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Enhancing Bankruptcy Prediction for Micro-Enterprises through Financial and Website Data

This study focuses on bankruptcy prediction for micro-sized enterprises, a segment often overlooked in credit risk modeling due to the limited reliability of their financial data. Building on prior research that highlights the importance of sector-specific strategies, we construct separate predictive models for selected industries using a dataset of 84,019 Italian micro-enterprises, of which only 1,308 (1.15%) experienced default. The low default rate presents a challenging classification task, especially when analyzed at the industry level. To address the limitations of models relying solely on balance sheet data, we introduce an innovative source of non-financial information: features derived from the HTML structure of company websites. These web-based variables are integrated with traditional financial indicators to improve predictive performance. A cross-validation framework is employed to ensure the robustness and generalizability of our models. Results reveal that website features provide substantial predictive value, particularly in sectors where a strong digital presence is maintained. The importance of these features varies across industries, highlighting sector-specific differences not only in financial behavior but also in web-related activity. Our findings suggest that website-derived data offer a novel and valuable signal for early-warning systems, particularly in contexts with limited financial information. This approach contributes to the development of more accurate and industry-sensitive credit risk models for micro-enterprises.

Special/ Invited session

ISBIS

Classification

Mainly application

Keywords

Supervised Learning, Web Scarping, Default Prediction, Micro Enterprises

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