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In times of crisis some cry, others sell handkerchiefs "

Anonymous author

ABSTRACT

This economic and financial crisis had a strong impact on many countries around the world. Expansion speed consequences leads primarily to a sharp drop in confidence in the economic outlook, causing difficulties for governments of many countries. In recent years have started more and more conflicts to impose various interests, economic events, political and social, derived from the tension state and general confusion existing in society.

These negative effects entail the need for measures to control and mitigate the effects of the crisis. In order to minimize these effects would be necessary that the anti-crisis measures should be adopted as soon as the first signs of a crisis installation. This differs from the state level to another, depending on the organization and the resources available.

The economic crisis is closely related to systemic risk in the economy whose importance derives from the fact that a generalized problem in the financial system can have strong adverse effects on the real economy and economic growth.

Because of the cyclical characteristic, economic crisis could be predicted using certain economic indicators, in order to reduce the negative effects that affect the entire economy as a whole. Development of predictive tools for the economic crisis domain to identify ways to mitigate future risks is a major challenge.

In this research a model was developed to predict the economic crisis, which was based on the creation of models with artificial intelligence that have been used as input a series of economic indicators considered important in economic forecasting, model output pursuing growth indicator value. The model uses data to train from the previous years of the crisis from 2008 starting from 2000.



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The model for prediction was built and tested for three European countries - Romania, Poland and France - using neural networks with nine input parameters in the form of matrix, ten neurons in the hidden layer, and an output matrix with values of an indicator economy.

Using the model developed, were calculated and followed the differences between the results obtained by modeling using neural networks and official values reported by organizations accredited globally for indicator of economic growth in the three countries studied for different periods of time.

The main concern in the development of the model was the way to achieve neural network structure, number of layers and neurons for each stratum so that the results obtained are as close to real data and the aim of the experiment to be achieved. Performance model was outlined also by comparisons with control charts.

This research has shown that weaving knowledge of the economic domain with the skills of artificial intelligence can successfully create prediction models using artificial neural networks, with which you can make predictions with high precision in order to identify the risk of crisis economy.

The paper presents some contributions able to provide theoretical and experimental basis for developing application projects in business using artificial intelligence techniques, representing at the same time a challenge for information technology domain.

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