

1079-60-424

**Vindya Kumari Parhirana\*** (vkumari@mail.usf.edu), Department of Mathematics and Statistics, 4202 E. Fowler Ave. , PHY 114, University of South Florida, Tampa, FL 33620-5700, and **Kandethody M Ramachandran** (ram@usf.edu), Department of Mathematics and Statistics, 4202 E. Fowler Ave. , PHY 114, Tampa, FL 33620-5700. *Nearest Neighbor Forecasting in Foreign Exchange Rates using Auto Regressive Models with Mahalanobis Distance*. Preliminary report.

Given that exchange rates series exhibit high volatility, it is widely recognized that they are extremely difficult to forecast. Besides, FX data are non-linear and one of the noisiest. Forecasting through non-linear dynamical systems is becoming more and more relevant due to these natures of the data. Nearest Neighbor Algorithms are such most popular non-linear pattern recognition methods that outperform the available linear forecasting methods. In this paper we suggest to adapt nearest neighbor algorithm with Mahalanobis distance to choose the neighbors for the forecasting. Mahalanobis distance is used due to high correlation between the vectors resulting from time series segments. Also, we suggest to adapting auto regression in the forecasting of FX rates. We compare the performance of Nearest Neighbor forecasting with Auto regression based algorithm with popular linear regression based algorithms. Also, we will show how our method affects the decision to sell and buy. (Received January 18, 2012)