

## Forecasting the Fluctuation of Currency Exchange Rate Using Random Forest

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**Abstract :** The exchange rate is one of the most important economic variables, especially for a small, open economy such as Albania. Its effect is noticeable in one country's competitiveness, trade and current account, inflation, wages, domestic economic activity, and bank stability. This study investigates the fluctuation of Albania's exchange rates using monthly average foreign currency, Euro (Eur) to Albanian Lek (ALL) exchange rate with a time span from January 2008 to June 2021, and the macroeconomic factors that have a significant effect on the exchange rate. Initially, the Random Forest Regression algorithm is constructed to understand the impact of economic variables on the behavior of monthly average foreign currencies exchange rates. Then the forecast of macro-economic indicators for 12 months was performed using time series models. The predicted values received are placed in the random forest model in order to obtain the average monthly forecast of the Euro to Albanian Lek (ALL) exchange rate for the period July 2021 to June 2022.

**Keywords :** exchange rate, random forest, time series, machine learning, prediction

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