THE USE OF NEURAL NETWORKS IN THE OPERATIONAL RISK DATA MODELING

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Abstract: In this article it is presented a proposal of improving the data analysis process of Operational Risk (OpRisk) assessment in the financial institutions, for the Loss Distribution Approach (LDA) method, using the Artificial Intelligence (AI). In the first part of the paper a substitute tool of the traditional model-based Autoregressive Moving Average (ARMA) is described, for analyzing and representing stochastic processes. An Artificial Neural Network (ANN) is particularly suitable for this challenge, especially when dealing with limited data sets. In this case, an ANN is able to operate model-free by extracting the pattern of the training data set and by learning from the data observed during the generalized delta rule back-propagation training. The proposed ANN is a time lagged Feed-Forward Network (FFN) with log-sigmoid activation function.

Keywords: Operational Risk, Advanced Measurement Approach, Loss Distribution Approach, Artificial Neural Networks, Genetic Algorithms

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