

# DEVELOPMENT OF A RATING MODEL FOR LATVIAN BANKS

## РЕЙТИНГОВАЯ МОДЕЛЬ ДЛЯ ЛАТВИЙСКИХ БАНКОВ

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**Abstract.** Ratings of banks provide investors and other stakeholders with the information about the soundness of a financial institution, thus, reduce the risk of improper benchmarks for financial investment decision-making. Ratings are crucially important also for entrepreneurs to make an optimal choice of a financial partner. There are several barriers for application of the existing rating methodologies for ranking Latvian banks. The research goal is to develop a multi-criteria rating model for Latvian banking market that would allow comparing banks, using financial and non-financial data.

**Keywords:** bank rating, multi-criteria model, Latvian banks.

### 1. Introduction

Nowadays, running the business without cooperation with a bank is almost impossible. Banking transactions are integral part of any commercial activities. Besides, banks are the main financial resources suppliers for enterprises due to their role of intermediaries between ultimate lenders and borrowers. Thus, owners and managers of companies should to weigh and assess the pros and cons of a particular decision relative to the choice of a financial services provider and potential business partner.

To compare banks and to make a responsible decision, a company should evaluate all the aspects of banking activities: services price, range of products, bank reputation, retrospective performance, stability and etc. The evaluation process is complex and time- and money-consuming. Most often such kind of decisions is taken based on intuition and subjective assumptions.

It is also possible to use the existing ratings assigned to banks by external rating agencies and consulting companies. Rating assignment is based on the analysis of a range of financial indices and measures, and sometimes also non-financial indicators have been analysed.

However, the applicability of the existing rating methodologies to Latvian banks is disputable. International credit rating agencies rate only a few of Latvian banking sector participants. Bank rating provided by the Financial and Capital Market Commission is developed for supervisory purposes and it is not available to the public. Besides, Latvian banks' rankings based on different evaluation methodologies are inconsistent.

The research goal is to develop a useful tool for Latvian and foreign entrepreneurs and investors that would be appropriate for making peer bank analysis in the Latvian market. To achieve the established goal it is necessary to theoretically substantiate and develop a multi-criteria model that would allow comparing banks, based on the financial and non-financial data.

The authors analysed rating methodologies of Financial and Capital Market Commission (FCMC), International Monetary Fund (IMF), international credit rating agencies Moody's Investors Service and Fitch, as well as CAMEL methodology, to reveal the most popular measures that are used to evaluate banks. Based on the analysis results, the elements for the rating model were detected and the importance weights to each element were assigned. Weighting was performed by financial experts – business consultants from PricewaterhouseCoopers and academic staff of the Department of Finance of Riga Technical University.

The developed rating model could be used by Latvian entrepreneurs in order to evaluate commercial banks and, thus, substantiate a choice of the financial services provider for a company.

## **2. Ratings and their role in the process of bank assessment**

Ratings are crucially important tools in today's business environment that allow investors evaluating and comparing companies. The role of ratings in a banking business is even more important, because „they give banks greater access to capital markets at better conditions and directly influence bank operations and performance”. Besides, depositors, debtors, regulators etc. have a need for ratings to assess the financial strength of the bank [1].

Ratings are opinions about the creditworthiness (or any other characteristics) of a rated entity [2]. Financial and Capital Market Commission defines rating as the experts' viewpoint about the evaluated bank that is used to characterise its risk exposure and the quality of the risk management system [3].

There are many opportunities for bank ranking: single ratio analysis; rating methodologies, such as CAMEL, PATROL, ORAP; credit ratings assigned to banks by the international credit rating agencies and others. Journal „Global Finance” annually unveils the list of the best banks globally, regionally and by country [4].

The most popular and most widely applied instruments to rank banks are credit ratings. Credit ratings have three functions: to measure the credit risk of the issuer, to provide a means of comparison and to provide a common standard [5]. More

than 90% of the credit rating market controlled by three Credit Rating Agencies (CRAs): Moody's Investors Service, Standard&Poor's and Fitch Ratings.

Based on Langohr and Langohr „credit rating agencies and their output play a unique, indeed important, role in overcoming information asymmetries that are endemic to the capital market” [6]. However, during the last decade the performance of the rating agencies was criticised by market players due to “their failure to predict severe financial crises and a wave of corporate scandals” [7]. As the result, the reputation of the CRAs was substantially damaged and „market participants' confidence in the reliability of ratings was seriously shaken” [8].

Besides, a frequently debated issue in regards to assignment of a bank rating is their inconsistency [1, 9, 10]. In the academic literature two types of credit rating inconsistencies are determined. First type regards to the situation when different ratings are assigned to the same company by different rating agencies. The second type of inconsistency is related to the fact that ratings differ among banks with similar financial ratios in different countries [9].

The clear evidence provided that different rating agencies have different rating processes and standards that cause split rating. As for Latvian banking sector, the problem is exacerbated by the fact that only a few Latvian banks are rated by CRAs. In this regard the question is – what information source is more reliable and what the investment or other business decision should be based on?

### **3. Peer analysis opportunities in Latvian banking sector**

Currently, 28 banks, including 9 branches of foreign banks, operate in Latvia (as for 2013) [11]. The information on Latvian banking sector and individual commercial banks is available from the following sources:

1. Aggregated statistics on the web site of the FCMC.
2. Statistics provided by the Association of Commercial Banks of Latvia (ACBL).
3. Credit ratings assigned to the Latvian commercial banks by CRAs.
4. Statistics on Latvian banking sector provided by BankScope data base.
5. Results of the researches conducted by various institutions: EPSI rating [12], TOP 101 of Latvia's most valuable enterprises prepared by the investment banking and financial advisory company Prudentia and NASDAQ OMX Riga [13], results of the survey „Reputation TOP” [14] and others.

However, there is a range of limitations and barriers to apply the available information to make sound and reasonable business decisions regards to the optimal choice of the financial partner: (1) inconsistency of the bank rankings, based on different rating methodologies (see Table 1); (2) lack of information about service quality provided by banks; (3) different ratios and criteria are used to assign a rating to a bank; (4) it is possible to rank a limited number of financial institutions, only FCMC and ACBL provide the information about all Latvian banks.

**Table 1. Ranking of Latvian banks based on different ratings (as for 2012)**

	Bank name	ROA	Moody's rating	EPSI	TOP 101	Reputation TOP (privates/entities)
1	ABLV Bank	8	n/a	n/a	21	128/137
2	Baltic International Bank (BIB)	11	8	n/a	80	n/a
3	Baltikums Bank	1	n/a	n/a	84	n/a
4	Citadele Banka	13	6	n/a	n/a	65/56
5	DNB banka	12	1	1	11	51/44
6	Expobank	4	n/a	n/a	38	n/a
7	Bank M2M Europe	20	n/a	n/a	n/a	n/a
8	Latvijas Pasta banka	3	n/a	n/a	n/a	n/a
9	Norvik Banka	16	5	n/a	n/a	103/133
10	Privatbank	14	7	n/a	n/a	n/a
11	Regionala investiciju banka (RIB)	10	n/a	n/a	n/a	n/a
12	Rietumu banka	5	n/a	n/a	13	117/117
13	Rigensis bank	18	n/a	n/a	n/a	n/a
14	SEB Banka	7	1	3	5	13/7
15	SMP Bank	6	7	n/a	n/a	n/a
16	Swedbank	2	2	2	2	2/3
17	Trasta komercbanka (TKB)	9	n/a	n/a	52	n/a
18	Unicredit Bank	15	3	n/a	29	138/141

Obviously, there is no unambiguous conclusion about the best Latvian bank. Bank customers should individually weight the perceived importance of measures to choose the financial services provider. The existing rating methodologies are relatively complicated and require specific knowledge from users. Besides, the needed information to evaluate a bank in most cases is not publicly available.

The authors suggest their own developed rating methodology with evaluation criteria for each index included into the rating model.

#### 4. Methodology and results

Analysing the existing bank rating methodologies to evaluate bank soundness and performance, such as IMF methodology „Financial Soundness Indicators” [15], FCMC methodology on determination of a bank supervision rating” [3], Moody's and Fitch rating methodologies [16, 17], as well as CAMEL [18], the authors revealed the most important measures that are used to assess banking activities and grouped them into 6 rating model elements: effectiveness, riskiness, customers, resources, products and services, and image (Table 2).

**Table 2. Rating elements and their labels**

Rating elements	Rating sub-elements	
	Labels	Title
Effectiveness (E)	E1	Bank profitability
	E2	Income volatility
Riskiness (R)	R1	Credit portfolio quality
	R2	Risk exposure
	R3	Credit portfolio diversification
Customers (C)	C	Customer confidence
Resources (Re)	Re1	Bank staff competence
	Re2	Development of infrastructure
	Re3	Technological capability
	Re4	Availability of funds
Products and services (P)	P1	Service quality
	P2	Service cost
	P3	Product range
Image (I)	I1	Bank reputation
	I2	History of business activity

To assign the weight to model elements, expert survey was performed by the authors. 19 financial experts evaluated each model sub-element according to its perceived importance. To determine the weight of elements the pooled estimate of weights was calculated (Table3).

**Table 3. Importance weights of rating model elements**

Rating sub-elements (rate)	Importance weights	Rating elements (RATE)	Pooled estimate of weights
1	2	3	4
E1	3.13	Effectiveness	3.22
E2	3.32		
R1	4.16	Riskiness	3.92
R2	3.95		
R3	3.63		
C	3.93	Customers	3.09
Re1	4.44	Resources	4.05
Re2	4.20		
Re3	4.03		
Re4	3.52		
P1	4.86	Products and services	4.48
P2	4.31		
P3	4.28		
I1	2.76	Image	2.95
I2	3.54		

Based on the survey results it is possible to develop two rating models that involve different number of variables: weighted elements (6 variables) or weighted sub-elements (15 elements). However, the authors decided exclude from the model all the elements that require customer survey result. The substantial reason for it is the fact that Latvian banking market concentration in terms of number of customers is very high. Over 80% of total customers are clients of four largest banks: Swedbank (41%), SEB banka (21%), Citadele banka (12%) and DNB banka (8%) [11]. It means that customer survey in Latvian banking sector most probably could yield the results that reflect customers' viewpoint only about these four banks. Thus, we developed rating models M1 and M2 with 6 variables (formula 1 and 2) and 9 variables (formula 3 and 4) respectively.

$$M1 = \sum_i^n w_i rate_i \quad (1)$$

where  $i = 1 \dots n$ ;  $n = 9$  - number of rating model sub-elements (Table 3, column 1);  
 $w_i$  - weight of the model sub-element  $i$  (Table 3, column 2);  
 $rate_i$  - sub-element's score (Table 4).

specifically:

$$M1 = \left\{ \begin{array}{l} [w_{E1}E1 + w_{E2}E2] \quad + \\ [w_{R1}R1 + w_{R2}R2 + w_{R3}R3] \quad + \\ w_cC + w_{Re4}Re4 + w_{P2}P2 + w_{I2}I2 \end{array} \right\} \quad (2)$$

$$M2 = \sum_j^m w_j RATE_j \quad (3)$$

where  $j = 1 \dots n$ ;  $n = 6$  - number of rating model elements (Table 3, column 3);  
 $w_j$  - weight of the model element  $j$  (Table 3, column 4);  
 $RATE_j$  - sum of scores assigned to the sub-elements within the element.

specifically:

$$M2 = SUM(w_EE; w_RR; w_C C; w_{Re} Re4; w_P P2; w_I I2) \quad (4)$$

To evaluate each rating model sub-element the appropriate measures were selected and the evaluation criteria were determined (Table 4).

**Table 4. Criteria for evaluation of the model sub-elements**

Element	Evaluation procedure and measures	Criteria	
		Score	Comments
E1	ROA comparison with market average ratio	3	ROA is higher than market average
		2	ROA is equal or closed to market average
		1	ROA is lower than market average
E2	Standard deviation of ROA	3	SD(ROA) is closed to zero
		2	SD(ROA) is closed to market average or lower
		1	SD(ROA) is higher than market average
R1	Nonperforming loans to total loans	3	Ratio is lower than market average
		2	Ratio is closed to market average
		1	Ratio is higher than market average
R2	Risk index (RI)	3	RI is higher than market average
		2	RI is closed to market average
		1	RI is lower than market average
R3	Credit portfolio analysis	3	High credit portfolio diversification
		2	Average credit portfolio diversification
		1	Low credit portfolio diversification
C	Market share in terms of deposits	3	market share is within CR5
		2	from 5% to market share within CR5
		1	Market share is lower than 5%
Re4	Ownership analysis	3	A bank is a part of international financial group
		2	Foreign capital contribution is over 50%
		1	Privately owned bank
P2	Cost analysis (authors' conducted research results)	3	Prices are lower than average prices in the market
		2	Prices are equal or closed to average prices in the market
		1	Prices are higher than average prices in the market
I2	Period of the bank operating activity in Latvian market	3	Established before 1996
		2	Established in the period 1996-2008
		1	Established after 2008

The profitability of a bank usually is defined by the index ROA (return on assets). In turn, standard deviation (SD) of ROA is commonly used measure to evaluate earnings volatility. Standard deviation of ROA of a bank with stable income is close to zero. Comparison of bank ROA and SD(ROA) with the market average indices is used to evaluate bank profitability (E1) and income volatility (E2).

Within the element *Riskiness* three sub-elements should be evaluated. *Credit portfolio quality* (R1) is evaluated by the value of non-performing loans ratio. Overall *risk exposure* (R2) is assessed, using risk index (RI). It is a measure of

individual bank's probability of insolvency. It is based on the likelihood of return to assets being negative and is larger than the capital-asset ratio. The higher risk index is, the safer is the bank. Risk index is defined as [19]:

$$RI = \frac{E(ROA) + CAP}{SD(ROA)} \quad (5)$$

where RI – risk index;

E(ROA) – expected ROA;

CAP – capital-to-assets ratio;

SD(ROA) – standard deviation of ROA.

Sub-element *Credit portfolio diversification* (R3) is evaluated, analysing loans by types of borrowers (residents/non-residents, privates/corporate customers) and by industry. Analysis is based on data extracted from bank financial statements.

Customer confidence (C) is evaluated, based on bank market share in terms of deposits. This is an indicator of people trust to the bank. The highest score can be assigned to a bank, if it is one of the largest five banks in terms of deposits and its market share contributes to the concentration ratio CR5.

Score to the sub-element *Availability of funds* (Re4) is assigned, evaluating bank access to financial resources. Limited borrowing opportunities reduce the attractiveness of an analysed bank. The highest score assigned to a bank within the international financial group. It means that the bank can get additional capital from foreign partners.

To evaluate the level of service costs (P2) the authors conducted a research, based on the tentative example. The authors calculated the average costs for a newly established company to buy an initial set of banking products necessary to perform daily business operations. The number and the value of transactions per year was assumed based on the authors' practical experience in banking sphere.

Period of business activities characterizes stability of a bank. If a bank operates in the Latvian market more than 17 years, it means that it has successfully passed through a series of turbulent time periods (banking crisis in 1995, Russian crisis in 1998, the transition process from the planned economy since 1991, repercussions of the global financial crisis in 2007-2009).

Sub-elements Re1, Re2, Re3, P1, P3, I1 were excluded from the bank rating models. However, rating model modifications with all 15 variables can be applied for the largest Latvian banks, conducting a survey among the customers of those banks.

The authors' developed models were approbated, using data extracted from the financial statements of 18 analysed banks and Latvian banking sector statistics on market average ratios [20]. The results of the application of M1 and M2 are presented in the Table 5.



**Table 5. Bank ranking with M1 and M2 application**

No.	Bank name	Model M1		Model M2	
		Score	Rank	Score	Rank
1	ABLV Bank	78	6	64	10
2	Baltic International Bank	67	11	63	11
3	Baltikums Bank	50	15	45	16
4	Citadele Banka	74	7	66	8
5	DNB Bank	73	9	65	9
6	Expobank	66	12	61	12
7	Bank M2M Europe	36	19	31	19
8	Latvijas Pasta banka	74	8	69	6
9	Norvik Banka	54	15	52	15
10	Privatbank	62	13	58	13
11	Regionala investiciju banka	71	10	68	7
12	Rietumu banka	91	1	79	2
13	Rigensis bank	36	19	31	19
14	SEB Banka	80	5	70	5
15	SMP Bank	81	4	77	3
16	Swedbank	89	2	76	4
17	Trasta komercbanka	60	14	57	14
18	Unicredit Bank	84	3	81	1

Based on the evaluation results, five market leaders are determined by means of M1 and M2 models: Rietumu bank (1/2), Swedbank (2/4), UniCredit Bank (3/1), SMP Bank (4/3) and SEB banka (5/5).

It should be emphasized that the yielded ranking is the result of the authors' subjective evaluation of the selected variables. Potential users can make any necessary adjustments and to customize the developed models.

## 5. Conclusions

The current paper reflects the results of analysis of the most popular rating methodologies that yield the list of measures used for bank evaluation. The revealed measures were grouped into 6 elements to develop a rating model appropriate for making peer analysis in the Latvian banking sector. To weight the elements and to determine the coefficients for model variables, expert method was used.

Based on the determined elements two rating models were developed to assist companies to make a reasonable choice of the financial services provider. Elements that require customer survey results were excluded from the list.

The developed models were approbated on Latvian banks' sample and five market leaders were determined: Rietumu bank, Swedbank, UniCredit Bank, SMP Bank and SEB banka. Branches of the foreign banks were not analysed due to the lack of public information.

Alternative rating model's with the variables that require customer survey results can be applied for the largest banks. Besides, other variables can be included into the model depending on users' specific needs and preferences.

## Reference

1. LAERE, E., VANTIEGEM, J., BAESENS, B., The Difference between Moody's and S&P Bank Ratings: Is Discretion in the Rating Process Causing a Split? RMI Working Paper No. 12/05, 2012.
2. PACKER, F., TARASHEV, N., Rating Methodologies for Banks, BIS Quarterly Review, 2011, pp. 39-52.
3. Financial and Capital Market Commission, Methodology on Determination of a Bank Supervision Rating [Banku uzraudzības reitinga noteikšanas metodika], 2013. Available from: <http://www.fktk.lv>
4. Global Finance. The World's Best Banks. Vol. 27, No. 9, 2013, pp. 26-48.
5. OECD, Competition and Credit Rating Agencies, DAF/COMP(2010)29, 2010.
6. LANGOHR, H. M., LANGOHR, P. T., The Rating Agencies and their Credit Ratings, John Wiley and Son, Inc., 2008, 510 p.
7. VAN ROY, P. Is There a Difference between Solicited and Unsolicited Bank Ratings and if so, Why? Working paper research No. 79, 2006, National Bank of Belgium, 43 p.
8. UTZIG, S., The Financial Crisis and the Regulation of Credit Rating Agencies: A European Banking Perspective, ADBI Working Paper Series, No. 188, 2010, 22 p.
9. SHEN, Ch.-H., HASAN, I., HUANG, Y.-L., Asymmetric Benchmarking in Bank Credit Rating, 2012, Bank of Finland Research Discussion Paper No. 13/2012, 41 p.
10. JACOBSON T., LINDE J., ROSZBACH K., Internal Ratings Systems, Implied Credit Risk and the Consistency of Banks' Risk Classification Policies, Journal of Banking and Finance, Vol. 30, No. 7, 2006, pp. 1899-1926.
11. The Association of Commercial Banks of Latvia (ACBL), The Banking Sector in Figures, 2013. Available: [www.bankasoc.lv](http://www.bankasoc.lv)
12. EPSI BALTIC, Press Release: Baltic Banking, 2012. Available: <http://www.epsi-baltics.org>
13. Prudentia, TOP 101 of Latvia's most valuable enterprises, 2013. Available: <http://www.prudentia.lv>
14. Dienas bizness, Reputation TOP [Latvijas uzņēmumu reputācijas tops], 2012. Available: <http://www.db.lv>
15. International Monetary Fund, Financial Soundness Indicators: Compilation Guide, March 2006, 300 p.
16. Moody's Investors Service, Rating Symbols & Definitions, 2009, 52 p.
17. Fitch Ratings, Rating Banks in a Changing World, Report, 13 October 2011. Available: [www.fitchratings.com](http://www.fitchratings.com)
18. DANG, U., The CAMEL Rating System in Banking Supervision: A Case Study, Arcada University of Applied Sciences/International Business, 2011, 43 p.
19. HANAN, T.H., HANWECK G.A., Bank Insolvency Risk and the Market for Large Certificates of Deposit, Journal of Money, Credit and Banking, Vol. 20, No.2, 1988, pp. 203-211.
20. Financial and Capital Market Commission, Statistics, 2012. Available: [http://fktk.lv/en/statistics/credit\\_institutions/quarterly\\_reports/](http://fktk.lv/en/statistics/credit_institutions/quarterly_reports/)