INTERNAL RATING MODELS FOR CREDIT RISK EVALUATION AND SUPPORT INSTRUMENTS

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This article approaches the necessity of designing internal models of rating, in order to evaluate and manage credit risk. The authors address in equal measure the credit institutions, the Romanian legal entities, the Romanian branches of the credit institutions from third-party states, their potential customers, whether individual persons or legal entities, as well as the whole academic community in the finance-banking field. The internal rating models can be used to calculate the risk weight value of exposures, in order to determine the minimum capital requirements for credit risk, in accordance to government ordinance no. 99/2006, supplemented and modified by the Law no. 227/ 04.07.2007. By means of the internal rating models, we could achieve the following goals: pertinent evaluation of debtor characteristics; use of the computer system in risk evaluation within the decisional process of credit approval, internal allocation of capital and corporate governance of the credit institution.

Key-words: Internal rating models, risk management, corporate governance, credit risk, IT instruments

The elaboration of this article has been determined by three important evolutions.

Firstly, the Basel Committee on Banking Supervision, followed by the European Comission, has introduced, under the title of Basel II, a series of standards regarding the estimation of essential banking indicators: *PD* (probability of default), *LGD* (loss given default) and *EAD* (exposure at default).

Secondly, the Government Ordinance no. 99 was passed in 2006, followed and modified by the Law 227/ 04.07.2007 and accompanied by a series of new regulations, more specifically, the new banking legislation, applicable to credit institutions, as of the date of Romanian E.U. adherence on January 1st, 2007. This new legislation allows the integration of the Basel II requirements with the Romanian finance-banking legal framework.

Last but not least, the Romanian banks have become ever more interested in creating and improving methods and procedures of risk evaluation, while implementing the Basel II requirements.

We consider that designing an information system necessary throughout the process of credit-approving by the credit institutions represents a timely initiative. The role of this system is to assess and evaluate the loan candidates' characteristics. The information system will allow establishing a set of variables which will, in turn, provide a comprehensive image of the potential debtor's status, as well as designing an aggregate system, capable of outlining the candidate's position in comparison with the other debtors. That set of variables will differ in function of the type of candidate: individual person or legal entity.

The information system will provide a financial diagnosis and a risk rating score for the applicant, so that the bank could limit the risks assumed during the crediting process and direct the applicant to the best credit option according to the set of variables that characterize that particular person.

In the case of legal entities, their current and estimated economic and financial status will be assessed. One method proposed by this project will consist in determining, by means of specialized IT instruments, the economic and financial indicators and a client rating, by processing data taken from the clients' accounting documents. In this respect, the information system can be used to reach a decision in credit approval, in the financial analysis related to the crediting activity, in increasing caution when making payments and in optimizing investment and selling banking products.

Individual persons will be analyzed based on a series of social, economic and demographic criteria, the project aiming to create an assessment scoring-function for this category of applicants.

Thus, banks can diminish credit risk according to the approach based on internal models of rating, and can also offer counselling to prospective credit applicants in choosing the best suited financing offer. Therefore, an easy connection can be developed between the credit institutions and their clients, based on the centralization of information concerning the offer or the demand in an interactive database.

Supposing that the present article might evolve into a scientific research project, it would comprise the following stages:

The first stage is represented by the **Market Research,** by means of specific instruments: establishing samples on groups of beneficiaries, drawing up surveys, conducting interviews, as means of research, centralizing and processing collected data.

We propose as the second stage the **Adjustment of the Information System**, comprising drafting models for shaping data structures, desinging the data base and designing a module capable to allow the on-line choice of the best suited credit offer.

We would continue by **filling in the database**, then testing its functioning.

A distinctive and major stage would be the **design of on-line counselling modules**, followed by **the promotion of the designed product**, by implementing the website/portal into the market, respectively, its upload on the internet, by designing the interface for the web – website/portal, by holding conferences in order to endorse the final product, by promoting the product on the level of credit institutions, Romanian bank association, World bank and by publishing results in form of articles in various specialty magazines.

The project's result will materialize in an information system which will play a double role: on the one hand, it will allow for a pertinent information of prospective credit beneficiaries about existing options at any given time, and on the other hand, it will build a model of evaluation for each client. This model will be used by the credit institution to screen its own clientele, or it will serve as a self evaluation tool for each visitor of the website, regarding his/her own capacity to repay a potential credit.

The advantages of the information system in analyzing the opportunity of bank crediting address especially the time issue, in that the time needed to take the granting decision, to delegate competencies to persons who have the quality of experts, to bring to a common denominator the documentation resulted from the analysys. Also, another goal will be the development of research in bank crediting activity and even the professional improvement of the bank's personnel.

There are a series of limitations in designing such an expert system, respectively, of the evaluation model: the necessity to obtain accurate information regarding past client activity in a 2-4 years time-frame; the necessity to manually or automatically process the information in creating a knowledge database, and limitations of economic nature (changes in legislation, shifting of the demand-supply balance, competitional influences, etc.).

The emergence of new players in the financial-banking market and, implicitly, the strong competitive character of this activity sector, second to the substantial growth of the financing need, impose on the banking instiutions a need to constantly improve the services on offer, doubled by the need to optimize associated costs. From this perspective, the project generates an economic impact by means of:

1. The analysis of the risk profile of credit applicants that will considerably diminish the incumbed costs for all beneficiaries (credit institutions as well as clients);
2. Diminishing of credit risk, improving the efficiency of credit institutions' activity and profit growth for those institutions;
3. Decrease of time and costs for credit applicants by an educated choice of offers.

We can also highlight some elements showing the project's social impact*:*

1. The project will help improve the confidence and trust of the general population in credit institutions, as well as the security of their operations;
2. Financial education of potential credit beneficiaries.

The validation of internal models by the authorized supervisor represents an essential condition if a credit institution intends to use another approach than the standardized one in determining the capital requirements.

While building the internal rating models, we must „have strict stress testing procedures at our disposal"[258].

Generally speaking, stress testing can be described as an useful tool in the the process of assessing the possible effects of extraordinary, but plausible events, which can affect the evolution of an institution.

The effective use of stress-testing methodologies is extended nowadays not only to the commercial banks, but also to the regulatory authorities and to the Central Banks. At present, all these institutions are combining stress-testing with their own macro-economic models.

Stress-testing is implemented at country level in order to assess the strength of the financial system to unfavourable economic evolutions. This type of analysis is set up in conformity with the Financial System Assessment Programme (FSAP) deployed by the International Monetary Fund (IMF). According to the Central-European Bank, the FSAP is implemented in the following countries: Ireland (2000), Finland (2001), Luxembourg (2002), Germany (2003), Austria and Netherlands (2004), Belgium, Greece, Italy, Portugal, Spain and again Ireland (2006).

In our opinion, stress-testing should be extended to a larger geographical area. We appreciate this direction to be important in the context of the increasingly powerful integration of the EU members, both on the economic and the financial level. We can only guess that such testing is essential in order to assess as accurately as possible the effects of changes the Basel II has brought to the EU credit institutions since January 2007. We mainly have in view the banks adopting the Internal Rating-Based approach.

Conclusions

At present, the Romanian banking system is in a incipient stage from the point of view of using the internal rating models. These models represent a major objective for the appropriate banking risk management. In Romania, rating companies operating with such information tools will have to be put into place. Apart from their practical usefulness, the authors of this article also envisage the possibility of extending the proposed studies to national and international research projects, as wells as to materials which can be exploited in the further education of the banking experts.

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[258] Regulation of the National Bank of Romania no. 15/20/14.12.2006 concerning the treatment of credit risk by the credit institutions and investment companies following the Internal Rating-Based Approach, Chapter V, Section I, 1.8, article 156