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Abstract

This paper examines the effectiveness of Data Mining and classification techniques in detecting Indian Industrial Performance (IIP) using financial ratios and deals with identification of factors associated to IIP. In this research paper, industries are split into five major groups and analyzed using traditional multivariate analysis and data mining techniques based on fourteen financial ratios. The present work is also intended to analyze financial performances of the five groups to understand financial scenario and to assess their financial strengths to enable the decision makers for future planning. The dataset relates to 445 companies of five major industrial sectors from Indian corporate database. The dataset comprises of important financial

ratios of 78 companies from cement, 115 companies from steel, 102 companies from plastic, 66 companies from leather and 84 companies from hardware and software industries. The time frame of the data pertaining to the present study is 2001-2010. The salient feature of this study is the application of Factor Analysis, K-means clustering and Discriminant Analysis as data mining tools to explore the hidden structures present in the dataset for each of the study periods. Factor analysis is applied for Data Reduction and extraction of the hidden structure in the original data set. The financial ratios are used to find initial and final groups by k-means clustering algorithm. A few outlier industries, which could not be classified to any of the group, are discarded, as some of the ratios possessed unusual values. Finally, to cross validate the final clusters obtained by k-means algorithm, Discriminant Analysis is used to identify the industries as belonging to EP-Class (Elevated Performance), MP-Class (Moderate Performance) and SP-Class (Stumpy Performance). The results of the present study indicate that k-means clustering algorithm and Discriminant Analysis can be used as a feasible tool to analyse large set of financial data.

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Computer Science

Index Terms

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Keywords

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