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Credit Risk Prediction Based on Bayesian Estimation of Logistic Regression Model with Random Effects

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Abstract : The aim of this current paper is to predict the credit risk of banks in Tunisia, over the period (2000-2005). For this purpose, two methods for the estimation of the logistic regression model with random effects: Penalized Quasi Likelihood (PQL) method and Gibbs Sampler algorithm are applied. By using the information on a sample of 528 Tunisian firms and 26 financial ratios, we show that Bayesian approach improves the quality of model predictions in terms of good classification as well as by the ROC curve result.

Keywords : forecasting, credit risk, Penalized Quasi Likelihood, Gibbs Sampler, logistic regression with random effects, curve ROC
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