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SPOSOBY ZWIĘKSZENIA POTENCJAŁU INWESTYCYJNEGO SZKÓŁ WYŻSZYCH

[**słowa kluczowe.** szkolnictwo wyższe, warunki społeczno-ekonomiczne w gospodarce rynkowej, potencjał inwestycyjny, czynniki rozwoju, źródła finansowania, optymalizacja wielozadaniowa, środki trwałe]

Streszczenie

W niniejszej pracy omówione są sposoby zwiększające efektywność procesów zwiększania potencjału inwestycyjnego szkół wyższych poprzez optymalizację źródeł finansowania, biorąc pod uwagę cechy nowoczesnego społeczeństwa i sytuację ekonomiczną na Ukrainie.

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METHODS OF UNIVERSITIES INVESTMENT POTENTIAL IMPROVEMENT

Aiming at efficient implementation of investment potential of higher education institutions, taking into account social and economic systems, the latter systems conduct their investment activity which is subject to the goals and objectives of the operational nature. This activity meets the generally accepted approach to this process - as an attachment to different types of resources in order to obtain the planned effects in the future. Such notion as investment potential of the social and economic system appears in connection with investment activities, which totals its investment options used to achieve the objectives of its investment strategy [5]. Successful implementation of this strategy should facilitate the acquisition of competitive advantage by a university in the market, and comply with the requirement of a steady increase of the total market value of the assets [2;3]. In accordance with a modern point of view investment potential of the socio-economic system is accompanied by the following elements:

investment funds;

investment information;

human resources;

investment plans and projects [2;3;4;5].

The most important feature of investment resources is that investment activities are financed for account of these resources. Therefore, investment potential can be viewed as a subsystem of its economic potential and its financial resources.

Despite of the fact that the notion 'investment potential of the socio-economic system' is well-known, there are a lack of information about it in many textbooks and dictionaries i.e it is not extended to higher education institutions (HEIs). In many scientific works the term 'investment potential of the social and economic system' is used with regard to countries, regions, industries and other businesses. This concept is widespread in evaluating the potential of certain assets, financial market instruments and certain financial and commodity markets [2;3].

This situation requires the integrated approach to the study of the concept of 'investment potential of a HEI' in order to both bring it in the ordered system of relationships and determine its impact on the competitiveness and relevance of higher education in Ukraine.

Problems of improvement of the processes of the economic potential of business entities managing by means of development and implementation of targeted strategies for effective management have been researched by many Ukrainian and foreign scholars. Among them are the works of A. I. Amoshy, V. M. Andriyenka, G. P. Basharina , I. A. Blank, G. Breili, V. M. Heyts, I. M. Gryshchenko, A. P. Grechan, N. G. Danilochkyna, M. P. Denisenko, K. Drury, V. Zaruba, I. S. Kalenyuk, L. I. Mikhailov, S. Mayers, O. I. Push-kar, T. E. Unkovsky, N. G. Chumatchenko, A. D. Sheremet.

However issues related to the study of the investment potential of a university as a part of the economic potential of the current social and economic conditions of Ukraine's economy have not been sufficiently considered, which determines the relevance and the goals of the current paper.

The specificity of a contemporary Ukrainian university functioning shows that the bulk of its investment resources is directed to the acquisition of fixed assets which are used for the provision of educational services and research activities. In this context, one of the most important components of a university investment potential management is formation of the optimal structure of fixed assets sources of financing.

The analysis revealed several approaches to the determination of the optimal structure of sources of financing. Among them is the ranking of sources of financing by the following criteria [1;4;5;6]:

- by the degree of their value increase;

- by the structure of formed capital;

- by the average cost of capital;

- by the profitability of own capital;

- by the level of financial risk etc.

In order to maintain the existing competition universities need to evaluate their competitive advantages, strengths and weaknesses for investment activities. Therefore, in the current study it has been decided that the optimal structure of sources of financing should be formed simultaneously by several criteria, which is eventual by means of the methods of multi-criterion optimization utilising.

Since in the present social and economic conditions of the functioning the main objective of a university financing is to develop sufficient funds, so compliance of existing sources of financing with investment needs of the university will be used as the primary criterion of sources of financing optimization.

Hence it is advisable to conduct a preliminary screening of alternative on the basis of this criterion.

Based on the conducted analysis we assume that the total amount V of obtained funds for universities amounts to:

$$V = \sum_{i=1}^{n} I_i,$$

where I_i - the amount of money received from the i-th source of financing.

Therefore the goals of the second order, which contribute to the qualitative performance of the main goals can be formulated. A certain evaluation criterion should meet a specific goal. The goals may be introduced as follows:

- minimization of the term for funds employment;

- minimization of the cost of funds employment;

- compliance of the structure of sources of financing with targeted financial structure of the university.

The following is the list the goals of the second order considered more thoroughly.

Minimization of the term for funds employment. Employment of funds for universities, especially from the outside, is a long process. Therefore,

the following important criterion of costs formation efficiency can be highlighted – the rapid obtaining of financing i.e in a short term. A special feature of the short term for fund employment is that it consists of several time intervals characterizing timing of funds raising from specific sources. In fact this term can be represented as follows:

$$t = t_{n_1} - t_0,$$

where

t - actual time associated with the funds employment;

t_{n_1} - the day (the date) of receive funds from the last source of financing;

t_0 - the starting point (the date), the beginning of sources of financing search.

Minimization of the cost of funds employment. The total cost of funds employment equals the average cost of capital. The total cost of funds employment from a source of financing is the average cost of capital:

$$C_{avg} = \sum \left(K_{D_i} \times C_i \right),$$

where

C_{avg} - the average cost of capital;

K_{D_i} - a part of the i-th source of financing in total funding;

C_i - the cost of i-th source of financing, %.

Compliance of the structure of sources of funding with targeted financial structure of the university. For this purpose, such criterion as a share of equity capital has been selected. This criterion is directly related to the financial capital structure of the university. The target capital structure is determined by calculating the structure that has been developed in the university. The basis of this criterion is the benchmark, which must be met by the financial structure of the employed funds, which aims not at worsening of the existing capital structure of the university. A part of own sources in total amount of sources involved can be represented as follows:

$$S = \frac{\sum\limits_{i=1}^{n} I_{BK_i}}{\sum\limits_{i=1}^{n} I_{\Pi K_i} + \sum\limits_{i=1}^{n} I_{BK_i}},$$

where $\sum\limits_{i=1}^{n} I_{BK_i}$ - total sources of financing that can be related to the equity capital of the university;

where $\sum\limits_{i=1}^{n} I_{\Pi K_i}$ - total sources of financing that can be related to the loan capital of the university.

Compliance of structure of sources of financing with target financial structure of the capital can be represented as the RMS deviation of the actual structure from the target one:

$$\sigma = \sqrt{(S_\phi - S_u)^2},$$

where

σ - RMS deviation of the actual structure from the target one of the university;

S_ϕ - actual structure of sources of financing;

S_u - target structure of sources of financing.

When formalizing any model of optimization, the indispensable condition is its directivity, which in general may involve maximization or minimization of the result. Consequently it is expedient to determine the directivity of the above-mentioned criteria of capital assets sources of financing optimization.

The amount of the university's capital assets sources of financing must be equal to a certain need for funds. At the same time insufficient amount indicates the ineffectiveness of the policy of funding in the university, so for this criterion it is advisable to consider the best of its maximum value.

Both criteria of minimization of the term for funds employment and minimization of the cost of funds employment are explicitly focused on minimization.

Criteria of compliance of the structure of sources of funding with the target financial structure of the university recognizes that the optimal alternative is the one that has the least squared deviation from the target structure of sources of the university financing.

The task of optimization is to choose a single alternative (a combination of sources of financing) with a plurality of acceptable alternatives (all possible combinations of sources of financing) X, which meets the policy of the university's capital assets sources of financing. The formalized model of multi-objective optimization of the sources of funding structure is as follows:

$$\begin{cases} y_v = f_v(x) \to \max \\ y_t = f_t(x) \to \min \\ y_c = f_c(x) \to \min \\ y_s = f_s(x) \to \min \\ x \in X, \end{cases}$$

where

$y_v = f_v(x)$ - the objective function of optimization of funding;

$y_t = f_t(x)$ - the objective function of optimization of the time needed for funds raising;

$y_c = f_c(x)$ - the objective function of optimization of the cost for funds raising;

$y_s = f_s(x)$ - the objective function of optimization of the structure of financing;

X - set of feasible alternatives;

x - another alternative.

The given approach allows to simultaneously introduce multiple criteria of constraints. The implementation of the method assumes that it is possible to set levels where the value of the corresponding objective functions can be considered satisfactory. Since the levels that are set may be unreachable at the same time, the procedure of intensive correction to achieve acceptable set of alternatives is added to the method.

The suggested methods of the structure of sources of the university's fixed assets financing optimization can reasonably select existing financing options through various sources, including essential ones for effective financing policy options:

the funding;

the time needed for funds raising;

the cost of financing;

the structure of sources of financing.

The methods of multi-objective optimization of sources of financing will contribute to a reasonable decision-making with respect to the formation of fixed assets of the university, which will result in an increase of its investment potential.

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