

# STATISTICAL ANALYSIS OF REGIONAL INTEGRATION ACTIVITIES OF RUSSIAN COMPANIES TO IMPROVE THE COMPETITIVENESS OF THE RUSSIAN ECONOMY<sup>1</sup>

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## Abstract

This article is devoted to the research of integration activities in region of Russian Federation. The conducted monitoring of Russia current legislation in the sphere of statistics and building of statistical data basis concerning merging and takeover showed us that there is no any executive authority which would be engaged in collecting and integrating information concerning integration activities. In connection with it we assembled all information basis of this research of the Russian data-analytic agencies' information. As a research instrument we used methods of structural shift analysis, methods of economical differentiation and concentration analysis, methods of nonparameter differentiation statistics.

In this article it was shown that social and economical development of Russian subjects is bound up with the functioning of vertical and integrated structures which are settled on its territory. Research in the field of structure and dynamics of integration activities among Russian subjects according to the data during 2003-2014 years allowed us to reveal an increasing dissimilarity of the integration activities in Russian regions.

Research results has a great practical value as they can be used for upgrading of the existing federal programs which are directed to flatten out disproportions in social and economical development of Russian Federation subjects.

**Key words:** integration activity, region, mergers and acquisitions, structural changes

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## Introduction

Issues relating to the problems and prospects of economic integration in the contemporary world can be attributed to debatable issues. At the same time, the world practice shows that the large companies form the aggregate supply and demand, determine the

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most important prerequisites for winning in the competition. The integration of production on global scales at the level of modern business structures is inherently a market phenomenon. It acts as a competitive strategy and at once is a manifestation of a self-organizing system in the market competitive environment. At the same time, as M. Lubatkin points out, there is a bilateral interaction. On the one hand, integration processes may affect the market formation; on the other hand, the integration is a reaction to the market (Lubatkin, 1983).

It is effectually to start the study of the integration activity of business structures in the regions of Russia with the specification describing its fundamental categories. A further empirical analysis is impossible without this methodological step. The term "economic integration" appeared in the works of German and Swedish economists in the 1930s, but today the general integration theory has not yet been created. Theoretical schools, focusing attention on specific aspects of the integration process, give different definitions to the integration as an economic phenomenon. Therefore, traditionally there are different approaches to the interpretation of the key categories characterizing the integration process. According to one of the most capacious definitions that are presented in Great Dictionary of Economics of A. B. Borisov, *integration* (from Latin integer - whole) is the association of economic subjects, their cooperative extension, and the development of relationships between them. At the same time, economic integration takes place both at the level of national economies of the whole countries and between business structures.

Thus, according to authors V. L. Bersenov, S. G. Vazhenin, and A. I. Tatarkin, despite the multiplicity of integration types they result in two options, depending on the subject composition of participants:

- territorial (interstate, interregional) integration initiated by central and local administrative authorities;
- industrial integration initiated by enterprises and organizations - the subjects of business (economic) activity (Bersenev, Vazhenin, Tatarkin, 2003).

In this connection, *economic integration* in this article refers to *industrial integration*, which is realized by business structures through the mechanism for executing integration transactions.

Due to the *specific features* of historical and economic formation of the Russian Federation, economic globalization leads to disproportions in the development of its territories resulting in the concentration of financial control levers and an *excessive* accumulation of *capital assets* in a limited number of regions and its lack in others

(Tyutyk, 2008). In terms of territorial aspect, the problem of increased separation of regions appears and, consequently, a conflict of interests between "leading" and "lagging" subjects of the *Russian Federation* emerges.

Thus, the problem of investigating the differentiation of regional differences in social and economic indicators, including the integration activity of economic entities, becomes of special importance for Russia. Moreover, investigation in this area should be based on comparable statistics, since only in this case continuity research can be carried out.

## **1. Review of sources of statistical information relating to the integration activity of business structures**

When monitoring existing Russian legislation in the field of statistics and compilation of statistical databases it should be noted that, there is currently no federal law that gives a single concept of statistics on mergers and acquisitions, order and principles of formation of statistical databases on the integration activity. The rules governing integration transactions are distributed in various normative legal acts of the Russian Federation.

The fact that there is no formal executive body that is entrusted with a comprehensive compilation of information on integration activities in Russia confirms also and the lack of a single state policy in the field of official statistical accounting for mergers and acquisitions. At the same time, the author thinks that the statistical information system of the integration activity of business structures in the regions of Russia generally seems to be a necessary element of the information system of the state. This provides the government, ministries, organizations, and the public with official data on transactions related to transferring ownership of assets and capital from one owner to another.

It is necessary to solve organizational tasks related to the collection and processing of data on mergers and acquisitions in the regional context in order to improve statistics in the field of the integration activity of business structures:

- the improvement of normative and legal acts of the Russian Federation governing the collection and processing of statistical data on integration transactions of economic entities;
- the enhancement of international cooperation within the framework of statistics on mergers and acquisitions due to greater integration of Russia into the process of data exchange on M&A transactions;
- the improvement of data sources by using surveys of head offices of integrated business structures as a source of information on the integration activity.

In this situation, various information and analytical agencies are engaged in data collection on integration activities of economic entities in the Russian Federation. Information agencies take into account transactions in which the purchaser and (or) the company acquired are Russian, that is the companies doing main business in the regions of the Russian Federation (Polikarpova, 2010). They publish data that indicate the lower bound of cost and quantitative volume of integration transactions and in many cases they are contradictory since their collection are based on various guidelines; disclosure of share package value (shares) in the majority of transactions is not acceptable, so the use of experts may be necessary to estimate it.

A database of integration activities of economic entities in the regions of the Russian Federation for the period from 2003 to 2014 was compiled based on statistical data of the analytical group M&A-Intelligence, and allows you to receive the following information: the date of settlement of the integration transaction; the object of merger and acquisition transaction; the amount of merger and acquisition transaction; sectoral affiliation of the integration transaction; territorial location of the object of the M&A transaction; the purchaser; territorial location of the purchaser in the M&A transaction.

## **2. The results of statistical investigations of the integration activity of business structures in the regional context**

The study is based on a series of basic hypotheses which we attempt to verify or refute with the aid of data collection and subsequent mathematical analyses thereof (Arltova, Smrcka, 2015).

The integration activity of the regions of Russia, calculated in terms of cost volume of the regional M&A market, is not uniform. In the Central Federal District (FD) this rate in 2012 was 44.055 billion dollars USA, in the Urals Federal District it was 3.435 billion dollars USA, and in the North Caucasus Federal District it was only 25 million dollars. USA. Moscow cost volume of mergers and acquisitions market provides the high integration activity in the Central Federal District. The low integration activity in the Southern and North Caucasus Federal District is associated, first of all, with the almost complete lack of the integration activity of business structures in such subjects as Stavropol, Volgograd and Rostov regions, the Republic of Ingushetia.

According to L.V. Kuznetsova's research, there are two reasons for the low integration activity of the economic entities in the North Caucasus Federal District. The first one is a

difficult social and political situation and the existing opinion on the specific ways of doing business in these regions. The second reason is the initially (at the start of market reforms in Russia) low level of industrial development. Republics in the Soviet era were predominantly agricultural and, therefore, there were practically no attractive assets for business (Kuznetsova, Kuznetsov, Turovskiy, Chetverikova, 2013).

If we analyse the contribution of each federal district to a national amount of merger and acquisition transactions concluded in 2014 that the Central and Volga Federal District are leading and Southern and North Caucasus Federal District are outsiders. The main share in the number of integration transactions, concluded by the Central federal district comprising 18 subjects, belongs to Moscow (91.83% of the total M&A transactions in this district). Moscow is leading in the number of merger and acquisition transactions concluded and planned in financial, trade, metallurgy, construction, and transport sectors. A significant proportion of transactions is with foreign participation.

In order to study the mobility of structural changes of the integration activity of regions in the federal context we will analyse structural changes according to the terms "the number of merger and acquisition transactions concluded." An analysis of the relative linear structural change with a permanent comparison base shows that the structural changes in all federal districts of Russia for the period from 2003 to 2014 are characterized as large structural changes.

An analysis of Figure 1 reveals that the Southern and Far Eastern Federal Districts are characterized by the largest structural changes in the quantitative volume of the market for corporate control as in the case of cost volume of the regional M&A market. This may be explained by the fact that in the federal districts there are many production assets both being stuck in bankruptcy and subject to sale and dynamic and attractive to investors.

To avoid cancellation of different specific weight changes of individual elements by sign in the total quadratic relative structural changes have been calculated in the structure of the number of M&A transactions and cost value of M&A market in the federal section in 2014 to the crisis of 2009. An analysis of the data shows that all of the federal districts of Russia reduced their integration activity because of the financial crisis. At the same time, the structure of the merger and acquisition market in terms of "cost volume of the M&A market" has undergone more significant changes than the structure of the market in terms of "the number of M&A transactions" in 6 of 8 federal districts.

Many foreign researchers noted the impact of macroeconomic factors on mergers and acquisitions. For example, Wu Changqi, Xie Ningling (Changqi, Ningling, 2010) argued that merger and acquisition transactions are dependent on the external environment that is on such factors as economic growth (crisis), the degree of competition, political and economic changes. Some researchers emphasize the importance of non-economic factors namely political, legal, and others (Yan, Ming, 2011).

During the crisis, Russian business structures have significantly reduced the scope of export expansion and focused on the domestic market in order to solve the problems of debts and restructuring of its assets. Residents sat on the fence, and determined if the gap between asking price expectations and sales price expectations reduced or eliminated, and, in connection with those, they were in no hurry to get access to the regional markets (Musatova, 2013).

Less significant changes for the period from 2009 to 2014 in the structure of the M&A market took place in the North-West Federal District. Maximum decrease in terms of "cost volume of the M&A market" was observed in the Far East Federal District, and in terms of "the number of M&A transactions" was in the Siberian Federal District.

To confirm the hypothesis of a significant divergence of mergers and acquisitions of corporate structures in the Russian regions we consider dynamics of changes in the coefficients of the inequality of the integration activity, calculated in terms of "cost volume of merger and acquisition market" for quintile (20 per cent) groups of regions for 2003-2014. The fifth quintile group (leading regions) includes such subjects as Moscow, Moscow region, St. Petersburg, Yamalo-Nenets Autonomous District, Republic of Tatarstan, Chelyabinsk region, and others.

In the period from 2003 to 2014, the share of the fourth quintile group remained relatively constant. At the same time, there was a decrease in the share of the first, second and third quintile groups - from 7.39% to 5.90%. The most significant decrease was in the share of the least integration activity of the first quintile group of regions - from 1.27% to 0.50%, that is it decreased by 2.54 times. At the same time, the share of the most active integration of the fifth quintile group increased by 1.03 times. Thus, the data in Table 2 show that the situation in the distribution of the integration activity of business structures in the subjects of the Russian Federation in 2014, compared with 2003, changed in terms of increased integration activity in the fifth group and reduced M&A-activity in the first quintile group.

Along with the terms the “share of quintile group in the total value of cost value of the M&A market”, it is advisable to use special factors, which comprehensively characterize the phenomenon under consideration, in order to analyse the concentration by regional groups. The index of concentration (Gini coefficient) is among these special parameters.

The calculation of the Gini coefficient is based on building the Lorenz curve that characterizes the cumulative characteristic under study depending on cumulative elements. The more the Lorenz curve deviates from a diagonal line, the greater is the degree of inequality in distribution of the integration activities together with analysable subjects of the Russian Federation. This degree of inequality in distribution is expressed as the ratio between the area of the figure, enclosed by the diagonal of the square and the Lorenz curve, to the area of the triangle equal to 0.5. This ratio is defined as the Gini coefficient (factor) (Dorfman, 1979).

According to the approach of V. A. Litvinov, the Gini coefficient, determining the deviation degree in actual distribution of the existing integration activity from the line of their possible equal distribution and comprehensively characterizing the integration process of activity concentration in groups of subjects of the Russian Federation only indirectly reflects the actual concentration in the narrow sense of the word, that is an intention to "pull" the entire integration activity of economic entities in one region (Litvinov, 1999).

With all that said, they suggested to use the Herfindahl index when analysing the concentration in the study of regional integration activity of business structures:

$$K = \sum_{i=1}^5 d_i^2, \quad (1)$$

where  $d_i$  is the proportion of each group of regions in the total value of the M&A market.

This index varies from 0 to 1. In contrast to the Gini coefficient, the Herfindahl index is an indicator of "direct action" and is indifferent to the line of theoretically possible equal distribution (Calkinst, 1983). In other words, the Herfindahl index takes the unequal distribution of the integration activity as an axiom, and its changes reflect the changes in the existing proportions between groups, that is, the ratio of the proportion of individual groups of regions in the total value of cost value of the merger and acquisition market.

In the analysed period from 2003 to 2014, the Gini coefficient showed high values, exhibiting *unequal* distribution of the integration activity of the subjects of the Russian Federation. The highest value of the Gini coefficient accounts for 2007 ( $G_{2007}=0,92$ ), the lowest value accounts for 2011 ( $G_{2011}=0,74$ ). In the period from 2003 to 2014 the Herfindahl

index did not fall below a value equal to  $K_{2005} = 0,76$  that indicates high concentrated integration activity.

The decile differentiation coefficient is the ratio of the value of the regional volume of merger and acquisition market, higher and lower of which 10%, respectively, of the most and least integration active Russian regions are located. The resulting decile differentiation coefficient equal to the ratio of the 9th and 1st deciles made  $D_{2014} = 183$  in 2014, that is, the minimum cost volume of the market for corporate control of 10 % of the most integration active subjects exceeds the maximum cost volume of M&A market of the less integration active regions of the Russian Federation over 183 times.

Thus, the Russian economy is characterized by deformed spatial structure of the integration activity of business structures in the regions. Both state and regional development policy in the field of the integration activity does not have enough influence to even out imbalances in the distribution of the ways for implementing integration projects. All this shows the need of activation policy in the field of the integration activity of the Russian business structures in the regions of the Russian Federation. One of the tools to achieve this goal is the adoption of approved documents at the regional level, which are relevant to international best practices (in particular, the Code of Good Practices on Fiscal Transparency, the Code of Good Practices on Transparency in Financial Policy, Regional Resources Management Guidelines, and others).

### **3. Conclusion**

Thus, on the one hand, integration processes of business structures reach significant proportions; on the other hand, the role of the state (the region) as an active subject of the economic impact is often reduced to the monitoring of the dynamics of macroeconomic indicators. The imperfection and divergence of the legal system in Russia are of particular importance in this process, resulting in the state inability to form the necessary basis for property relations as a fundamental element in the search for sustainable development at all levels, including regional.

The main directions to increase the integration activity of business structures in the Russian regions and enhance the integration effectiveness of economic entities are the following: the improvement of the investment climate and the development of competition in the regions of Russia; the introduction of rational forms of Russian business structure participation in implementing priorities of industrial policy at both the regional and federal



levels; the development of regional policies of the elaborating the subjects of the Russian Federation, taking into account the features of the integration processes of business structures taking place within regions; the improvement of the modalities of participation for regional authorities in the integrated structure activity when implementing the regional projections of investment strategies; the implementation of the so-called individual supporting integration projects in the practice while representatives of the regional authorities are actively involved in solving various kinds of administrative issues when implementing integration projects of business structures.

## References

- Arltova, M., Smrcka, L. (2015). A statistical analysis of the efficiency of asset forfeiture proceedings in the Czech Republic. In: The 10th International Days of Statistics and Economics, Conference Proceedings [online], Praha, 10.09.2015 – 12.10.2015, 55-70.
- Bersenev, V. L., Vazhenin, S. G., Tatarin, A. I. and others. (2003). Institutions of economic integration. Yekaterinburg: Institute of Economics of Ural Branch of Russian Academy of Sciences, 70.
- Calkinst, S. (1983). The New Merger Guidelines and the Herfindahl-Hirschman Index. *California Law Review*, 71, 402-429.
- Changqi, W., Ningling, X. (2010). Determinants of Cross-Border Merger & Acquisition Performance of Chinese Enterprises. *Procedia Social and Behavioral Sciences*, 2, 6896-6905.
- Dorfman, R. (1979). A formula for the Gini coefficient. *The Review of Economics and Statistics*, 1, 146-149.
- Kuznetsova, O. V., Kuznetsov, A. V., Turovskiy, R. F., Chetverikova, A. S. (2013). Investment strategies of big business and economy of the regions. Edited by O. V. Kuznetsova. Edition 3. Moscow: Book House Librokom, 440.
- Litvinov, V. A. (1999). Concentration and differentiation of cash income for the populations of the Russian Federation. *HSE Economic Journal*, 2, 226-237.
- Lubatkin, M. H. (1983). Mergers and the performance of the acquiring firm. *Academy of Management Review*, 8(2), 218-225.
- Musatova, M. M. (2013). The main trends in the development of integration processes in the contemporary world. Novosibirsk: Novosibirsk State University, 131.
- Polikarpova, M. G. (2010). Data base formation of integration analysis in order to improve the competitiveness of the Russian economy. *Bulletin of USTU*, 4, 62-72.

Tyutyk, O. V. (2008). Model of the regional merger and acquisition market. Transformation features of ownership relations and the effectiveness of the regional economic system. In terms of Perm region. Problems of Contemporary Science and Practice. Vernadsky University, 3 (13), 241-245.

Yan, L., Ming, L. (2011). The Analysis on Non-Economic Influencing Factors in Transnational Mergers Made by Chinese Energy Firms Based on ESP Paradigm. Energy Procedia, 5, 69-73.

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