

ABSTRACT

This final project discusses interaction between the Federal Reserve's interest rate and the US Dollar Index. Their interaction is described by the model of population dynamics systems such as the interaction of two species competition. Train model parameters obtained by mathematical models with historical data and model parameters were chosen to provide a solution that most closely data. The parameter values found using Genetic Algorithm and The Fourth order Runge Kutta. Results of this thesis is a mathematical model that can predict the value of the USD Index and The Fed's interest rate in the medium term of around six years. Results predicted that by 2016 to 2018 the value of the US dollar index is going down and the Federal Reserve's interest rate will rise.

Key words: modeling, system dynamics, interest rates, the dollar index.