

Comparison of neural network and regression time series in the estimate the development of the afternoon platinum price on the New York stock exchange

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Abstract

Purpose of the article Platinum is a durable, ductile and precious metal that is becoming a strategic commodity for industry in many countries around the world. In recent years, demand for platinum, thanks to its characteristics and high durability, has more than doubled. For investment purposes, platinum is easily available in the form of slits and, in some cases, in the form of coins. For a long time, it has also been used as a preserver of value.

Methodology/methods For the analysis, London Fix Price PM data, i.e. the afternoon announced amount over a period of more than 10 years, will be used. The Statistica software will be used for data processing. A linear regression will be performed utilizing a variety of functions. A regression with neural structures will follow. Then, 1000 neural networks will be generated, from which five with the best characteristics will be preserved.

Scientific aim The scientific aim of this paper is to perform a regression analysis of platinum prices at the New York Stock Exchange using artificial neural structures and linear regression, then compare both methods and determine more suitable ones for predicting the future development of the platinum price at the New York Stock Exchange.

Findings Based on the price development and the regression curve shape, and taking into account the simple linear regression, the closest curve to the platinum price development is the spline function. The most suitable neural networks selected are all multilayered perceptron networks with one hidden layer. The performance of all five preserved neuron structures is approximately identical.

Conclusions Considering the performance from a correlation coefficient point of view, the neural networks perform best and there is practically no difference among them. However, the analysis of residues, if employed, could undoubtedly determine the best of the preserved neural networks.

Keywords: platinum, linear regression, artificial neural networks, regression analysis, prediction, price development

JEL Classification: C32, C45, C53

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