



Munich Personal RePEc Archive

Improving the rating system for remote monitoring of commercial banks in Bulgaria (PERLA)

Bojinov, Bojidar

Tsenov Academy of Economics, Svishtov, Bulgaria

21 May 2014

Online at <https://mpra.ub.uni-muenchen.de/56035/>

MPRA Paper No. 56035, posted 21 May 2014 22:47 UTC

Improving the rating system for remote monitoring of commercial banks in Bulgaria (PERLA)

Bojidar V Bojinov¹

Resume

Global banking crisis of 2007 raised a number of issues and challenges facing the banking sector. One aspect of the debate provoked was connected with the issue of rating assessments and objective methods for measuring the condition of the banks and the sector as a whole. This paper set a goal to assess the feasibility of the developed in 2004 by a team at the department "Finance and credit" system for evaluating banking Pearl and seek ways of improving and enhancing the degree of her picks.

Key words: banks, bank stability, rating systems, PERLA

JEL: G21

¹ The author is Professor in banking at Finance and Credit Dept. in Tsenov Academy of Economics, Svishtov, Bulgaria. Corresponding author: bobi@uni-svishtov.bg

This paper presents only the views of the author and in no way binds the Tsenov Academy of Economics, Svishtov, Bulgaria.

Improving the rating system for remote monitoring of commercial banks in Bulgaria (PERLA)

Bojidar V Bojinov

Introduction

Condition of banks has always been subject to the public interest as the main guardian of his wealth and a factor of stability in the economy. Main interest in this issue show the banking supervisory authorities and rating agencies and to a much lesser degree - individuals of society. This is somewhat understandable since supervisors are called upon to ensure the stability of banks and the banking system. When supervisors evaluation rating system is an additional tool through which they assess the actual condition of the banks and , if necessary, determine appropriate corrective actions to ensure the healthy and sustainable development of the banking system and the early detection of potential problems in the operation of a bank.

Global banking crisis of 2007 raised a number of issues and challenges facing the banking sector. One aspect of the debate was provoked related issue ratings and objective methods for measuring the condition of banks and the sector as a whole.

The present study aims to assess the feasibility of the developed in 2004 by a team at the Department "Finance and credit" system for assessment of the banking sector pearls and seek ways of improving and enhancing the extent of its picks. Through study and is aimed at filling a gap in the relative economics , namely : building independent rating systems , which are usually reserved field of credit rating agencies and the construction of these ratings are based on the internal closed methods. Parallel goals and the needs of society by an independent , comprehensive and transparent system for assessing the condition of banks and the sector as a whole. The object of this study is the evaluation system of the banking sector pearls, and the object is the methodology for assessing the condition and stability of the banking sector in the country.

1. Theoretical research

The main purpose of the independent rating agencies is to provide a realistic assessment of the risk profile and the status of a bank to the public or to potential investors. Unlike systems of Supervisors are often based on internal bank information, credit rating agencies systems are based primarily on publicly available information. Despite some differences in the goals of these two types of institutions, mechanisms of writing systems do not differ significantly in their base stand set of financial ratios or other indicators that analyze the actual status and results of the banking institution.

The main problem for the quality and reliable analysis on the status of any bank 's requirement of adequate and quality information. If the bank itself and that supervisors not a problem , it offers to an external independent evaluation , lack of information could prove decisive and insurmountable obstacle to this. In this case , usually use is made to official sources of information , although it is normally synthesized and scarce. It turns out that the most common reason for the small number of attempts to build a system of external ratings of banks.

Supervisory systems for assessing banks initially originated as a way to assess the condition of supervised banks at close inspection. Thus is created a so-called. systems onsite rating. Drawback of this method of estimation is that this type of supervisory visits are relatively rare and in cases of doubt about the strength of the banking institution. It turns out that the reason for the establishment of evaluation systems for remote monitoring or called. systems for off-site rating. In recent years, the second type of system has a dominant place in the supervisory assessment of the banking system.

Regardless of the type of system used , the ultimate goal of Supervisors is timely receipt of accurate and quality information about the state of the banking institution , enabling timely warning of potential problems in a given area. Supervisory analyzes are confidential and used for internal needs.

Systems analysis using financial ratios used to evaluate the financial condition of banks by applying a set of specific financial ratios , which typically include measures of capital adequacy , asset

quality, earnings, liquidity and more. They are based largely on publicly available information from supervisors and data from financial accounts. The analysis is often used to make comparisons with the values of one or more indicators of the past activities of a bank or to other homogeneous banks to determine the problem from them. Particular attention is paid, for example if a ratio exceeds a predetermined critical level (threshold), or lies outside the range accepted for normal or far from the values as it had in the past activities of the concerned bank.

Systems for integrated assessment of banking risks are addressed in a comprehensive and detailed assessment of the risk profile of a bank. Through the formation of the main groups business activities assessing different types of banking risks in any business activity individually. The individual results of the assessment of individual risks and individual business lines are aggregated consistently and thus made the final judgment or final rating of the banking institution. This approach is based on a comprehensive evaluation of a comprehensive system of different quantitative and qualitative risk factors inherent in a bank and its internal business units. Kind of shortcomings in the complex assessment of banking risks is their complexity and that require more resources and time to build the final score, and that require access to internal bank information.

A new direction in the field of rating systems are statistical models that are aimed at solving the problem of predicting the future state and stability of banks. By applying advanced statistical and mathematical techniques, they seek to predict future reliability and stability of banks and the level of risk in their work by trying to distinguish banks with high uncertainty or risk of bankruptcy in the future than those with secure and sustainable development.

2. Methodology of the rating system for evaluating sustainable development banks (PERLA)

PERLA system was developed in 2005 as part of a scientific research project and focuses on the following key aspects of banking: Transparency of banking, Efficiency and profitability, State of the resource base, Bank liquidity, Quality of bank assets (in Bulgarian – ПЕРЛА/PERLA – Прозрачност/Transparency, Ефективност/Efficiency, Ресурси/Resources, Ликвидност/Liquidity, Активи/Assets). Calculation of complex rating of the Bank relating to the initial calculation of a set of indicators on a quarterly basis (Table 2.1), grouped in five key areas.

Table 2.1. Main sections and key performance indicators of the system for remote analysis of banks PERLA²

SECTION 1. QUALITY OF BANK ASSETS	
A1. BANK'S CREDIT ACTIVITY	
Bank's credit activity =	$\frac{\text{Credit portfolio}_1 - \text{Credit portfolio}_0}{\text{Credit portfolio}_0} \times 100$
A2. CREDITING THE REAL SECTOR OF ECONOMY	
Crediting the real sector of economy =	$\frac{\text{Crediting the real sector of economy}_1 - \text{Crediting the real sector of economy}_0}{\text{Crediting the real sector of economy}_0} \times 100$
A3. LOAN LOSS PROVISION	
Loan loss provision =	$\frac{\text{Specific provisions}}{\text{Total loans}} \times 100$
A4. ASSETS FOR RESALE AS A PERCENTAGE OF ASSETS	
Assets for resale as a percentage of assets =	$\frac{\text{Assets for resale}}{\text{Total assets}} \times 100$
A5. CHANGE IN PROFITABLE ASSETS	
Change in profitable assets =	$\frac{\text{Profitable assets}_1 - \text{Profitable assets}_0}{\text{Profitable assets}_0} \times 100$

² Вџтев, Ж., Б. Божинов и др. Дистанционен анализ на банковата дейност (методическо ръководство), Абагар, В. Търново, 2005, стр. 67-120 (Vatev, J., B. Bojinov at. al. Remote analysis of banking (methodological guidance) Abagar, Veliko Tarnovo, 2005, pp. 67-120)

A6. DYNAMICS OF ASSETS' INTEREST YIELDS	$\text{Dynamics of assets' interest yields} = \frac{\text{Interest yields}_1 - \text{Interest yields}_0}{\text{Interest yields}_0} \times 100$
SECTION 2. CONDITION OF THE RESOURCE BASIS	
R1. DYNAMICS OF CLIENTS' BASIS	$\text{Dynamics of clients' basis} = \frac{\text{Attracted resources from the real sector of economy}_1 - \text{Attracted resources from the real sector of economy}_0}{\text{Attracted resources from the real sector of economy}_0} \times 100$
R2. STABILITY OF ATTRACTED RESOURCES	$\text{Quantity of the stable attracted resources} = \frac{\text{Stable attracted resources}_1 - \text{Stable attracted resources}_0}{\text{Stable attracted resources}_0} \times 100$
R3. DYNAMICS OF ATTRACTED FUNDS	$\text{Dynamics of attracted resources} = \frac{\text{Attracted resources}_1 - \text{Attracted resources}_0}{\text{Attracted resources}_0} \times 100$
R4. CHANGE IN OWNER'S EQUITY	$\text{Change in owner's equity} = \frac{\text{Owner's equity}_1 - \text{Owner's equity}_0}{\text{Owner's equity}_0} \times 100$
R5. COVERAGE OF RISK ASSETS BY OWNERS' EQUITY	$\text{Coverage of risk assets by owner's equity} = \frac{\text{Owner's equity}}{\text{Risk assets}} \times 100$
R6. RATE OF INTERNAL CAPITALIZATION	$\text{Rate of internal capitalization} = \frac{\left(\text{Owner's equity}_1 - \text{Fixed capital}_1 \right) - \left(\text{Owner's equity}_0 - \text{Fixed capital}_0 \right)}{\left(\text{Owner's equity}_0 - \text{Fixed capital}_0 \right)} \times 100$
SECTION 3. BANK LIQUIDITY	
L1. CASH LIQUIDITY	$\text{Cash liquidity} = \frac{\text{Primary liquid reserves}}{\text{Total assets}} \times 100$
L2. TOTAL LIQUIDITY	$\text{Total liquidity} = \frac{\text{Liquid assets}}{\text{Total assets}} \times 100$
L3. PRIMARY LIQUIDITY	$\text{Primary liquidity} = \frac{\text{Primary liquid reserves}}{\text{Short-term resources}} \times 100$
L4. SECONDARY LIQUIDITY	$\text{Secondary liquidity} = \frac{\text{Liquid assets}}{\text{Short-term resources}} \times 100$
L5. CREDIT-DEPOSIT RATIO	$\text{Credit-deposit ratio} = \frac{\text{Loans granted}}{\text{Total deposits}} \times 100$
L6. PERCENTAGE OF SHORT-TERM EXTRA-DEPOSIT RESOURCES	$\text{Percentage of short-term extra-deposit resources} = \frac{\text{Short-term extra-deposit resources}}{\text{Attracted capital}} \times 100$
SECTION 4. EFFICIENCY AND PROFITABILITY	
E1. SUSTAINABILITY OF REVENUES FROM PRIMARY ACTIVITY	$\text{Sustainability of revenues from primary activity} = \frac{\text{Revenues from primary activity}_1 - \text{Revenues from primary activity}_0}{\text{Revenues from primary activity}_0} \times 100$
E2. CHANGE IN THE NET INTEREST INCOME	$\text{Change in the net interest income} = \frac{\text{Net interest income}_1 - \text{Net interest income}_0}{\text{Net interest income}_0} \times 100$
E3. DYNAMICS OF NET PROFIT	

Dynamics of net profit = $\frac{\text{Net profit}_1 - \text{Net profit}_0}{\text{Net profit}_0} \times 100$	
E4. PERCENTAGE OF PROFIT IN THE OPERATING REVENUE	
Percentage of profit in the operating revenue = $\frac{\text{Net profit}}{\text{Total earnings}} \times 100$	
E5. EFFICIENCY OF THE CONTROL ON EXPENSES	
Efficiency of the control on expenses = $\frac{\text{Non - interest expenses}}{\text{Total assets}} \times 100$	
E6. RETURN ON ASSETS	
Return on assets = $\frac{\text{Net profit}}{\text{Total assets}} \times 100$	
SECTION 5. TRANSPARENCY OF BANKING ACTIVITIES	
T1. DOES THE BANK HAVE A WEB PAGE	(YES/NO)
T2. PUBLISHED ANNUAL FINANCIAL STATEMENT IN BULGARIAN	(YES/NO)
T3. OFFICIALLY PUBLISHED FEES AND COMMISSIONS TARIFFS, ETC.	(YES/NO)
T4. PUBLICLY DECLARED POLICY AND STRATEGY	(YES/NO)
T5. DOES IT HAVE ITS OWN COMPREHENSIBLE ECONOMIC ANALYSIS	(YES/NO)
T6. ACCESS TO DETAILED INFORMATION FOR THE BANK'S SHAREHOLDERS	(YES/NO)

After calculating each indicator, depending on his behavior in six consecutive quarters is made based on expert judgment by placing one of the following ratings³:

- **Grade 2 (Best)** - it is assigned when the indicators examined in the last six reported quarters of the period there is a clear trend towards continuous improvement. This gives reason to believe that this favorable pattern will continue in the future;
- **Grade 1 (good)** – it is given when the overall dynamics in the development of the analyzed indicator is in a positive direction, overall trend is favorable, although individual quarters experienced some fluctuations and unevenness;
- **Grade 0 (mean)** - refers to the indicator analyzed in six consecutive quarters almost does not change, ie clearly does not deteriorate, but it can not be said to be improved. The problem is that the prospects for its development in the future are vague and difficult to predict;
- **Grade -1 (low)** - characteristic is an indicator that there is great instability and fluctuations during the period and there is a general trend towards deterioration. This raises doubts that this negative trend can be maintained or further deepen in the future;
- **Grade -2 (weak)** - it is estimated benchmark in the development of which stands a negative trend of steadily worsening in each subsequent quarter of the period. The consequences of this in the future may be quite adverse and dangerous to the stability of the bank.
- An exception to the five-point scales only be made when analyzing the criterion transparency in banking. Due to the specific nature of the indicators analyzed their evaluation is done by using only two grades - Grade 2 (Best) and a score of -2 (weak).

Formation of the final rating of banks through the following steps:

- Ball in each of the five groups of criteria is calculated as the sum of assigned ratings of included in group indicators. The total Rating of group can that varies in range +12 to -12
- The overall rating of the bank was prepared as follow⁴:

$$\text{Bank rang} = 0,16.\text{Transparency} + 0,20.\text{Efficiency} + 0,19.\text{Resources} + 0,22.\text{Liquidity} + 0,23.\text{Assets}$$

where: *Bank rang* is weighted score of assessed bank.

³ Вџтев, Ж., Б. Божинов и др. Дистанционен анализ на банковата дейност (методическо ръководство), Абагар, В. Търново, 2005, стр. 107-108 (Vatev, J., B. Bojinov at. al. Remote analysis of banking (methodological guidance) Abagar, Veliko Tarnovo, 2005, pp. 107-108)

⁴ Вџтев, Ж., Б. Божинов и др. Дистанционен анализ на банковата дейност (методическо ръководство), Абагар, В. Търново, 2005, стр. 119 (Vatev, J., B. Bojinov at. al. Remote analysis of banking (methodological guidance) Abagar, Veliko Tarnovo, 2005, pp. 119)

Individual weights of groups of criteria were based on expert assessment as a result of a survey conducted among experts in the banking system.

Depending on the complexity rating of the bank, it falls into one of the following groups of⁵:

- **Prosperous Bank** (+12 to 7.2) - High reliability and sustainability. Prospects for maintaining and improving the condition and financial results do not cause doubt. Great potential for development.
- **Normally Developing Bank** (from 7.2 to 2.4) - Good reliability and relatively sustainable development, despite some minor fluctuations. Financial position and the results are satisfactory and are likely to be preserved in the future. Significant potential for development.
- **Stagnant Bank** (from +2.4 to -2.4) - Average level of stability and sustainability. The condition of the bank and its results are relatively good, but in some respects show signs of stagnation. Prospects for future development are unclear and unpredictable.
- **Unstable bank** (from -2.4 to -7.2) - Low reliability and decreasing potential. There are concerns about further deterioration of the financial condition and results.
- **Critically vulnerable Bank** (-7.2 to -12) - Instability, instability and the existence of serious problems. In many ways the bank is vulnerable, given that its financial position and operating results deteriorate continuously. Low potential and favorable prospects.

Although originally a purely academic development system PERLA got its recognition from the professional community through the publication of its results in "Money" Newspaper in 2005. From the time of its establishment until now, it remains the only independent Bulgarian rating system for remote analysis of banking.

Unfortunately, due to the change in reporting of banks reflected in publicly available reports and documents after 2006 rating system PERLA is almost unusable. This is precisely one of the main reasons for updating and improvement. The other main reason is related to the possibility for improvement of the system through its objectification and eliminate subjectivity in the evaluation of some of the indicators (such transparency), as well as to estimate trends in placing the ratings for each indicator.

3. From PERLA to ALER (TS)

ALER(TS)⁶ was developed based on a rating system PERLA by introducing mechanisms to eliminate the subjective nature of the system and update the information base for the calculation of indicators (due to a change in public reporting format of banks).

Compared to the baseline version of the rating system are several changes in the methodology used. First, the evaluation of the banks is reduced by eliminating the criteria of transparency due to the subjective nature of the evaluation and the high degree of publicity applied by credit institutions. All this significantly reduces the significance of the information that group performance and reduces their real weight in the calculation of the complexity rating of the bank.

As main sources of information for the calculation of individual indicators (see Table 3.1) and the formation of a rating assessment using publicly available data from the site of the BNB (*balance of commercial banks, Income Statement, Form 40A, B and C*). To clear the comparability of data, they are processed and brought on a quarterly basis.

Table 3.1. *Key indicators used in the ranking system ALER (TS):*

ASSETS
A1. BANK LENDING
A2. LENDING TO THE REAL SECTOR OF THE ECONOMY
A3. PROVISIONING OF LOANS

⁵ Ib. cit.

⁶ ALER(TS) - Assets Liquidity, Efficiency, Resources (Test System)

<i>A4. ASSETS HELD FOR RESALE AS A PERCENTAGE OF ASSETS</i>
<i>A5. AMENDMENT OF EARNING ASSETS</i>
<i>A6. DEVELOPMENTS IN INTEREST INCOME FROM ASSETS</i>
LIQUIDITY
<i>L1. CASH LIQUIDITY</i>
<i>L2. TOTAL LIQUIDITY</i>
<i>L3. PRIMARY LIQUIDITY</i>
<i>L4. SECONDARY LIQUIDITY</i>
<i>L5. CREDIT-DEPOSIT RATIO</i>
<i>L6. SHARE OF SHORT-TERM NON-DEPOSIT RESOURCES</i>
EFFICIENCY
<i>E1. RESISTANCE TO OPERATING INCOME</i>
<i>E2. AMENDMENT OF PURE INTEREST INCOME</i>
<i>E3. DYNAMICS OF NET PROFIT</i>
<i>E4. SHARE OF PROFIT IN OPERATING INCOME</i>
<i>E5. EFFECTIVENESS OF COST CONTROL</i>
<i>E6. RETURN ON ASSETS</i>
RESOURCES
<i>P1. DYNAMICS OF THE CUSTOMER BASE</i>
<i>P2. STABILITY OF FUNDING</i>
<i>P3. DYNAMICS OF ATTRACTED FUNDS</i>
<i>P4. AMENDMENT OF EQUITY</i>
<i>P5. COVERAGE OF RISKY ASSETS WITH EQUITY</i>
<i>P6. INTERNAL RATE OF CAPITALIZATION</i>

Indicators for assessing the sustainability of commercial banks are grouped into four sections: Assets, Liquidity, Efficiency and Resources, each group includes six indicators that come with the same weight in the comprehensive evaluation of the group.

For **valuation of the assets** of the Bank and analyzed their stability using the following parameters:

A1. BANK LENDING - is the growth or reduction of the loan portfolio in the analyzed period. A favorable trend is considered progressive and gradual increase of loans, while the trend of sharp and irregular change is related to excessive accumulation of risk and negative impact on profitability.

A2. LENDING TO THE REAL SECTOR OF THE ECONOMY - the changes of loans to businesses during the period. The recommended behavior indicator is related to its gradual increase.

A3. PROVISIONING OF LOANS - serves to indirectly measure the quality of the loan portfolio by measuring the provisioned resources in problem loans. Reduction in the value of this index is associated with an increase in the quality of the loan portfolio, while enhancing its signal to a negative trend in increasing the share of problem loans in the banking book.

A4. ASSETS HELD FOR RESALE AS A PERCENTAGE OF ASSETS - serves as an indirect measure of the quality of the loan portfolio to the extent that the assets for resale assets as collateral for loans. Increasing their share in the bank's balance sheet indicates the increase in the share of non-performing loans whose collateral the bank has acquired and is willing to sell to offset some of the losses. Positive trend is considered lowering the share of this type of assets in the total assets of the bank.

A5. AMENDMENT OF EARNING ASSETS - a positive trend we can speak in the presence of sustained and stable growth rate while continuing trend, reduction or substantial and rapid fluctuations in size are associated with the occurrence of adverse trend.

A6. DEVELOPMENTS IN INTEREST INCOME FROM ASSETS - the revenue generated from assets, i.e. extent of their effective usage. It has a direct connection with the financial results realized by the institution, to the extent interest income account for a major share of the income of each bank. Solid and stable revenue growth is a positive trend and could be considered as a measure of banking activity and its effective management. Negative values and random and abrupt changes talk about potential problems or mismanagement of assets.

The bank's liquidity and its resistance are measured by:

L1. CASH LIQUIDITY - estimated share of cash in the bank's assets and gives an idea of its cash liquidity. As favorable trend can assume its growth, reflecting an increase in the share of highly liquid assets. Mitigation or any sharp fluctuations indicates possible problems of bank liquidity her

L2. TOTAL LIQUIDITY - is the proportion of primary and secondary reserves to total assets. Enhance the value of the coefficient expressing the strengthening of the liquidity of the bank.

L3. PRIMARY LIQUIDITY - is how much of the debt with short-term nature are covered by existing and assimilated funds (primary reserves). Positive trend as smooth growth rate in the absence of sudden changes.

L4. SECONDARY LIQUIDITY - is how much of the short-term nature of the liabilities covered with primary and secondary reserves. Stable and the rate of growth of the indicator talk about good liquidity position. Negative are relatively abrupt changes.

L5. CREDIT-DEPOSIT RATIO - expressed coverage of loans attracted deposits. While it is not legally regulated, it is assumed that its value should move in the range of 70-90%. Lower values speak to increase liquidity, but at the expense of profitability, while higher values indicate svrahagresivna credit policy and taking major risks.

L6. SHARE OF SHORT-TERM NON-DEPOSIT RESOURCES - is the share of short-term non-deposit resources attracted by the bank to the total amount of borrowed capital. Trend of increasing values of the indicator signal to potential liquidity problems in the bank.

Effectiveness of the bank can be assessed by the following indicators:

E1. RESISTANCE TO OPERATING INCOME - expressed changes in operating income, ie interest income and other income directly related to the core operations of the bank. The positive trend into account in their gradual increase.

E2. AMENDMENT OF PURE INTEREST INCOME - is the difference between interest income on assets and interest expense on liabilities. It is essential for the formation of the profit of the bank.

E3. DYNAMICS OF NET PROFIT - is the change in net profit during the period. A positive trend was recorded at steady and gradual increase profits, presence of sharp fluctuations or trends towards profit indicates a deterioration in the financial condition of the bank.

E4. SHARE OF PROFIT IN OPERATING INCOME - is how much of the revenue after deduction of related costs form the bank profits. Growth of the indicator talk about cost optimization in the bank.

E5. EFFECTIVENESS OF COST CONTROL - is what makes non-interest expenses for bank asset unit. It may be used by the bank management as a measure of cost effectiveness. A positive trend can be taken of its reduction and branchy to zero.

E6. RETURN ON ASSETS - gives an idea of how much profit falls on unit assets. Typically, its values ranging between 0.5% and 2%. Low levels will indicate a failed credit and investment policy or unreasonably high costs, while higher values are associated with aggressive lending policy.

For **evaluation of bank resources** and their sustainability using the following parameters:

P1. DYNAMICS OF THE CUSTOMER BASE - is the change of the customer base in the analyzed period. Positive trend with smooth talk her growth as abrupt changes or shrinking speak of instability or loss of customers.

P2. STABILITY OF FUNDING - the change of stable resources during the analysis period. Stability of resources is essential for the bank as directly affects its ability to extend long-term loans.

P3. DYNAMICS OF ATTRACTED FUNDS - reflects the change in borrowings during the period. Positive trend reporting in a sustained increase in borrowings. The sudden and sharp contraction of the resource base can trigger liquidity problems and in some cases lead to bankruptcy.

P4. AMENDMENT OF EQUITY - reflects the change in equity during the period. Positive trend into account in a gradual increase in equity, as it contributes to the normal functioning of the bank and serves as a kind of capital cushion against risks and unexpected losses.

P5. COVERAGE OF RISKY ASSETS WITH EQUITY - reflect the risk profile of the bank. Tendency to reduce the coverage of risky assets with equity account for unfavorable and can lead to a critical situation for the bank. Positive trend talk while increasing the coverage of risky assets with equity.

P6. INTERNAL RATE OF CAPITALIZATION - reflect the change in the share of net profit in the capitalization of equity during the period, ie the extent to which the Bank may, by internal sources to increase its own capital. Positive trend into account in the smooth growth of the indicator.

The second key direction in which the changed methodology of the rating system to its basic version is by objectifying ratings of each of the indicators. For this purpose, keep the number and meanings of ratings (5 ratings from +2 to -2), but instead expert approach in their evaluation ALER(TS) assessment to be dependent on the rate of change from the previous period analyzed. Ratings on this indicator gets value (+2) in 15% growth over the previous period (+ 1) with a growth between 5 and 15% (0) for a change in the range of -5% to +5% compared to the previous period (-1) in drop between 5 and 15% and (2) a decrease of more than 15%.

The calculation of the integrated assessment of individual indicators involved in the formation of the final rating is done by their estimates (or received ratings) averaged over the past 6 quarters (to iron out their trend) using the formula:

$$\text{Integrated assessment on individual rating indicator} = \frac{\sum_{i=0}^{n-6} \text{Value of individual rating indicator}_{\text{quarter}(n-i)}}{n}$$

Comprehensive rating for each group is evaluated as the sum of the ratings of its participating indicators:

$$\text{Integrated assessment on rating group} = \sum_{i=1}^{n=6} \text{Integrated assessment on individual rating indicator}_i$$

Due to the elimination of one of the underlying groups used in the system PERLA in calculating the complexity of the analyzed bank rating methodology by ALER(TS) using the following weights⁷:

$$\text{Integrated rating} = [0,27 \times \text{Assets}] + [0,26 \times \text{Liquidity}] + [0,24 \times \text{Efficiency}] + [0,23 \times \text{Resources}]$$

The final assessment for the sustainable development of the bank is done by mapping the complex rating in one of the following groups: 12 to 7.2 - prosperous bank, from 7.2 to 2.4 - normal growing bank, from 2.4 to -2.4 - stagnant bank, from -2.4 to -7.2 - unstable bank, and from -7.2 to -12 - critically vulnerable bank.

The following table presents the results of applying the methodology of the rating system ALER(TS) to the data of the Bulgarian banking sector in the period March 2007 - March 2013.

Table 3.2. *Complex rating the sustainability of Bulgarian banks (ALER(TS))*

⁷ The severity of the individual weights are determined by adjusting the weights used in the rating system PERLA

COMPLEX ALERT(S) RATING																		
<small>(Banks are sorted by the last 3 digits of the code of the bank)</small>																		
																		December 2008
																		March 2009
																		June 2009
																		September 2009
																		December 2009
																		March 2010
																		June 2010
																		September 2010
																		December 2010
																		March 2011
																		June 2011
																		September 2011
																		December 2011
																		March 2012
																		June 2012
																		September 2012
																		December 2012
																		March 2013
Credit Agricole																		
INTERNATIONAL ASSET BANK																		
SOCIETE GENERALE EXPRESSBANK																		
TBI BANK																		
DSK																		
Tokuda Bank																		
COMMERCE BANK																		
ProCredit Bank (BULGARIA)																		
CORPORATE COMMERCIAL BANK																		
UNITED BULGARIAN BANK																		
MKB Unionbank																		
PIRAEUS BANK BULGARIA																		
BULGARIAN AMERICAN CREDIT BANK																		
Raiffeisenbank (BULGARIA)																		
FIRST INVESTMENT BANK																		
MUNICIPAL BANK																		
INVESTBANK																		

TEXIM BANK	-0.33	0.31	1.45	0.14	0.71	0.83	0.20	-0.84	-1.44	-1.13	-0.89	-0.66	0.39	1.47	0.99	2.85	2.11	1.69
ALLIANZ BANK BULGARIA	-0.28	1.03	-0.93	0.96	0.60	1.29	1.29	1.83	3.57	1.95	1.93	2.63	2.47	2.64	1.15	2.05	1.82	0.35
BULGARIAN BANK FOR DEVELOPMENT	0.70	0.49	-0.11	1.15	1.37	0.65	0.58	1.13	2.03	0.35	0.10	0.62	0.55	0.32	0.51	1.46	1.00	1.43
Unicredit Bulbank	-0.79	-1.05	0.03	-1.42	0.43	0.41	0.96	1.85	0.56	1.77	1.26	2.17	1.53	1.02	1.13	1.33	1.44	0.33
CENTRAL COOPERATIVE BANK	1.74	-0.70	-0.43	0.47	2.06	0.91	0.73	1.83	3.17	1.83	0.88	1.45	1.77	1.21	-0.39	0.81	0.81	0.15
CIBANK	0.47	-0.13	-1.06	-0.12	-1.24	-0.37	-0.19	0.26	1.46	2.37	2.43	1.32	1.81	1.56	0.64	0.69	1.11	0.65
Eurobank EFG BULGARIA	-0.48	-1.20	-1.55	-2.16	-0.93	-1.53	0.74	0.38	1.31	0.93	-0.42	0.63	0.67	-0.06	-0.02	1.00	1.78	2.10

Table 3.3. Complex rating the sustainability of Bulgarian banks (Aller (TS), December 2012).

Banks	Complex rating "Assets"	Complex rating "Liquidity"	Complex rating of "Effective"	Complex rating "Resources"	Complex rating of "2012"	Assessment
PIRAEUS BANK BULGARIA	4.33	5.17	3.67	1.83	3.82	Normal Developing Bank
BULGARIAN AMERICAN CREDIT BANK	3.00	3.50	2.67	0.67	2.51	Normal Developing Bank
INTERNATIONAL ASSET BANK	2.33	3.67	2.83	1.00	2.49	Normal Developing Bank
MUNICIPAL BANK	1.33	2.67	5.17	0.67	2.45	Normal Developing Bank
TBI BANK	1.50	6.33	0.33	0.50	2.25	Stagnant bank
TEXIM BANK	2.00	2.33	3.83	0.17	2.11	Stagnant bank
CORPORATE COMMERCIAL BANK	2.33	1.17	2.50	1.67	1.92	Stagnant bank
SOCIETE GENERALE EXPRESSBANK	2.67	2.83	0.17	1.50	1.84	Stagnant bank
ALLIANZ BANK BULGARIA	2.67	2.67	2.17	0.50	1.82	Stagnant bank
Eurobank EFG BULGARIA	0.50	3.17	1.33	2.17	1.78	Stagnant bank
Tokuda Bank	2.00	1.17	0.67	2.00	1.46	Stagnant bank
Unicredit Bulbank	3.00	0.17	1.50	1.00	1.44	Stagnant bank
DSK	1.00	2.33	2.50	-0.33	1.40	Stagnant bank
COMMERCE BANK	0.50	3.83	2.00	-1.00	1.38	Stagnant bank
INVESTBANK	1.67	0.67	3.67	-0.83	1.31	Stagnant bank
Raiffeisenbank (BULGARIA)	2.83	2.17	0.67	-1.17	1.22	Stagnant bank
MKB Unionbank	0.00	2.17	4.00	-1.33	1.22	Stagnant bank
ProCredit Bank (BULGARIA)	-0.17	5.17	-0.67	0.00	1.14	Stagnant bank
CIBANK	0.33	3.00	1.33	-0.33	1.11	Stagnant bank
CREDIT AGRICOLE	2.67	3.17	-1.00	-1.00	1.07	Stagnant bank
BULGARIAN BANK FOR DEVELOPMENT	2.17	2.00	1.17	-1.67	1.00	Stagnant bank
CENTRAL COOPERATIVE BANK	4.50	-1.17	1.17	-1.67	0.81	Stagnant bank
UNITED BULGARIAN BANK	2.00	1.83	0.17	-2.00	0.60	Stagnant bank
FIRST INVESTMENT BANK	-0.67	2.50	-0.17	-3.17	-0.30	Stagnant bank

The results are not surprising since the analysis it has performed clearly visible negative impact of the global financial crisis on the banking sector in the country. Under these conditions, even

the assessment "stagnant" is relatively good, especially considering the issues surrounding Balkan countries and bankruptcies in Cyprus.

4. Comparative analysis of the results of ALER(TS) and rating system of Bulgarian banks of the "Banks Investment Money" Foundation

Of interest to the study is to compare the results with those obtained by other rating systems. Only such system was developed by the Bulgarian Credit Rating Agency and used by the "Banks Investment Money" in its annual ranking. The system is a rating of four major banks and independent sections:⁸

- **The "Best Bank"**, including indicators: (1) Return on assets, (2) Net interest margin, (3) Attitude equity to average total assets, (4) Ratio of current assets to total assets, (5) Adjust the level of leverage, (6) Dynamics of deposits for assessment year, (7) Dynamics of equity, (8) Share of retail deposits to total deposits, (9) Mean size of the loan portfolio to average total assets ratio, (10) Total assets, (11) Equity, and (12) Return on equity;
- **The "fastest growing bank"**, including indicators: (1) The dynamics of the assets assessment year in rates, (2) Dynamics of the loan portfolio for assessment year rates, (3) The dynamics of attracted funds for assessment year rates, (4) Dynamics of assets in absolute values, (5) Dynamics of the loan portfolio in absolute terms, and (6) Dynamics of borrowed funds in absolute terms;
- **The "most profitable bank"** including indicators: (1) Return on equity, (2) Return on assets, (3) Net interest margin, (4) Income from fees and commissions to the average amount of total assets ration, and (5) Net profit;
- **The "Best Managed Bank"**, including indicators: (1) Return on assets, (2) Net interest margin, (3) Attitude equity to average total assets ratio, (4) Current assets to total assets ratio, (5) Adjust the level of leverage, (6) Dynamics of deposits for assessment year, (7) Dynamics of equity, (8) Mean size of the loan portfolio to average total assets ration, and (9) Return on equity.

The system does not perform a comprehensive assessment of the banks. Details of the methodology itself, including the method of calculating the coefficients and their scoring are not publicly available to the public. Therefore, it is difficult to perform direct comparisons between the results obtained using a variety of methods and calculations.

Table 4.1 is made complex assessment of activities of banks based on their performance in different categories according to the methodology of BIM. Comprehensive assessment is obtained by adding the points of each bank for each evaluation category, while evaluating its objectivity should report that there is some distortion, as defined in the resulting evaluation indicators have relatively higher burden.⁹

Table 4.1. *Comparative analysis between estimates of the banking system in 2012 in the rating system of the "Banks Investment Money" rating system and ALER(TS)*

Bank	The best bank 2012		The fastest growing bank 2012		The most profitable bank 2012		The best managed bank 2012		Complex assessment 2012 BIM		Ratings ALER(TS) December 2012		Differences
	Place	Score	Place	Score	Place	Score	Place	Score	Place	Score	Place	Rating	
UniCredit Bulbank	2	194	6	106	3	98	2	142	1	540	12	1.44	11

⁸ <http://news.expert.bg/n426832>

⁹ **With three times its weight are included follow indicators:** (1) Return on assets, (2) Return on equity, and (3) Net interest margin.

With twice times its weight are included follow indicators: (1) Dynamics of deposits for assessment year, (2) Dynamics of equity, (3) Adjusting the level of leverage, (4) Current assets to total assets ratio, (5) Attitude equity to average total assets ratio, and (6) Average loan portfolio to average assets ratio.

Corporate Commercial Bank	4	161	1	135	9	71	6	118	2	485	7	1.92	5
DSK	1	195	16	53	1	107	3	128	3	483	13	1.40	10
TBI Bank	5	161	3	110	16	50	1	146	4	467	5	2.25	1
Societe Generale Express	6	158	8	98	4	87	9	114	5	457	8	1.84	3
Inter shanal Asset Bank	13	144	4	108	10	64	4	125	6	441	3	2.49	3
ProCredit Bank	10	151	13	61	2	105	5	119	7	436	18	1.14	11
Central CooperativeBank tive	7	158	5	107	13	58	12	112	8	435	21	0.81	14
First InvestmentInvestment Bank	9	151	2	113	7	75	19	91	9	430	23	-0.30	14
Allianz Bank	14	144	10	76	8	72	11	113	10	405	9	1.82	1
Bank of Piraeus	3	161	17	47	12	59	10	113	11	380	1	3.82	10
D Bank	20	122	7	99	17	47	13	109	12	377	14	1.38	2
CIBANK	11	146	20	39	5	76	14	107	13	368	19	1.11	6
Municipal Bank	21	118	14	59	6	75	15	102	14	354	4	2.45	10
Taksim Bank	15	140	12	63	21	27	7	117	15	347	6	2.11	9
Bulgarian-AmericanCredit Bank	16	134	9	96	23	9	16	99	16	338	2	2.51	14
Tokuda Bank	17	132	15	57	20	33	8	116	17	338	11	1.46	6
Postbank (Eurobank Bulgaria)	8	152	23	20	14	56	17	96	18	324	10	1.78	8
Invest Bank	19	124	11	69	19	34	18	91	19	318	15	1.31	4
United Bulgarian Bank	12	145	18	44	18	42	21	85	20	316	22	0.60	2
Raiffeisenbank	18	129	21	27	15	54	22	83	21	293	16	1.22	5
MKB Unionbank	22	113	22	26	11	61	20	87	22	287	17	1.22	5
Crédit Agricole	23	79	19	43	22	20	23	71	23	213	20	1.07	3

Significantly more accurate comparison between the two systems can be made by equating the calculated ratings of the groups to the composition of the assessments placed based on the methodology of the "Banks, Investments, Money". For example, in assessing *the "Best Bank"* includes 12 indicators, divided as follows: 4 to evaluate the effectiveness of the bank (33.3% share in the entire evaluation), 4 for evaluating the quality of assets (33.3, % share) and 4 to assess the resource base of the bank (33.3%). Applying this logic to the ratings of the different groups of ALER(TS), our assessment of the best bank would lend types:

Complex assessment

$$\text{"The Best bank"} = (0,333 \times \text{Assets}) + (0,333 \times \text{Efficiency}) + (0,333 \times \text{Resources})$$

(ALER(TS) adapted)

Table 4.2. Comparative analysis of evaluation for "Best Bank" in the methodology of BIM and adapted assessment based on ALER(TS)

Banks	Integrated rating "Assets"	Integrated rating "Effective"	Integrated rating "Resources"	Integrated rating "Best Bank 2012"	Complex rating (ALER(TS))	"Best Bank 2012" points (BIM)	Complex rating (BIM)
PIRAEUS BANK BULGARIA	4.33	3.67	1.83	3.24	1	161	3
MUNICIPAL BANK	1.33	5.17	0.67	2.37	2	118	21
CORPORATE COMMERCIAL BANK	2.33	2.5	1.67	2.15	3	161	4
BULGARIAN AMERICAN CREDIT BANK	3	2.67	0.67	2.09	4	134	16
INTERNATIONAL ASSET BANK	2.33	2.83	1	2.03	5	144	13
TEXIM BANK	2	3.83	0.17	1.98	6	140	15
Unicredit Bulbank	3	1.5	1	1.82	7	194	2
Tokuda Bank	2	0.67	2	1.54	8	132	17
INVESTBANK	1.67	3.67	-0.83	1.49	9	124	19
SOCIETE GENERALE EXPRESSBANK	2.67	0.17	1.5	1.43	10	158	6
ALLIANZ BANK BULGARIA	2.67	2.17	-0.5	1.43	10	144	14
CENTRAL BANK KOO-PERATIVNA	4.5	1.17	-1.67	1.32	12	158	7

Eurobank EFG BULGARIA	0.5	1.33	2.17	1.32	12	152	8
DSK	1	2.5	-0.33	1.05	14	195	1
MKB Unionbank	0	4	-1.33	0.88	15	113	22
Raiffeisenbank (BULGARIA)	2.83	0.67	-1.17	0.77	16	129	18
TBI BANK	1.5	0.33	0.5	0.77	16	161	5
BULGARIAN BANK FOR DEVELOPMENT	2.17	1.17	-1.67	0.55	17		
COMMERCE BANK	0.5	2	-1	0.50	18	122	20
CIBANK	0.33	1.33	-0.33	0.44	19	146	11
Credit Agricole	2.67	-1	-1	0.22	20	79	23
UNITED BULGARIAN BANK	2	0.17	-2	0.06	21	145	12
ProCredit Bank (BULGARIA)	-0.17	-0.67	0	-0.28	22	151	10
FIRST INVESTMENT Investment Bank	-0.67	-0.17	-3.17	-1.32	23	151	9

In applying a similar approach to the "Fastest growing bank," the 6 indicators are distributed as follows: 4 to assess the quality of assets (66.6,% share) and 2 to assess the resource base of the bank (33.3%), and equating ratings on different groups of Alert (TA) acquires the form:

$$\begin{aligned} & \text{Complex assessment} \\ & \text{"The fastest} \\ & \text{growing bank"} = (0,666 \times \text{Assets}) + (0,333 \times \text{Resources}) \\ & (\text{ALER(TS) adapted}) \end{aligned}$$

Table 4.3. Comparative analysis of the assessment of the "Fastest growing bank" methodology of BIM and adapted assessment ALER(TS)

Banks	Integrated rating "Assets"	Integrated rating "Resources"	Complex rating "The Fastest Growing Bank 2012"	Complex rating (ALER(TS))	Complex rating "The Fastest Growing Bank 2012" (BIM)	Complex rating (BIM)
PIRAEUS BANK BULGARIA	4.33	1.83	3.46	1	47	17
CENTRAL BANK cooperatives	4.5	-1.67	2.42	2	107	5
Unicredit Bulbank	3	1	2.31	3	106	6
SOCIETE GENERALE EXPRESSBANK	2.67	1.5	2.26	4	98	8
BULGARIAN AMERICAN CREDIT BANK	3	0.67	2.20	5	96	9
CORPORATE COMMERCIAL BANK	2.33	1.67	2.09	6	135	1
Tokuda Bank	2	2	1.98	7	57	15
INTERNATIONAL ASSET BANK	2.33	1	1.87	8	108	4
ALLIANZ BANK BULGARIA	2.67	-0.5	1.60	9	76	10
Raiffeisenbank (BULGARIA)	2.83	-1.17	1.48	10	27	21
Credit Agricole	2.67	-1	1.43	11	43	19
PEB TEXIM	2	0.17	1.38	12	63	12
TBI BANK	1.5	0.5	1.16	13	110	3
MUNICIPAL BANK	1.33	0.67	1.10	14	59	14
Eurobank EFG BULGARIA	0.5	2.17	1.05	15	20	23
BULGARIAN BANK FOR DEVELOPMENT	2.17	-1.67	0.88	16		
INVESTBANK	1.67	-0.83	0.83	17	69	11
UNITED BULGARIAN BANK	2	-2	0.66	18	44	18
DSK	1	-0.33	0.55	19	53	16
CIBANK	0.33	-0.33	0.11	20	39	20

COMMERCE BANK	0.5	-1	0.00	21	99	7
ProCredit Bank (BULGARIA)	-0.17	0	-0.11	22	61	13
MKB Unionbank	0	-1.33	-0.44	23	26	22
ONE Investment Bank	-0.67	-3.17	-1.49	24	113	2

The comparison between the rankings of BIM in the "Most profitable bank" with the results of ALER(TS) based solely on the assessment of the group "efficiency" as the foundation appreciates most profitable bank only with performance indicators.

$$\begin{aligned} & \text{Integrated assessment} \\ & \text{"The most profitable bank"} = \text{Complex rating} \\ & \text{(ALER(TS) adapted)} \quad \text{"Efficiency"} \end{aligned}$$

Table 4.4. Comparative analysis of assessment the "Most profitable bank" methodology of BIM and adapted assessment ALER(TS)

Banks	Integrated rating "Efficiency"	Complex rating "Most Profitable Bank 2012"	Complex rating ALER(TS)	Complex rating "The Most profitable Bank 2012" (BIM)	Complex rating (BIM)
MUNICIPAL BANK	5.17	5.17	1	75	6
MKB Unionbank	4	4.00	2	61	11
PEB TEXIM	3.83	3.83	3	27	21
PIRAEUS BANK BULGARIA	3.67	3.67	4	59	12
INVESTBANK	3.67	3.67	4	34	19
INTERNATIONAL ASSET BANK	2.83	2.83	6	64	10
BULGARIAN AMERICAN CREDIT BANK	2.67	2.67	7	9	23
CORPORATE COMMERCIAL BANK	2.5	2.50	8	71	9
DSK	2.5	2.50	8	107	1
ALLIANZ BANK BULGARIA	2.17	2.17	10	72	8
COMMERCE BANK	2	2.00	11	47	17
Unicredit Bulbank	1.5	1.50	12	98	3
Eurobank EFG BULGARIA	1.33	1.33	13	56	14
CIBANK	1.33	1.33	13	76	5
KOO CENTRAL BANK PERATIVNA	1.17	1.17	15	58	13
BULGARIAN BANK FOR DEVELOPMENT	1.17	1.17	15		
Raiffeisen BANK (BULGARIA)	0.67	0.67	17	54	15
Tokuda Bank	0.67	0.67	17	33	20
TBI BANK	0.33	0.33	19	50	16
UNITED BULGARIAN BANK	0.17	0.17	20	42	18
FIRST INVESTMENT Investment Bank	-0.17	-0.17	20	75	7
SOCIETE GENERALE EXPRESSBANK	0.17	0.17	20	87	4
ProCredit Bank (BULGARIA)	-0.67	-0.67	23	105	2
Credit Agricole	-1	-1.00	24	20	22

Assessment system ALER(TS) for the "Best Managed Bank" is done by equating the complex group ratings formula:

Complex rating
"The best managed bank" = $(0,333 \times \text{Assets}) + (0,444 \times \text{Efficiency}) + (0,222 \times \text{Resources})$
(ALER(TS) adapted)

Table 4.5. Comparative analysis of evaluation for the "Best Managed Bank" methodology of BIM and adapted assessment ALER(TS)

Banks	Integrated rating "Assets"	Integrated rating "Efficiency"	Integrated rating "Resources"	Complex rating "Best Managed Bank 2012"	Complex rating ALER(TS)	Complex rating "The Best managed Bank 2012" (BIM)	Complex rating (BIM)
PIRAEUS BANK BULGARIA	4.33	3.67	1.83	3.45	1	113	10
MUNICIPAL BANK	1.33	5.17	0.67	2.86	2	102	15
CORPORATE COMMERCIAL BANK	2.33	2.5	1.67	2.24	3	118	6
BULGARIAN AMERICAN CREDIT BANK	3	2.67	0.67	2.31	4	99	16
INTERNATIONAL ASSET BANK	2.33	2.83	1	2.23	5	125	4
PEB TEXIM	2	3.83	0.17	2.38	6	117	7
Unicredit Bulbank	3	1.5	1	1.87	7	142	2
Tokuda Bank	2	0.67	2	1.39	8	116	8
INVESTBANK	1.67	3.67	-0.83	1.98	9	91	18
ALLIANZ BANK BULGARIA	2.67	2.17	-0.5	1.73	10	113	11
SOCIETE GENERALE EXPRESSBANK	2.67	0.17	1.5	1.29	11	114	9
CENTRAL BANK KOO-PERATIVNA	4.5	1.17	-1.67	1.63	12	112	12
Eurobank EFG BULGARIA	0.5	1.33	2.17	1.23	12	96	17
DSK	1	2.5	-0.33	1.36	14	128	3
MKB Unionbank	0	4	-1.33	1.47	15	87	20
Raiffeisenbank (BULGARIA)	2.83	0.67	-1.17	0.97	16	83	22
TBI BANK	1.5	0.33	0.5	0.75	17	146	1
BULGARIAN BANK FOR DEVELOPMENT	2.17	1.17	-1.67	0.86	18		
COMMERCE BANK	0.5	2	-1	0.83	19	109	13
CIBANK	0.33	1.33	-0.33	0.62	20	107	14
Credit Agricole	2.67	-1	-1	0.22	21	71	23
UNITED BULGARIAN BANK	2	0.17	-2	0.29	22	85	21
ProCredit Bank (BULGARIA)	-0.17	-0.67	0	-0.35	23	119	5
FIRST INVESTMENT Investment Bank	-0.67	-0.17	-3.17	-0.99	24	91	19

As is clear from the preceding table, the estimates of banks in separate directions through the use of methodologies on BIM and ALER(TS) for the most part disagree. This is completely expected result due to different sets of parameters involved in the formation of integrated assessment in different areas of analysis.

Conclusion

Summarizing the results of this study we can conclude that the proposed methodology to assess the sustainability of the Bulgarian banking sector is feasible and it has established trends provide a real picture of the development of our banks. By assessing the basic directions of banking, namely the assets and liabilities of the bank, the efficiency of its operations and its level of liquidity and allow us to gain a general idea of the overall condition of both individual banks and the banking system as a whole. As shown by the analysis performed on the current state of the banking sector in

the country, has had a significant impact and the global financial crisis, resulting in the majority of sustainability assessments Bulgarian banks are in the range "stagnant bank."

In the comparative analysis of the results of applying the methodology ALER(TS) and of the "Banks Investment Money" showed that for certain banks, both methods give similar results, although on other discrepancies are significant. This is largely due to the differences in the two procedures, incl. indicators used and method of rating, which prevents their direct comparability.

Establishment and implementation of independent systems ratings banking sector is a very underdeveloped area of science in our interest and it will expand. From this perspective, the system ALER(TS) is the latest attempt to Svishtov financial school to develop and improve methods of independent assessment of the banking sector. The author recognizes that as each method, and this has the potential to improve and will gratefully accept constructive criticism and recommendations from colleagues, experts and professionals from the banking community.

References

1. **Адамов, В.** Финансова структура на банката, Икономическа мисъл, бр. 6, с. 73-88 (**Adamov, V.** Financial structure of the bank, Economic Thought, Issue 6, pp. 73-88)
2. **Адамов, В.** Управление на капиталите в търговската банка, АБАГАР, 1996 (**Adamov, V.** Management of capital in commercial bank, ABAGAR, 1996)
3. **Адамов, В.** Управление на собствения капитал на банката, Икономика, 1995, N 5, с. 38-41 (**Adamov, V.** Management of the Bank's equity, Economics, 1995, issue 5, pp. 38-41)
4. **Адамов, В.** Текущите капитали – основа на банковата активност, Банки Инвестиции Пари, 1995, N 8, с. 13-17 (**Adamov, V.** Current capital – basis on banking activity, Banks, Investments, Money, issue 8, 1995, pp. 13-17)
5. **БНБ**, Банките в България, бр. 1-4, София, 2007-2012 (**Bulgarian National Bank**, Banks in Bulgaria, issues 1-4, Sofia, 2007-2012)
6. **Божинов, Б.** Анализ на състоянието и развитието на българската банкова система (2007-2012), Библиотека Стопански свят, бр. 122, АИ Ценов, Свищов, 2013 (**Bojinov, B.** Analysis of the status and development of the Bulgarian banking system (2007-2012), Library of Economics world, issue 122, Academic Publishing House "D.A. Tsenov", Svishtov, 2013)
7. **Вътев, Ж и др.** Изследване въздействието на финансовата криза върху банковия сектор в България, Алманах научни изследвания. СА Д. А. Ценов - Свищов, 8, Т.11, 2010, с. 57-104 (**Vatev, J et al.** Study the impact of the financial crisis on the banking sector in Bulgaria, Almanac research. Svishtov, vol. 8, issue 11, 2010, pp. 57-104)
8. **Вътев, Ж, Б. Божинов, и др.** Дистанционен анализ на банковата дейност, Абагар, 2005 (**Vatev, J., B. Bojinov et al.** Site analysis of bank activities, ABAGAR, 2005)
9. **Вътев, Ж.** Възможности за дистанционен мониторинг на банките в България, Народно стопански архив, Свищов, LVIII, 2005, N 3, с. 25-33 (**Vatev, J.** Opportunities for remote monitoring of banks in Bulgaria, Narodostopanski Archive, Svishtov, LVIII, issue 3, 2005, pp. 25-33)
10. **Вътев, Ж. и др.** Анализ на банковата дейност, Абагар, 2004 (**Vatev, J. et al.** Analysis of bank activities. ABAGAR, 2004)
11. **Вътев, Ж.** Отражение на стопанската криза върху финансовите резултати на банките в България, Народно стопански архив (Свищов), 2009, N 3, с. 24-37 (**Vatev, J.** Impact of economic crisis on the financial results of banks in Bulgaria, Narodostopanski Archive, issue 3, Svishtov, 2009, pp. 24-37)
12. **Димитрова, Т.** Ефективност чрез рационализация на банковото управление, Бизнес управление, Свищов, XXII, 2012, N 4, с. 27-38 (**Dimitrova, T.** Efficiency through rationalization of bank management, Business management, Svishtov, vol. XXII, issue 4, 2012, pp. 27-38)
13. **Стоянов, С.** Банките в България през първата година на финансовата криза, ИДЕС (София), XIII, 2009, N 5, с. 11-22 (**Stoyanov, S.** Banks in Bulgaria during the first year of the financial crisis, IDEs (Sofia), vol. XIII, issue 5, 2009, pp. 11-22)

14. **Бувич, С, О. Королев.** Анализ финансовых результатов банковской деятельности, Кнорус, Москва, 2005 (**Buevich, C., O. Korolev.** Analysis financial results of banking activity, KnoRus, Moscow, 2005)
15. **Суворов, А.** Анализ банковской деятельности, Финансы и кредит, 2003, N 21, с. 19-25 (**Suvorov, A.** Analysis of bank activities, Finance and credit, issue 21, 2003, pp. 19-25)
16. **Andries, A.** A Comparative Analysis of Performance and Soundness Indicators of the Main Romanian Banks, 2009
17. **Blavy, R.** Assessing Banking Sector Soundness in a Long-Term Framework: The Case of Venezuela, IMF Working paper WP/06/225, 2006
18. **Bundesbank.** Financial Soundness indicators: a contribution to improving the worldwide availability of data for financial stability analysis, Financial Stability Review, 2006
19. **Cihak, M., K. Schaeck.** How well do aggregate prudential ratios identify banking system problems, Journal of Financial Stability, 2010
20. **Debbage, S.** Compiling Financial Stability Indicators from National Accounts and Prudential Data: A Central Bank's practical Experience, Bank of England, 2002
21. **European Central Bank.** Assessing financial stability: conceptual boundaries and challenges, Financial Stability review, June, 2005
22. **European Central bank.** Measuring challenges in assessing financial stability, Financial Stability Review, December 2005
23. **European Central bank,** EU Banking Sector Stability (September 2010), 2011
24. **Gersl, A, J. Hermanek.** Financial stability indicators: advantages and disadvantages og their use in assessment of financial stability, Financial Stability Report, Czech national Bank, 2006
25. **Hilbers, P., R. Krueger, M. Moretti.** New Tools for Assessing Financial System Soundness, Finance Development, September 2000, Volume 37, Number 3
26. **IMF,** Compilation Guide on Financial Soundness Indicators, 2006
27. **Moorhoues, A.** An introduction to financial soundness indicators, Bank of England, 2004
28. **Sundararajan, V., C. Enoch, A. Jose, P. Hilbers, R. Krueger, M. Moretti, G. Slack.** Financial Soundness Indicators: Analytical Aspects and Country Practices, Occasional paper 212, IMF, 2002
29. **Zapodeanu, D., M. Cociuba.** Financial Soundness indicators. Annals of the University of Petrosani, Economics, 10 (3), 2010, 365-372
30. [www.bnb.bg](http://bnb.bg/BankSupervision/BSCreditInstitution/BSCIFinansReports/BSCIFRBankingSystem/BS_201302_BG), Баланс и отчет за доходите на банковата система, Финансови и надзорни отчети – финансови данни (банкова система), 2007-2012, http://bnb.bg/BankSupervision/BSCreditInstitution/BSCIFinansReports/BSCIFRBankingSystem/BS_201302_BG (www.bnb.bg, Balance sheet and income statement of the banking system, financial and statutory reports - financial data (banking system), 2007-2012)
31. [www.bnb.bg](http://bnb.bg/BankSupervision/BSCreditInstitution/BSCIFinansReports/BSCIFRBankingSystem/BS_201302_BG), Ценни книги. Кредити и аванси. Привлечени средства, Финансови и надзорни отчети – финансови данни (банкова система), 2007-2012, http://bnb.bg/BankSupervision/BSCreditInstitution/BSCIFinansReports/BSCIFRBankingSystem/BS_201302_BG (www.bnb.bg, Security. Loans and advances. Borrowings, financial and statutory reports - financial data (banking system), 2007-2012)