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## What financial instrument is quantitatively more predictable?

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Huge amount of money is flown into the markets all around the world for the trade of various financial instruments such as stocks, commodities, foreign exchange (forex), futures, etc. everyday. For example, according to experts and professionals, average daily turnover in forex markets only is in excess of 4 trillion US dollars. Investment decisions are mainly based on predicting the future movements of the instrument in question. There has been an ongoing debate among researchers on whether financial markets are predictable or not for a long time. Some think that financial market movements are nothing but random walk. On the other hand, many researchers disagree with this random walk approach. In any case, high frequency financial data are somewhat hard to model or predict as stochastic processes and many other random factors are involved. It would be valuable information for the investor if he or she knew which financial instruments were quantitatively more predictable. There are many research papers on predictability of financial instruments; however predictability comparison of these instruments in literature is very rare. In fact only one we came across was the one that compared real estate returns with stock returns. The aim of this work is to determine which financial instrument is more predictable, our aim is not to prove whether financial instruments are indeed predictable or not, nor is it to improve predicting performance of certain financial instruments. Three types of instruments were considered in this paper: stocks, currencies (forex), and commodities. The data used in our model consisted of 1-minute, 5-minute, 15-minute, 30-minute, 1-hour, and 4-hour intraday frequencies belonging to the period between 1993 and 2013 with approximately 65000 data points for each instrument. We applied a radial basis function (RBF) artificial neural network (ANN) model using only past data of three different types of instruments to predict future high values on six different frequencies. A total of 72 different artificial neural networks representing 12 different instruments at 6 different frequencies were trained five times each, and their prediction performances were recorded on average. Considerably clear distinctions were observed on prediction performances of different financial instruments.

### Biography

Adil Karacor graduated from Istanbul Technical University, Istanbul, Turkey with a BSc in Computer and Control Engineering in 1995. He completed MSc in Systems and Control Engineering at Bogazici University, Istanbul, Turkey in 2002. He is currently pursuing PhD in Modeling and Design of Engineering Systems at Atilim University, Ankara Turkey, with thesis entitled: "Artificial Neural Network Based Decisive Prediction Models on High Frequency Financial Data". He worked as a tutor and research assistant at Turkish Air Force Academy for 9 years. He also worked for a total of 19 years as a research and development engineer at the Turkish Air Force. At present he works for Logos Software Limited as a Data Scientist. His research interest is mainly in artificial intelligence, data science, and predictive modeling.

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## Notes:

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