheduled commercial banks.

Sensitivity to Risk of Select Scheduled Commercial Banks in India

Sensitivity to risk is evaluated through changes in interest rate, foreign exchange rate and price of equity. The changes in these variables influence banks earning ability. The results of the variables measured under sensitivity to risk are presented below:

- **Total Securities to Total Assets:** The ratio measures the percentage of changes in portfolio of securities with respect to alteration in interest rates. Higher the ratio higher the risk, lower the ratio lower the risk. The highest average was recorded in United Bank of India (31.87 percent), Karnataka Bank (28.84 percent) and Bank of America (32.22 percent). The lowest average was reported by Central Bank of India (29.99 percent), ICICI Bank (20.44 percent) and Standard Chartered Bank (21.36 percent).
- **Risk Sensitive Assets to Risk Sensitive Liabilities:** The average was found to be highest in Indian Bank (1.009 times), Kotak Mahindra Bank (1.106 times) and Barclays Bank (1.631 times). This indicates risk sensitive assets are more than risk sensitive liabilities and the banks will gain more benefit when interest rate rises. The lowest average was reported by Bank of India (0.949 times), DLB Bank (0.936 times) and DSB Bank (0.959 times). It indicates risk sensitive liabilities are more than risk sensitive assets and the banks will gain more when interest rate falls.
- One sample t-test was applied and the P-values of sensitivity to risk variables, namely, Total Securities to Total Assets and Risk Sensitive Assets to Risk

Sensitive Liabilities, were found to be significant at one percent level. There is a significant mean difference in the select variables of scheduled commercial banks.

TRENDS IN NON-PERFORMING ASSETS OF SELECT BANKS

The trends in non-performing assets of select banks were measured using financial variables and the results are presented below.

- **Movement of percent change in NPAs:** The movement of percent change in net non-performing assets was compared between current year NPA with previous year NPA along with the additions and reductions in NPA during the year. Higher reduction will reflect the better performance of the banks. The average movement was found to be the highest in Punjab National Bank (48.87 percent), HDFC Bank (41.89 percent) and Standard Chartered bank (53.97 percent) due to change in NPAs. Dena Bank (0.22 percent), IndusInd Bank (0.14) and Bank of America (0.07 percent) recorded the lowest average. The ratio was found to be higher for all the public sector banks during 2014-15 and 2015-16 except Indian bank.
- **Gross NPA Generation Rate:** Gross NPA generation rate focus more on attentions of NPA during the year, rather than accumulated part of NPA. The ratio was found to be the highest in Indian Overseas Bank (2.67 percent), Lakshmi Vilas Bank (1.82 percent) and Standard Chartered Bank (1.39 percent). The lower average was observed in Punjab and Sind Bank (1.07 percent), RBL Bank (0.52 percent) and Bank of America (0.03 percent). The increase in fresh NPA was found to be high in all the public sector banks during 2015-16 except Indian bank, Vijaya Bank and Bank of Baroda.
- One sample t-test was applied and P-values of the variables Movement of percent Change in NPAs and Gross NPA Generation Rate, were found to be significant at one percent level. There is a significant mean difference in the select variables of trends in non-performing assets of select scheduled commercial banks.
- **Recovery of NPA through different Channels:** Among different channels, maximum amount of NPA was recovered through SARFAESI Act. Due to declined rate of recovery from 51.09 percent in 2005-2006 to 10.28 percent in

2016-2017, the Government of India initiated Insolvency and Bankruptcy Code (IBC) channel to strengthen the rate of recovery and credit discipline. In 2017-2018, IBC channel recovered 49 percent of the amount.

RANKING THE BANKS BASED ON MULTI-CRITERION APPROACH – VIKOR METHOD

Based on the financial performance of banks, the select scheduled commercial banks were ranked using VIKOR method. It is a Multi Criteria Decision Making Approach proposed by Opricovic, the acronym is in Serbian: VlseKriterijumska Optimizacija I Kompromisno Resenje, means Multi Criteria Optimization and Compromise Solution. It determines the compromise solution to multiple criterion problems based on the measure of “closeness to the ideal” solution. Similar to other MCDM methods like TOPSIS, VIKOR relies on an aggregating function that represents closeness to the ideal, but unlike TOPSIS, VIKOR introduces the ranking index based on the particular measure of closeness to the ideal solution and this method uses linear normalization to eliminate units of criterion function.

- The most representative and comprehensive criteria under each component of CAMELS were selected for VIKOR analysis. The select criteria includes Debt equity ratio, Total advances to total assets, Gross NPA to Gross advances, Net NPA to net advances, Earnings base ratio, CASA ratio, Business per employee, Return on Equity, Net interest margin, Burden ratio, Efficiency ratio, Return on assets, Liquid assets to demand deposits, Government securities to total assets, Total securities to Total assets and Risk sensitive assets to Risk sensitive liabilities.
- The compromise solution rank under VIKOR was proposed based on the minimum Q_{ij} (Criterion value) by considering the acceptable advantage rate and acceptable stability in decision making conditions. The top performance banks and low performance banks were sorted out under each sector based on the mean rank of the select banks.
- The top performance banks and the low performance banks were classified based on the mean rank obtained by the public, private and foreign banks during the study period. Bank of Baroda and Indian Bank under public sector, Kotak

Mahindra Bank and RBL Bank under private sector, and Bank of America and Barclays Bank under foreign banks were identified to be top performing banks, whereas, Dena Bank and United Bank of India under public sector, Catholic Syrian Bank and Dhanalaxmi Bank under private sector and BNP Paribas Bank and Standard Chartered Bank under foreign banks were categorized as low performing banks.

- **Linkage between the various criterion variables:** Path analysis was used to find if there was any linkage between credit risk, operational risk, profitability and other specific variables. The results of the analysis showed that there is a positive linkage between credit risk variables and operational risk variables at 5 percent level of significance, indicating that increase in credit risk variables lead to increase in operational risk variables. There is an inverse linkage between credit risk variables and profitability variables at one percent level of significance. It implied that increase in credit risk variables might lead to decrease in the level of profitability. There is a significant positive linkage between credit risk with operational risk variables and inverse linkage between credit risk with profitability variables of scheduled commercial banks in India.
- The inverse linkage between operational risk variables with profitability and other specific variables at one percent level of significance was observed. It implied that increase in operational risk variables might lead to decrease in profitability and other specific variables. There is a significant negative linkage between operational risk variables with profitability and other specific variables.
- A positive linkage was found between profitability and other specific variables at one percent level of significance. This indicates that an increase in profitability variables lead to an increase in other specific variables. There is a positive significant linkage between profitability and other specific variables of scheduled commercial banks in India.
- The overall statistics showed that the chi-square value is highly significant at one percent level. The model reported Goodness of Fit Index (GIF) at 0.937, Comparative Fit Index (CFI) at 0.908, and Tucker-Lewis Index (TLI) at 0.953, which is above the suggested value at greater than 0.900. Root Mean Square Error

of Approximation (RMSEA) suggested value is less than 0.040. The result was found to be at 0.040, which is less than the suggested value. Hence, the overall fit of the model is good.

PREDICTION OF FINANCIAL DISTRESS CONDITION OF SELECT BANKS USING SURVIVAL ANALYSIS

The survival analysis compares the survival pattern of different groups (non-distressed bank group and distress bank group) using cox proportional hazard model. The purpose of the cox proportional hazard model is to predict the rate of risk, which is associated with the predictor variables. The study selected 41 Indian banks, out of which 36 are non-distressed banks (19 public sector banks and 17 private sector banks) and 5 are distressed banks. The select distressed banks are Centurion Bank, Bank of Rajasthan, ING Vysya Bank, Lord Krishna Bank and United Western Bank. The data must be in panel form. The dependent variable is banks survival. Hence, it takes as a binary form 1 and 0. 1 is assigned for the banks which are non-distressed and 0 is assigned for the banks which are distressed during the study period. The results indicate

- The predictor variables Return on Assets, Gross NPA to Gross Advances, Net Interest Margin, CASA Ratio, Efficiency Ratio, Burden Ratio and Advances to Total Assets ratio are highly significant at one percent level and Earnings Base Ratio is significant at 5 percent level indicating that the variables are highly helpful to predict the financial distress condition of banks.
- Burden Ratio recorded the highest hazard rate at 5.260 times, followed by Advances to Total Assets at 1.142 times, Gross NPA to Gross Advances at 1.097 times and Efficiency Ratio at 1.027 times with a positive coefficient indicate that one unit increase in predictor variables have impact on increased chance to move towards distress condition.
- The hazard rate of Return on Assets at 0.598 times, Net Interest Margin at 0.880 times, CASA Ratio at 0.932 times and Earnings Base ratio at 0.963 times with a negative coefficient indicate that one unit increase in predictor variables have impact on decreased chance to move towards distress condition.

- The overall statistics showed that the -2 Log Likelihood ratio was higher at 5420.03. The Chi-square value at 426.27 was highly significant at (p= .000) one percent level. This implies the select predictor variables namely, Burden Ratio, Advances to Total Assets, Gross NPA to Gross Advances, Efficiency Ratio, Earnings Ratio, CASA Ratio, Net Interest Margin and Return on Assets are useful to predict the financial distress condition of Indian scheduled commercial banks. The banks need to monitor these variables periodically at short intervals to understand their financial position.

Conclusion

During the last few years, the banking system has persistent deterioration in profitability, productivity, asset quality and capital adequacy. Banks will require a large amount of funds and personnel expertise to manage risk. Banks are required to put in place systems for internal controls and risk management. They have to focus on not only capital adequacy but also on capital efficiency – how quickly capital flows to its efficient use. In recent times, especially the public sector banks are facing a huge problem of rising NPAs. The asset quality of banks was declining over the years, and it affects the comprehensive growth of the economy. The increasing level of NPA affects the profitability and smooth cash flow of the banks. Currently, reducing NPAs and improving asset quality is the major task for banks. While banks have taken measures to clean their portfolios, with write-offs and provisions, the Reserve Bank of India has facilitated rectification through a number of well-thought-out initiatives such as restricting incremental non-performing assets through early detection, monitoring, corrective action plans, shared information and disclosures. Due to declining rate of recovery of non-performing assets using existing channels, RBI established Insolvency and Bankruptcy Code to improve the rate of recovery of NPAs. Thus, the public sector banks need to focus on system, reskilling people and their growing loan portfolio. Besides, the banks have to take serious effort to develop an appropriate strategy to handle the debtors and to improve the profitability of the banks. Banks also need to develop sound corporate governance practices to face the challenges of the changing future scenario.

SUGGESTIONS

The suggestions were offered based on the findings of the research to enhance the financial performance of the banks.

- Return on Assets of banks steadily declined from 2012-2013 and in particular public sector banks reported negative ROA in 2017-2018 except Indian Bank. Thus, it is suggested that the banks should improve the earning efficiency by reducing non-performing assets. Further, they can make short term investment to produce revenue as additional source of income which will ultimately enhance the earning capability of banks. In order to improve the return on assets, the banks may consider a good financial model for their realignment.
- Earnings Base ratio of top ranked banks is higher while compared to low ranked banks. Almost all the banks reported higher earnings base till 2014-2015. Therefore, the banks have to improve their earnings assets by disbursing quality lending and can make appropriate investments to generate more revenue in order to improve the productivity of banks.
- Liquidity becomes a major issue of banks, and the root cause of the problem is inadequate capital, frozen non-performing assets and poor financial state. To address the liquidity crisis, the banks must have contingency plans which include the way to handle shortfall of cash flow in emergency situations. Further, the bank can initiate an information system which measures, monitors and controls liquidity risk by providing timely reports to the management and regulatory authorities. The banks should diversify their business in allied services, so that the non-interest income could be improved such as commission on forex transaction, brokerage, service charges and other fee-based income.
- The banks must have an adequate system of internal control over financial performance which involves regular independent reviews and evaluations of the system to ensure that appropriate revisions or enhancement of internal controls are made and how it efficiently impacts the performance of banks. The report should be available to supervisory authorities.
- The study revealed that there is an inverse linkage between credit risk and operational risk variables with profitability variables. The presence of one risk will

give comprehensive impact to the profitability. Hence, the bank has to consider the determinants together while taking a decision.

- The main cause of bank failure is lack of liquidity; the poor liquidity is driven by economic losses caused by defaults in loan and other financial asset, which in turn have eroded bank solvency. Thus, default in loans becomes the proximate cause of bank distress. To manage the growing NPAs, the banks must consider the following aspects:
 - o The early recognition of growing NPAs,
 - o Taking steps to strengthen the credit appraisal process,
 - o Monitoring credit turnover of the loan book at regular interval.
 - o Take control of the debtor's security for their consistent repayment of loan,
 - o Regular discussion with the staff members of the banks to get control over the performance of banks,
 - o Monitor debtor's activities regarding the usage of loan amount at regular interval period,
 - o Recognize the customers with monetary incentive for their prompt payment of interest/principal prior to the due date, and
 - o Continuous inspection of credit audit will help to monitor the risk and operational activities of the banks.

It is suggested to lay more focus on quality loans and advances to enhance the earning efficiency of banks as well as the quality of human resources.

SCOPE FOR FUTURE RESEARCH

The areas of further research include

- Merger of public sector banks and its impact on long-term survival of banks,
- Studies on corporate governance practices in scheduled commercial banks,
- Impact of Government policies on banks performance namely waiver of bank loans to Agriculture, MSMEs and Students.
- Impact of macro-economic variables on the performance of the banks,
- Studies on bank employees productivity,
- Comparison of efficacy of branch banking in India and unit banking in select countries