

A new dynamic geometric approach for empirical analysis of financial ratios and bankruptcy.

ABSTRACT

This paper presents a complementary technique for the empirical analysis of financial ratios and bankruptcy risk using financial ratios. Within this new framework, we propose the use of a new measure of risk, the Dynamic Risk Space (DRS) measure. We provide evidence of the extent to which changes in values for this index are associated with changes in each axis's values and how this may alter our economic interpretation of changes in patterns and directions. In addition, this model tends to be generally useful for predicting financial distress and bankruptcy. This method would be a general methodological guideline associated with financial data, solving some methodological problems concerning financial ratios such as non-proportionality, non-symmetry and non-scaled. To test the procedure, Multiple Discriminant Analysis (MDA), Logistic Analysis (LA) and Genetic Programming (GP) are employed to compare results by common and modified ratios for bankruptcy prediction. Classification methods outperformed using the DRS approach.

Keyword: Finance; Risk box; Bankruptcy; Logistic regression; Genetic programming.