

Risk assessment of large business escape from the region on the basis of the financial stability analysis of enterprises (using as the example the Volgograd region)

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Abstract — After the approval in 2017 of the Strategy of Economic Security of Russia for the period up to 2030, a careful attention is paid to the issues of the economic security provision of the regions. The term “economic security” is widely used since 1950s for the identification, study and prediction of all possible threats which on the one hand hinder the development of the economy and on the other lead to a considerable damage. Each region of Russia has its peculiarities of social and economic development and as a result has its specific threats and risks. For a balanced and progressive growth the regions need the funds which in first turn are received by the regional budget in the form of duties and taxes. In the mentioned context the stability and development of production and industrial potential is a priority task of the regional policy. In the article the object of the research are large enterprises (business leaders) and largest taxpayers of the Volgograd region. The subject of the research is the threat of large business escape from the region as the main source of regional budget's income. The monitoring and the consequent assessment of the financial stability of enterprises taxpayers on the basis of scoring system of average values of financial stability indices and the calculation of the integrated sustainability index are chosen as one of the methodological approaches.

Keywords — *economic security of a region; financial stability of and enterprise; loss of businesses by a region; scoring assessment; integrated sustainability index*

I. INTRODUCTION

One of priority tasks of the Volgograd region development is the creation of optimal condition for the establishment of new industrial enterprises and growth of industrial potential, timely identification of potential threats for the economic development of the region. The stability of the regional budget and its independence from subventions is seen as the key factor of the sustainable development. In this respect the issue about the retaining and development of large business as an indicator of the attracted investment capital and the main source of income in the regional budget is relevant.

The goal of the research is the assessment of the risk of large escape from a region as the threat for the economic

security of a region of the Russian Federation by means of the monitoring of the financial stability of enterprises with potentially insolvent condition.

In order to reach the goal mentioned above the following tasks are set:

- To substantiate the presence and the consequences of the risk of business escape from the region as a threat to the economic security of the Volgograd region hindering the economic growth;
- To identify the objects of the monitoring on the basis of the ranking of the largest enterprises taxpayers of the Volgograd region;
- To make a score assessment of the indices of the financial solvency of the objects of monitoring and to calculate the integrated sustainability index;
- To draw a conclusion.

II. MATERIALS AND METHODS (MODEL)

In the course of research a number of tasks by means of the use of specific techniques are solved. In order to substantiate the expedience of the financial stability monitoring of large enterprises taxpayers of the Volgograd region the place, composition and consequences of the production threats of the economic security of the region were identified. In this case the study, analysis, and systematization of well known groups and criteria of the classification of potential threats for the economic security of the region were carried out.

The selection of monitoring objects was implemented on the basis of the study and analysis of the rank of the largest enterprises taxpayers of the Volgograd region using the statistical data for the period 2012-2018. Also for the justification of the correctness of the selection large enterprises taxpayers were ranked according to the volume of the paid profit tax and the consolidated financial result. The data for the ranking are presented in the accounting reports

(Report on Financial Results) of the enterprises under analysis and they are available at: <https://www.rusprofile.ru> за 2012-2017 гг.

For a further monitoring of the indices of the financial stability of the enterprises taxpayers of the region under analysis the following financial indices were chosen: coefficient of financial stability, average values of which for 2012-2017 are the basis for the calculation of an integrated index.

The calculation of the integrated index is made using the formula (1):

$$I_{fs} = \sum p_i \times \Delta S_i, \quad (1)$$

where: I_{fs} – integrated index of financial sustainability;

p_i – average value of the index of financial sustainability;

ΔS_i – score in the ranking.

III. RESULTS AND DISCUSSION

A. Specific threats to the economic security of the region using as the example the Volgograd region

The economic security of every region is a nucleus ensuring the sustainability of the economic development and security of the country in the whole. The notion “economic security” has solidly come into domestic science and practice. At different times the issues of the economic security, the evolution of this term and its development were the subject of research of L.I. Abalkin, V.A. Savin, V.K. Senchagov, A.I. Tatarikina and other researchers. In theory besides various interpretations of notions and terms in the economic security the specific threats and risks for Russia in the whole and also regional threats and risks were identified and classified.

All authors have similar ideas about the key criteria which are typical of the terms “economic security of the country” and the “economic security of the region”. In particular such general categories like [1], [2], [3], [4] are placed into the group of previous definitions:

- Collection and/ or combination of conditions and factors;
- Protection of the interests or security;
- A set of measures or actions;
- Provision of independence, stability, sustainability and so on.

Simultaneously all authors make groups and classify the potential threats arising at macro, micro and meso levels of the economic structure of Russia. Within the present research the author does not set the goal of the generalization and the study of various interpretations of the term “economic security” and the classification groups of threats and risks. We will hold to a number of definitions which have a common starting point.

Thus, according to the opinion of I.E. Medushevskaya the basis of the economic security provision of a region is presented by the «ability of regional authorities to create

efficient mechanisms» [5], which are meant to ensure the development, stability and sustainability of a territory. Such an interpretation is in many aspects relevant especially for the Volgograd region due to a range of circumstances. In the region the unrest over local authorities and measures for the stabilization of the economic situation is growing. Thus the current conclusion is that the economic security of a region mainly depends on conditions, resources, interests and so on and can not finally be relevant and substantiated. In its turn the ability and efficiency of work of the officials at place are the criteria which generate interest for the research and confidence.

The variability and diversity of classification features characterizing the group of threats to the economic security of the region can be classified into two main groups: internal and external ones. The external threats are such factors as:

- Degree of regional dependence on foreign investments and foreign capital;
- Reduction of competitiveness of the enterprises of the region;
- Criminalization of the economy;
- Political situation and so on.

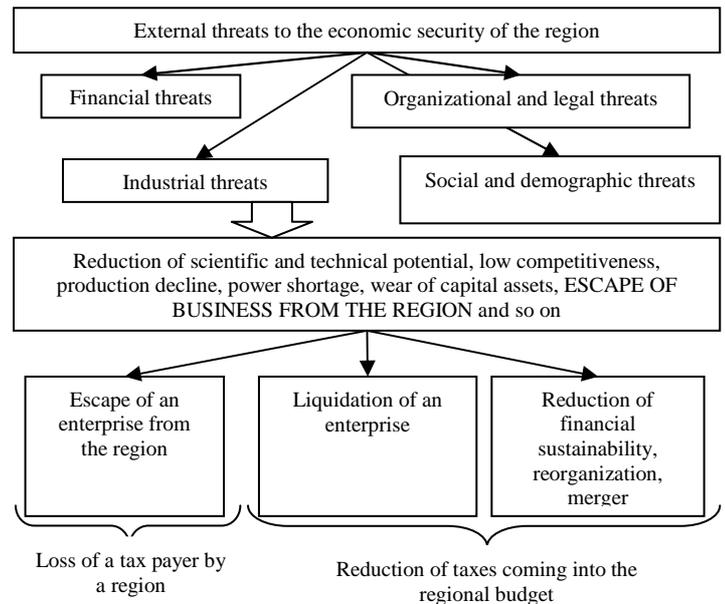


Fig. 1. Location, composition and consequences of production threats to the economic security of a region

The authors studying the regional economy among internal threats identify four main groups which are presented in Figure 1. They are financial, production, organizational and legal, social and demographic threats. For our research the biggest interest has the group including the industrial threats to the economic security of the region. In Figure 1 the most frequent general production threats mentioned in the scientific researches are presented.

The stability and economic development of a region in many aspects depend on the GDP (Regional), number of enterprises in the region and their solvency as taxpayers. In this respect the risk of escape of business from the region is considered to be as one of the key threats in the system of the economic security and should be studied thoroughly. There exist several variants of the loss of the businesses by the region and the consequences will always be the same: it is the general tax reduction coming into the regional budget. Thus, for instance the variant of the “escape” of an enterprise from the region deprives the region of the tax payments into the regional budget. The other variants of the loss of businesses by a region have less critical consequences but considerably reduce the incomes of the regional budget.

In the author’s opinion the study of the problem of the escape of businesses from the region should be carried out according to the following algorithm:

- Study and analysis of the rating of the largest enterprises taxpayers from the region;
- Selection of objects for a further research;
- Monitoring of financial stability of enterprises taxpayers of the region;
- Conclusion.

B. Selection of the objects for control on the basis of the ranking of the largest enterprises taxpayers of the Volgograd region

The Volgograd region due to its territorial location and climatic conditions is traditionally seen as an agrarian region. However, having a significant industrial and production potential which left after the collapse of the former Soviet Union the region is still taking advantage of it. In the territory of the Volgograd region there are a lot of industrial enterprises of federal and regional importance, resource supplying enterprises and military and industrial complex. Numerous industrial enterprises at the beginning were created as city forming plants and main employers.

Every year the Committee of Industry and Commerce of the Volgograd region publish the rating of the leading enterprises and organizations of the region. In this rating the enterprises are ranked according to the level of duties and taxes into the consolidated regional budget. On the basis of the information from the rating the list of the leading enterprises which were the main tax payers in the Volgograd region for the period 2012-2018 was made (Table I).

TABLE I. RATING OF LARGE ENTERPRISES TAXPAYERS OF THE VOLGOGRAD REGION ACCORDING TO THEIR CONTRIBUTION INTO THE REGIONAL BUDGET FOR 2012-2018. [6]

№ п/п	Enterprise	Year						
		2012	2013	2014	2015	2016	2017	2018
1	LTD Global Story Engineering «Neftezhavodmontazh»	1	1					
2	Closed Joint Stock Company «People’s Enterprise Konfil»	2	7					
3	PC «Volgogradobelektro»	3	5					
4	PC «Volzhskiy Orgsintez»	4		4	3	4	8	6
5	PC «SUN InBev» Volzhskiy»	5	8	1	2	1	2	2
6	PC «Sebriakovcement»	6		8	8	8	7	9
7	PC «Volzhskiy Abraziv Plant»	7	6					10
8	PC «Sebriakov plant of Asbestos – Cement Products»	8						
9	Branch of PC «RusHydro» - «Volzhskaya Power Electric Station»	9		3	4	2	1	4
10	PC «Volgogradneftemash»	10		9				
11	Branch of PC «MRSK Yuga - Volgogradenergo»		2	7	10			
12	LTD «Volgograd Plant of Drilling Equipment»			3				
13	LTD «Gazprom mezhregiongaz Volgograd»			4				
14	PC «Volzhskiy Pipe Plant»			2	1	3	4	3
15	LTD Joint Company «Volgodeminoil»			5	6	6	6	8
16	PC «Kaustik»			6	5	5	5	5
17	LTD «Lukoil-Volgogradnefteperabotka»				7	9		1
18	LTD «Gazprom transgaz Volgograd»				9		9	
19	PC «Federal Scientific and Industrial Enterprise «Tytan-Barrkady»					7	3	7

As the data of the Table I for the period 2012-2018 shows the list of the largest tax payers of the Volgograd region comprises 19 enterprises. A part of enterprises such as the Branch of the Public Corporation «SUN InBev» Volzhskiy», Public Corporation «Volzhskiy Orgsintez», Public Corporation «Sebriakovcement», Branch of Public Corporation «RusHydro» - «Volzhskaya Power Electric Station» are enlisted in the rating every year. They are the largest enterprises of the region which have been working for

a long time, have a stable output, maintain their production facilities and develop their industrial potential of the region in the whole.

There are enterprises which appeared in the rating in 2014-2016 and by 2019 still hold the leading positions. They are PC «Volzhskiy Orgsintez», LTD Joint Company «Volgodeminoil», PC «Kaustik», LTD «Lukoil-Volgogradnefteperabotka», PC «Federal Scientific and

Industrial Enterprise «Tytan- Barrkady». The enterprises mentioned above have the following common traits:

- Conservation and modernization of production facilities;
- High industrial potential created in modern economic conditions;
- Keeping and/ or the exit to an interregional or international market;
- Key meaning of the economy of the region and the country.

The biggest interest for our research present the enterprises which episodically appeared in the rating (no more than two times). They are: LTD Global Story Engineering «Neftezavodmontazh», PC «Sebriakov plant of Asbestos – Cement Products», PC «Volgogradobelektro», PC «Volgogradneftemash», LTD «Gazprom transgaz Volgograd», Closed Joint Stock Company «Employee Owned Enterprise Konfil», LTD «Volgograd Plant of Drilling Equipment», Branch of PC «MRSK Yuga - Volgogradenergo». It is worth mentioning that all the enterprises mentioned above are large

firms which have been working in the region for a long time or which had been established after the reorganization of other large enterprises, they are the main employers and have the most significant impact on the GDP of the region.

For the goal of the authenticity of the next monitoring of enterprises upon the level of financial sustainability let us rank the enterprises mentioned in Table I upon the level of the paid profit tax according to the level of the total financial result. The average data of financial reports of the enterprises for 2012-2017 were used.

According to the results of the ranking of the largest enterprises of the Volgograd region upon the amount of the paid profit tax and according to the total financial result in 2012-2018 (Table II) the conclusion can be drawn that in the further analysis and monitoring of financial stability indices of the enterprises taxpayers of the Volgograd region the same enterprises will take part and they will be same which were selected earlier according to the contribution into the regional budget in 2012-2018.

TABLE II. RATING OF THE LARGEST ENTERPRISES OF THE VOLGOGRAD REGION ACCORDING TO THE AMOUNT OF THE PAID PROFIT TAX AND ACCORDING TO THE LEVEL OF THE CONSOLIDATED FINANCIAL RESULT FOR 2012-2017 [7]

№ п/п	Enterprise	Average value for 2012-2017		Rating	
		Sum of the Profit Tax, thousand rubles	Consolidated financial result, thousand rubles	Upon the profit tax	Average Assets
1	LTD «Lukoil-Volgogradnefteperabotka»	5 820 090	26 941 838	1	1
2	PC «Volzhskiy Pipe Plant»	923 781	2 407 453	2	3
3	PC «Volzhskiy Orgsintez»	636 010	2 439 202	3	2
4	LTD Joint Company «Voldeminoil»	517 235	2 112 903	4	4
5	LTD «Gazprom mezhregiongaz Volgograd»	361 066	672 092	5	7
6	PC «Sebriakovcement»	344 925	1 405 843	6	5
7	PC «Kaustik»	263 882	866 174	7	6
8	LTD Global Story Engineering «Neftezavodmontazh»	185 320	501 424	8	8
9	PC «Volzhskiy Abraziv Plant»	144 895	280 193	9	11
10	PC «Sebriakov plant of Asbestos – Cement Products»	98 605	368 518	10	9
11	PC «Volgogradobelektro»	69 410	317 232	11	10
12	PC «Volgogradneftemash»	41 982	11 072	12	13
13	LTD «Gazprom mezhregiongaz Volgograd»	18 989	-17 830	13	14
14	Closed Joint Stock Company «Employee Owned Enterprise Konfil»	18 165	71 390	14	12
15	LTD «Volgograd Plant of Drilling Equipment»	0	-296 681	15	15

C. Monitoring of financial stability indices of enterprises tax payers of the Volgograd region

The monitoring of financial stability indices of the largest enterprises taxpayers of the Volgograd region will be carried out on the basis of the calculation of the integrated index. The financial stability indices can be seen as the basis of the financial basis of an enterprise. The term “financial stability” itself, the methodology of the analysis and criteria (indices) of the assessment are diverging. The variability and absence of a common integrated approach to the selection and further assessment of financial stability indices can be successfully compensated by the calculation of an integrated index of financial stability. The informational basis for research are the accounting financial reports and in particular the balance sheet.

For the purpose of our research let us identify the following financial results on the basis of which a further calculation of the integrated index of financial stability will be calculated:

- Debt to equity ratio;
- Equity to total assets ratio;
- Current assets to equity ratio;
- Current assets coverage ratio;
- Financial leverage ratio;
- Working assets to dead assets ratio;
- Equity holding ratio.

The calculation of financial stability of enterprises which were selected for the ranking was carried out for the period 2012-2017. The next stage of the ranking is the calculation of the average index upon every index of every selected enterprise. The consequent scoring assessment of the dynamics of the financial stability indices of every selected enterprise according to the algorithm is presented in Table III.

TABLE III. ASSESSMENT CRITERIA OF FINANCIAL STABILIBILITY INDICES OF AN ENTERPRISE

Index	Normative value	Weight of an index	Scores		
			Normative value	Insignificant deviation from the norm	Significant deviation from the norm
Debt to equity ratio	0,5-0,7	20	2	1,5	0
Equity to total assets ratio	≥ 0,5	20	2	1,5	0
Current assets to equity ratio	0,2-0,5	15	1,5	1	0
Current assets coverage ratio	0,8-1	15	1,5	1	0
Financial leverage ratio	is tending to 0	10	1	0,5	0
Working assets to dead assets ratio	(+, -) 1	10	1	0,5	0
Equity holding ratio	≥ 1	10	1	0,5	0
		100	10	6,5	0

On the basis of Table III the scoring assessment of financial stability indices of enterprises selected for the ranking was carried out (Table IV).

If the value of all the financial stability indices (if their average value is like in our calculation) corresponds to the normative one, thus the value of the integrated index will make 155. If an insignificant deviation form of all the indices from the normative value is observed, so the value of an integrated index will be more than 105. A significant deviation of financial stability indices from the normative one will lead to the situation when the integrated index will be lower than 105.

Consequently, the financial condition of an enterprise can be considered as a satisfactory one if the value of the integrated index is within the limits from 155 to 105. Otherwise if the value of the calculated integrated index is lower than 105, so we can speak about a low level of the financial stability of an enterprise. In such a situation the enterprise in fact is approaching the risk zone and potentially can be lost by the region as a significant tax payer.

Index of Financial Stability = 155 – absolute financial stability of an enterprise;

105 ≤ Index of Financial Stability ≤ 155 – financial condition of an enterprise is satisfactory;

Index of Financial Stability < 105 – financial condition of an enterprise is unsatisfactory.

TABLE IV. SCORING ASSESSMENT OF FINANCIAL STABILITY INDICES OF ENTERPRISES AND THE CALCULATION OF AN INTEGRATED INDEX

Enterprise	Index	Average value	Score in the rating	Integrated financial index
PC «Sebriakov plant of Asbestos – Cement Products»	Debt to equity ratio	0,01	0	92,5
	Equity to total assets ratio	0,89	2	
	Current assets to equity ratio	0,82	1	
	Current assets coverage ratio	0,87	1,5	
	Financial leverage ratio	0,11	0,5	
	Working assets to dead assets ratio	5,27	0,5	
	Equity holding ratio	0,96	0,5	
PC «Volgogradobelektro»	Debt to equity ratio	0,01	0	60
	Equity to total assets ratio	0,86	2	
	Current assets to equity ratio	0,03	0	
	Current assets coverage ratio	0,14	0	
	Financial leverage ratio	0,13	0,5	
	Working assets to dead assets ratio	0,21	0,5	
	Equity holding ratio	1,14	1	
PC «Volgogradneftemash»	Debt to equity ratio	0,49	1,5	102,5
	Equity to total assets ratio	0,34	1,5	
	Current assets to equity ratio	0,38	1,5	
	Current assets coverage ratio	0,17	0	
	Financial leverage ratio	0,64	0,5	
	Working assets to dead assets ratio	3,85	0,5	
	Equity holding ratio	0,97	1	
LTD «Gazprom mezhregiongaz Volgograd»	Debt to equity ratio	0,00	0	20
	Equity to total assets ratio	-0,01	0	
	Current assets to equity ratio	-276,38	0	
	Current assets coverage ratio	-0,08	0	
	Financial leverage ratio	1,00	0,5	
	Working assets to dead assets ratio	15,10	0,5	
	Equity holding ratio	27,79	1	
Closed Joint Stock Company «Employee Owned Enterprise Konfil»	Debt to equity ratio	0,00	0	97,5
	Equity to total assets ratio	0,88	2	
	Current assets to equity ratio	0,78	1	
	Current assets coverage ratio	0,85	1,5	
	Financial leverage ratio	0,11	0,5	
	Working assets to dead assets ratio	4,53	0,5	
	Equity holding ratio	1,02	1	
LTD «Volgograd Plant of Drilling Equipment»	Debt to equity ratio	0,17	0	10
	Equity to total assets ratio	-0,32	0	
	Current assets to equity ratio	-0,03	0	
	Current assets coverage ratio	-0,56	0	
	Financial leverage ratio	1,31	0,5	
	Working assets to dead assets ratio	5,72	0,5	
	Equity holding ratio	-1,05	0	

The obtained values of the integrated index of the enterprises under analysis are presented in Table IV and they are lower than 105. It should be noted that the values of financial sustainability indices of some enterprises were not at a critical level. Thus, in PC «Sebriakov plant of Asbestos – Cement Products» and PC «Volgogradneftemash» two indices correspond to the normative value and in Closed Joint Stock Company «Employee Owned Enterprise Konfil» there are three of them. At the same time the integrated index varied from 92 to 102. In such case we can speak about a possible return of the mentioned enterprises into the rating of the largest tax payers of the Volgograd region.

On the other hand according to the data of Table IV we can see that LTD «Gazprom mezhrefiongaz Volgograd» and LTD «Volgograd Plant of Drilling Equipment» have all the average values of financial stability for 2012-2017 which are unsatisfactory and the integrated index was less than 20. This means that the enterprises for the present moment can experience serious financial difficulties and they have a risk of a chronic insolvency. In fact we can declare that LTD «Gazprom mezhrefiongaz Volgograd» and LTD «Volgograd Plant of Drilling Equipment» for the moment are lost for the region as significant tax payers and their return into the rating is problematic.

IV. CONCLUSION

A. *Specific threats of the economic security of a region using as the example the Volgograd region*

In the system of the economic security of the region the external and internal threats can be identified, the treatment and classification of which are fully studied in the scientific literature. In the internal industrial threats the risk of the business escape from the region can be identified, its reasons and consequences for the economy of the region are shown, the algorithm of a further research and analysis is suggested.

B. *Selection of the monitoring objects on the basis of the rating of the largest enterprises taxpayers of the Volgograd region*

On the basis of the statistical data and accounting financial reports the ratings of the largest enterprises taxpayers according to their contribution into the regional budget for the period 2012-2018, according the amount of the paid profit tax and according to the level of the consolidated financial result for 2012-2017 were made. According to the rating the selection of the enterprises from the Volgograd region with

potentially critical financial condition for the consequent monitoring of financial stability results was made.

C. *Monitoring of financial sustainability indices of largest enterprises taxpayers of the Volgograd region*

The list of financial indices for the calculation of the integrated index is identified. According to the data of financial reports for the period 2012-2017 the financial indices of enterprises are calculated which were included into the list on the basis of the ratings published earlier. The assessment criteria of the financial stability indices of enterprises were presented in the table. The scoring assessment of average indices of financial sustainability of enterprises and the calculation of the integrated index for the period 2012-2017 is presented. The assessment of the risk of escape from the region of large enterprises taxpayers is made.

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