

# **Bankruptcy Prediction Using Deep Neural Network: A Case Study**

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## **Abstract**

Machine learning is widely used in finance and insurance problems. This study aims to predict bankruptcy before it happened using deep neural networks, to enable all parties to take remedial action. This study proposed deep neural networks as a tool for predicting bankruptcy, which is a significant task in the financial industry. The research uses financial ratios from a publicly traded company's income statement and balance sheet over a period of five years as input data. The deep neural network structure employed in this study has multiple layers of nodes. The input layer has the same number of neurons as the financial ratios, and the output layer represents the likelihood of bankruptcy with one neuron. The performance of the model is measured using accuracy, precision, recall, and F1-score metrics, and the results demonstrate that the deep neural network can predict bankruptcy with high accuracy. It is obvious from the results that the proposed network gives acceptable results. The research recommends further investigations in this field to establish standardized task structures for predicting bankruptcy in private companies in developing economies.

**Keywords:** Bankruptcy Prediction, Deep neural network, Machine learning.

