Detecting Early Indicators of Smes Failure: Survival Analysis Techniques

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This paper extends the existing literature on empirical research in the field of credit risk default for Small Medium Enterprises (SMEs) and proposes novel explanatory variables about past payment behavior of firms using two different approaches of survival analysis for sake of comparison. First a logistic regression application is compared to a standard Cox proportional hazard model. Both techniques are used to explore the relative strengths of explanatory variables. Later, a competing risk approach is adopting to allow for a flexible and more realistic analysis when several exit outcomes are considered. Considering the bankruptcy law in France, three possible causes of failures are defined: legal default (i.e. liquidation), continuation proceedings (Redressement or Sauvegarde) and other. The results shows incident of payment being alarming signal about SMEs' bankruptcy while logit and Cox analysis are applied. Both approaches are similar in term of their performance tests. In addition to that, the competing risk approach leads to different interpretations of the impact of explanatory variables on indicators on pre-default states.

Keywords: Risk analysis, Forecasting, delinquency, Cox’s Proportional Hazard, Logistic regression, competing risk.

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