PROCESS MODEL OF FORMING THE OPTIMAL STRUCTURE OF FINANCIAL SOURCES AT BUSINESS ENTERPRISES UNDER CONDITIONS OF ECONOMIC REVIVAL

The methodological and practical recommendations for the use of a process model for forming the optimal structure of financing sources at business enterprises under conditions of Ukraine's economic revival are substantiated. Despite the existence of some proposals regarding the mechanisms for forming the optimal structure of sources of financial resources at the level of business structures, the practice of implementing their various components by stages of the project cycle is of great interest. The etymological content of the scientific category «financial resources of the enterprise» is generalized and the composition of own, attracted and borrowed financing sources is specified. At the conceptual level, the algorithm for the optimal ratio of equity and borrowed capital at business enterprises is recommended, which allows determining the directions of attracting individual sources of financial resources. Within the framework of the process approach, the author's version of the process model of forming the optimal structure of financial sources at business enterprises is proposed, with the following five stages: selecting the optimization criteria and determining the target structure of financing sources; comparison of the achieved structure of sources of financial resources with their target structure; identifying limitations; selection of alternatives for forming sources of financial resources; provision of feedback and transition to the stage of researching the target capital structure. When forming the optimal structure of financing sources at business enterprises, depending on the classification features, the author identifies the limitations that affecting the structure of financial resources, namely: legislative limitations (related to the timing of attracting and using various types of financial resources and to the peculiarities of the taxation system); industry limitations (taking into account the period of raising funds, the size of the enterprise's value added and the degree of intra-industry cooperation); market limitations or limitations imposed by capital market participants (credit limitations, financial or stock limitations, limitations related to the lack of credit history of the borrowing enterprise). The expediency of dividing the established limitations into general and partial ones is substantiated.

Ключові слова: financial resources, invested capital, equity and borrowed capital, sources of financing, structure of sources of financial resources, process model of forming the
optimal structure of financing sources, business enterprises, economic revival of the national economy.

**Introduction.** The revival of the national economy in the post-war period cannot be imagined without the implementation of fundamental innovations in business enterprises, which will involve a significant increase in the size of capital and gross investments, the formation of an optimal structure of assets and sources of their financing, ensuring a constant stream of cash flows, increasing the size of invested capital and reducing dependence on borrowed capital. That is why the formation of a rational structure of sources of financial resources at modern Ukrainian enterprises should be considered an important component of the new financial policy, which should be implemented by top management and specialists of the financial subsystem at each business entity.

Ensuring the optimal structure of financing sources at enterprises of various forms of ownership is not a new problem for practitioners and scientists in the field of financial management. There are still lively discussions about determining the optimal ratio of equity and borrowed capital, finding additional sources of financing for simple and expanded reproduction, the necessity of implementing a financial leverage mechanism to increase the return on equity as a result of the optimal ratio of certain types of financing sources, etc. In the context of the wartime economy and the transition to the recovery economy, the managers of most Ukrainian enterprises will be faced with the need to change the current policy of forming an optimal structure of financial resources.

The emerging need for a constant search for additional sources of financing, both equity and borrowed capital, optimizing the internal structure and composition of existing financial resources, calculating the cost of raising capital in various forms confirms the relevance of research in this area and requires the development of practical recommendations for forming an effective process of managing sources of financial resources at business enterprises under conditions of transformational changes.

**Literature review.** The problems of forming an optimal structure for the sources of financial resources at enterprises in various sectors of the national economy are reflected in the fundamental studies of domestic and foreign researchers, among which are M. M. Berdar, M. D. Bilyk, I. O. Blank, O. P. Blyznyuk, Ye. F. Brigham, L. L. Grytsenko, G. G. Kireitsev, S. O. Kovalenko,
Certain issues of developing models of the optimal structure of sources of financial resources at enterprises have been disclosed in [4, 5, 11, 13]. Promising directions for forming a model of the optimal structure of sources of financial resources at the enterprise were considered in the author's study [3].

In particular, scientists O. V. Gladkova and T. I. Svynarenko proposed a sequence of management of the structure of financial resources of the enterprise [5, p. 26]. On the other hand, researchers N. S. Tymoshyk and Ye. V. Semchysyn focused mainly on the issues of forming financial resources and organizational aspects of their optimization [13, p. 234-235]. Scientists N. I. Gvozdey, I. S. Bondaruk and O. A. Vinnytska considered the characteristic features of the use of financial resources of the enterprise, determined the composition of models of generalizing indicators and criteria for assessing the effectiveness of their use [4, p. 218-219]. A. G. Semenov and A. V. Peleshko considered the directions of building a model of effective management of the enterprise's capital structure [11, p. 80-82].

However, given the importance of forming a rational capital structure due to limited access to key sources of funding, the absence of unified approaches to implementing capital management policies at business enterprises, and the need for a constant increase in equity, attracted and borrowed capital, a number of applied issues remain insufficiently researched. It is the above circumstances that have led to the necessity of conducting a scientific study in this area.

**Purpose and tasks.** The purpose of the study is to substantiate the methodological provisions and consider the applied principles regarding the application of the process model of forming the optimal structure of financial sources at business enterprises under conditions of the national economy revival.

In accordance with the purpose of the study, the algorithm for the optimal ratio of equity and borrowed capital was proposed, the author's version of the process model of forming the optimal structure of financial sources at business enterprises for the appropriate stages was developed, and limitations affecting the structure of sources of financial resources by classification criteria were determined.

**Research methods.** During the writing of the article, a number of general scientific research methods were used: methods of analysis and
synthesis, induction and deduction, dialectical method of cognition, complex approach — for forming the subject area of research and formulating the general problem; methods of comparisons and analogies, logical generalization, scientific abstraction, hypothetical method, observation, measurement — for determining the research concept, summarizing the scientific results and developing practical recommendations; tabular and graphical methods — for systematizing the data and visualizing the results of the study.

**Results and discussion.** Investigating the directions of forming the optimal structure of financing sources, it is first of all necessary to consider the etymological essence of the scientific category «financial resources of the enterprise».

Ukrainian scientists A. V. Nechyporenko and A. O. Rybalkina noted that «financial resources of the enterprise are the totality of all funds that an enterprise has at a certain date due to its main, financial and investment activities» [9]. A similar statement is supported by P. A. Stetsyuk, who emphasizes that «the financial resources of the enterprise are the most liquid assets that ensure the continuity of the enterprise's cash flows in the process of implementing its plans and fulfilling its obligations» [12, p. 29].

M. M. Berdar considers that «financial resources of enterprises are their own and borrowed monetary capital, which is used for the formation of their own assets and implementation of production and financial activities in order to generate income and profit» [1, p. 135].

The previous definitions are complemented by researchers L. L. Grytsenko and L. S. Derkach, who state that «financial resources of the enterprise are all the receipts of an economic entity that are in decentralized funds of monetary assets, as well as in a non-fund form, and are used to cover its needs and financial obligations in order to ensure expanded reproduction» [6, p. 81].

Scientists pay equally important attention to characterizing the sources of formation of financial resources of the enterprise. According to T. O. Zhuravlyova, the main sources for forming the financial resources of the enterprise are equity, attracted and borrowed capital [7, p. 43].

Scientists O. P. Blyznyuk and A. P. Gorpynenko include profit, depreciation, registered (share) capital and additional contributions of participants in the composition of the enterprise's own financial resources. The attracted financial resources are represented by collateral for future
expenses and payments and unpaid current liabilities. Borrowed financial resources include commercial and bank loans, financial leasing, factoring and proceeds from the issue of securities [2, p. 55-56].

Sometimes, the sources of enterprise financing also include provided financial resources (for example, insurance compensation, funds received from associations or industry structures, budget allocations, etc.) [15, p. 41].

A fairly reasonable opinion is expressed by the scientist I. P. Tkachenko, who argues that «the possibility of attracting financial resources from various sources, including the financial market, allows the enterprise to relatively freely maneuver the structure of these resources, choosing the optimal combination of them, taking into account certain factors affecting their volume and structure» [14, p. 363].

In the market conditions, ensuring the optimal structure of funding sources is no less challenging than optimizing the structure of property at business enterprises. On the one hand, it is considered that the structure of sources for financial resources at enterprises can be optimal only if equity capital prevails over borrowed capital. This is emphasized by Yu. V. Masyuk and L. I. Brovko [8, p. 182]. But achieving the «financial leverage effect» is possible only through additional attraction of borrowed capital, which, under certain conditions, will ensure an increase in the return on equity (ROE) of the enterprise, but will also reduce the level of its financial stability and manageability by business owners.

From this we can conclude that the optimal structure of financial resources for each enterprise will be unique and individual. This allows us to assert that there can be no universal model for forming the optimal structure of sources of financing at enterprises a priori, and therefore the managerial apparatus should apply various combinations of the developed models.

To date, financial science has developed four main concepts (models) for optimizing the structure of sources of financial resources of an enterprise: the traditionalist model, the concept of identity of the capital structure, the compromise concept and the concept of conflicting interests [10, p. 147]. All these concepts (models) are based on the sequential implementation of certain stages, which together form a holistic process of managing the structure of financial sources.

The author proposes to apply a process approach at the conceptual level for forming an optimal model of sources of financing at business enterprises, which will include the relevant components and the sequence
for implementing individual stages of the process of managing sources of financial resources.

The top managers of each business enterprise are currently trying to form the structure of financing sources based on their goals or optimization criteria (if the optimal structure of financial resources has already been formed). There may be several such goals, and then the combination of financial resources used will be determined by the degree of consistency of these goals.

Responsible specialists of the financial subsystem of business enterprises (Chief Accountants, Financial Managers and Financial Analysts) do not need to constantly monitoring the current structure of available capital. They should try to attract additional borrowed capital. If they succeed (provided that the enterprise is profitable and remains so after raising additional debt funds), then an increase in the share of borrowed capital can increase the market value of the business entity. As soon as an enterprise faces problems with a sufficient level of profitability, it means that it has actually exhausted its internal reserve, approaching the maximum value of the share of borrowed capital at this stage of its development.

Moreover, the costs of monitoring the current situation are shared by enterprises with potential investors, since the latter, in response to a request from enterprises for additional financial resources, should immediately analyze their current status.

The author is of the opinion that in order to further expands the scope of economic and financial activities of Ukrainian business enterprises, it is necessary to increase their equity capital. This can be done either by accumulating retained earnings or by increasing the amount of registered (share or equity) capital, i.e. by attracting additional financial resources from owners (founders, shareholders or participants).

The growth of equity capital will reduce the share of borrowed financial resources and increase the creditworthiness of business enterprises, thereby increasing their financial independence. An increase in creditworthiness can provide additional borrowed funds, and the cycle will repeat itself.

From our point of view, the main stages of such a cycle at business enterprises should be as follows:

1. Each enterprise should attract additional borrowed capital as long as it is profitable (including interest payments) and as long as it has the ability to do that. Profitability is defined as the excess of profits before interest and taxes over interest payments. If the profit exceeds the interest payments, it will be
profitable for the enterprise to develop with borrowed financial resources. If the profit is less, the business entity will suffer losses and the attraction of additional borrowed capital will reduce the market value of the enterprise.

2. After reaching the point where the enterprise is unable to find borrowed funds at an acceptable price (which indicates that the enterprise is overburdened with debt compared to the amount of equity), its managers should increase the amount of equity capital. The amount of equity capital growth should be such that it increases the enterprise's creditworthiness and thereby returns the cost of borrowed funds offered to the previous level.

3. In the future, the enterprise can again develop with borrowed funds until it reaches a point where it cannot pay for the cost of borrowed resources. This cycle is repeated, as shown graphically in Fig. 1.

Fig. 1. Recommended algorithm for the optimal ratio of equity and borrowed capital at business enterprises
Source: developed by the author

Fig. 1 shows an algorithm for forming an optimal ratio of sources of financial resources at business enterprises, which assumes that each enterprise will move to the next step only when all the possibilities of the
previous one have been exhausted. That is, the managers of business enterprises should not try to increase their debt obligations, thereby significantly increasing their cost, due to the following reasons:

1) an increase in the cost of borrowed funds, and, consequently, an increase in payments for the use of borrowed financial resources, will negatively affect the market value of the enterprises themselves;

2) having chosen the entire available amount of borrowed financial resources, enterprises, if they need additional funds to realize their investment opportunities, risk finding themselves in a situation of shortage or acute shortage of financial resources.

For these reasons, the top managers of business enterprises should not allow a significant increase in the price of borrowed funds used and proceed to the stage of increasing equity capital without waiting for the total amount of payments for the use of borrowed financial resources to approach the amount of net profit.

Since with each new cycle the enterprise reaches a higher level of development, the marginal share of borrowed financial resources in the total amount of financial resources (at which the growth of borrowed funds stops) is always higher than the previous one.

If the target structure of financing sources is defined, such cycles are repeated until it is achieved. If the owners have not formulated the optimal ratio of financing sources and the top managers strive to maximize the amount of financial resources at their disposal, or if the target structure is unattainable, the cycles repeat until, after a certain number of cycles, the enterprises encounter additional (general) constraints imposed by the market. These constraints indicate that these enterprises have approached the limit after which their market value will start declining with the growth of their loan capital.

Enterprises will encounter a market reaction that will show by its actions that further growth in the share of borrowed financial resources is impossible, as the benefits that will accrue to the enterprise will not be able to exceed the growth in the costs associated with the use of borrowed capital.

In this situation, enterprises will approach the maximum ratio of borrowed and equity capital, the excess of which, from the viewpoint of the owners of financial resources, will cause a sharp deterioration in their financial independence ratio (the ratio of equity capital to total financial resources).

We are convinced that in the future, the managers of business enterprises should maintain approximately the same proportion of additional equity and
borrowed financial resources to achieve the chosen target structure of financing sources (if the structure is determined by the owners) or to attract as much financial resources as possible at an acceptable cost (if the owners have other goals).

The author's proposed approach to the structure of sources of financing is based on the cyclical dynamics of the described process, the existence of market constraints that may arise in the course of development of business enterprises and the limit value of the share of borrowed capital. The recommended process model of forming the optimal structure of financial sources at business enterprises is a cycle of a certain sequence of stages, which are schematically shown in Fig. 2.

As can be seen in Fig. 2, the long-term dynamics of the development of business enterprises includes certain managerial cycles, which can be characterized as follows.

The first stage involves selecting the optimization criteria and determining the target structure of financing sources at the enterprise. The purpose of the first stage is to establish the share of borrowed capital that should be maximized by business professionals. Therefore, when selecting the optimization criteria, the responsible specialists of the financial subsystem (Financial Departments and Accounting Departments) should develop a clearly defined structure of financing sources for a certain period, documented by the owners. If the structure of the enterprise's financing sources is defined, it can freely cooperate with existing and potential investors.

At the second stage, in the process of using borrowed funds, the achieved structure of financial resources sources should be compared with their target structure. If the target structure is achieved, it is considered that the process of forming the structure of financial resources sources at the enterprise is completed. If the target structure of these sources is not achieved, the third stage involves identifying limitations (legislative, industry, market, etc.).

It should be emphasized that legislative limitations can be generally divided into two groups: 1. Limitations related to the timing of attracting and using various types of financial resources (avoiding delays in payments to creditors, making timely payments to suppliers of products under bills of exchange, etc.), and 2. Limitations related to the peculiarities of the taxation system (inability to deduct expenses related to the payment of remuneration to
owners of various types of borrowed funds to reduce the tax base in the calculation of profit tax).

**Fig. 2. Recommended process model of forming the optimal structure of financing sources at business enterprises**

Source: developed by the author
Industry limitations are related to differences in the structure and duration of production and sales cycles that are specific to each industry (e.g., seasonality).

These limitations should take into account:
1) the period of raising funds (with the growth of unfinished production, inventories, and receivables, the share of long-term sources of financing should be increased to maintain an adequate level of enterprise's solvency);
2) the size of the enterprise's value added (as the value added produced by the enterprise increases, the need attracting borrowed capital decreases);
3) the degree of intra-industry cooperation (if there are stable cooperative ties between enterprises in the same industry, each enterprise needs attracting less borrowed capital for financing its existing assets).

Market limitations or limitations imposed by capital market participants include:
– credit limitations (direct and indirect limitations on the volume of lending by commercial banks);
– financial or stock limitations related to the insufficient development of the financial capital market itself (application of the mechanism of sequential re-crediting in order attracting long-term bank loans);
– limitations related to the lack of credit history of the borrowing enterprise (in particular, limitations on the amount of the loan issued, limitations on the term of the loan issued, limitations on the use of a prominent loan (targeted lending), limitations on the interest rate (not lower than the market average) and a combination of several or all of these limitations).

In the course of their development, the specialists of each business enterprise must remove limitations for themselves, being able of attracting additional financial resources (both own and borrowed). By their very nature, these limitations (both for borrowed and own funds) are partial, that is, limitations related to the specifics of the stages of development of the enterprises themselves. Partial limitations can include market limitations and limitations imposed by capital market participants (as described above), industry limitations related to production cooperation, and others.

Such limitations, such as legislative, industry, related to the peculiarities of the production cycle, and some limitations imposed by capital market participants, are common to business enterprises. These cannot be changed
as a result of the actions of their top managers and are determined solely by the influence of environmental factors.

The author proposes to divide the limitations that affecting the formation of the structure of sources of financial resources at business enterprises into partial and general ones (Table 1).

Based on the results of the analysis of the data in Table 1, we can conclude that the existence of general limitations imposes certain partial limitations on the process of forming the structure of sources of financial resources at business enterprises, which are active to varying degrees for enterprises of different industries, different forms of ownership and different sizes.

**Table 1**

**Recommended classification of limitations affecting the structure of sources of financial resources at business enterprises**

<table>
<thead>
<tr>
<th>Limitations</th>
<th>Type of limitation by classification (general or partial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislative limitations (all)</td>
<td>General</td>
</tr>
<tr>
<td>Industry limitations related to the specifics of technological processes</td>
<td>General</td>
</tr>
<tr>
<td>Market limitations or limitations imposed by capital market participants, including:</td>
<td>Partial</td>
</tr>
<tr>
<td>- limitations on the amount of the loan issued</td>
<td>Partial</td>
</tr>
<tr>
<td>- limitations on the term of the loan issued</td>
<td>Partial</td>
</tr>
<tr>
<td>- limitations on the use of a prominent loan (targeted lending)</td>
<td>Partial</td>
</tr>
<tr>
<td>- limitations on the interest rate (not lower than the market average)</td>
<td>Partial</td>
</tr>
<tr>
<td>- a combination of several or all of these limitations</td>
<td>Partial</td>
</tr>
</tbody>
</table>

Source: compiled by the author

Leading professionals of business enterprises should determine the optimal structure of sources of financial resources based on the following factors: the cost of financing sources; the existence of costs associated with a possible loss of solvency; costs associated with a conflict of interest between owners and creditors; a conflict of interest between of enterprise's owners and managers; and the difference between the perception of information by owners and managers.
Based on the analysis of the possibilities of eliminating the limitations, the top managers of business enterprises at the fourth stage can choose two alternatives for forming sources of financial resources — attracting additional equity or borrowed capital.

In the case when the above limitations are fully or partially satisfied, further attraction of additional funds will take place. Therefore, additional borrowed capital will be raised, after which their share will reach a certain level.

An alternative for financing enterprises is that managers may choose not to raise additional equity capital and instead finance their development with borrowed funds. But in this case, the overload of borrowed funds will occur earlier than in the case of the previous increase in equity capital. It becomes quite clear that it is more profitable for the managers of business enterprises to first raise additional equity capital (for example, through additional contributions from owners by issuing shares or attracting capital investments), and only then turn to borrowed sources of financing, that is, commercial and commodity loans.

At the final stage of the process of forming the optimal structure of financing sources at business enterprises, there should be feedback and transition to the stage of researching the target capital structure (monitoring the current state of the structure of financial resources and forecasting the rate of change of its components in the medium term).

Accordingly, the top managers and responsible specialists of business enterprises that have not clearly formulated the requirements for the structure of financing sources, in other words, have not determined their target (optimal) structure, can use the model developed by the author as a tool for forming the optimal structure of financial resources at the highest level.

**Conclusions.** Thus, the practical application of the process model of forming the optimal structure of financial sources at business enterprises will allow rationalizing the ratio of equity and borrowed capital, taking into account the influence of environmental factors, strategic and tactical goals of enterprises in the field of financing, as well as existing limitations on capital raising. The developed model is easy to use and allows making informed managerial decisions in the sphere of economic activity of business enterprises with the use of a relatively small amount of necessary information. It is this model that will ensure the formation of real sources of expanded reproduction of fixed capital at enterprises under conditions of economic revival.
Promising areas for further scientific research include the formation of a rational structure of sources of financing for enterprise's assets of various forms of ownership and sectors of the national economy on the basis of an integrated approach, development and implementation of an effective capital management policy in the future.

References


Received 20.11.2023.

В. А. Власенко,
kandidat ekonomічних наук, доцент,
Полтавський університет економіки і торгівлі,
вул. Ковали, 3, м. Полтава, 36014, Україна.
e-mail: valentinpuet@gmail.com
ORCID 0000-0003-3892-9512

ПРОЦЕСНА МОДЕЛЬ ФОРМУВАННЯ ОПТИМАЛЬНОЇ СТРУКТУРИ ДЖЕРЕЛ ФІНАНСУВАННЯ НА ПІДПРИЄМСТВАХ СФЕРИ БІЗНЕСУ В УМОВАХ ЕКОНОМІЧНОГО ВІДРОДЖЕННЯ

У роботі обґрунтовано методологічні та розглянуто прикладні рекомендації щодо застосування процесної моделі формування оптимальної структури джерел фінансування на підприємствах сфери бізнесу в умовах відродження економіки України. Узагальнено етимологічний зміст наукової категорії «фінансове ресурси підприємства» та уточнено склад власних, залучених та позичкових джерел фінансування. На концептуальному рівні рекомендовано алгоритм оптимального співвідношення власного го та позичкового капіталу на підприємствах сфери бізнесу. Запропоновано авторський варіант процесної моделі формування оптимальної структури джерел фінансування на підприємствах сфери бізнесу за відповідними етапами. З метою формування оптимальної структури джерел фінансування на підприємствах сфери бізнесу залежно від класифікаційних ознак визначено обмеження, що впливають на структуру джерел фінансових ресурсів: законодавчі, галузеві, ринкові або обмеження, що висуваються суб’єктами ринку капіталу. Обґрунтовано доцільність розподілу встановлених обмеже-
нь на загальні та часткові.

**Ключові слова:** фінансові ресурси, інвестований капітал, власний та позичковий капітал, джерела фінансування, структура джерел фінансових ресурсів, процесна модель формування оптимальної структури джерел фінансування, підприємства сфери бізнесу, економічне відродження національної економіки.

**Список використаної літератури**

12. Тимошук Н. С., Семчишин Є. В. Організаційні аспекти формування та оптимізації
