Analytic Hierarchy Process in Banking

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1. Analytic Hierarchy Process (AHP) method

The AHP is a multicriteria decision support method designed to select the best from a number of alternatives evaluated with respect to several criteria. It is taken by carrying out pairwise comparison judgements which are used to develop overall priorities for ranking the alternatives. This method allows for some level of inconsistency in judgements (that is unavoidable in practice) and provides some measures for limiting that. Originally the AHP method was created by Thomas L. Saaty and is described in Saaty, T.L. (1986), Saaty, T.L. (1994).

2. Applications of the AHP method in banking

2.1. Establishing the price of the bank deposits

The final version of the AHP hierarchy model (presented in fig. 1) uses four criteria:
- COMPETITION – marketing point of view on pricing deposits according to deposit rates of competitive banks to “our” bank;
- MARKET – treasury point of view, including possible buying bank;
- PLAN – financial planning and prognosis of future benefits and costs of the bank;
- PORTFOLIO – present assets portfolio of the bank as the measure of efficiency already acquired deposits.

Due to suggestions of the decision makers, we have decided to limit possible alternatives to changes of the average deposit rate from increasing to decreasing the rate by 1.00 % with 0.25 % step [Domański, Cz. and Kondrasiuk, J. (in publishing)].

2.2. Establishing the base loan rate of the bank

The base structure uses the following criteria [Domański, Cz. and Kondrasiuk, J. (1998)]:
- competition – loan rates of competitive banks to “our” bank;
- demand for loans;
- deposits – the source of the money converting into loans;
- interbank money market – an alternative source of the money converting into loans.

2.3. The use of the models

Both models from chapter 2.1 and 2.2 were used in Polish banks. The models may be used individually or together. The use of them we can described in theoretical case:
1. Occurring the market destabilisation factor (for example the change of central bank loan rates).
2. Actualisation of preference matrices for models 2.1 and 2.2.
3. Solving model 2.1 and solving model 2.2.
4. Further decision based on optimal solutions reached in previous step concerning deposit and loan products of the bank.

**Figure 1. The three level hierarchy used for changing deposit rate of the bank.**

3. CONCLUSIONS

The presented model might be enlarged due to the specific of the bank in which they are implemented. It is possible to build a complex decision support system connecting both models – especially focused on scenario analyses.

The most important element for successful implementation of the AHP method is explaining decision makers the general idea of the method combined with using (or preparing) special support software (for example **Expert Choice For Windows 9.0** – a software developed by Ernest H.Forman).

REFERENCES


RÉSUMÉ

*Le rapport présente l’application le processus hiérarchique analytique (APH) dans le domaine bancaire. Particulièrement, certains modélés APH on a utilisé pour calculer et évaluer d’intérêt des dépôts et le taux d’intérêt basic d’une banque.*