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**STANDARD AND CUSTOM INVESTMENT PROJECTS: EVALUATION OF THEIR EFFECTIVENESS (ILLUSTRATED UE "POLOTSK BEVERAGES AND CONCENTRATES")**

**DENIS PERMYAKOV, IRINA POZDNJAKOVA**  
**Polotsk State University, Belarus**

*When choosing a company investment project, it is necessary to calculate the discount rate and the payback period to determine the effectiveness of the project. This article presents calculations of the discount rate by three main methods as their basis payback period for standard and custom investment projects is defined.*

Background research is that current economic trends require the expansion of scientific views on the effectiveness of investment projects carried out in the present conditions of economic development of the country. The main purpose is to study the methods of evaluation of investment projects, taking into account the discount rate and their application to support management decision-making in the implementation of the standard and non-standard investment projects. To do this, the analysis of investment projects based on indicators such as net present value and discounted payback period.

Currently, in the Republic of Belarus a lot of attention is paid to the investment activity. Attracting investments represent one of the most effective ways of socio-economic development of the state or its individual parts - the region. Implementation of the investment objectives involves the formation of investment projects, which provide investors and other project participants with the necessary information to make decisions about investing. After examining the domestic and foreign literature, we concluded that the concept of the investment project is treated in two ways: 1) as an activity (activity), which implies the implementation of a complex of any action to ensure the achievement of certain goals and lead to capital gains; 2) as a system that includes a certain set of organizational, legal and financial settlement and documents necessary for the implementation of any action or describing these actions. In theory, when considering investment projects are allocated different classifications for the purposes set out in this study is an important division of the project into standard and non-standard. The standard is considered an investment project, which has cash flow only once change the sign "minus to plus" or "plus to minus." The project is unusual, if at least one of the above cost of the project, not including the primary, has the opposite sign [1, p. 13].

Valuation of investments is based on a comparison of the expected net income from the project to invest in capital. While net cash flow is defined as the difference between the net income of organization, as well as the sum of the total investment costs of the project (capital cost and increase in net working capital).

To bring the projected cash flows in a comparable form (i.e., to bring them to the future value of the initial time), you must use the method of discounting. The discount rate – the rate of return (the rate of return required by investors when investing the same content and the degree of risk). It takes into account the risk premium to invest in the company evaluated: the greater the risk, the discount rate will be higher. In practice, we know quite a lot of approaches to determining the discount rate, however, are the most common and most frequently used the following approach: the weighted average cost of capital (WACC), the method of cumulative construction, calculation model in terms of the refinancing rate and the inflation rate, the method of expert assessments, regulatory method.

According to the development strategy of the UE «Polotsk beverages and concentrates» interest rate on equity is 35 %, the share of own funds in total investment costs – 30.51 % interest rate – 28 % (among banks offering loans financing of investment projects, was chosen "Belarusbank", as it proposes the lowest rate on the loan [2]), the share of loans in total investment costs – 69.49 %. Then, the weighted average discount rate ( $D_{sr}$ ) will be equal to:

$$D_{sr} = \frac{35 \cdot 30,51 + 28 \cdot 69,49}{100} = 30,1\%.$$

The second approach is the method of cumulative construction, according to which the value of risk-free rate of return, which is taken by us at the level of return on short-term government bonds (in September 2014 it averaged 27 % [3]) adds an additional risk premium. For an investment project of the UE «Polotsk beverages and concentrates» discount rate by the method of cumulative construction ( $D_c$ ) will be:

$$D_c = 27 + 3 + 1 + 1 = 32\%,$$

where 3 %, 1 %, 1 % – is additional risk premium (risk factors – financial structure, results of operations and other special risks, respectively). To identify risks on the first factor, was made analysis of the sources of financing of the enterprise, where it was found pretty much dependence company of borrowed capital, as well as the difficulty of the enterprise to pay its obligations. As to the second factor, to assess the cost-effectiveness based on the following factors: return on invested capital, return on assets, return on sales. As special risks need to be considered specific risks, which may be significant for the analyzed enterprise (for example, the specifics of doing business in the country, etc.).

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The third method is a model for calculating the level of the refinancing rate and the inflation rate. The discount rate without taking into account the risk of the investment project is defined as the ratio of the refinancing rate of the National Bank of the Republic of Belarus (from 13.08.2014 year it is 20 % [4]), and the announcement by the Government of the Republic of Belarus for the current year rate of inflation (for 2014 it is provided for in 11 % [23]). For our company discount rate in terms of the refinancing rate and the inflation rate ( $D_n$ ) will be equal to:

$$D_n = ((1 + 20/100) / (1 + 11/100) - 1) \cdot 100 = 8,1\%.$$

Next, take into account the correction for the risk of the project. So how to implement the investment project has two main objectives: the acquisition of new assets and the increase in sales of existing products, the allowance for risk will be installed on the largest of the two-level, i.e. at the level of 10 %. Thus, the discount rate at the level of the refinancing rate and the inflation level of risk will be equal to 18.1 %.

Based on the calculated discount rates were analyzed effectiveness of standard and non-standard (with an uncertain timetable for implementation) of investment projects on the example of the UE "Polotsk beverages and concentrate", namely: discounted cash flow calculated and discounted payback period. Tables 1 and 2 calculated net present value for standard and custom (undefined implementation schedule) investment projects.

Table 1 – Net present value on a standard investment project of the UE "Polotsk beverages and concentrates", mln rubles

Indicator	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
1. Investment	10000	27078	30993	97	43	0	0
2. Net present value on an accrual basis:							
2.1. with outdiscount	-10775,1	-18024,2	-23017,2	10267,1	46401,4	95401,4	153401,4
2.2. discount rate 1,181	-10775,1	-21063,2	-33415	-13246,7	5307,063	26634,89	48011
2.3. discount rate 1,301	-10775,1	-22611,8	-38243,9	-23181,8	-10597	2549,44	14510,35
2.4. discount rate 1,32	-10775,1	-22831,8	-38902,3	-24485,4	-12616,2	-384,99	10579,4

Source: own development.

In order to take into account the specific investment projects with uncertain implementation schedule proposed the following optimization model cash flows of the project with an uncertain timetable for implementation:

$$NPV = \frac{NVI}{r^{12}}$$

where  $n$  – stage (month) of project;  $I$  – investment of the project.

To calculate the net present value, taking into account the discount rate should be noted that in this case the project was administered for a period of 7 years, and that the extra investment costs for the project will be carried out in the first 5 years of the project: in the first year - in the 3rd month in the second year - in the fourth month, in the third year - in the eighth month, in the fourth year - in the second month, in the fifth year - in the seventh month.

Table 2 – Net present value on non-standard investment project of the UE "Polotsk beverages and concentrates", mln rubles

Indicator	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year
1. Investment	10000	27078	30993	97	43	0	0
2. Net present value on an accrual basis:							
2.1. with outdiscount	-10775,1	-18024,2	-23017,2	10267,1	46401,4	95401,4	153401,4
2.2. discount rate 1,181	-10336,2	-16143,1	-19347,2	-2705,44	11567,86	29626,99	47726,99
2.3. discount rate 1,301	-10089,1	-15193,1	-17668,4	-6548,93	-1766,24	11871,15	21064,78
2.4. discount rate 1,32	-10052,6	-15059,9	-17440,3	-6972,68	-695,90	-99,58	18265,28

Source: own development.

Was also calculated the discounted payback period - the period of time when the investment amount will be equal to the discounted cash income. On the basis of the data in Table 1 and 2 were calculated payback period of the investment project according to the following formula:

$$DPP = \text{Last year with a negative index} + \frac{\text{Last year with a negative index}}{\text{Last year with a negative index and the following year}}$$

Calculations have shown that if the company will carry your project to a standard in their calculations will use the method of calculation in terms of the refinancing rate and the inflation of the risk, the project will pay for itself in 4 years 9 months, if the weighted average cost of capital - 5 years 10 months if the method is cumulative construction - about 6 years. Classification of the investment project to non-standard (with an uncertain implementation schedule) shows smaller payback period of 5 years. All the project's payback period is less than the period of its implementation, which allows reasonably decide on its adoption.

Thus, investments play an important role in the functioning and development of the economy. Investment growth has an impact on the amount of social production and employment, structural changes in the economy, the development of its specific industries. Through investments to create new high-tech production, modernizing existing, implemented promising for the national economy and business investment projects. One crucial to making an investment project has the right and informed choice of discount rate. It should take into account all the risks that may be subject to an investment project, including not only common, but also specific risks. How well will the discount rate, so the investor can correctly predict the further development of events associated with the investment project. After entering the investment project, the company will have at every stage of design techniques and methods of influence on the level of risk in order to reduce it to the maximum.

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### ECONOMIC PERFORMANCE OF THE CONSTRUCTION OF A SMART HOME

**MIKALAI POPEL, SERAFIM SHAROKH**  
**Polotsk State University, Belarus**

*The questions of technological progress, which help to improve a person's life, are considered in the article. The question of how scientific advances are helping people to care about the ecology of the environment, as well as financial savings in the operation of the building.*

Expenditures for maintenance and operation of any building typically include utility bills for heating, ventilation, gas, hot and cold water, lighting and power appliances. Rates listed on the utilities are constantly growing. Obviously, the reduction of this expenditure is possible by reducing the amount of energy consumed, which in turn requires the implementation of principles and energy-saving technologies in the design and construction of buildings.

Smart home is a house of modern type, organized for people living with the help of automation and high-tech devices. Under the "smart" home should be understood a system that provides comfort (including security), and resource for all users. In the simplest case, it should be able to recognize specific situations that occur in the home, and properly respond to them. In addition, the automation of several subsystems provides a synergistic effect for the entire complex [1].

The main advantage of "smart home" is considered to be comfortable. But more important is the possibility of significant reductions in energy consumption.