

UDC 330.341.1: 622.271.3

**EFFICIENCY OF ENTERPRISE ACTIVITY AS A FUNCTION OF ITS INVEST-  
MENT SUPPORT**

*O. H. Vagonova, D.E., Professor, NTU «Dnipro Polytechnic», vagonova@nmu.org.ua,  
V. S. Dosuzhyi, post-graduate student, NTU «Dnipro Polytechnic», dosuzhyi@gmail.com,  
Yu. V. Zakharchenko, Senior Lecturer, Dnipro State Agrarian and Economic University,  
zakharchenko@list.ru*

The pre-investment issues that have to be solved during the construction of the production fa-

cilities are substantiated, and certain conditions which contribute to the development of entrepreneurial activities aimed at reproduction of fixed assets are identified. A methodical approach to calculate the amount of net profit sufficient to pay the credit interests and reimburse the credit itself has been developed. This provides early commissioning of the starting capacity of production facilities resulting in reduction in the amount of funds attracted. The economic expediency of the investment project for the production of new products has been determined, comparing the profit that can be obtained from the investment profitability and its volume to the net profit of the enterprise that can be obtained from the sale of products produced at the complex constructed.

The regularities in the distribution of cash flows for the provision of credit tranches, the payment of interest for their usage and accumulation of interest on the deposit of temporarily available funds under the fast, slow and even lending schedule have been established taking the example of the construction of a new complex of production facilities. An analytical relationship between both the period and the number of credit repayment time periods and the amount of the company's expenses for debt repayment are established.

The conclusions have been formulated regarding the provision of a financial loan, which, on the one hand, will help to improve the conditions for the borrower in repaying the amount of credit received, and, on the other hand, to increase the number of borrowers and, in the end, increase the creditor's profit which he/she will have despite the loss of some positions of self-interest. The reduction of the term and amount of credit repayment time periods will lead to a reduction in the amount of enterprise expenses connected with debt repayment (from 6 to 4 semesters - 15.2%).

**Keywords:** entrepreneurship, credit line, investment schedule, cash flow, power development, credit interests, payback period.

**Statement of problem.** The basic production means of industrial enterprises that have developed in previous years by means of the developed fixed assets structure can not be the basis for their further economic development [1]. The state and low efficiency of using the existing production potential of enterprises indicate the need for a set of measures to raise the innovation level, first of all, the means of production. Today, the enterprises of heavy engineering have almost 100% morally and up to 70% physically obsolete fixed assets. Only about 1% of the total output of the machine-building complex meets the requirements of the world market [2]. The recent growth in energy prices makes the problem of rapid development and technical innovation re-equipment of production even more urgent. New approaches to the solution of the problem should consist in accelerated innovative development at an appropriate level and non-traditional forms of investment provision.

Although the return on investment in innovative business in the world financial market is quite high, the difficulty to attract investments in the projects for the construction of production facilities is associated with a high risk of significant damage. Moreover, the main reason for the lack of demand for deposits is a

weak justification for financial support of these projects, which, despite this risk, have proved the possibility of the deposit effective development.

**Analysis of recent papers.** Weak attraction of both foreign and domestic capital in entrepreneurial activity on the basis of reproduction of fixed assets is limited by many factors that form together the investment attractiveness of such projects. L. V. Chernenko's article [3] suggested the directions to activate the investment activities by eliminating the negative impact of a number of political and social factors. Given the analysis of project design [4], it is more profitable for the enterprise to obtain a credit than to make financing from its own funds. However, such financing is more risky while the enterprise returns the credit interest and the bulk of the debt regardless of the project success. At the same time, such form of investing money is less risky for an investor, because he, in case of emergency, will get his money through legal action.

O. B. Filimonova [5] has systematized the methodological basis for the provision of bank loans as a combination of methods, principles, tools and prerequisites for enterprise financing. The author has developed a mechanism for bank lending, which is appropriate to

be applied in case of investment projects financial support. S. V. Vedernikova [6] has developed the theoretical and practical basis for the formation of effective credit relations between the banking and real sectors. On the basis of foreign experience, the author convincingly proved the need for the introduction and development of hybrid loan products that will help to improve relations between the banking institutions and enterprises.

I. S. Kramarenko [7] has investigated the features of enterprise lending under conditions of political and economic instability. The developed mechanism of lending to national enterprises provides for the creation of programs, a system of preferential lending based on the elements, methods and instruments of the credit process in accordance with the specifics of the enterprise's activities. Yu. I. Hudzevych [8] has drawn attention to the features of joint implementation of their economic, organizational and social components when justifying the mechanism for implementing entrepreneurial projects.

O. M. Kashuba [9] highlighted the issues of the entrepreneurship development at the macro and micro levels of the Ukrainian economy and the main among them are the following: the low competitiveness of domestic enterprises, an unattractive investment climate, the outflow of investments and other funds abroad, etc.

Summarizing the results of the analysis of the reviewed scientific papers, it was noted that they paid insufficient attention to the definition of the elements, methods and tools for the formation of a credit line, on the basis of which it would be possible to optimize the terms and amounts of individual financing stages, unreasonable initial components for the selection of expedient lending schedules for the construction of a production facility in dependence from sources of financing and distribution in time of cash flows. The specificity of the construction of a new complex of manufacturing equipment stipulates a certain organization of putting its capacity into operation, i.e. obtaining profit from the product sales and the loan repayment. This issue has been clarified at the level of general provisions, which do not contain ways to increase the attractiveness of the investment project aimed at reproduction of

production means.

**Aim of the paper.** The development of a new production facility is carried out by performing a complex of installation and construction works necessary to put it into operation and by the following manufacturing of industrial products in the volume of first (initial) power. The complex includes the preparation of the necessary equipment, arrangement of the workplace, installation-setup works, manufacturing of samples, etc. It is necessary to clarify and define the conditions contributing to the business activities of machine-building enterprises, taking into account the peculiarities of the investment process for the facility construction. The above-mentioned conditions provide for the development of a graphic form to display the credit receipts for the construction of a new production facility, primarily on the basis of credit financing and the choice of an effective option for loan debt repayment.

**Materials and methods.** Construction of the production facility determines the construction and commissioning of manufacturing equipment for the production release; this is a combination of basic and auxiliary production processes in combination with the workings necessary for their performance by means of technology, mechanization means under the condition of the safe and efficient production of products. Machine-building enterprise is one of the most complex organizations, which carries out its production and economic activities in an environment of high risk caused by the unpredictable environmental impact.

In general, based on the above-mentioned approach, the machine-building enterprise shall attract borrowed funds for the implementation of the basic volume of installation and construction works. Investments for the reproduction of the fixed assets can be carried out according to different schedules, which will differ in terms of the conditions and amounts of the financing stages, the procedure for paying interest on loans, the terms of putting into operation the complex production capacity and the repayment of the loan, other features and terms of financing.

When determining the expedient investment schedule, one shall take into account that production means that are reproduced or implemented and which can have one of such

schedules of complex design capacity input: accelerated, proportionate, and deferred. Credit granting is carried out in accordance with these schedules: the accelerated schedule provides that the funds are firstly invested in significant volumes, and then in fewer volumes, and the accelerated schedule – vice versa. The following credit granting schedule has been drawn up in regard to the above-mentioned approach based on the construction of technological complex for manufacturing of products.

The enterprise attracts credit in the amount  $K_{інв}$  and at the initial moment  $T_0$  receives a credit in the amount of  $K_0$ , which will aimed at preparatory works (Figure 1). Then, certain parts of  $K_{1m}$ ,  $K_{2m}$ ,  $K_{3m}$  shall be allocated for direct purchase of manufacturing equipment, its commissioning and carrying out installation and construction works. The production facility will be put into operation at the initial capacity upon receipt of the funds at the moment of time  $T_{н.е}$  (for example, the project provides for the construction of three lines of technological equipment, and, after investment of sufficient funds in the development, one line will be involved, and the production release will be started). Lending will be continued during  $T_{н.е} - T_e$  period (based on a credit line), a greater volume of technological equipment and the front of its operation will be gradually put into operation; this allows to make an increase in production capacity of the complex that is being built. Currently, the entire amount of invested capital  $K_{інв}$  will be received and spent on construction, after which the complex will release production in the amount of its designed capacity (Figure 1).

Partial commissioning of the production complex when granting/receiving a loan (during the period  $T_0 - T_{н.е}$ ) may not be carried out: this does not fundamentally change the schedule for the receipt of tranches. Moreover, the early commissioning of the share of the complex production capacity ensures early receipt of products, their realization and decrease in the credit volume  $K_{3m}$  by profits from realization. This allows to reduce the amount of interest payment for the use of funds raised.

$$O_{n2t} = \frac{P}{100} (K_{1m}(t - T_{1m}) + K_{2m}(t - T_{2m}) + \dots + K_{im}(t - T_{im})), \text{ UAH}, \quad (3)$$

Payment of interest for the credit/loan obtained can be made both from the beginning of the project lending, and with a certain lag in regard to the initial moment  $T_0$ . During the time period  $T_{1m} - T_e$ , the amount of payment  $O_n$  of interests  $O_{n.0}$ ,  $O_{n.1m}$ ,  $O_{n.2m}$  and  $O_{n.3m}$  varies with a growing rate according to the rate of growth of the loan  $K$  amount (Figure 1). Then, starting from the moment  $T_{н.е}$ , the growth rate of the amount  $O_{n.3m}$  of interest is reduced, as the rate of an increase in the  $K_{3m}$  amount of a loan is reduced, which happens due to the investment of own funds – profit from the sale/realization of products ahead of schedule for this period.

The enterprise will pay an interest to the creditor for the loan received and return the principal of the loan in the amount of  $K_{інв}$  at the end of the trenching period. This enterprise will pay back a credit during the time  $T_e - T_{p.к}$  by means of the profit received from the constructed complex operation. In addition, the enterprise continues to pay interest for the balance of the loan (highlighted in Figure 1). The cost of loan  $B_{кп}$  in this case will be equal to the amount:

$$B_{кп} = K_{інв} + \sum_{t=T_0}^{T_{p.к}} O_{nt}, \quad (1)$$

where  $O_{nt}$  is the payment for the loan within the  $t$ -like interval from the beginning of financing  $T_0$  according to its amount provided for this time.

The interest payment for the initial credit  $K_0$  from the moment of its provision within the  $t$ -like interval is equal to:

$$O_{nt} = \frac{P}{100} K_0 t, \quad (2)$$

where  $p$  is the bank interest for using the loan during the time interval, % / month. (half-year, year);

$t$  is the current calculation interval after under its serial number ( $t = 1, \dots, T_{p.к}$ ).

The interest shall be paid in the form of the following amount for the use of the loan in accordance with the tranches provided:

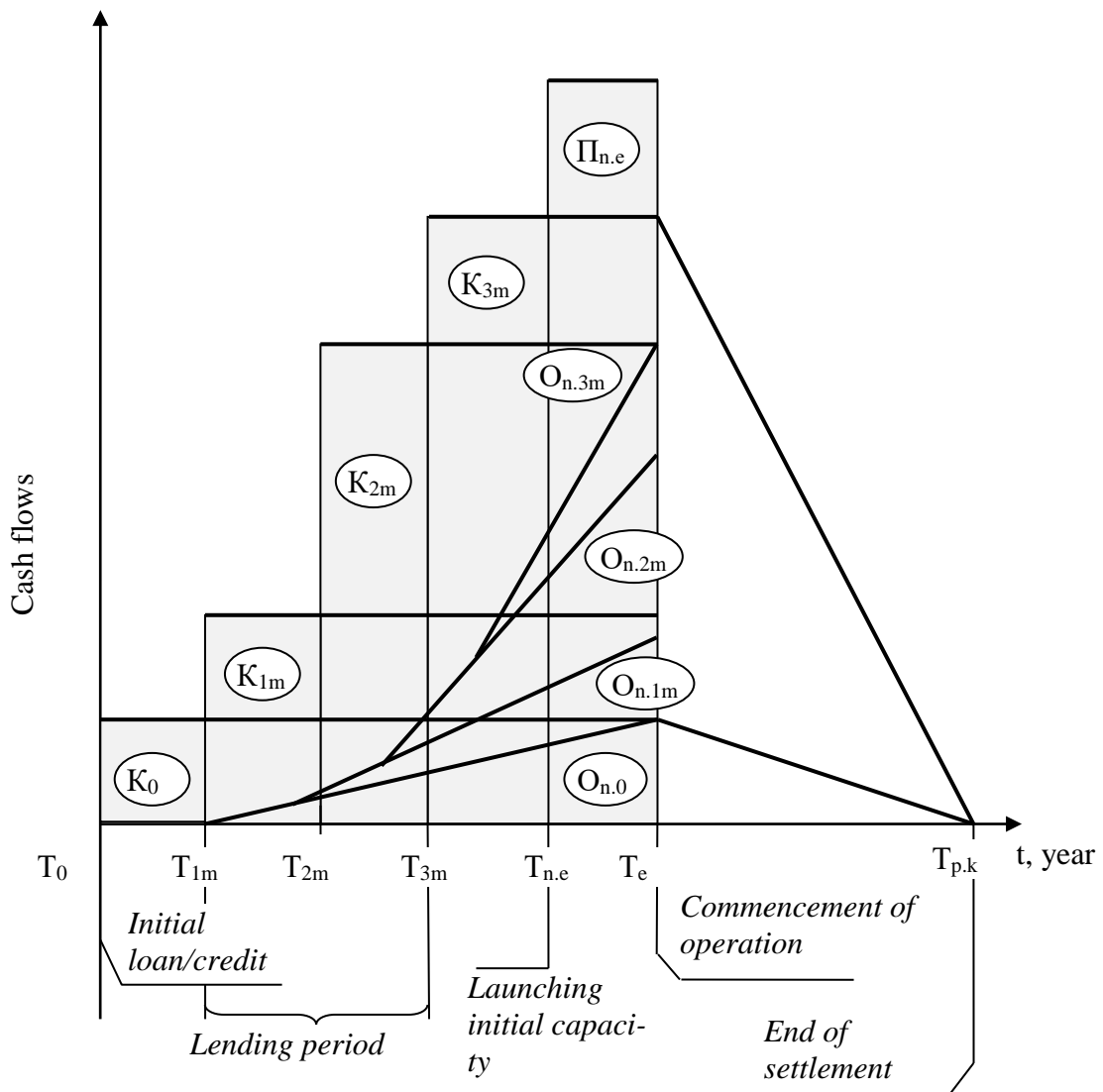


Fig. 1. Graph reflecting the formation of cash flows with a deferred credit for the construction of the mining complex

where  $K_{1m}, K_{2m}, K_{im}$  – the volume of the loan for the 1st, 2nd,  $i$ -th tranche, UAH;

$T_{1m}, T_{2m}, T_{im}$  is the time of granting the 1st, 2nd,  $i$ -th tranche by the sequence number of the interval, starting from the moment of receiving the initial loan.

Here and further, the discounting of cash receipts to simplify the methodological solution of the task was not carried out. Expression (3) provides that on the  $t$ -th investment interval, the number of tranches  $n$  will be provided, which will be determined by the time between tranches, i.e.  $i = \overline{1, n}$ , and the number  $n$  in turn is a function of  $n = f(t)$ . Summarizing the expression (3), we obtain:

$$O_{n2t} = \frac{P}{100} \left( t \sum_{i=1}^{f(t)} K_{im} - \sum_{i=1}^{f(t)} K_{im} T_{im} \right) \quad (4)$$

The entire number  $n$  of the tranches received shall be considered to calculate the amount of interest during the complex construction; the expression (4) shall be changed for this purpose: the duration  $T_e$  shall be taken instead of the duration  $t$ . At the same time, the decrease in the volume of  $K_{im}$  of the  $i$ -th tranche is taken into account: the volume of the  $K_{3m}$  loan can be reduced by the amount of profit  $\Pi_{n.e}$  if the profit from the sale of products ahead of schedule, as shown in Fig. 1, to be directed to pay for installation and construction works at the  $T_{n.e}$  moment of time.

The target setting has assumed that the borrower pays interest for the received amount of funds from the beginning of the loan provision. Hence, the amount allocated to pay for the interest during the tranche allocation period

should be at the disposal of the borrower and he may deposit the balance of interest on deposit. The accumulation of funds under the deposit for the  $t$ -th interval from the beginning of the

complex construction, in the case of a loan provision in three tranches, is described by the expression:

$$H_{ot} = \frac{a}{100} (tO_{n2} - \frac{P}{100} (K_{ot} + K_{1m}(t - C_1) + K_{2m}(t - C_1 - C_2) + K_{3m}(t - C_1 - C_2 - C_3))) \quad (5)$$

where  $C_1, C_2, \dots, C_i$  is an interval between the moments of granting the initial and first, first and second,  $(i - 1)$ -th and  $i$ -th tranches during the period  $t = 1, \dots, T_e$ ;

$a$  – bank rate on deposit, %.

We can use the expression (5) to determine the amount of money accrued on the deposit during the  $T_e$  period of interest payment, but replacing the period duration  $t$  with a period duration  $T_e$  of mining complex commissioning. The construction of a production complex for the release of a new type of products has served as an example for establishment of cash flows for the provision of credit tranches, payment of interest for using them and accumulation of

interest on the deposit of temporarily available funds. The following has been adopted for calculations:

$K_0 = 1,0$  million UAH,  $K_{inb} = 7$  million UAH for 3 tranches,  $p = 24\%$ / year,  $a = 16\%$ /year. The accelerated (in the sum of 3+2+1 MIO UAH in accordance to the amount of loans  $K_{1m}, K_{2m}, K_{3m}$ ), deferred (1 + 2 + 3) and proportionate (2 + 2 + 2) credit schedules, as well as with the use of profits from the sale of products ahead of schedule (in amount of 1,6 MIO UAH). The analysis of calculation results (Table 1) made it possible to establish the following

Table 1

Distribution of interest payments for loans received under the terms of deferred investment, thousand UAH

Loan received	Percentage by serial number of the half-year							
	1	2	3	4	5	6	7	8
<i>Initial capital:</i>								
Interest ac-	1000							
cumulated	120	120	120	120	120	120	120	120
amount		240	360	480	600	720	840	960
<i>1st tranche:</i>		1000						
Interest ac-		120	120	120	120	120	120	120
cumulated			240	360	480	600	720	840
amount								
<i>2nd tranche:</i>				2000				
Interest ac-				240	240	240	240	240
cumulated					480	720	960	1200
amount								
<i>3rd tranche:</i>						3000		
Interest ac-						360	360	360
cumulated							720	1080
amount								
Total								
accumulated		360	600	1080	1560	2400	3220	4080
amount								
Accumulations on	3960	3720	3480	3000	2520	1680	860	0
deposit	312	298	278	240	202	134	69	0
interests								

The enterprise is forced to pay the largest amount of interest - 5040 thousand UAH (Table 2) when applying the accelerated schedule of loan granting. The amount of interest grows rapidly from investing significant amounts of credit during the first year of investment (Figure 2). Although, in so doing, the enterprise can accumulate the largest amount on the deposit – 2160.8 thousand UAH, however this amount is not sufficient to prove the feasibility of such a schedule: it remains more expensive compared to the schedule of deferred crediting. The schedule of investment income using own funds from early sale of products is of practical interest. It requires a smaller amount of funds (3,649 thousand UAH) to pay for the interest in comparison to other schedules, although this significantly reduces the amount of savings on the deposit (1322 thousand UAH), and as a result, it allows to have the lowest amount of interest (2,227 thousand UAH) for the loan provided (7 million UAH).

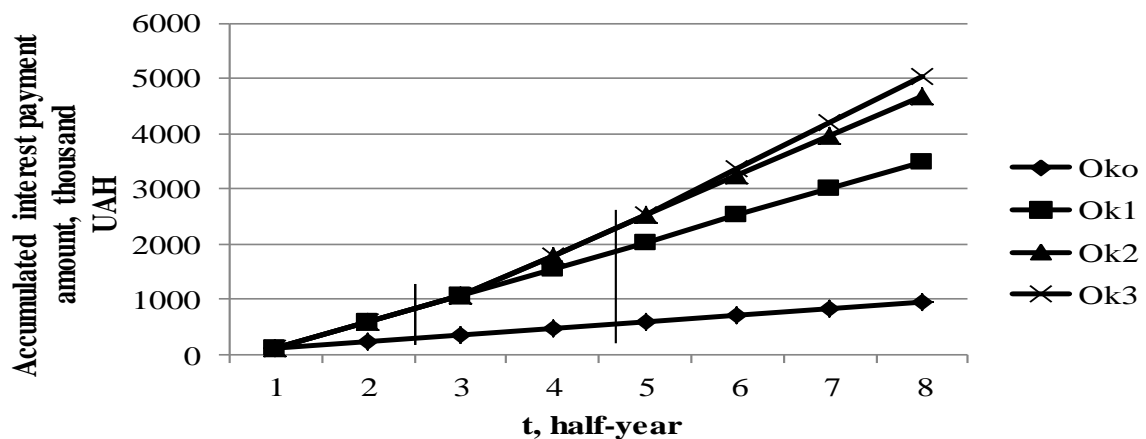


Fig. 2. Graphs reflecting the accumulation of payments for the use of credit under the terms of accelerated investment into construction of a production complex

The authors of the article have proposed the following methodical approach to calculate the amount of net profit required to pay for the interest and credit received.

Table 2

Investment receipt schedule	Accrued interest amount	Accumulation on deposit	Interest expenses
1. Accelerated	5040	2160,8	2879,2
2. Deferred	4080	1573,6	2506,4
3. Proportionate	4560	1632	2928,0
4. Using own funds	3649	1322	2327,0

The volume of products that can be manufactured by the production complex for the purpose of realization depends mainly on the production capacity of this complex and it is characterized by a certain value being a component of production means. The formation of funds requires a certain amount of investment, and with the increase of this volume, the capacity of the funds increases. Hence, the estimated calculations of the machine-building enterprise profits may be based on the return on investment  $R_{iH6}$ . The last is calculated by the profita-

bility of the enterprise's investments, which is calculated as a share obtained from dividing the amount of net profit by the amount of investment. In this case, the profit  $\Pi_e$ , which remains with the entrepreneur after payment of taxes, deductions, mandatory payments, shall be determined by  $\Pi_e = R_{iH6} K_{iH6}$ . In this case, the following condition shall be satisfied:  $R_{iH6} K_{iH6} \geq \Pi_{q,1} Q_6 = \Pi_e$ , де  $\Pi_{q,1}$ ,  $Q_6$ , where  $\Pi_{q,1}$ ,  $Q_6$  respectively correspond to the net profit per 1 ton of production and production capacity of the constructed complex. The above-mentioned condi-

tion determines the economic feasibility of the project being implemented.

The machine-building enterprise directs profits to repay the loan debt. The amount of payment is sufficient to repay the debt for the time stipulated by the agreement between the creditor and the borrower. Firstly, the amount of the loan received, the interest for this loan and the amount  $O_{\kappa,1}, O_{\kappa,2}, \dots, O_{\kappa,j}$  of the return of the principal of the loan, shall be described, respectively, in the 1st, 2nd, ..., j-th time interval after the commissioning of the technological equipment complex. It is accepted that the interest for the loan is paid in full, and the remaining profits shall be directed to pay for the loan itself. Under this condition, for the j-th time interval, the amount of payment for the principal of the loan shall be determined as follows:

$$O_{\kappa,j} = \Pi_e - K_{инв}(1+p)^{j-1}. \quad (6)$$

A general approach has been established to the compilation of a formula to calculate a sufficient amount of  $\Pi_e$  net income of an enterprise from the sale of products made from the new deposit raw materials. During the time  $(T_{p,\kappa} - T_e)$ , allocated for credit repayment on s time intervals, the enterprise shall pay the

amount  $K_{инв} = K_0 + \sum_{i=1}^{f(t)} K_{им}$ , which will deter-

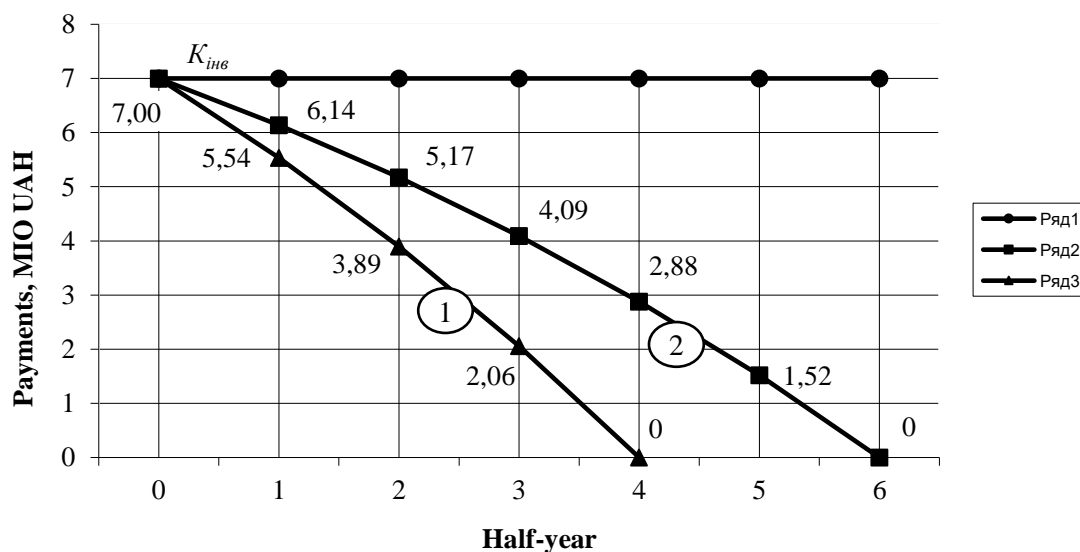
mine the amount of payments  $\sum_{i=1}^{f(t)} K_{им} O_{\kappa,j}$ . The

following formula has been developed as a result of mathematical transformations taking unchanged income for each period:

$$\Pi_e = \frac{K_{инв}(1+p \sum_{j=1}^s (1+p)^{j-1})}{\sum_{j=1}^s (1+p)^{j-1}}, \quad (7)$$

where j is the serial number of the interval of interest payment and the principal of the loan received;  $j = 1, 2, \dots, s$ .

The necessary amount of net income has been calculated according to the formula (7) relative to the above input data for different loan repayment periods for the implementation of the project aimed at release of the new type of product. Payments shall be made every six months with equal amounts  $\Pi_e$  during the 2nd or 3d years. The amounts are 2.5 and 1,7 MIO UAH according to these terms and conditions. The quantitative estimation of the return volumes of the principal of the loan directly reflects the Graph presented in Fig. 3. Accelerated loan repayment allows the machine-building enterprise to reduce the amount of interest: with a reduction in the repayment period of the loan from 3 to 2 years, the interest payment amount decreases from 2.8 to 2.1 MIO UAH (by 15.2%). From this point of view, it is not practical for the creditor to reduce the repayment period.



Ряд (Rus.)\* - Line (Eng.)

Fig. 3. Schedules for changing the balance of the principal of the loan  $K_{инв}$  granted, that is subject to return: 1,2 - for repayment of the loan during 2 and 3 years, respectively



**Conclusions.** 1. Currently, the real way to provide capital investment for the construction of the production complex, which is widely practiced by enterprises, is the attraction of the borrowed funds. The graphical form of the credit line reflection has been developed allowing to optimize the terms and amounts of individual stages financing. At the same time, the commissioning of the initial capacity of the production complex is expected to happen in advance, reducing the amount of financing through the use of profits from the sale of products ahead of schedule.

2. The analytical form, as well as the example of the new complex aimed at release of a new product type determines the cash flows aimed at paying the interest for the loan granted, taking into account the reduction in the volume of one or other tranche and partial financing of installation and construction works at the own expense. The possibility has been shown how to partially pay for the interest due to the accumulation of funds on a deposit of temporarily free money allocated for interest payments.

The enterprise will be forced to pay the largest amount of interest in the case of an accelerated loan schedule. Although the largest amount of the deposit is accumulated in such case, it is yet not sufficient to prove the usefulness of the said schedule: it remains more expensive than the slowed-down schedule. Using own funds from the early sale of products leads to a smaller amount of money to be paid for the interest in comparison with the other schedules, although this significantly reduces the amount of savings on the deposit.

3. The approach has been proposed to calculate the amount of net profit, which can make the enterprise able to pay the interest for the used loan and return the granted loan amount within the stipulated period of time. This approach stipulates that the enterprise will be able to solve such a task if the profit possible in regard to the profitability of capital investments and their volume, exceeds the profit determined on the basis of net profit per 1 ton of production and production capacity of the constructed complex. Thus, the economic feasibility of an investment project aimed at release of a new product type may be justified.

4. The substantiated methodological basis has been determined to calculate the amount of payment sufficient to repay the credit debt after the commissioning of a complex of technological equipment. This amount is based on the order of debt payment – firstly the full amount of the loan interest shall be paid and then the rest of the profits – for the principal of the loan. Reduction of the time and number of loan repayment hour intervals leads to a reduction in the amount of the enterprise expenses for debt repayment (from 6 to 4 half-years - by 15.2%).

5. The above-mentioned conclusions on the provision of a financial loan, on the one hand, will serve to improve the conditions for the borrower to return the received finance amount on the basis of a credit line and such conditions will satisfy the borrower; and on the other hand, to make the lender, despite losing some positions for his own benefit, to make the concessions, because it will increase the number of borrowers, and in the end, increase the profit. It is in this direction that the scientific and applied research should be continued.

### Література

1. Задорожна Я. Є. Підвищення інвестиційної привабливості підприємництва як напрямок залучення інвестиційних ресурсів // Я. Є. Задорожна, Л. П. Дядечко / Інвестиції: практика та досвід. – №2. – 2007. – С. 32–35.
2. Машинобудування в Україні: тенденції, проблеми, перспективи. / Під заг. ред. чл.-кор. НАН України Б. М. Данилишина. – Ніжин : ТОВ «Видавництво «Аспект – Поліграф», 2007. – 308 с.
3. Черненко Л. В. Інвестиційна діяльність підприємств та джерела їх фінансування / Л. В. Черненко // Наукові праці Полтавської державної аграрної академії. – 2011. – № 3. – Т. 2. – С. 174–178.
4. Карпов В. А. Планування та аналіз підприємницьких проєктів / В. А. Карпов. – Одеса : НЕУ, 2014. – 243 с.
5. Філімонова О. Б. Система та механізм банківського кредитування підприємств: зв'язок і протиставлення сутності понять / Філімонова О. Б. // Наукові праці. Економіка. 2014. – Випуск 263. – Том 275. – С. 62–69.
6. Ведернікова С. В. Удосконалення кредитних відносин між банками та підприємствами / С. В. Ведернікова // Економіка та держава – 2015. – № 2. – С. 75 – 78.
7. Крамаренко І. С. Міжгалузеві асиметрії кредитування національних підприємств / І. С. Крамаренко // Бізнесінформ. Економіка фінансів, грошовий обіг і кредит. – 2014. – № 12. – С. 411–415.
8. Гудзевич Ю. І. Сутність механізму реалізації підприємницької діяльності та його складових / Ю. І. Гудзевич // Наукові записки

Національного університету «Острозька академія». Сер. «Економіка»: зб. наук. праць. – Острог : Вид-во Нац. ун-тету «Острозька академія», 2014. – Вип. 25. – С. 9–14.

9. Кашуба О. М. Підприємництво в Україні: проблеми і перспективи розвитку / О. М. Кашуба // Економіка та держава. – 2015. – № 6. – С. 103–106. – Режим доступу: [http://www.economy.in.ua/pdf/6\\_2015/24.pdf](http://www.economy.in.ua/pdf/6_2015/24.pdf)

10. Вагонова О. Г. Ефективність кредитування підприємницьких проектів як чинник привабливості їх реалізації / О. Г. Вагонова, В. С. Досужий / Економічний простір: Збірник наукових праць. – № 128. – Дніпропетровськ : ПДАБА, 2017. – С. 167–179.

## References

1. Zadorozhnia Ya. Ye. *Pidvyshchennia investytsiynoi pryvablyvosti pidpriemstva yak napriamok zaluchennia investytsiynikh resursiv* [Increasing the investment attractiveness of entrepreneurial activity as a direction to attract investment resources] / Ya. Ye. Zadorozhnia, L. P. Diadechko / Investytsii: praktyka ta dosvid [Investments: Practice and experience] – № 2. – 2007. – P. 32–35.

2. *Mashynobuduvannia v Ukraini: tendentsii, problemy, perspektyvy* [Machine-building in Ukraine: trends, problems, perspectives]. / Under the general editorship of the Corresponding Member of the National Academy of Sciences of Ukraine B. M. Danylyshyn: LLC «Vydavnytstvo «Aspekt-Polihraph» , 2007. – 308 p.

3. Chernenko L. V. *Investytsiyna diialnist pidpriemstv ta dzherela ikh finansuvannia* [Investment activity of enterprises and sources of their financing] / L. V. Chernenko // Naukovi pratsi Poltavskoi derzhavnoi ahrarnoi akademii. – 2011. – № 3. – Т.2. – P. 174–178.

4. Karpov V. A. *Planuvannia ta analiz pidpriemnytskykh proektiv* [Planning and analysis of

entrepreneurial projects] / V. A. Karpov. – Odessa : NEU, 2014. – 243 p.

5. Filimonova O. V. *Systema ta mekhanizm bankivskoho kredytuvannia pidpriemstv: zviazok i protystavleniia sutnosti poniat* [System and mechanism of bank lending of enterprises: connection and opposition of the concepts essence] / O. V. Filimonova // Naukovi pratsi. Ekonomika. – 2014. – Vyp. – 263. – Tom 275. – P. 62–69.

6. . Vedernikova S. V. *Udoskonalennia kredytnykh vidnosyn mizh bankamy ta pidpriemstvamy* [Improvement of Credit Relations between Banks and Enterprises] / S. V. Vedernikova / Ekonomika ta derzhava. – 2015. – № 2. – P. 75–78.

7. Kramarenko I. S. *Mizhhaluzevi asymetrii kredytuvannia natsionalnykh pidpriemstv* [Intersectoral asymmetry of lending to national enterprises] / I. S. Kramarenko // Biznesinform. Ekonomika, finansy, hroshovy obih i kredyt. – 2014. – № 12. – P. 411–415.

8. Hudzevych Yu. I. *Sutnist mekhanizmu realizatsii pidpriemnytskoi diialnosti ta ioho skladovykh realizatsii* [The essence of the mechanism for the implementation of entrepreneurial activity and its components] / Yu. I. Hudzevych // Naukovi zapysky Natsionalnoho universytetu «Ostrozka academia» Ser. «Ekonomika»: zb. Nauk. Prats. – Ostroh : Publishing house of «Ostroh Academy», 2014. – Vyp. 25. – P. 9–14.

9. Kashuba O. M. *Pidpriemnytstvo v Ukraini: problemy i perspektyvy rosvytku* [Entrepreneurship in Ukraine: Problems and Prospects of Development] / O. M. Kashuba // Ekonomika ta derzhava. – 2015. – №. 6. – P. 103–106. – Available at: [http://www.economy.in.ua/pdf/6\\_2015/24.pdf](http://www.economy.in.ua/pdf/6_2015/24.pdf)

10. 10/ Vahonova O. H. *Efektivnist kredytuvannia pidpriemnytskykh proektiv yak chynnyk pryvablyvosti ikh realizatsii* [Efficiency of crediting of enterprise projects as factor of attractiveness of their realization ] / O. H. Vahonova, V. S. Dosuzhyi / Ekonomichnyj prostir: Zbirnyk naukovykh prats. – № 128. – Dnipropetrovsk : PDABA, 2017. – 167–179.

## ЕФЕКТИВНІСТЬ ПІДПРИЄМНИЦЬКОЇ ДІЯЛЬНОСТІ ЯК ФУНКЦІЯ ЇЇ ІНВЕСТИЦІЙНОГО ЗАБЕЗПЕЧЕННЯ

О. Г. Вагонова, д. е. н., професор, НТУ «Дніпровська політехніка»

В. С. Досужий, аспірант, НТУ «Дніпровська політехніка»,

Ю. В. Захарченко, старший викладач, Дніпровський державний аграрно-економічний університет

У статті обґрунтовані передінвестиційні питання, що розв'язуються при будівництві об'єктів виробництва продукції та визначені умови, які сприяють розвитку підприємницької діяльності з відтворення основних засобів. Розроблено методичний підхід до розрахунку обсягу чистого прибутку, достатнього для сплати відсотків за кредит та повернення самого кредиту. При цьому передбачено дострокове введення в дію пускової потужності виробничих об'єктів, що скорочує обсяги залучених коштів. З'ясована економічна доцільність інвестиційного проекту випуску нової продукції, порівнюючи прибуток, можливий за рентабельністю капіталовкладень та їх обсягом, з чистим прибутком підприємства від реалізації продукції побудованого комплексу.

На прикладі будівництва нового комплексу виробничих об'єктів встановлені закономірності розподілу грошових потоків щодо надання кредитних траншів, оплати відсотків за

користування ними та накопичення відсотків за депозитом тимчасово вільних коштів за прискореним, уповільненим та рівномірним графіками кредитування. Встановлена аналітична залежність між строком й кількістю часових періодів повернення кредиту та сумою витрат підприємства на погашення боргу.

Сформульовані висновки щодо надання фінансової позики, які сприятимуть, з одного боку, поліпшенню умов повернення позичальником отриманої суми кредиту, з іншого, – збільшенню кількості позичальників, а в підсумку, прибутку кредитора, яке він матиме не дивлячись на втрати деяких позицій власної вигоди. Скорочення строку та кількості часових періодів повернення кредиту приводить до зменшення суми витрат підприємства на погашення боргу (з 6 до 4 півріч – на 15,2%).

**Ключові слова:** підприємництво, кредитна лінія, графік інвестування, грошовий потік, освоєння потужності, відсотки за кредитом, строк окупності.

### ЭФФЕКТИВНОСТЬ ПРЕДПРИНИМАТЕЛЬСКОЙ ДЕЯТЕЛЬНОСТИ КАК ФУНКЦИЯ ЕЕ ИНВЕСТИЦИОННОГО ОБЕСПЕЧЕНИЯ

*А. Г. Вагонова, д. э. н., профессор, НТУ «Днепро́вская политехника»,*

*В. С. Досужий, аспирант, НТУ «Днепро́вская политехника»,*

*Ю. В. Захарченко, старший преподаватель, Днепро́вский государственный  
аграрно-экономический университет*

В статье обоснованы прединвестиционные вопросы, которые решаются при строительстве объектов производства продукции и определены условия, которые содействуют развитию предпринимательской деятельности по восстановлению основных средств. Разработан методический подход к расчету объема чистой прибыли, достаточной для оплаты процентов за кредит и возврата самого кредита. При этом предусмотрено досрочный ввод в действие пусковой мощности производственных объектов, что сокращает объемы привлеченных средств. Установлена экономическая целесообразность инвестиционного проекта выпуска новой продукции путем сравнения прибыли, возможной по рентабельности капиталовложений и их объема, с чистой прибылью предприятия от реализации продукции построенного комплекса.

На примере строительства нового комплекса производственных объектов установлены закономерности распределения денежных потоков по предоставлению кредитных траншей, оплаты процентов за пользования ими и накопление процентов по депозиту временно свободных средств при ускоренном, замедленном и равномерном графиках кредитования. Установлена аналитическая зависимость между сроком и количеством временных периодов возврата кредита и суммой расходов предприятия на погашение долга.

Сформулированы выводы по предоставлению финансового займа, содействующие, с одной стороны, улучшению условий возврата заемщиком полученной суммы кредита, с другой, – увеличению количества заемщиков, а в итоге, прибыли кредитора, которую он будет иметь не смотря на потери некоторых позиций собственной выгоды. Сокращение срока и количества временных периодов возврата кредита приводит к уменьшению суммы расходов предприятия на погашение долга (с 6 до 4 полугодий – на 15,2%).

**Ключевые слова:** предпринимательство, кредитная линия, график инвестирования, денежный поток, освоение мощности, проценты по кредиту, срок окупаемости.

*Надійшла до редакції 5.06.18 р.*