

## **ABSTRACT**

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, 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/lender.

The research uses existing as well as created new methods to identify wilful default through early warning signals. The study uses existing Bankruptcy Prediction Models like Altman Z Score and Ohlson O Score methods to predict wilful default among public limited companies in India. Also, develops and constructs new models using Artificial Neural Network, Logistic Regression, Decision Tree and Multivariate Discriminant Analysis to predict wilful default among public limited companies.

The study is primarily Explanatory based on secondary data, it defines the scope of sample in the universe as the wilful default public limited companies which got listed between 2000 and 2018. It considers 21 financial ratios across 5 categories of ratio; Liquidity, Capital Structure, Cash Flow, Profitability and Miscenallenous. To address the first objective to use existing models that is Altman Z Score Model and Ohlson O Score model that financial and economic data is incorporated as guided in the model. 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 makes a modest attempt to construct four models to predict wilful default using Artificial Neural Network, Logistic Regression, Decision Tree and Multivariate Discriminant Analysis. It is found that Profit Before Interest and Taxes Margin has been the most important parameter present in all the models. Logistic Regression consists of 13 significant variables whereas, Artificial Neural Network has 9, Multiple Discriminant Analysis has 7 and Decision Tree has only 5 critical variables. The result of the newly constructed models are encouraging which is over 90 per cent.

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.