

A Method for Credit Evaluation of E-commerce Enterprises Based on BP Neural Network

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Abstract

Credit is the foundation and lifeline of a market economy. Enterprise Credit evaluation is one of the important means to reveal market risks, and also provides a risk management decisionmaking basis for judging the business credit ability and comprehensive health of enterprise operations. In the context of Internet's digital transformation, traditional qualitative credit evaluation is no longer appropriate, simultaneously the credit Big data puts forward higher requirements for the flexibility and stability of the evaluation model, it is urgent to propose new quantitative method that adapts to changes in big data in the research and application field. Firstly, this paper analyzes the influencing factors of enterprise value orientation and credit responsibility from three perspectives of moral culture, social and economic activities, and accordingly establishes a credit evaluation index system for e-commerce industry. Secondly, a credit evaluation model based on BP neural network was proposed, and the algorithm flow for implementing the model was provided. Furthermore, the initial weight and threshold of the traditional BP neural network are improved by the adaptive particle swarm optimization (APSO) algorithm, which solves the problems that the BP neural network is prone to fall into local optimization and the rate of convergence is slow. Finally, the model is applied to the credit evaluation of 187 Chinese listed e-commerce companies. Research has shown that the evaluation results of the test set samples exhibit some advantages based on APSO-BP neural network in fitting error and generalization ability.

Keywords: Adaptive particle swarm algorithm, BP neural network, E-commerce, Enterprise credit, Quantitative evaluation