Using SVMs with embedded recursive feature selections for credit rating forecasting

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Abstract

This study embedded a recursive feature selection scheme in support vector machines (SVM) for credit rating forecasting. SVMs have been successfully applied in numerous areas, and have demonstrated excellent performance. However, due to the high dimensionality of our input variables, this study employed a fast recursive feature selection algorithm to eliminate irrelevant features and enhance the performance of SVM classifiers. Empirical results have indicated that one-vs-one SVM with embedded recursive feature selection outperforms other multi-class SVMs. Compared to traditional multi-class classifiers, the performance improvement owing to embedded recursive feature selections is significant.

Keywords and phrases: Support vector machine, feature selection, multi-class classification, credit rating, credit risk.

1. Introduction

Credit risk assessment profoundly impacts the banking sector. The bank with the most accurate estimation of its credit risk will be the most profitable. On the other hand, corporate credit ratings are typically very costly to obtain, since they require agencies such as Standard and Poors or Moody to invest heavily in terms of time and human resources to perform deep analysis of a company’s risk status based on various aspects ranging from strategic competitiveness to operational details. As a result, not all

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Journal of Statistics & Management Systems
Vol. 13 (2010), No. 1, pp. 165–177
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