

Artificial neural network to model managerial timing decision: non-linear evidence of deviation from target leverage

ABSTRACT

The current study highlights the utilization of a non-linear model to analyze an important decision-making process in the study of corporate finance where managers are deciding on the capital structure of a firm. This study compares the results from based on the unbalanced panel data multiple regression for firm fixed effects relative to the artificial neural networks, i.e., ANN, with known determinants of capital structure as control variables for a sample of UK firms respectively. Results of the study show that firms are timing away from target levels which challenges the current findings in the literature. The ANN model achieves a better fit based on the root of mean-squared error (RMSE) values which provides a more accurate forecast. Thus, the nature of balancing between cost of being off-target versus benefits gained from timing the equity market is non-linear and which is captured by ANN. Implications from the study allow market players to understand the process of achieving optimal capital structure to maximize firm value and thus benefit all stakeholders.

Keyword: Capital structure; Market timing; Multiple regression model; Artificial neural network