

## BANK RATING. A COMPARATIVE ANALYSIS

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**Abstract.** *Banks in Romania offers its customers a wide range of products but which involves both risk taking. Therefore researchers seek to build rating models to help managers of banks to risk of non-recovery of loans and interest. In the following we highlight rating Raiffeisen Bank, BCR-ERSTE Bank and Transilvania Bank, based on the models CAAMPL and Stickney making a comparative analysis of the two rating models.*

**Key words:** *credit risk management, capital adequacy, banking supervision, liquidity, solvency, profitability*

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### 1. Literature review

In the literature there are many research on banking rating.

Thus, some authors explore the traditional and prevalent approach to credit risk assessment – the rating system. They first describe the rating systems of the two main credit rating agencies, Standard & Poor's and Moody's. Then they show how an internal rating system in a bank can be organized in order to rate creditors systematically. Also suggest adopting a two-tier rating system. First, an obligor rating that can be easily mapped to a default probability bucket. Second, a facility rating that determines the loss parameters in case of default, such as (i) "loss given default" (LGD), which depends on the seniority of the facility and the quality of the guarantees, and (ii) "usage given default" (UGD) for loan commitments, which depends on the nature of the commitment and the rating history of the borrower.

A credit rating is an evaluation of the credit worthiness of a debtor, especially a business (company) or a government, but not individual consumers. The evaluation is made by a credit rating agency of the debtor's ability to pay back the debt and the likelihood of default. Evaluations of individuals' credit worthiness are known as credit reporting and done by credit bureaus, or consumer credit reporting agencies, which issue credit scores.

Credit ratings are determined by credit ratings agencies. The credit rating represents the credit rating agency's evaluation of qualitative and quantitative information for a company or government; including non-public information obtained by the credit rating agencies' analysts.

The credit rating is used by individuals and entities that purchase the bonds issued by companies and governments to determine the likelihood that the government will pay its bond obligations.

A poor credit rating indicates a credit rating agency's opinion that the company or government has a high risk of defaulting, based on the agency's analysis of the entity's history and analysis of long term economic prospects.

Bank internal ratings of corporate clients are intended to quantify the expected likelihood of future borrower defaults. The authors develops a comprehensive framework for evaluating

the quality of standard rating systems. They suggest a number of principles that ought to be met by "good rating practice". These "generally accepted rating principles" are potentially relevant for the improvement of existing rating systems. They are also relevant for the development of certification standards for internal rating systems, as currently discussed in a consultative paper issued by the Bank for International Settlements in Basle, entitled "A new capital adequacy framework". They would very much appreciate any comments by readers that help to develop these rating standards further.

One of the primary responsibilities of banking regulatory agencies is to minimize the financial loss to the bank to Bank Insurance Fund that results from the failure of insured depository institutions. To discharge this responsibility, bank regulators evaluate the financial performance and condition of depository institutions and initiate prompt corrective actions when they find signs of distress. In evaluation, regulators use a combination of on-site examinations and off-site monitoring systems. In 1993, the Federal Reserve instituted the Financial Institutions Monitoring System ("FIMS," also known as "SEER," or System for Estimating Examination Ratings), which is significantly more accurate than previous off-site systems in identifying financially troubled banking institutions. This article gives the background of FIMS, describes the new system, and explained how it improves on previous systems. (Cole, Gunther, Cornyn, 1995)

## 2. Method and results

In the following we present the change in the rating of the three banks under study that Raiffeisen Bank, BCR-First Bank and Transilvania Bank using the CAMEL and Stickney.

### A. CAAMPL Model for Raiffeisen Bank

Analysis of the overall risk based on CAAMPL rating system requires consideration in the calculation of indicators such as those of capital adequacy, quality of ownership, asset quality, management, profitability and degree of liquidity of the bank.

Totaling CAAMPL model with the six elements captured by it, and weighting based on the ratings for each element followed by type of indicator, we will show how risk category falls the work done by this bank. We consider qualitative indicators and quality management of the bank shareholders. The other four indicators, capital adequacy, asset quality and profitability liquidity are quantitative indicators. Thus we give a share of 30% and 70% qualitative indicators of quantity. Regarding aggregation quantitative rating I thought it captured the four elements are of equal importance in analyzing the bank's activity, so give equal weight to each of 25%.

Summarizing, we used the following equation to obtain quantitative rating:

$$\text{Rating (quantitative)} = 25\% * \text{Rating (C)} + 25\% * \text{Rating (A)} + 25\% * \text{Rating (P)} + 25\% * \text{Rating (L)}$$

For composite rating:

$$\text{Composite Rating} = 30\% * \text{Rating (qualitative)} + 70\% * \text{Rating (quantitative)}$$

**Table 1:** Raiffeisen Bank CAAMPL Rating

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Quality Rating	1	1	1	1	1	1	1	1	1	1
Quantity Rating	3	3	2	2	3	3	3	3	3	3
CAAMPL Raiffeisen Rating	2	2	2	2	2	2	2	2	2	2

Source: Own calculus

Raiffeisen Bank falls throughout the period under review a rating class 2, which captures the basic structure banks healthy, difficult issues can be resolved with a well developed management. With regard to market fluctuations posed that does not change in a significant way its banking problems surveillance is not an issue of concern.

### B. Stickney Model for Raiffeisen Bank

It captures an entity's financial risks and default risk of bankruptcy credit scoring method. In what follows we present the results of Raiffeisen bank in the same time period 2004-2013. This model supposes four stages namely calculation of indicators surprised by this, corrected these indicators by coefficients, obtaining partial products and the last step is to calculate the probability of bankruptcy and class rating falling respective bank. Thus, for each indicator followed obtained is corrected coefficient of each so the score they take into account in calculating the final rating is correct. We notice that Raiffeisen Bank recorded a total score between the minimum and maximum of about -7 around -3.

With the following relationship-specific coefficients and gain exposure indicator bank.

$$Y = 0.23883 - R1 * 0.108 - R2 * 1.583 - R3 * 10.78 + R4 * 3.074 + R5 * 0.4860 - R6 * 4.35 + R7 * 0.11$$

**Table 2:** Raiffeisen Bank Stickney Rating

Score Y	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	-5.5269	-3.4281	-5.6341	-6.1971	-6.2763	-5.9500	-6.9944	-7.3480	-5.8785	-6.4081
(1+e <sup>y</sup> )	1.0040	1.0324	1.0036	1.0020	1.0019	1.0026	1.0009	1.0006	1.0028	1.0016
Probability of bankruptcy = 1/(1+e <sup>y</sup> )	0.9960	0.9686	0.9964	0.9980	0.9981	0.9974	0.9991	0.9994	0.9972	0.9984
Raiffeisen Rating	4	4	4	4	4	4	4	4	4	4

Source: Own Calculus

As we can see in the above table the whole time interval 2004-2013 analyzed the risk level is 4, default probability ranging between 0.9686 minimum recorded in 2006 and 0.9991 in 2010. The maximum equivalent term debt rating Ba1Ba2 long from Moody's and BB + / BB / BB- from Standard & Poor's, with satisfactory capacity to make payments vulnerable to difficulties that may arise in the long term and with a low probability of bankruptcy.

### C. CAAMPL Model for BCR – ERSTE Bank

Next we will focus on the overall risk analysis based on CAMEL rating system BCR-Erste Bank.

CAMEL model with total scores of the six elements captured by it, and weighting based on the ratings for each element followed by type of indicator, we will show how risk category falls the work done by this bank. We consider qualitative indicators and quality management of the bank shareholders. Regarding aggregation quantitative rating I thought it captured the four elements are of equal importance in analyzing the bank's activity, give equal weight to each of 25%. The other four indicators, capital adequacy, asset quality and profitability liquidity are quantitative indicators. Thus we give a 20% share of the qualitative and the quantitative 80%.

Summarizing, we used the following equation to obtain quantitative rating:

$$\text{Rating (quantitative)} = 25\% * \text{Rating (C)} + 25\% * \text{Rating (A)} + 25\% * \text{Rating (P)} + 25\% * \text{Rating (L)}$$

Composite rating = 20% \* Rating(qualitative ) + 80% \* Rating(quantitative)

**Table 3: BCR-ERSTE CAAMPL Rating**

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Quality Rating	1	1	1	1	1	1	1	1	1	1
Quantity Rating	3	1	3	5	3	3	3	3	3	3
BCR-ERSTE Rating	2	1	2	3	2	2	2	2	3	2

Source: Own calculus

BCR fits only one rating class in 2005, is awarded 3 rating in 2007 and 2012, obtaining a rating other two analyzed years, which suggests healthy basic structure, difficult issues can be resolved with a good management tuned as we see it was the situation in 2012 when the bank failed because of management applied to register a rating of 2 in the following year.

#### D. Stickney Model for BCR-ERSTE Bank

It captures an entity's financial risks and default risk of bankruptcy credit scoring method. In what follows we present the results of BCR bank in the same time period 2004-2013. This model supposes four stages namely calculation of indicators surprised by these indicators, obtaining partial products and the last step is to calculate the probability of bankruptcy and class rating falling respective bank.

Each indicator in the model is adjusted by the coefficient associated with it so that the score you consider is correct. Using the following formula and specific coefficients of each indicator we obtain the total exposure of the bank. As can be seen in the following table throughout the period considered there is an oscillation between 2004-2013 rating 1 and 4 for the bank. The probability of bankruptcy oscillating between 0 minimum recorded three time periods analyzed 2004, 2005, 2013 and the maximum 0.95286 respectively in 2006. The lowest rating to the bank obtained in 2006, 2007 and 2010, and 2008 and 2011 - They categorized rating 3.

**Table 4: BCE-ERSTE Stickney Rating**

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
$Y = 0.23883 - R1 * 0.108 - R2 * 1.583 - R3 * 10.78 + R4 * 3.074 + R5 * 0.4860 - R6 * 4.35 + R7 * 0.11$										
Score Y	23.3830	30.8609	-3.8806	-4752.1820	-0.3002	2.6354	-1.2270	0.8473	5.1730	69.6216
Probability of bankruptcy = $1 / (1 + e^Y)$	0	0	0.95286	1	0.55788	0.11489	0.72123	0.34154	0.01785	0
BCR-ERSTE Rating	1	1	4	4	3	1	4	3	1	1

Source: Own calculus

#### E. CAAMPL Methodl for Transilvania Bank

In the following we present the the CAAMPL model that uses indicators of capital adequacy, asset ownership, management, profitability and liquidity.

**Table 5: Transilvania Bank CAAMPL Rating**

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
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Quality Rating	1	1	1	1	1	1	1	1	1	1
Quantity Rating	3	3	3	3	3	3	3	3	3	3
TOTAL Transilvania Composite Rating	2	2	2	2	2	2	2	2	2	2

Source: Own calculus

We observe that for all years the rating is very good at 2 level.

### F. Stickney Method for Transilvania Bank

**Table 6:** Transilvania Bank Stickney Rating

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
$Y = 0.23883 - R1 * 0.108 - R2 * 1.583 - R3 * 10.78 + R4 * 3.074 + R5 * 0.4860 - R6 * 4.35 + R7 * 0.11$										
SCORE Y	0,5410	-0,7239	-0,0693	-0,1097	4,5984	7,2025	5,4844	6,0733	7,8304	11,1746
Probability of bankruptcy = $1/(1+e^y)$	0,39672	0,63664	0,51341	0,52123	0,02758	0,00376	0,01408	0,00897	0,00231	0,00017
Transilvania Rating	1	1	4	4	3	1	4	3	1	1

Source: Own calculus

As seen from the above table the whole period of analysis is an oscillation between 1 and 4 for rating this bank. The probability of bankruptcy oscillating between 0 minimum recorded six time periods analyzed 2008-2013 and the maximum in 2005.

### 3. Conclusions

- The three banks analyzed in the present project is an important part of the bank's market share in Romania, which is clear from the indicators presented in the research.
- Amid the financial and economic crisis occurred worldwide banking activity was hampered, requiring measures of austerity, banking law amendment to survival and overcoming the disadvantages produced by this global phenomenon.
- In the present study it was intended to analyze each of them in order to outline the relevant financial performance and risk indicators which are subject mainly to credit risk, which is the largest bank level. By its very specific Bank lending activity is exposed on the repayment of loans to customers, as a result, there are additional expenses that produce bad loans to recover amounts awarded will ultimately execution debtor in final form after exhausting all ways recovery amicably.
- In fact, to avoid what is worst for both the bank and the client, that enforcement should be use extreme caution regarding lending. Bank as an institution must have a good hold management to manage unpredictable court cases to hold and take appropriate action in time to address them.
- You must know how to properly manage their assets and liabilities in its possession, always calculate indicators to identify early and give as much as possible avoid potential failures. Consequently, over time have developed a number of methods for preventing a bank failure which would lead to a number of problems in the banking chain contamination, a bank failure is fatal to the entire banking system, due to the multiple connections interchange at local, national and international more.

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