Machine Learning and Artificial Intelligence in Credit Risk Management in Banking:
A Literature Review

Dr. Ankita Srivastava, Aishwarya Kumar

Department of Management, ICFAI University, Rajawala Road, Selaqui,
Central hope town -248197, Uttarakhand, India

ABSTRACT

Our planet has experienced numerous revolutions regarding agriculture, science, commerce and computing and is now facing the digital revolution. The rapid increase in data availability and computing power has led machine learning and artificial intelligence play a vital role in business applications in today's world. The invention of the computational intelligence has given the opportunity to evaluate complex problems and provide solution immediately. The usage of these inventions has fully transformed the banking sector, making it a branchless banking industry. These have the power to predict future outcomes and trends by analyzing past behaviors. They help the banks to identify deceit and money laundering hence helping them not to go bankrupt. More importantly, the artificial based credit models ensure that only worthy applications with low credit risk get through. Since the global financial crisis, credit risk, management has gained more prominence in the banking industry. Considerable research in academia and industry has focused on the developments and algorithms of machine learning and artificial intelligence in the credit risk management in the banking sector. This paper traces these developments and algorithms through a review of the available literature and focuses to analyze and evaluate machine learning techniques and usage of artificial intelligence in the context of credit risk in banks. The paper also focuses on exploring the potential areas for further research. The review has shown that the application of machine learning and artificial intelligence in credit risk management of the banks has been explored; however, different parameters are still unexplored in case of credit risk prediction analysis. Deep learning and Artificial Neural networks are the crucial fixtures in the banking industry, giving way to infinite possibilities and opportunities to transform the traditional banking system. A large number of areas remain in credit risk management and analysis could extensively get benefit from the study of how machine learning and artificial intelligence can be applied to address certain problems.

Keywords: credit risk management; predictive analysis; bank; machine learning; credit scoring; fraud; credit risk models; artificial intelligence