

Dynamically exploring internal mechanism of stock market by fuzzy-based support vector machines with high dimension input space and genetic algorithm

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Abstract

In the study, a new dynamic fuzzy model is proposed in combination with support vector machine (SVM) to explore stock market dynamism. The fuzzy model integrates various factors with influential degree as the input variables, and the genetic algorithm (GA) adjusts the influential degree of each input variable dynamically. SVM then serves to predict stock market dynamism in the next phase. In the meanwhile, the multiperiod experiment method is designed to simulate the volatility of stock market. The input variables in the study include a total of 61 variables, including technical indicators in stock market, technical indicators in futures market, and the macroeconomic variables. To evaluate the performance of the new integrated model, we compare it with the traditional forecast methods and design different experiments to testify. In the experiment results, the model from the study does generate better accuracy rate than others.

Keyword : Fuzzy; Support vector machine; Genetic algorithm; Stock market dynamism