



# Credit risk evaluation: a comprehensive study

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## Abstract

To date, there has been relatively little research in the field of credit risk analysis that compares all of the well known statistical, optimization technique (heuristic methods) and machine learning based approaches in a single article. Review on credit risk assessment using sixteen well-known approaches has been conducted in this work. The accuracy of the machine learning approaches in dealing with financial difficulties is superior to that of traditional statistical methods, especially when dealing with nonlinear patterns, according to the findings. Hybrid or Ensemble algorithms, on the other hand have been found to outperform their traditional counterparts – standalone classifiers in the vast majority of situations. Finally, the paper compares the models with nine machine learning classifiers utilizing two benchmark datasets. In this study, we have encountered with 46 datasets, among them 35 datasets have been utilized for once; whereas among the other 11 datasets, Australian, German and Japanese are the three most frequently utilized datasets by the researchers. The study showed that the performance of ensemble classifiers were very much significant. As per the experimental result, for both datasets ensemble classifiers outperformed other standalone classifiers which validate with the prior research also. Although some of these approaches have a high level of accuracy, additional study is required to discover the right parameters and procedures for better outcomes in a transparent manner. Additionally this study is a valuable reference source for analyzing credit risk for both academic and practical domains, since it contains relevant information on the most major machine learning approaches employed so far.