CHAPTER – VI

SUMMARY, FINDINGS, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION

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6.1. Summary of the Study

From the year 2014, the issue of Non-Performing Asset (NPA) has shaken the banking system in India. Among other categories of NPA, Wilful Default is significant to the financial health of banking system. If proven, according to Reserve Bank of India (RBI) wilful default indicates intend of fraud and would be considered to have occurred if the default entity has the capacity to repay but not paid the dues, diverted the funds for the purpose other than specified in the loan terms, siphoned off the funds by not buying assets specified in the loan terms or other assets or disposed or removed the movable fixed assets or immovable property given by him or it for the purpose of securing a term loan without the knowledge of the bank. The present research focuses on the methods to identify wilful default through early warning signals with the use of Bankruptcy Prediction Models like Altman Z Score and Ohlson O Score methods. It also develops new models using Artificial Neural Network, Logistic Regression, Decision Tree and Multivariate Discriminant Analysis. The research focuses on wilful default listed companies between 2000 and 2018. The present study uses existing early warning signals and resulted in detection of 101 and 100 companies out of 106 wilful defaulted listed companies by using Altman Z Score and Ohlson O Score respectively. It concludes there could be higher possibility of collusion between borrower and banker. The study proposes 4 models to predict wilful default using Artificial Neural Network, Logistic Regression, Decision Tree and Multivariate Discriminant Analysis. Accuracy of all the models are more than 90%; Decision Tree and Logistic Regression with 93.1% stands the highest while Artificial Neural Network at 92.2% followed by Multivariate Discriminant Analysis with 91.1% accuracy.

6.2. Findings of the Study

The present research attempts to explore numerous aspects related to the problem of wilful default as well as suggests probable solution too. In reference to the very first objective of the study i.e. to build and compare bankruptcy prediction models for wilful default public limited companies listed from the year 2000 using various models the study brings out following findings: -

1. At least 11 companies were missed out in the prediction; 6 companies were not predicted by Altman's Z-Score Model and 5 by Ohlson O-scores, interestingly these companies are distinct to each other and do no overlap the default list. This shows that

it is advisable to use more than one prediction model, in order to eliminate the chance of missing out on any wilful default company.

2. The accuracy of the Altman and Ohlson models has been 94% and 95% respectively; the accuracy rate is high and attests to its reliability.
3. The number of listed companies continuously increased from year 2000 onwards; however, after 2011 the companies have started to decline. By the end of 2018, only 56 out of 106 companies are in existence. This validates the prediction models accuracy as almost 50 percent of total companies considered for present research cease to exist.
4. There has been a strong positive correlation of 0.76 between the Increase in Loans Fund as a parameter of Cash Flow Statement and High to moderate chances of bankruptcy according to Altman's model while with O-score on the same parameters considered shows only positive 0.26 correlation.
5. The most instances of repetitive disbursement of new loans in spite having poor financial performance were found to be maximum in Textiles, Infrastructure and IT sectors.
6. Interestingly, the present study found that the pattern of disbursements was positive in these sectors even after having amber and red signals consecutively for 2, 3 and 4 years.
7. A total 68 companies were disbursed loans even after strong bankruptcy signals for consecutive 2 years; further, 50 borrowers received disbursement of loan funds consecutively 3 years and in 36 companies it was consecutively 4 years despite strong bankruptcy signals.
8. The study thus finds that there existed some anomaly in process of monitoring the existing loan as well as in the fresh disbursements.
9. Accuracy rate of new model based on Logistic Regression and Decision Tree model is 93.1 per cent for each while Artificial Neural Network is 92.2 per cent and Multiple Discriminant Analysis is 91.2 per cent.
10. Logistic Regression and Decision Tree model in the present study balances well the requirement for the end user that is transparency and accuracy of the model.
11. Surprisingly, Artificial Neural Network had 92.2 per cent accuracy in the present study, whereas, it is known accuracy across other sectors when used in few countries as per the literature study performed earlier. Still the accuracy rate is much better than the average rate of models results from the survey of literature being 83.8 per cent.
12. Similarly, Logistic Regression results in 93.1 per cent accuracy whereas average rate across the survey of literature was 87.44 per cent. Decision Tree average accuracy is 72

per cent while MDA stood at 87 per cent. In that comparison, the present study provides better model to predict Wilful Default among listed companies.

13. Earnings before Interest and Tax parameter is the most important variable as it was present in all the models; Logistic Regression, Multiple Discriminant Analysis, Artificial Neural Network and Decision Tree model.
14. Among others parameters, ANN give highest weight to EBIT to Total Assets ratio, as a critical factor for predicting wilful default.
15. It is also found that the other important parameters like Net Profit Margin, Operating Profit Margin, Total Debt to Total Assets, Net Working Capital to Current Liabilities and Net Sales were present in all the 3 models.
16. Logistic Regression considers 12 significant variables, Artificial Neural Network with 9, Multiple Discriminant Analysis with 7 and Decision Tree with only 5 variables.
17. Interest Service Coverage Ratio and Market Capitalization to Book Value of Total Debt were the variables included in Decision Tree but not in any other model and other common variables found in logistic regression are; Sales to Total Assets, PBIT to Total Assets and PBIT Margin.
18. There has been discrepancy in regards to penalty under Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 (SARFAESI) which levies penalty of rupees five lakhs, under Insolvency and Bankruptcy Code, 2016 levies penalty in range between rupees one lakh to five crores while under Companies Act. 2013 the fine described as the fine shall not be less than the fraud amount and can be extended to 3 times the fraud amount.
19. From the legal aspect of SEBI, it emphasizes on the public disclosure of such entity and the objective is to bring awareness amongst the investors. It discourages the entity from getting their companies listed on SME exchange but allows on Bombay Stock Exchange/National Stock Exchange with disclosures.
20. As discussed in the chapter related to Legal Aspects of Wilful Default it is found in RBI's circular that no additional funds and facilities shall be granted by the banks/FIs for 5 years from the date of listing in the wilful defaulters list. And also, the following points.
    a. Quick legal process to be initiated against borrowers or guarantors for foreclosure of recovery dues and wherever necessary criminal suit should be filed against the wilful defaulters.

b. If possible, banks/FIs should take proactive measure of changing the management of wilful defaulters.
c. The enlisted entities (persons) should not be inducted on the board. If found then process to remove him/her from the board should be made quickly.
d. In case of window dressing of books of accounts and if it is observed that the auditors were negligent and deficient in auditing then Banks/FIs should lodge a complaint to The Institute of Chartered Accountants in India (ICAI). Such information must be shared with SEBI, Ministry of Company Affairs (MCA), Comptroller Auditor General (CAG) and other relevant market regulators.
e. Criminal prosecution to be initiated under Indian Penal Code.

6.3. Recommendations

The relationship between the borrower and lender is very dynamic and sensitive. The relationship is largely based on trust. Banks trust on the documents and information submitted by the borrower is factual and the loan is taken for a genuine purpose. Though banks have a larger dominating power, it is the borrower who perceives that by not meeting the debt liability he can easily escape from the obligation. In recent years there has been several such instances to support this argument. However, in last few years a substantial progress has been made by RBI and Government of India in order to create a regulatory environment where instances of wilful and other defaults are controlled and proper exit mechanism is framed for banks and other lenders to keep their assets clean.

Risk is inevitable in lending. It is not possible to for the banks to have NPA free Balance Sheets. However, experts and policy makers have been working hard to frame adequate regulations in terms of resolving the dispute between the borrower and lender, and helping the lender to get their books clean. The present research focused more on pre-lending process, determining early warning signals on potential default and reducing human intervention on monitoring, assessment and disbursement of loan. Broadly, the research suggests use of prudent in-depth financial analysis before disbursement and use of scientific default prediction models while monitoring the use of credit by the borrower. Following are some of the recommendations derived based on the literature review and findings from the study.

1. First and foremost, the problem of Wilful Default can be highlighted better by the officer who has been in contact with the borrower. The bank officer has to be more vigilant, bank need to have been internal checks and control. A centralized approach for monitoring of financial performance may result in better control of such problem.
2. The loan application form as well as the loan agreement should be broad enough to include accurate details of funds utilization; this can reduce the risk of diversion and siphoning. Past behavior of the director or promoter of the company should be critically studied along with the loan application. Lastly, provision should be made by the borrower in case of default, this should be mandatory clause in the loan agreement itself.
3. Tracking of utilization of sanctioned credit is more important than actual disbursement. Banks should ensure an appointment of a dedicated credit relationship manager for every loan account. A practice of plant or business visit by the relationship manager should be made more frequent. Regular report on assessment of proper fund utilization as well as apprise the bank about the director and promoter’s inadequate financial

management practices, if any, must be highlighted at the earliest. The credit relationship manager will also act as a 'Whistle Blower' if need be. It is his job to highlight and inform the bank immediately if the borrower has delayed any payment, specially salary and provident fund. As this can be one of the early sign of prospective loan default.

4. Banks at central level should adopt more Artificial Intelligence, Bankruptcy Prediction Models like Altman Z Score and Ohlson O score models. Using these technical tools will help better monitoring and provide some lead to early warning signals which will have a scientific validity.
5. In fact, the study based on the findings of Altman Z-score model and Ohlson O-score model suggests that, the bank management should adopt a practice of using multiple methods/models together; this will reduce the chances of prediction going wrong drastically.
6. In the present study maximum cases of wilful default are found in Textiles, Infrastructure and IT sectors, however, this may change with change in business cycles and other external factors. Banks need to have a robust internal research cell whose primary job is to conduct sector wise study and predict issues in the sectors which are vulnerable to financial fallout in future. Banks should be extra cautions while lending to these sectors.
7. Furthermore, the study recommends that banks should also use the developed models; Logistic Regression, Multiple Discriminant Analysis, Artificial Neural Network and Decision Tree model while apprising and monitoring of loans to safeguard from potential wilful default.
8. In case of any early warning signal, bank should ensure no further disbursement of funds and necessary action like taking charge of mortgaged assets to be initiated at the earliest. However, in exceptional cases wherever required, based on through financial study of borrowers books and nature of business if any additional help is required, should be given immediately at the early stage. This will mitigate the prospects of default as well as validates the reliability of the borrower.
9. While making financial evaluation, bank officer must focus more on Earnings before Interest and Taxes parameter as found in the study. EBIT is one variable present in all the models; Logistic Regression, Multiple Discriminant Analysis, Artificial Neural Network and Decision Tree model.

10. In case of any downward or fluctuating trend in EBIT as the performance of the borrower, banks should get alert and try to find for the reasons. If required future disbursement should be stopped and keep a close eye on their business activity.
11. Apart from EBIT related financial ratios, Net profit Margin, Operating Profit Margin, Total Debt to Total Assets, Net-Working Capital to Current Liabilities and Net Sales to Total Assets are the ratios of importance which were found in all models except Decision Tree should also be given high importance initially and for monitoring purpose.
12. The role of a central database like CRILC (Central Repository of Information on Large Credit) is very crucial in the process of monitoring and approving fresh loans. All banks must timely report to RBI in such a centralized database with status and action taken. Simultaneously, consolidation of information among all the banks is most recommended. Timely sharing of early warning signals and gaps in utilization of funds will help the industry to safeguard better against willful default.
13. Apart from loan appraisal process at the beginning, the officer has to be more alert and in contact with various stakeholders of the company like supplier, customer, competitors, etc. from there they can extract some informal information which can be of some help in better monitoring. However, it is not so difficult as bank may select officer based on the sector like IT, Infrastructure, Retail, Textiles, etc. This can help them to get better information through informal channels to better controlling.
14. In case some leeway is to be provided to the borrowers facing systematic risks like currency rate risk, metal and oil price rate risk, etc. then Banks should provide timely guidance through notification. It will help bank officers to take prompt action.
15. Penalty for fraudulent activity should attract stringent action; mere payment of penalty and jail term of 6 months to 10 years. It should be extended to life term imprisonment to generate fear. When such fraudulent activities are very rampant, it indicates disregard of faith by the banks in their customers. It also has a deepening impact on general public, it annoys for the disregard and exploitation of law by few wrongdoers.
16. For all of the above recommendations to be met it is important to have a skilled banking workforce. Since most of these aspects are not taught in the text books, internal training and experience sharing sessions should be mandatory for all credit officers. Incentives and penalties should be announced and notified timely to ensure accountability on the

part of bankers. Strict and stringent action should be taken against the bank officer where collusion is found to set a precedent for other employees.

17. The prediction models in the study is one of the modest approach to warn the banks when the borrower is likely to default wilfully. As various models are studied, it is found that multiple models may be used to monitor the borrowers' financial performance. A guideline on the usage prediction models may be suggested by the banks. Since, each models has its own method to predict and keep the threshold point; logistic regression will have single number for threshold while Multiple Discriminant Analysis has two point warning system. The bank may adopt multiple methods as early warning signal.

6.4. Limitation and Future Scope of Study

The present study focuses only on listed public limited wilful default companies. The arena of wilful default is huge; it includes sole proprietors, partnership firms, private limited companies, and individuals. Hence, further research is recommended on default among other types of entities than public limited companies. The research forecasts the possibility of default by using various financial ratios; other than listed companies all ratios may not be available for all types of borrower.

The default is wilfully, this indicates a state of mind or intentions of an individual. When an act is intentional it opens the scope of behavioural sciences to the research. This research has not included the behavioural aspect of the borrower over the time. And hence there is a wide scope to cover financial performance as well as behavioural analysis of the borrower. The convergence of finance and behaviour is a prominent area of research and hence it is suggested to take further with the aspect of psychology and behavior of the borrower.

6.5. Conclusion

A genuine business failure during downward movement of business cycles is a natural phenomenon but defaulting out of malicious intentions is a serious matter of concern. The study is focused on the wilful default to highlight the problem amongst the listed companies in India. Under the current banking scenario, wilful default has been a major pain area for the banks. It has brought more than Rs. 4 Lakh Crores of assets under tremendous stress. This was almost 44 per cent of total NPA in 2018. India is struggling to overcome various socio economic, among others the need to curb the practice of undesirable loans and reduce the losses to the banks especially Public Sector Banks is most important.

With the use of explanatory study and usage of 21 financial ratios of 106 default and non-default companies the study cut across nearly 70,000 observations to construct the models. The variables shortlisted were based on extensive literature review across various countries, techniques and accuracy rates.

While studying for the first objective, it can be concluded that bankruptcy can be predicted with a high degree of reliability by using Altman's Z-score and Ohlson's O-score models. Since the sets of companies are different, it indicates that if more than one model is used by the banks then the chances of bankruptcy prediction increases. The continual funding by the banks is an indication of warning signals apparently taken lightly in many cases. The continuous disbursement of loans even after discernible high-risk signals by the banks is not a desirable practice. This is an indication of gross lapse on the part of the banks; 36, 50 and 68 companies were provided with loans for 4, 3 and 2 consecutive years respectively even after proved weakening financial condition. This could also indicate gross negligence or even worse, collusion with the bankers in a few cases. The research work provides a course to consider using prediction models in a more professional manner than to limit its usage for only academic purpose. The onus lies with RBI too; as it ignored the problem of consecutively lending to the loss making companies for years together.

The study on the second objective regarding model construction and comparison concludes that Logistic Regression and Decision Tree are the best amongst the shortlisted models to predict wilful default public limited companies in India with 93.1% accuracy followed by Artificial Neural Network with 92.2% and Multivariate Discriminant Analysis with 91.2%. Interestingly, Logistic Regression and Decision Tree have the maximum transparency in terms of variable weight in respective models and have the highest accuracy. These models can help management to bring in better transparency and accountability regarding disbursement in case of loss-making companies. With the use of Logistic Regression and Decision Tree models, the rationale of rejecting the request for further disbursement can be argued. It can help bankers to provide logical reason for such decision.

So far as law is concerned it is more of reactive measure. The series of Master Circular from RBI indicates the efforts in the area of wilful default have been continuous but have come as a response to the crisis and were not proactive. It answers the questions on what will happen if there is a case of fraud or misappropriation, but does not direct to restrict the default.

With respect to the legal aspects and penalty, under Insolvency and Bankruptcy Code, 2016 and Companies Act, 2013 the provision jail term for minimum 6 months and maximum 10 years is the only major deterrent, though the fine can be up to 3 times the fraud amount. It appears that the penalty is not stringently levying and creating scare amongst the wrongdoer

The present study has attempted to provide a strong case for scientific technical analysis of credit appraisal, disbursement of loan and post disbursement monitoring of the loan. The models used in the study have shown positive results in predicting the wilful default. The same models and techniques can be adopted in different sectors to determine a sector wise willful default cases. Also now in line with various regulations and legal provisions announced by the government like Insolvency and Bankruptcy Code 2016, it will be interesting to study the impact on wilful default and behavior of borrowers in the recent times. It is sincerely wished that the study will be useful to all the researchers and policy makers actively working on the subject of wilful default in India.