Practical instruments for assessment of strategic risk factors of entrepreneurial activity

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ABSTRACT: The environment of entrepreneurial activity is numerous and heterogeneous. It includes a large number of components, which have a different extent, nature and frequency of impact on the organization. The question of assessment methodology of the entrepreneurial activity strategic risk factors is sufficiently important. The aim of this study is to develop an assessment methodology model of the strategic risk factors of entrepreneurial activity with the application of a scenario-based approach to identify dependencies of the risk factors using statistical data for 10 years. By strategic risk factors are understood changes in the external common business environment. The following methods were used in this study: a) questionnaire of entrepreneurs and managers of small and medium enterprises, the Central Bank staff and scientists on the subject of selection of indicators characterizing the external business environment; b) correlation analysis; c) regression analysis; d) Delphi approach; e) scenario analysis methods. As a result of the conducted study the main factors influencing the entrepreneurial activity to the fullest degree were identified. Furthermore, a working hypothesis concerning the fact, that increase of standalone strategic risk factors not always exerts negative influence on the entrepreneurial activity was confirmed. The proposed tools of risk factors assessment and their influence on the entrepreneurial activity may be used both for assessment of the organization environment and for assessment of various risk situations aimed at further use of the obtained information when making decisions.

1 INTRODUCTION

The present-day business climate in Russia is determined by growing globalization, restriction on freedom of trade as a result of economic sanctions, increased competition, intensification of investments, at both the regional and global level, the weakening of state control in key sectors of the Russian economy, the growth of man-made disasters, universal informatisation and rapidly developing technologies.

At the current period of the national economy development, the issues of formation and development of the Russian entrepreneurship are sufficiently important in nature, resulting in they have gained not only economic but also social character.

Many modern researchers suggest that the risk is always laid in the basis of business, but it is not an entrepreneurship by itself, as it is peculiar to many other civil and economic relations, which cannot always be attributed to the business.

Having studied the development of the essence and the concept of entrepreneurship, it should be noted that throughout the history of economics the concept of “entrepreneurship” has been constantly linked with the concept of “risk”.

All this leads to an increase in the uncertainty of the environment and the effects of multiple risk factors on the entrepreneurship.

Therefore, the control and assessment of entrepreneurial activity risk is a major challenge, both for small and large businesses.

Risk management issues were considered in various aspects in the works of domestic, as well as foreign researchers.

Among the researchers, who have made a real contribution to the development of the theory and methodology of management and evaluation of risk factors, we can distinguish the works of researchers such as V. Avdiysky (2012), A. Algin (1989), A. Greenberg, (1983), S. Beshelev, F. Gurvich (1978, 1980), L. Evlanov (2011), V. Vyatkin, V. Gamza, Yu. Ekaterynoslavsky, P. Ivanushko, (2002, 2003), R. Kachalov (2012), M. Krui, D. Galai, R. Mark (2011), A. Kryukova, R. Fedosova (2008), B. Litvak (1996), N. Luhmann

(1994), F. Nayt (1994, 2003), J. Neumann, O. Morgenstern (1970),

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2 METHODOLOGY

Methodological approaches to the assessment of the macroenvironment (strategic risk factors), meso-, micro- and nano-medium, as well as the internal environment of the organization (tactical organization entourage risk factors) were developed in accordance with the systematic approach in the course of the study.

The assessment of strategic factors in the course of the study was carried out by the use of quantitative methods. The analysis includes political, economic, social and demographic, technological and international aspects, which influence on organizations.

The assessment of strategic risk factors was carried out in several stages:

1. determination of the strategic factors (by expertise);
2. selection of indicators characterizing the strategic risk factors (defined by experts);
3. selection of resultant indicators;
4. gathering figures from reliable sources and their primary processing;
5. construction of the correlation model of analysis of the correlations;
6. identification of key risk factors that influence the entrepreneurial activity of the organization;
7. development of the regression model and its test for the representativeness;
8. analysis of the regression model (when constructing the regression model, the proportion of gazelle-companies was chosen as a final indicator in the total number of organizations;
9. selection and development of scenarios of change of actual strategic risk factors;
10. detection of changes in proportion of gazelle-companies in the structure of the national economy according to the selected scenarios.

3 RESULTS

The analysis of simple correlation has shown that the rate of the state and dynamics of gazelle-companies in Russia had a high level of relation to the increase (decrease) in the following factors:

- frequency of legislation changing (-0.9)
- monetary policy of the state (0.8)
- changes in USD exchange rate (-0.8).

On the basis of the results of correlation analysis it can be concluded that the current macro environment is characterized by the fact that the growth of these factors has negative effect on the increase in proportion of gazelle-companies and this is indicated by a trend that emerged after 2008. However, the growth of index of the monetary policy of the state (dynamics of the money supply (*M2*)) in 2007 favorably affected the increase in the share of gazelle-companies (Appendix K, table K.1.).

As a result, a working hypothesis has been put forward, that the growth of gazelle-companies was adversely affected by the growth of the US dollar exchange rate and the increase in the frequency of changing the legislation, and the growth of the monetary policy of the state (the growth of the *M2* money supply) will have a positive impact.

In order to prove the proposed working hypothesis the regression model was suggested. Initial data and results of the regression analysis are presented in Appendix K.

The analysis of risk factors for macroenvironment of the organization in the resulting regression model allowed to reveal the current trends of strategic risk factors and to build a real model according to a formula (1):

$$Y = 17.64 - 0.23X_1 + 0.00015X_2 - 0.29X_3, \quad (1)$$

where X_1 – frequency of changes in the legislative field;

X_2 – monetary policy of the state;

X_3 – changes in the RUB to USD rate

The regression model characterizing the interaction of risk factors outlined above includes only three strategic risk factors that affect the dynamic development of domestic organizations. At

the same time, the monetary policy of the state has a beneficial effect, and the changes rate in the legislative field and the rise of the USD exchange rate is negative, which substantiates the suggested working hypothesis.

The development strategy of the organization is largely determined by changes in the general scenario of the business environment. In the course of this work, three options of scenarios have been analyzed.

The values of the risk factors for a realistic scenario were projected by applying constructing trend lines using different methods (linear, logarithmic and polynomial) widely used in economic forecasts (V.A. Sychev (2010), E.V. Puchkov (2011)). The criteria for the result selection was the approximation coefficient $\mathbb{R}^2$ for each method.

For the factor 1:

in the construction of the logarithmic trend line

X1= 16.261ln(n)+3.7384 = 47.774

R^2 = 0.7778;

in the construction of the linear trend line

X1 = 4.2727n+4.8 = 68.89

R^2= 0.9161;

in the construction of the polynomial trend line

X1 = 0.0871n^2+3.3144n+6.7167 = 76.03

R^2= 0.9185.

Based on the maximum value of the approximation coefficient (0.9185) one should choose the result obtained using polynomial trend line that equals X1 = 76.03.

A similar calculation for the other two factors was conducted:

– By means of the factor 2 the realistic forecast has also been obtained using polynomial trend line X2 = 56131.45 (when R^2= 0.9903);

– By means of the factor 3 the realistic forecast has been obtained using the same polynomial trend line X3 = 41.63 (when R^2= 0.6299).

To calculate the optimistic and pessimistic scenarios figures were obtained by expertise and based on forecasts by the Ministry of Economic Development and Ministry of Finance. The expert group was composed of employees of the Central Bank (3 persons), scientists - experts in this field (7 persons) and representatives of the business community (5 persons).

Indicator values for the first actual strategic risk factor - changing rate of legislation field - in the optimistic scenario of development (increase in the proportion of gazelle-companies in the structure of the national economy) should be reduced by 35%, while the pessimistic scenario calculations suggests increase by 11%. According to the second risk factor in this group - the monetary policy of the state, the importance of indicators in the optimistic scenario should improve by 15%, and at the pessimistic - by 9%. The third risk factor - changes in the RUB to USD rate, should remain at the level of 2013 in the optimistic scenario and increase by half compared with 2013 at the pessimistic one.

The projected data of changing the actual strategic risk factors (general business environment) by types of scenarios are presented in Table 1. (The value of the coefficients of a realistic scenario was determined by the construction of the trend line, and the optimistic and pessimistic - by expertise).

The table also shows the weighting factors for each actual strategic risk factor.

Table 1

Scenarios of the current strategic risk factors change

Item №	Risk factors	Scenarios		
		realistic	optimistic	pessimistic
1	Legislation field change frequency	76.03* / 0.3**	49.42 / 0.3	84.39 / 0.3
2	Monetary policy of the state	56131.45 / 0.3	64551.17 / 0.3	51079.62 / 0.3
3	Change in the ruble's rate to the US dollar	41.63 / 0.4	32.6 / 0.4	65.2 / 0.4

* The values of the risk factors in the forecasting.

** The weighing coefficient of a factor (determined by expertise).

The prognostic values of current strategic risk factors under different scenarios allow determine the level of gazelle-companies in such scenarios. To this end, for the determination of changes in proportion of gazelle-companies in the structure of the national economy there have been used selected indicators on scenarios by plugging in a real model (1).

According to the realistic forecast:

Y = 17.64– 0.23*76.03 +0.00015*56131.45 –0.29*41.63 = – 3.5.

According to the optimistic forecast:

Y = 17.64– 0.23*49.42 +0.00015*64551.17 –0.29*32.6 = 6.5.

According to the pessimistic scenario:

Y = 17.64– 0.23*84.39 +0.00015*51079.62 –0.29*65.2 = –13.02.

As a result of calculations it should be concluded, that if the trend of development of the

indicators under review continues, the gazelle-companies proportion will be reduced to almost zero, and after 5 years, their share will be even below zero, while according to the optimistic forecast the increase to 6.5 % is expected, and in the pessimistic - drop below zero.

4 CONCLUSION

The proposed method of assessment of strategic risk factors is based on an analysis of statistical data for the period of ten years and the forecast on the basis of these data, with the aid of scenario analysis techniques.

The conducted study identified the main factors that to the utmost influenced the entrepreneurial activity, and a working hypothesis that the increase in rates of certain strategic risk factors not always had a negative impact on the entrepreneurial activity has been confirmed. It is the growth of the US dollar rate and frequency of changes in the legislative field that have a negative impact, but the growth of the monetary policy of the state (the growth of the M2 money supply) will have a positive impact

The originality of the proposed method lies in the fact that ration of gazelle-companies was selected as a resultant indicator in the total number of organizations. The number of gazelle-companies can only grow within a favorable external environment and minimization of the actual strategic risk factors. Therefore, in this case, the number of gazelle-companies is the indicator of the state of the business environment, if their number grows due to the influence of any factors, the business environment is favorable, and if it is reduced then the environment is unfavorable.

Thus, the results of the study made it possible to get the characteristics of external risk environment in the current period for the entire Russian business (current strategic risk factors). The proposed risk factors assessment tools and their impact on the entrepreneurial activity can be used both to assess the environment of the organization, and for the evaluation of various risk situations in order to further use of the obtained information for decision-making.

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