ABSTRACT

Energy companies are among the entities in the energy sector that possess unique characteristics and risks. Since 2020, the conditions of energy sector companies in Indonesia have experienced a decline in performance, leading to financial uncertainty within these energy sector companies. This has resulted in reduced export activities to several countries, causing 24 companies to incur negative EPS (Earnings Per Share). Additionally, another contributing factor to the decline in the energy sector companies' performance is the presence of the Covid-19 virus outbreak. This situation can trigger financial distress. Financial distress is a condition that needs to be noted by every company as it can impact the company's financial health. Therefore, predicting financial distress is highly important to facilitate accurate decision-making.

The prediction of financial distress in this research utilizes data mining techniques through the implementation of an Artificial Neural Network predictive model. The Artificial Neural Network is an advanced model in prediction compared to other machine learning methods. Four financial ratios, namely Return on Assets, Debt to Assets Ratio, Current Ratio, and Operating Cash Flow Ratio, are employed as input variables in the Artificial Neural Network due to their proven capability in predicting financial distress.

The purpose of this research is to develop a predictive model for financial distress using Artificial Neural Network (ANN) on energy sector companies listed on the Indonesia Stock Exchange during the period of 2018-2021, utilizing data mining methods.

The results of this study indicate that financially distressed companies tend to have lower financial ratios compared to non-distressed companies, making them useful as input variables. The optimal architecture of the artificial neural network for predicting financial distress, based on the training data with a sample of 65 companies, consists of 4 neurons in the input layer, 15 neurons in the hidden layer, and one neuron in the output layer. The analysis reveals that out of 58 energy companies, 26 are predicted to experience financial distress with the highest accuracy of 97.3% and the smallest error of 0.0298.

Keywords: *Artificial Neural Network, Data Mining, Financial Distress, Financial Ratio, Energy Sector Company*