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Effectiveness analysis of fuzzy neural networks for credit risk assessment

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The main activity of commercial bank is a credit activities. Lending provides almost half of bank profits, however, it is inextricably linked with risk. The analysis of existing methods of credit analysis showed the feasibility of using the methods based on fuzzy logic. These methods can work with both quantitative and qualitative characteristics and decision-making process is based on a comprehensible rules base. Fuzzy neural networks (FNN) combine the advantages of fuzzy inference systems and neural networks - the ability to adapt and automatic learning, and the ability to interpret the process results. The rule base can be compiled by experts and can be contradictory or incomplete. In such situations, the adaptation algorithm is preferable to use for fuzzy neural networks, which not only sets the parameters of membership functions, but also the structure of the network - compiled rule base and accordingly determines the number of neurons in the second and third layer. The author proposed an adaptation methods for FNN TSK and it based on assasting strength of each rules in base and on the accuracy with which the rule base describes the input samples.