

結合約略集合理論與分層資料包絡分析之財務預警模式

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摘 要

本文提出結合約略集合理論(Rough Set Theory)及資料包絡分析法(DEA)之混合式模型，利用企業歷史資料來建構一財務預警系統。資料包絡分析法善於處理財務上量化的資料，約略集合理論則適用於非財務資料的預測。資料包絡分析法與約略集合理論常被實務上所使用，但各有其限制。本研究提出 rough set DEA 這種混合模型，兼採兩種模型的優點，而無其限制。本研究採用的樣本資料為台灣 2002 年至 2003 年電子業 427 家公司的財務資料。實驗結果顯示此種混合模式，對於財務預警之效果相當顯著。

關鍵詞：財務預警，約略集合理論，資料包絡分析法，績效分析。

A Hybrid Model for Business Failure Prediction

- Utilization of Rough Set Theory and Layered DEA Concepts

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ABSTRACT

This paper proposes a hybrid approach that predicts the failure of firms based on the past business data, combining rough set approach and worst practice data envelopment analysis (DEA). The worst practice DEA can identify worst performers (in quantitative financial data) by placing them on the frontier while the rules developed by rough set uses non-financial information to predict the characteristics of failed firms. Both DEA and rough set are commonly used in practice. However, they also have limitations. The hybrid model rough set DEA takes the best of both models, by avoiding the pitfalls of each. For the experiment, the financial data of 427 Taiwan firms from the electronic industry during the period 2002–2003 were selected. The results show that the hybrid approach is a promising alternative to the conventional methods for failure prediction.

Keywords: Rough Set Theory, Data Envelopment Analysis, Firm Performance, Technical Efficiency

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