ABSTRACT

Financial institutions could apply financial distress prediction models to evaluate their clients' financial performance and credit-worthiness. They can analyze and evaluate the financial risks of present and potential corporate customers, both public and private firms. There are a number of ways to predict the corporate failures. The objective of this research is to determine the classification and predictive power of two bankruptcy prediction models, the Multiple Discriminant Analysis (MDA) and the Artificial Neural Network (ANN). The two methods were compared in terms of classification accuracy and error rate in the financial distress context. The historical researches and methodologies applied in bankruptcy prediction models were studied.

For the development and analyses of the models, the secondary data from the Stock Exchange of Thailand (SET) was collected. The CD-ROM, "*Listed Company Info 2002 (Q3-Q4)*", distributed by the SET, is the source of the financial data.

The data set contained the financial information of publicly listed securities for three consecutive years, from 2000 to 2002. The data were separated into two groups, financially distress and non-distress companies. The matched-pair sample design was used in selecting the sample data for each group. Three criteria set for matching the firms in two groups were the size, the industrial sector, and the same fiscal year. Thirty companies from each group were included in the study after careful selection based on the criteria. The same data set of two groups was used in the analysis of two methods, the Multiple Discriminant Analysis, and the Artificial Neural Network.

The results of the study showed that the Artificial Neural Network (ANN) methodology yields higher classification accuracy (98.3%) over the Multiple Discriminant Analysis (MDA) (85.0%). The ANN produced a smaller percent of type I and type II errors (1.7%) compared to the MDA (15.0%). However, the designing and training of the ANN take a considerable time and effort. The trial-and-error approach was used throughout the experiment. The ANN can be applied as an effective tool to support traditional statistical methods and professional judgments for better predicting power in financial distress problems of the future.