

## CONCEPTUAL AND ANALYTICAL ASPECTS OF THE RISK SYSTEM IN A REGIONAL ECONOMY

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### Abstract

In the unstable market conditions of today's economic development it is becoming increasingly critical to build a well-balanced approach to creating a system of risk management for companies and regions as a whole that constitute a significant environment for economic development. The absence of risk management at companies and in regional governance aggravate the negative impact of risks on the results of economic development both at the microeconomic and mesoeconomic (regional) levels. A search for ways of economic risk prevention at the corporate level can be considered ineffective if the possibility of overcoming typical risks that pose a threat to many companies and emerge on the regional scale is ignored. Regional risks, including economic, environmental and social ones are a complex phenomenon that requires systematic examination by regional governments. In terms of risk emergence and analysis of the risk system of a regional economy, the management of a complex system of risks can incorporate risks borne by the financial system that forms the backbone of any economic system. The financial risks should be substantiated with an evaluation of the impact of regional statistical factors.

**Key words:** regional economy, system of risks, analysis method, rating

**JEL Code:** R1, C4, P4

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### Introduction

Under the current conditions of regional economic development it is becoming important to increase the impartiality of the analytical system of risk management both for companies and the regional economy as a whole. Limited non-systemic development of risk management by regional government agencies and companies aggravate the negative impact of risks on the results of economic development both at the microeconomic and mesoeconomic (regional) levels (Kloman, 1999).

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and emerge on the regional scale is ignored. Regional risks, including economic, environmental and social ones are a complex phenomenon that requires systematic examination by regional governments (Colmenares, 1997). All risks of the regional economy can be pulled into groups within the framework of a risk system based on relevant (measurable) factors substantiated by evaluation of regional statistical parameters. It is also expedient to take into account risk factors in regional companies. These indicators may lay the foundation for clusterization of the regional economy, formation of investor appeal and economic security ratings both at the corporate level and at the level of economy as a whole. The proposed methodology makes it possible to avoid a biased ranking system and boost the impartiality and significance of indicative assessment.

## **1 Targets and methodological principles of analysis of risk system in regional economy**

Before creating a methodology for assessing regional risks it is essential to single out objective parameters of risk assessment at the corporate level. These indicators will then serve as a foundation for developing a risk-oriented analytical approach at the level of the regional economy. For this purpose, it is reasonable to narrow down the parameters under analysis to factors of a financial crisis in a company.

Below are the main parameters of a conceptual approach to building the authors' model of a risk system both of an industrial company and of the regional economy as a whole. The model is a new subject of risk management in the theory of risk both at the local and regional levels. The model has the following qualitative features (Karanina, 2011a, 2011b):

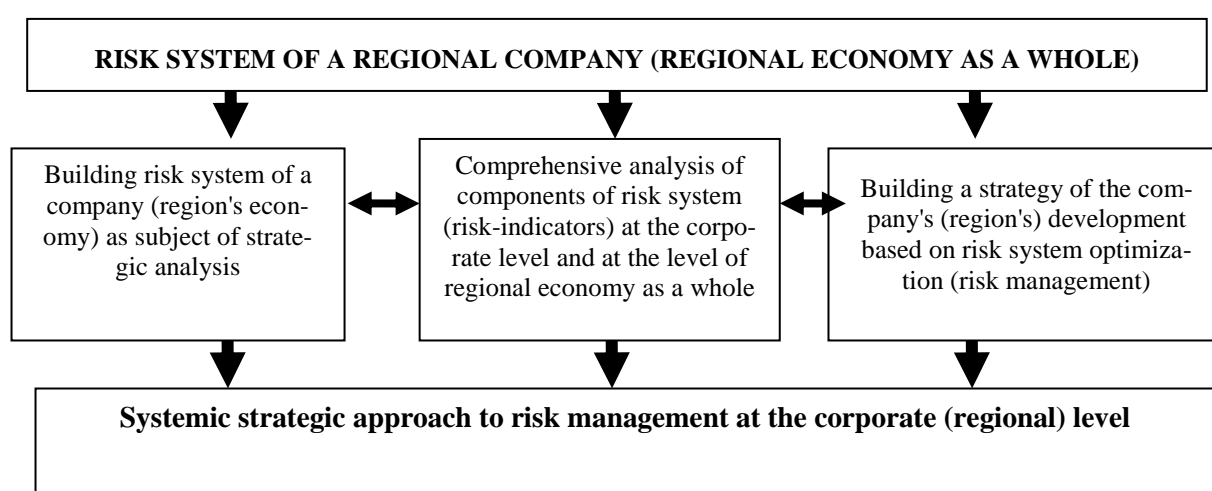
- it is connected to the national and regional economies;
- it is a combination of interrelated risk factors of the internal and external environments;
- it is controllable from the point of view of complex assessment and implementation of a set of risk management elements as part of a strategic approach (it is the subject of a new field in economic analysis introduced by the authors- strategic analysis of risk systems);

- it is an optimized combination of factors that are subjects of risk management. This means it envisages restrictions on and clearly defined qualitative substantiation of relevant risk analysis factors as well as their integration into complex strategic parameters and target criteria the assessment of which makes it possible to see whether they match average market regional and sectoral factors and a complex strategic position on the level of risks. That means that analytical and prognostic procedures as well as the process of making managerial decision will take less time.

Unlike systemic risk that is defined as a result of the influence of all market factors of economic instability, the concept of "risk system" proposed by the authors is mostly an analytically manageable optimized combination of interrelated risk factors.

The proposed set of factors and a set of measurable risk indicators based on it not only serve as the methodological foundation for unbiased risk analysis of the regional economy, but also help increase the efficiency and effectiveness of strategic management at different levels of the economic system (Fig. 1).

**Fig. 1: Structural correlation between risk system and components of region's economy**



Source: the figure was developed by the authors

Many researchers define the high importance of regional risk factors in the management and regulation of regional development authorities (Borisova, Kalinina, & Buyanova, 2016; Mitin, Ginzburg, & Yashina, 2015; Nan, & Jianling, 2010; Koschatzky, & Thomas, 2010; Ziskal, 2009).

## 2 System of analytical indicators

We shall proceed to describe a methodology of assessing significant components of the risk system, which considerably enhances and increases the impartiality of the existing approaches to the assessment of risk indicators at the level of the regional economy.

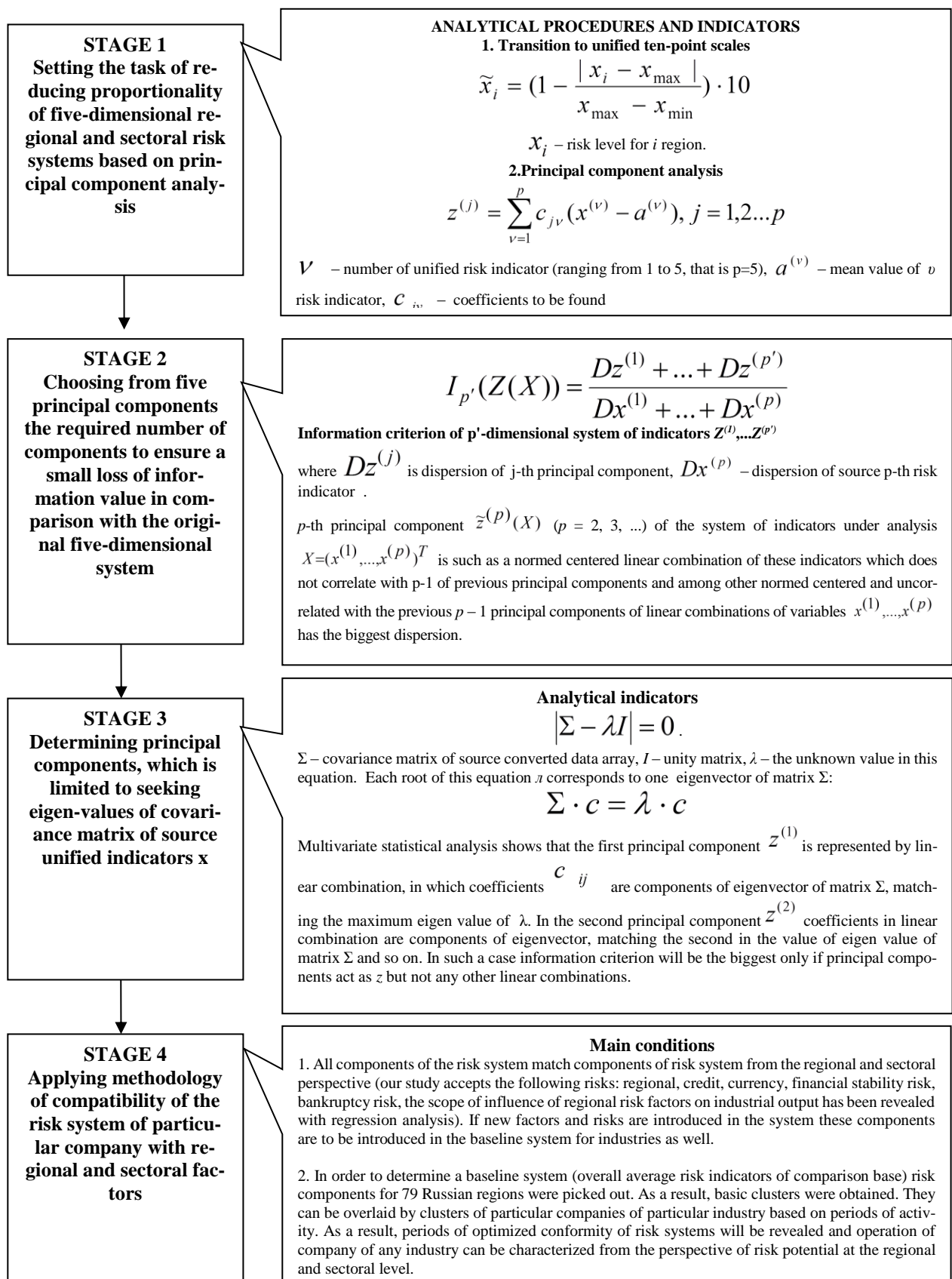
For the assessment of external risks, including regional and currency ones, one can use official statistical data and expert assessments (regional risk assessment can be based on the region's investment attractiveness ranking by the Expert rating agency or others, currency risk assessment may be based on official stock exchange data on currency volatility); bankruptcy

risk, credit risk, financial stability risk and complex risks can be assessed only on the basis of the results of analytical processing of regional statistical reports.

For the purposes of risk assessment it is also possible to use corporate information databases (SPARK, Globas-I). The risks being evaluated can be processed with the help of MS Excel, SPSS-statistics, PK Statistika. This mechanism can be implemented both at the corporate and regional levels, with the rating of risk factors relevant to the region's economic stability (economic security) being taken into account in regional governance.

A statistical examination shows that in order to increase the effectiveness of external evaluation of the positions of a region or a company operating in a specific industry it is necessary to single out several parameters of relevant risks in each sector using regression analysis. Relevant risks characterize the company's complex economic risk in its industry and can be used as a foundation for assessment of risks for the regional economy. Our study has revealed the following risks: financial stability risk, credit risk, currency risk, bankruptcy risk and complex risk. The set of factors may change spatially and temporally. This means that a company (or a region) at a certain time can be affected by a particular set of relevant risk factors. For instance, in order to determine investment attractiveness parameters it is appropriate to combine risk parameters with a set of investment potential indicators including industrial output, the number of employees, business and investment activity, labor productivity. This will result in two data piles standing out in the set of the assessment indicators: investment potential indicators and risk indicators. Unlike the approaches employed by the existing rating agencies which offer a subjective assessment of investment attractiveness of regional economies, our methodology will include assessment of unbiased indicators which helps increase the accuracy and reliability of the assessment. It can also influence the results, for instance the level of investment attractiveness (security) of regions may significantly differ from the established ratings in one direction or another. It has to be noted that it is the combination of the results of assessments of the five-dimensional risk system of a specific particular company or a region, which is based on statistical data that makes the methodology particularly valuable.

**Fig. 2: Main stages of application of methodology of assessment of regional and sectoral risk system**



Source: the figure was developed by the authors

Figure 2 presents the main stages of the application of the risk assessment methodology (by industries and regions of Russia). The methodology can also be used for assessing the compatibility of the company's risk system with regional and sectoral factors (Karanina, 2011a, 2011b, 2016).

The presented model of assessment of the regional and sectoral risk systems can be used in any branch of industry and business. Moreover, it is possible to forecast the values of the indicators based on sectoral and regional factors and conditions. Automation of this system will enable one to ensure adequate response to changing conditions of the internal and external environments and address the tasks of complex effective management in large and small companies as well as sectoral regional complexes (Karanina, 2011a).

### **3 Methods and materials**

Published statistical reports for the Russian regions, managerial accounting data in companies, corporate reports and databases (SPARK, Globas-I) are the prime sources of information for the recommended methodology.

When analyzing regional and sectoral factors of risk systems one can also use such well-known software products as statistical packages E-Views, SPSS, Statistika. The application of effective risk analysis procedures built upon unbiased indicators will contribute to the growth of impartiality and effectiveness of assessment.

### **4 Application of analytical results**

The obtained analytical results may be used:

1. In the theory and methodology of risk analysis for building systems of risk assessment indicators at the level of companies, industries and regions; for substantiation of the choice of strategy alternatives with risks at the local and meso-levels, which fit the criterion of impartiality and reliability.
2. For building and developing complex systems of risk management and economic security at the level of industrial companies and government agencies at the regional level; for building an effective strategy of implementation of anti-crisis policy for sustainable development of regional economies; for developing programs and concepts of economic security, for investment development with a set of substantiated risk indicators taken into account.

## Conclusion

Based on the conducted study we would like to make a number of important conclusions.

Correlation between the factors of regional economic development and regional risks has been confirmed by the results of Russian scientists' studies as well (Tatarkin, 2005, 2013; Kuklin, & Vasiliev, 2010). For instance, studies of factors of development of a median region by Academician Tatarkin A.I. showed that "a *median* effectively-developing region relies on the processes of self-development of all levels of regional and territorial social and economic systems. In order to achieve that, one should decide on mechanisms and instruments for setting the most effective and lasting priorities of regional and territorial development including those related to troubled territories for the purposes of increasing their steady performance based on self-management and self-sufficiency."

There is no doubt that when self-sufficient regional economic agents prevail, the level of the most important financial (credit and other) risks drops, which is confirmed by the results of our study. At the same time the region may lagging behind in its economic development. The fact that many Russian regions are drastically lagging behind, which is partly caused by a lack of investment and information overload in the investment environment, is still a negative economic factor. Insignificant risks of domestic companies and regional economic systems are largely disregarded as factors boosting investor appeal, security and stability of Russia's regions (Loginov, D., & Karanina, E., 2017).

Our study has shown that by using a complex approach to risk analysis and forecasting of relevant risks one can build an effective strategy of risk system creation and management for the sake of ensuring investment and economic security, steady growth of the economy both at the local, sectoral and regional levels.

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