

## **Fibonacci retracement pattern recognition for forecasting foreign exchange market**

### **Abstract**

Fibonacci retracement implicates a forecast of future movements in foreign exchange rates (forex) of the previous movement inductive analysis. Fibonacci ratios are used to forecast the retracements level of 0.382, 0.500 and 0.618 and to determine the current trend which provide the mathematical foundation for the Elliott wave theory. K-nearest neighbour (KNN) and linear discriminant analysis (LDA) algorithm are the pattern recognition method for nonlinear feature mining of Elliott wave patterns. Results show that LDA is better than KNN in terms of classification accuracy data which are 99.43%. Among of three levels of Fibonacci retracement results, the 38.2% shows the best forecasting for Great Britain Pound pair to US Dollar currency as major pair by using mean absolute error (MAE), root mean square error (RMSE) and pearson correlation coefficient (r) as the statistical measurements which are 0.001884, 0.000019 and 0.992253 for uptrend and 0.001685, 0.000019 and 0.998806 for downtrend. Copyright © 2020 Inderscience Enterprises Ltd.

### **Keywords**

Elliott wave; Fibonacci retracement; Forecast; Forex; Golden ratio