

## **ABSTRACT**

*Indonesia's coal resources are very numerous, thus making Indonesia become one of the largest coal producer and exporter in the world. However, since the last five years, Indonesia's coal mining industry has been decreased and causing the financial performance of companies in the industry to deteriorate.*

*Bankruptcy is the worst condition that would befall the company if they do not make any improvements to the company's performance. Therefore, it is necessary to predict bankruptcy as a tool to aid decision-making of the company to make early prevention efforts.*

*This study applies data mining prediction method to predict bankruptcy using an artificial neural network (ANN) model which proved to be more accurate in predicting corporate bankruptcy compared to other methods.*

*The input variables in the ANN model used in this study are the result of financial ratios calculation, i.e., shareholder's equity ratio, current ratio and return on assets. Each of these ratios represents a solvency, liquidity and profitability ratio that are shown very high discriminating power in predicting bankruptcy.*

*The sample in this study is 16 (sixteen) coal mining companies listed in Indonesia Stock Exchange (IDX) year 2012 – 2016. The purpose of this study is to calculate the difference of solvency, liquidity and profitability ratios between the group of bankrupted and non-bankrupted companies; create an ANN training model's architecture that has the best training performance to be used in the prediction process; and to find out the results of bankruptcy prediction on coal mining companies that became the sample of this study.*

*The results showed that the group of non-bankrupted companies have a better average of solvency, liquidity and profitability ratios than the group of non-bankrupted companies, so that these ratios can be used as input parameters on the ANN. ANN training model that produces the best performance is the ANN with an architecture of 15 neurons on the input layer and 1 hidden layer with 30 neurons per hidden layer. This model produces the best training performance with the smallest MSE ( $MSE = 0.00000313$ ) and 99.9% of R. The results of bankruptcy prediction using ANN in coal mining sector companies showed that 7 out of 16 companies are predicted to be bankrupt.*

*Keywords: bankruptcy prediction, financial ratios, data mining, artificial neural network, coal mining sector*