

ABSTRACT

The movement of stock price index become a benchmark for investors to make decisions which will be taken to sell, to hold, or to buy the stock. Therefore, the condition of stock price are uncertain, hence the financial markets are prone to crash the stock price. This final project is using the model of the Log Periodic Power Law with Nonlinear Optimization to predict the crash of the stock price. Nonlinear Optimization has two steps, they are Tabu Search method and algorithm Levenberg-Marquardt nonlinear least squares. The purpose of Tabu Search method is to get the initial values of the model parameters LPPL, and the algorithm Levenberg-Marquardt nonlinear least squares is to get parameters value of the model LPPL. The result of stock crash prediction can be seen from the distribution of the estimated critical time with the greatest opportunities. Based on information from data IHSG, crisis occurred in October 2008. The result of prediction is using the model of the LPPL with Nonlinear Optimization indicates time a value of stock price crashes is nearly on the date Januari 23th 2008. The expected value with the highest time probability is January 31st 2008.

Keywords: *Crash, Log Periodic Power Law, Tabu Search, Levenberg-Marquardt*