Key Determinants of Corporate Bankruptcy in Taiwan via Decision Trees

H. Y. Wu

National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan (R.O.C.)

S. J. Ho *

National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan (R.O.C.)

Abstract:

This study investigates the key financial and non-financial factors influencing corporate bankruptcy among Taiwanese publicly listed companies, considering increasing global economic volatility and shifting international trade policies. Using the Taiwan Corporate Credit Risk Index (TCRI) as a proxy for bankruptcy, it compares decision tree models, including classification and regression trees, with traditional Probit and Logit regression models. The classification tree model identifies net worth per share, directors & officers (D&O) liability insurance, and the shareholding ratios of domestic financial institutions as primary determinants, achieving an 82.82% classification accuracy. Regression tree analysis highlights the pre-tax profit to paid-in capital ratio and borrowing dependence as critical factors while reaffirming the importance of net worth per share and the shareholding ratios of domestic financial institutions. The regression tree model demonstrates high precision in continuous credit risk scoring, with root mean square error (RMSE) values between 115.37 and 117.94. In contrast, traditional regression models reveal significant negative correlations between bankruptcy risk, D&O insurance, and the shareholding ratios of domestic financial institutions. The findings underscore the superior predictive accuracy and interpretability of classification trees, the effectiveness of regression trees for continuous risk assessment, and the explanatory depth of traditional regression models. This study offers investors, corporate managers, and policymakers valuable insights into early bankruptcy risk detection and strategic intervention.

Keywords:

Decision trees, Corporate bankruptcy, Non-financial factors.