

Opportunities of Using Regional Investment Risk for the Improvement of Regional Development Diagnostics

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Selecting the ways in order to solve many economic problems arising in the development of the country or its administrative-territorial units requires time verification to ensure the correctness and result orientation of the selected method. Within the study, the aim of the authors is to use the methods developed over the years and determine their actuality and expediency of implementation at the current stage. We mean a practical realization of the methodology for calculating state and regional investment risks and a ranking principle for the development of the regions of Georgia. At the same time, we have tried to find a connection between them and give a new approach and respect to previously conducted surveys in order to increase the quality of their practical use. © 2020 Bull. Georg. Natl. Acad. Sci.

Regional investment risk, components of risk, ranking of regions, integral index

Many researchers or practicing economists agree that the need for improving Georgian economy is to attract foreign investments and engage them in the process of enhancing the country's productivity potential. At the same time, it is also important to strengthen local investment potential that has to play a serious role in achieving targeted goals and overcoming a number of acute problems [1].

Years ago, in the course of implementation of the scientific research of these problems, our goal was only one of the issues of improvement of information support conditions for the investors: to investigate the existing experience of calculating investment risks and adapting them to Georgian reality (in the regional context too) and, according to different conditions, formation of a ranked list of regions. At the same time, we discussed the

problem from the viewpoint of both the state and business organizations.

Taking into consideration environmental conditions and current situation in the country, we aim to:

- **On the one hand**, to review once again the methods we have chosen on the basis of appropriate calculations based on expert assessments (due to a lack of proper comprehensive statistical information);
- **On the other hand**, work out a new integral indicator, by uniting integral index for ranking of the regions and investment risk regional correction coefficient, which would much more fully describe the regions and give us a greater chance of differentiation.

It is well-known that the essential prerequisite for convincing a potential investor into the profitability and expediency of investments is to provide him with full and objective information. He should believe that he is not going to lose his capital and should also be aware of the probability of failure, in other words investment risk [2]. Hereby, the existence and availability of such information should be in the interest of the regional authorities in order to increase the attractiveness of an administrative-territorial entity.

At the initial stage of the research, in order to calculate the risk, we used a method the essence of which is the following: the investor should adjust the total cost of his investment project both at a common-state (in case of external investor) and local risk rate and take into consideration the amount of alternative opportunities for money investment. "Risk-free investments" are adjusted primarily by a common-state risk, or the risk of losing/incomplete investive capital (or receivable income) in a given country. Exactly this is the interest of foreign investors who compare countries in terms of investment risks. An internal investor does not need this.

There is no calculation of similar indicators in Georgia. That is why, we decided to calculate that years ago, and the verification of accuracy of the calculation method was done by performing calculations on several time periods and comparing obtained results.

We made an assumption that risk in any country (in Georgia too) is unevenly distributed. The peculiarities of each region form its individual risk, so it will be correct to talk about the regional investment risk. Similarly to the state risk, regional risk will be taken into account when evaluating investment projects through adjusting the discount rate. In addition, in our view, the risk premium consists of two parts: a) **Individual risk** that is, directly the risk of the project, which is related to its peculiarities and does not depend on the place of its realization (the so-called entrepreneurial risk);

b) **Local risk**, which independently from the project, is characteristic for the place where it is realized and joined the project. It, in its turn, is divided into common- state, regional and local (urban, etc.) risks.

According to this principle, local risk unites country and region's risks. However, we think that it is right, when we consider the country's risk as the smallest and characteristic of all regions. Whereas in our view, we should calculate state risk as an average rate of investment risk in a given country. Accordingly, there are regions where local risk is greater than a state one and vice versa. Regional risk calculation is possible if it is assessed as a local (regional) correction of state risk [3].

When describing regional risk, we considered that it consists of the following elements:

1. Economic risk – r_{eco} . Economic development trends of the region;
2. Financial risk – r_{fin} . Balance of budget and enterprise finances;
3. Political risk – r_{pol} . Distribution of political sympathies of the population;
4. Social risk – r_{soc} . Social tension level;
5. Ecological risk – r_{ecol} . Environmental pollution quality;
6. Criminal risk – r_{crim} . Intensity of crime in the region;
7. Legislative risk – r_{leg} . Legal norms of investing in a particular area or field and the rule of using a separate factor of production.

Each component element affects the overall regional risk and their aggregation must give its overall integral significance. Instead of the widely spread "adding" or "multiplying", we addressed to another method, the essence of which is the following: all types of regional risk are considered not only as elements of the united whole but rather as a different aspect of regional risk. Each of them has its weight, is independent of the rest and characterizes the risk of the region with its specific parameters. They interact and determine one another.

In this perspective the given issue is not examined through the application of the methods for the additive summarization and animation-related multiplication, the corrective use of the coefficient of the significance of factors is not taken into account either. We take the view that multiple comparison method represents the most reasonable means of evaluation (according to the coefficient of significance for each) for various factors [4]. In this case the formula will be as follows:

$$I_{REG} = \sqrt{I_{ECON}^2 * k_1 + I_{FIN}^2 * k_2 + I_{POL}^2 * k_3 + I_{SOC}^2 * k_4 + I_{ECOL}^2 * k_5 + I_{CRIM}^2 * k_6 + I_{LEG}^2 * k_7}$$

wherein $k_1, k_2, k_3, k_4, k_5, k_6, k_7$ are the coefficients of the significance of regional correction. Accordingly, the coefficients of the economic, financial, political, social, ecological criminological and legislative risks are included.

The primary merit of the methodology given is that it enables us to determine the coefficient of regional risk due to the individual's, the investor's own viewpoints, that is, the individual coefficient is calculated based on the subjective viewpoints upon the coefficient of significance for the components of regional investment-related risk each, by means of which, the indicator of the overall risks for the state should be corrected.

We think that it is quite an essential matter of fact, since in our present condition obtaining suchlike ready-made official information is impossible. This method is employed individually and it helps us to evade commonly-held, general attitudes regarding the risk, because it is an entrepreneur exactly who makes an expert evaluation of the

occasion or event. The outcome of the occurrence of that event has its own causes and consequences, characterized by a variety of indicators. Along with that, the likelihood of the occurrence of an event is characterized by completely different quantitative-qualitative indicators. Owing to that, we aimed at determining suchlike indicators exactly, by means of which, we would be able to manage to characterize the probability of the outcome of the occurrence of an event, that of the risk. Their

modification implies certain change to risk levels [5]. The correlation of the risk of a concrete region with the state risk is described in terms of the correlation of their characteristic indicators at regional and state level.

It is essential to perform similar kind of actions if we want to obtain the constituents of the region's investment-related risk in exact quantities. However, considering regional peculiarities, we may still have an overall coefficient for the correction of the state risk without determining their quantities, through their characteristic indicators. At this point the quantity of an overall output indicator will not undergo any kind of change since in quantitative terms it takes into account the specifics of that indicator itself, along with its significance.

That is why the formula, designed for calculating the regional correction coefficient is comprised of not investment risk constituents but of their characteristic indicators, takes the following form:

$$R_i = \sqrt{I_{RGVA/PER\ CAPITA}^2 * K_{RGVA/PER\ CAPITA} + I_{B.B.}^2 * K_{B.B.} + I_{P.S.}^2 * K_{P.S.} + I_{S.T.}^2 * K_{S.T.} + I_{T.W.}^2 * K_{T.W.} + I_{R.C.}^2 * K_{R.C.} + I_{LEG}^2 * K_{LEG}} \quad (1)$$

significance of this or that indicator characteristic for the constituents of the regional risk. However, to any extent it does not exclude the acceptance of assistance on his/her part from the field experts.

It is known that "risk" is the likelihood of happening something of unforeseen or undesirable

wherein,
I_{RGVA/per capita} – regional gross value added indicator per capita at the national level;
K_{RGVA/per CAPITA} – coefficient of the significance of the "IRGVA/per capita" indicator;

I_{B.B.} – correlation of budget balancing indicators at the local and national levels;

K_{B.B.} – coefficient of the significance of the “IB.B.” indicator;

I_{P.S.} – correlation of the indicator of political sympathies at the local and national levels;

K_{P.S.} – coefficient of the significance of the “I P.S.” indicator;

I_{S.T.} – correlation of social tension indicators at the local and national levels;

K_{S.T.} – coefficient of the significance of the “IS.T.” indicator;

I_{T.W.} – correlation of the indicator of the regional and national levels of “the difference between producing and applying of the manufacture and consumption of toxic wastes”;

K_{T.W.} – coefficient of the significance of the “IT.W.” indicator;

I_{R.C.} – correlation of the indicator of the regional and national levels of “the number of registered crimes per 1000 population”

K_{R.C.} – coefficient of the significance of the “I R.C.” indicator;

I_{leg.} – correlation of the regional level of the legislation-related risk with the national level;

K_{leg.} – coefficient of the significance of the “I_{leg.}” Indicator.

In measuring integral regional risk, the most acceptable method is the expert evaluation of the significance of each constituent. Along with that, quantities are taken as the statistical mean resulting from the survey with a lot of experts, conducted [6].

Based on the methodology given above, the indicators of the investment risk were calculated for the region of Imereti for the years of 2002, 2009 and 2017. From that, in 2002 the coefficient calculated for the risk-related correction in the region of Imereti stood at 1, 3 (that is, the rate of the investment-related project risk, so as to consider the regional risk, 30 % should have been added to).

The situation changed significantly in 2008, which mainly touched upon the coefficients of the

importance of the constituents of the regional investment risk. For that period, we got a completely different coefficient for the state’s risk correction (0, 94). The said refers to the necessity for decreasing the project rate by 6%. This means that in 2009 in Imereti the investment environment was more attractive than on average in the rest of the country [7].

For the year of 2017 the said indicator stood at 0,98%. This means that in Imereti investing was still more beneficial than on average in the rest of the country, though the region’s indicator was very close to the average indicator of the country as a whole.

We consider that the significance of the risk of investment for each constituent differs according to different fields of economy and economical subjects. Thus, for the purpose of decreasing the probability of making a serious mistake to the maximum, we think it reasonable to make an expert evaluation, individually (for the purpose of determining the risk constituents), as well as based on specialists’ attitudes (for the purpose of determining the quality of the significance and for the purpose of obtaining relevant coefficients).

The estimation of the investment risk as a complex indicator, characteristic for the region in various aspects, has an organic connection with the regions’ ranking, which is also one of the elements of the regional diagnostics. Thorough diagnostics includes a wide range of regional situations and issue-related characteristics, a list of various factors for qualitative evaluation, determining situation-specific context and development.

The ranking of the regions’ socio-economic status, which is based upon aggregated key indicators for the regional development, enables us to determine the position of this or that region of Georgia on the economic map of Georgia. The relevance of ranking is determined by the necessity of the information transparency as well as by the interests of regional governing bodies, local self-government and business. It is of utmost

importance that the ranking must be based upon the indicators of official statistics, available for a wide range of stakeholders. However, similar to the estimation of the investment risk, even in this case we had to rely upon the expert evaluation to a great extent.

In making rank order, we made an analysis of massively important part of indicators, which are characteristic for various aspects of regions' socioeconomic situation. By means of analysis outcomes, the key indicators are formed, which enable us to determine regions' positions with respect to the level of socio-economic development.

The real sector indicators were utilized for the study of the issue. In order to have been evaluated the functioning of these indicators; we applied the following six major fields (subsectors): business sector, industry, construction, trade, hotels and restaurants, transport and communications.

We assessed each direction for separate regions of Georgia according to the following four indicators: turnout, output, number of employees, investment in fixed assets. We are aware of the fact that, instead of the volume of "turnout", it would be more appropriate if we had used the indicator of "the regional gross value added". However, because of insufficient statistical information, it was out of our capacity. Through an aggregate of indicators of the six fields given, the following **integral index** was calculated (I_{INT}): $I_{INT} = I_B + I_I + I_T + I_{HR} + I_{TC} + I_B$. [8]

However, similar to the calculation of the coefficient of the investment-related risk, if we take into account the significance of each element of the index in this formula, it will take the following form:

$$I_{INT} = I_B * k_1 + I_I * k_2 + I_T * k_3 + I_{HR} * k_4 + I_{TC} * k_5 + I_B * k_6, \quad (2)$$

wherein $k_1, k_2, k_3, k_4, k_5, k_6$, are coefficients of the significance of the index elements. Accordingly, those of business sector, industry, construction, trade, hotels and restaurants, transport and communications.

Due to the purpose of the research given, since we employed identical approaches for the calculation of the integral indices of regions' rank order and coefficient of the regional correction of the investment-related risk, we consider that it is quite plausible that they can be brought together. The mentioned above enables us to have a more precise differentiation of regions and (2) the formula takes the following form:

$$I_{INT} = (I_B * k_1 + I_I * k_2 + I_T * k_3 + I_{HR} * k_4 + I_{TC} * k_5 + I_B * k_6) * R_i. \quad (3)$$

Conclusion

For the evaluation of the functioning of the real sector, can be modified due to the interests and attitudes on the part of investors, considering the existing environmental conditions for a concrete period of time.

Therefore, as a result of the processing of thorough data obtained, we have a list of regions' rank order, with reference to their relative positions in terms of development. Rank order enables us to use the analysis outcomes not only for the evaluation of regions' investment-related attraction to be analyzed but also to highlight the problems, upon those of solution it is heavily dependent to have this or that region's development and a decrease in investment-related risks. Under the condition of approaching the EU, by means of thorough rank order given, it will be much easier for us to practically realize the experience of the European Union cohesion policy and optimal decision- making in line with the reality of Georgia.

ეკონომიკა

რეგიონული ინვესტიციური რისკის გამოყენების შესაძლებლობები რეგიონების განვითარების დიაგნოსტიკის სრულყოფისათვის

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ქვეყნისა თუ მისი ცალკეული ადმინისტრაციულ-ტერიტორიული ერთეულის განვითარების პროცესში წარმოქმნილი ბევრი ეკონომიკური პრობლემის გადაწყვეტის გზების შერჩევა დროში გადამოწმებას საჭიროებს, რათა დაერწმუნდეთ შერჩეული მეთოდის სისწორესა და შედეგზე ორიენტირებულობაში. წარმოდგენილი გამოკვლევის ფარგლებში, ავტორთა მიზანს წარმოადგენს კიდევ ერთხელ გამოვიყენოთ წლების წინ შემუშავებული მეთოდები და განვსაზღვროთ მათი აქტუალობა და იმპლემენტირების მიზანშეწონილობა მიმდინარე ეტაპზე. მხედველობაში გვაქვს სახელმწიფო და რეგიონული ინვესტიციური რისკების გაანგარიშების მეთოდოლოგიისა და საქართველოს რეგიონების განვითარების რანჟირების პრინციპის პრაქტიკული რეალიზება. ამასთან, შევეცადეთ დაგვედგინა მათ შორის კავშირი და ადრე ჩატარებული კვლევებისათვის ახალი მიმართება და დატვირთვა მიგვეცა, მათი პრაქტიკული გამოყენების ხარისხის ამაღლების მიზნით.

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