

APPLICATION OF FUZZY LOGIC FOR THE BANK RISK ASSESSMENT

Primierova O.K.

Candidate of Economic Sciences,
Senior Lecturer at Department of Finance,
National University of Kyiv-Mohyla Academy

Kiselova H.A.

Bachelor of Finance,
National University of Kyiv-Mohyla Academy

Commercial banks are one of the keys for a nation's economy. So, it is vital to construct an effective risk evaluation system, which can monitor the risks timely for the commercial banks. Traditional risk models are based on probability and a classical set theory. They are widely used for assessing market, credit, insurance and trading risk. This article considers the task of evaluation of the commercial banks' solvency using mathematical methods of fuzzy logic theory. Fuzzy logic models are built upon fuzzy set theory and fuzzy logic, and they are useful for analyzing risks with insufficient knowledge or imprecise data. The mathematical model made within the framework of the proposed way gives a possibility to formalize expert knowledge identically, has a flexible structure and a high ability of adaptation to expert data, as

a result it ensures a high accuracy of risks assessment of the commercial banks.

As a result of research the model of overall bank risk is formulated. This model shows dependence of bank risk on four main factors: return on assets, liquidity, capital adequacy, percentage margin. This model makes it possible to estimate the total bank risk-based ratios of commercial banks, which are more representative indicators than absolute values. The model provides an objective vision of risk in the banking activity. Nevertheless the using of fuzzy logic and qualitative assessments are not an alternative to traditional methods of analysis and forecasting. However, it makes possible to expand the analytical instruments and provide a detailed analysis of banks and their risk assessment.