

A NEW FKG SYSTEM MODEL AND ITS APPLICATION ON STOCK PRICE

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Received March 2010; revised July 2010

ABSTRACT. *In this paper, first the simple FKG gray system model and its prediction on stock price are given. Then we set up a new algorithm model, which is composed of fuzzy mathematics, k-means algorithm and grey system (short for FKG system model). Meanwhile, through comparing the dates available in the new algorithm model with the one in the traditional model, the result showed that the new one has more advantages and accuracy. Finally, we predict the cluster center required from the last month by using the historical date, the results are very satisfactory. This new model is good at predicting short-swing trading stock price and has practical value, which can provide some advices for people who are interested in short-swing trading investment. If people refer to it combined with some other market and social factors the result will be more helpful.*

Keywords: GM (1 1) model, K-means algorithm, Fuzzy function, FKG system model

1. **Introduction.** With the development and improvement of the market economy, stock market and its transaction received a long-term development. Stocks as an effective credit instrument in financing and investment, not only injected vitality to the development of market economy [1], but also enriched the financial markets [2]. However, the development of the stock market is not as simple as people think. On the one hand, its development is affected by the political, economic, various domestic and international factors. On the other hand, the stocks market itself has large amounts of original data which is also affected by many factors [3]. The relationships among the factors are complex and many factors cannot be confirmed. This makes it very difficult to predict the stock market. What should be solved includes collecting date, making a full use of historical date and finding a good mathematical model to predict the trend of the stock marker. In this process, we should also consider and grasp the monetary policy, interest rate policy, company status, international markets and investor psychology with its effect. These days, the stock market is developed by the maturity of the securities regulatory. More and more listed companies emerged. Facing thousands of stocks, if we still influenced by all kinds of rumor and bought some stocks without completely analyses, it is difficult to achieve a successful investment. Therefore, it is of great significance to predict the stock market [4].

As we all know, in the investment of the stock market, there are short line, midline and long line. Whatever investment is, inveators face the important choices and decisions about what kind, which one, when to buy while buying and selling stocks. In terms of the short-term investments and technical analysis of stocks, the important thing is to make use of related method to analysis the change of the stock price. In the short period of time, social factors coupled with others have less impact on short line than midline and long line.