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Using Decision Trees to Examine the Impact of Various Indicators in Company Performance at the Aftermath of an Economic Crisis^(*)

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Abstract

This work applies popular machine-learning tree-based methods attempting to identify factors that affect company performance at the aftermath of an economic crisis. The methods are used to aid the revelation of information that may be linked to company performance and the effects of economic distress to publicly listed companies. Economic data and indicators from France are used, as recorded during the period of a recent economic crisis (2008-20012). Firms are categorized according to the change in their sales performance in 2017 as compared to that before the crisis. The models examine firm findings during the crisis period (between 2008 and 2012) and attempt to relate them to the category assigned for each firm in 2017, revealing some connections between the results in these two periods. Findings aim to identify economic key-characteristics that may relate to improved future performance and may provide insight on the decision-making process at firm level, in terms of debt accumulation, investment, exporting activity and others.

Keywords: Decision trees, machine learning, supervised classification, company performance, financial indicators