

де R_j – потенціал ІСБ на j -му етапі її життєвого циклу; R_{ij} – сума i -х ресурсів ІСБ на j -му етапі життєвого циклу; K_{j-1} – коефіцієнт впливу попереднього етапу на наступний.

Механізм дії закону виявляється в характері розвитку: прогресивному, регресивному, революційному та еволюційному. Згідно дії закону розвитку потенціал ІСБ має властивості інерції, еластичності та безперервності стабілізації. Прояв інерції – у спізненні реакції на зміну. Вона може бути підсилена внаслідок опору змінам (закон усталеності) і визначається часом спізнення реакції потенціалу. Еластичні ІСБ швидко реагують на зміну вимог ринку.

З метою розроблення відповідних теоретичних засад антикризового управління ІСБ обґрунтовано основні закономірності функціонування і розвитку ІСБ територіальної громади за умови виникнення кризової ситуації.

Обґрунтовані теоретичні аспекти щодо політики управління кризовим станом ІСБ будуть використані у подальших дослідженнях щодо розробки відповідного теоретичного підґрунтя – теорії кризових явищ, їх виникнення, розвитку, методичного забезпечення, а також здійснення цієї роботи як на рівні ІСБ, так і територіальної громади загалом.

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FINANCING OF ANTI-CRISIS INNOVATIONS IN BUSINESS STRUCTURES

Practical experience shows that crises in integrated financial and industrial capital associations are not only possible, but they reflect own innovation development rhythms of each individual entity. It should be noted that the business structures (BS) creates favorable conditions for development and implementation

of various innovations, since it is easier to solve issues of financing, material support for searches, accelerated implementation of new developments in a business structure than as an individual member of the association.

The study of theoretical and methodological principles for innovations joint financing aimed to prevent crisis phenomena in business structures predetermines the following tasks:

- investigation of innovations joint financing mechanism in business structures;
- clarification of the «innovations» definition for further use in business structures, in particular for crisis situations prevention;
- development of theoretical and methodological approach to assessing the economic efficiency of business structures that implement innovations to prevent possible crises¹.

In order to prevent negative financial results in all business entities activities, it is necessary to take measures of the anti-crisis program for introducing novelties, i.e. innovations. Innovations, as a rule, are significant capital- and science-intensive novelties implemented in the development of the main productive force (person), equipment, technology, science, computer science, subjects of labor. Innovations may have a cross-sectoral character, it requires significant risky investments, infrastructure development and comprehensive support from the state.

Innovation is an important management tool in order to ensure the effectiveness of the BS's activities. Researches give grounds to assert that BS innovations are not only technical and technological developments but also new products, new financial and credit services, insurance, investment, trust and leasing services, new favorable conditions for customers, including prices, etc., which allow to improve the activity of such integrated associations².

Thus, there is a correlation between the probability of obtaining one or another profit size and the risk level of the innovative transformations strategy implementation. The lower the profit probability is, the more risky the innovation projects are, and from the other point of view, the higher risk level is expected, the greater project profitability is planned.

1 Мостенська Т.Л., Мостенська Т.Г. Антикризове управління у зовнішньоекономічній діяльності підприємства. Scientific research of the XXI century. Volume 1 : collective monograph / Compiled by V. Shpak; Chairman of the Editorial Board S. Tabachnikov. Sherman Oaks, Los Angeles : GS publishing service, 2021. 430 p.

2 Bondarchuk M, Druhov O., Voloshyn O. (2017) Research On The Problematics Of Anti-Crisis Innovations Financing In Business Structures. Financial and credit activity: problems of theory and practice, Vol 2, No 23. <https://doi.org/10.18371/fcaptp.v2i23.121394>

Besides the methods for preventing financial crisis risks in activities of integrated group participants it is expedient to foresee some methods for assessing the risk of funds investing in the enterprise with the threat of crisis by BS participants (table 1).

Table 1

**Methods for assessing the risk of funds investing in an enterprise
with the threat of crisis by BS participants**

Methods	Method's essence
«Minimax» method	A list of expected scenarios for the situation development during the process of capital formation should be prepared and two scenarios should be selected from these directions, where the process achieves both maximum and minimum efficiency.
Method for determining the risk level by taking into account enterprise losses	The risk level is determined, taking into account the size of losses and the probability of these losses.
Method for risk assessment using the model of capital assets estimation of the enterprise (CAPM)	The model shows what level of return on assets of the enterprise can be expected within the ideal risk-free and common market rates, taking into account enterprise's opportunities that form the level of riskiness.
Proposed method for determining the risk level	In order to evaluate and analyze an effective new direction of BS enterprise development which requires additional financial resources in an unfavorable (crisis) financial situation, we adopt this strategy as an average weighted estimate, where the occurrence probability of this or that strategy implementation assessment is taken as the base for weighting coefficients and the average expected norm of profitability is calculated.

Note: proposed by authors

Assessing the risk of funds investing in an enterprise with the threat of crisis by BS participants depends on how uncertainty is taken into account.

Such approach undoubtedly leads to risk minimization of BS participants, who invest their money in updating fixed assets of the enterprise that is facing a crisis situation. However, the use of this approach may have negative consequences concerning business activity reduction of BS participants.

The methodology for determining the risk level which takes into account losses amount and the likelihood of these losses may be used:

$$R = L \times P_l / 100\%, \quad (3)$$

where: R is the risk size, hrn.; L denotes losses amount, hrn.; P_l is losses probability, %.

Also, the capital asset pricing model (CAPM) is known as a model for risk assessment and mathematically it can be represented in the following way:

$$R_c = R_f + \beta(R_m - R_f), \quad (4)$$

where: R_c is the expected income (discount rate for equity), %; R_f denotes risk-free income rate, %; β is the beta coefficient of the project's risk level; R_m denotes the average market rate of return, %.

In case of unsystematic risk the model looks like this:

$$R_c = R_f + \beta(R_m - R_f) + E, \quad (5)$$

where: E is the increase in discount rate due to unsystematic risk, %.

The model shows what level of return on assets of the enterprise can be expected within the ideal risk-free and common market rates, taking into account the enterprise's opportunities that form the risk level β . The calculation of the rate of return on money directed to the given development strategy implementation in comparison with the profitability of the funds directed to alternative strategies development may be performed for the anti-crisis strategy of the business structure participant. In this regard, it is necessary to indicate the expediency of combining enterprises in the BS, what may also allow analyzing the riskiness of alternative strategies and reduce the risk level due to market positions of such an integrated group.

The probability theory may be used in order to estimate the risk level. Let's suppose that the internal rate of return (R_v) of the project implementation concerning the fixed assets renovation of the BS enterprise, which is in a crisis situation, depends on the probabilistic assessment of its realization possibility. Let's consider five probable assessments of the implementation strategy (high, permissible, average, low, unacceptable) in its relationship with the internal rate of return of the project (table 2).

Table 2

The evaluating probability of the development strategy implementation by the participant of business structure

Probabilistic score	The probability value of such an assessment, (p_i)	Internal rate of return (R_v), %
<i>High</i>	0,1	45
<i>Permissible</i>	0,2	35
<i>Average</i>	0,4	30
<i>Low</i>	0,2	20
<i>Unacceptable</i>	0,1	10

Note: proposed by authors

To evaluate and analyze an effective new direction of BS enterprise development, which requires additional financial resources because of an unfavorable (crisis) financial situation, we adopt this strategy as an average weighted esti-

mate, where the occurrence probability of this or that strategy implementation assessment is taken as the base for weighting coefficients and the average expected norm of profitability is calculated (R_v^{av}):

$$R_v^{av} = \sum p_i \times R_v \quad (6)$$

The average probabilistic estimate for the normal probability distribution law for the enterprise is the highest value, and then the probability values are evenly reduced to one (acceptable and high score) and another (low and inadmissible score) sides.

The root-mean-square deviation σ can be taken as a measure of risk with a high degree of accuracy and calculated by the formula:

$$\sigma = \sqrt{\sum ((R_v - R_v^a) \times p_i)} \quad (7)$$

The lower the value of σ is, the lower the risk while introducing a new strategy development for the BS enterprise is expected.

Consequently, the correct organization of scientific and technical work in the BS may enable favorable conditions creation for the process of updating enterprise production and products marketing implementation at a high level.

In order to clarify scientific approaches to promising research in the field of crisis management, the authors' interpretation of the term «business structure innovation» is presented: new products, new financial and credit services, insurance, investment, trust and leasing services, new favorable conditions for customers, including prices, etc., which make it possible to improve the activity of such integrated associations. At the same time, taking into account the directions of influence, we propose the definition of anti-crisis innovations of the BS: these are technical and technological developments, new products, new financial and credit services, insurance, investment, trust and leasing services, new favorable conditions for customers, including prices, etc., which allow to provide anti-crisis activities of integrated associations.

In order to prevent crisis situations in BS the theoretical and methodological approach to assessing the economic efficiency of business structures' innovation co-financing has been developed, taking into account the principles of innovation risks management in integrated associations.

The substantiated theoretical and methodological approaches to innovations financing in business structures can be used in further research on the appropriate theoretical support development for crisis phenomena prevention, for carrying out work both at the individual entity level and the at the level of business structure as a whole.