Ways To Choose Methods for Assessing the Effectiveness Of Investision Projects In Joint-Stock Companies Based On Criteria In Uzbekistan

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Abstract

This article examines the key conditions that influence the selection of methods for evaluating investment projects in joint-stock companies. Particular attention is given to economic, financial, and risk-related factors that determine the effectiveness of project appraisal. Based on a systematic analysis, the study develops scientifically grounded proposals and practical recommendations aimed at improving investment decision-making and enhancing the overall efficiency of capital allocation in joint-stock companies.

1. Introduction

Today, in international practice, Joint-Stock Companies investision pays special attention to making decisions in order to be able to correctly choose the methods of evaluating the effectiveness of projects, the mechanism of assessment and the methods of their management, as well as the implementation of investision projects. Since the issues of forming the source of investments in joint-stock companies, minimizing the level of risks that can arise when evaluating investiture projects and ensuring financial stability based on established norms are not comprehensively studied, it is necessary to conduct in-depth research in this area.

Therefore, in the strategy "Uzbekistan-2030" for the further development of the Republic of Uzbekistan, one of the priority tasks was "to ensure the growth in the volume of investments in fixed capital, to attract investment to the localization of production of the technique, to increase the flow of private investments, to finance projects, to develop public-private partnership projects, to provide projects with". It is necessary to ensure the systematic implementation of these tasks, to carry out scientific research aimed at increasing the flow of financial resources to enterprises and developing methods for assessing the effectiveness of investment projects that attract them.

Also, the main difficulty lies in calculating the value of the capital unit received from a particular source of financing. For some sources, it can be calculated very easily (for example, the value of a bank loan), for others (shares, bonds, unallocated profit, contributions of a material and intangible form) it can be very difficult to do and impossible in terms of exact calculation principles. Thus, the use of the average discounted value of capital in the investment project efficiency assessment

is universal, and it can be used by Joint-Stock property enterprises.

Therefore, the development of proposals and recommendations of practical importance aimed at studying ways to choose methods for assessing the economic efficiency of investment projects in joint-stock companies on the basis of criteria, providing solutions to existing problems on this issue and determining the value of capital and using this indicator in analytical calculations is one of the pressing issues of today.

Methodology

The article draws conclusions and suggestions based on the results of the study by analyzing methods for assessing the economic efficiency of investision projects in joint-stock companies, using the methods of induction, deduction, analysis, synthesis, logic and comparison, systematic approach, mathematics and graphics in the process of scientific research.

Results and analysis

The main condition for the feasibility of the project is a positive balance of cash flow at any stage of calculation. If at a certain stage The Real Money balance becomes negative, then it is impossible to implement this form regardless of the values of the project's efficiency indicators. If uncertainty arises in the forecasting of cash flows (and this happens in practice), usually for investors, the value of projects decreases relative to the projected cash flows, and therefore high-risk projects lead to an increase in the discount rate. That is, when calculating the discount rate, a certain amount of risk premium should be added to the calculated value of capital.

The resulting formula (3) is modified as follows:

$$NPV = \sum_{t=0}^{n} \frac{C_t}{(1 + k_1)^t} + \sum_{t=0}^{n} \frac{F_t}{(1 + k_2)^t} \ ;$$

$$k_1 = (1 - d)e_k + k;$$

$$k_2 = (1 - s)e_t;$$

here, k-risk reward.

The application of the proposed methodological approach to evaluating the effectiveness of investment projects in joint-stock companies enables continuous adjustment of assessment results throughout the entire project life cycle. This flexibility is particularly important in conditions of economic volatility, as it allows decision-makers to respond promptly to changes in both external and internal factors affecting project performance. By incorporating dynamic recalibration mechanisms, the methodology ensures that investment efficiency indicators remain relevant and accurately reflect evolving economic realities.

For domestic joint-stock companies, explicit consideration of risk factors plays a decisive role in achieving reliable investment appraisal outcomes. Unlike traditional static approaches, the proposed framework emphasizes the systematic identification, measurement, and integration of investment risks into the evaluation process. Special attention is given to financial, market, operational, and institutional risks that directly influence projected cash flows.

It is recommended that the impact of these risks be incorporated through an adjusted discount rate mechanism. Specifically, the cash flow discount rate of investment projects should be modified by applying a correction coefficient derived from integral risk indicators. These indicators are calculated using the multidimensional average method, which allows for the aggregation of heterogeneous risk factors into a single composite measure. This approach enhances the analytical robustness of the evaluation process, improves the comparability of alternative projects, and supports more informed investment decisions. Ultimately, integrating risk-adjusted discounting strengthens capital allocation efficiency and contributes to the sustainable development of joint-stock companies.

Table 1.

Methods of efficiency used by leading Joint-Stock Companies of the Republic of Uzbekistan in the selection of investment projects

Methods	Characters	"Jizzakh Grain Products" Joint Stock Company	"Bukhara Grain Products" Joint Stock Company	"Tashkent Grain Products" Joint Stock Company
Closing time, time	PP<PPnorm	+	+	+
Determination of accounting profitability of investments, interest (%)	ROI>ROInorm	-	-	-
Net current value, monetary unit	NPV>0	-	-	+
Discounted payback period Method, time	DPP	-	-	-
Profitability of investments	PI>1	-	-	+
Internal norm of profit	IRR>RRR	-	-	-

As can be seen from Table 1, methods from 2 to 6 designed to assess the effectiveness of invesvision projects are not used by developers, although the main difficulties in their application are not in the complexity of calculations, but in the preparation and systematization of primary data.

During the course of the study, an in-depth analysis of the investment project portfolios of joint-stock companies operating in the Republic of Uzbekistan revealed that the payback period remains the dominant criterion in selecting projects within competitive investment processes. In practice, preference is systematically given to projects characterized by the shortest capital recovery horizon. While this approach is perceived as a means of minimizing financial risk and accelerating liquidity, its prioritization significantly influences the overall structure of approved investment portfolios.

The predominance of the payback period as a decision-making criterion leads to the selection of predominantly passive investment projects, particularly those focused on the reconstruction, modernization, and technical re-equipment of existing production facilities. Such projects generally require lower capital outlays, exhibit predictable cash flows, and demonstrate relatively fast returns. However, excessive reliance on this criterion may constrain strategic development by limiting investments in innovation-driven and expansion-oriented initiatives with longer-term value creation potential.

Supporters of this selection approach justify its application by referencing the outcomes of investment project assessments conducted within joint-stock companies of the Republic of Uzbekistan, which incorporate a set of established qualitative and quantitative criteria. These criteria include the level of technical modernization of production processes, environmental safety considerations, reductions in total production costs, job creation potential, development of innovation infrastructure, and the overall business reputation of the enterprise [2]. In addition, financial performance indicators—most notably net present value calculated using modified discounting techniques—are employed to assess long-term economic efficiency.

Based on the aggregation and generalization of survey data collected from employees [3] directly involved in the evaluation and selection of investment projects within joint-stock companies, standardized and discounted assessment values were determined for each criterion. The application of normalization procedures enabled the comparison of heterogeneous indicators within a unified analytical framework. As a result, the study provides a comprehensive perspective on current investment selection practices while highlighting the methodological trade-offs associated with prioritizing short-term financial metrics over long-term strategic objectives.

Table 2

Jizzax Grain Products JSC investision evaluation of the effectiveness of projects

Project name	Net current value (NPV), 1000 soums.		Modified net current value (NPV), 1000 soums.		Profitability of investments	Internal norm of profit	Amount of cash flows, 1000 soums.	The deadline for the implementation of the project on the business plan, the year	Discounted coverage period, year
	Not including risk	Taking into account the risk	Not including risk	Taking into account the risk					
Gost 26574-2024 establishing high grade flour development	62248	39680	59613	34720	1,3	40,0	7486	3,6	3,4
Organization of production of high-grade mixed feed GOST 31653-2024	313020	177612	114127	102607	3,1	72,0	633369	5,0	4,0
Creation of high-grade pasta production GOST 31691-2024	160007	-39657	149714	72378	1,2	29,0	674107	3,7	3,2

For the study, the evaluation of investision projects of the Jizzakh Grain Products Joint-Stock Company of the Republic of Uzbekistan is considered to be of great importance for the economy of the Republic. The economic scarcity of the estimated recovery period confirms the feasibility of implementing investigational projects [5]. In addition, it also has an average Rix level. Using an approach based on these methods in assessing the effectiveness of projects allows you to reduce the risk of capital investment and make an effective management decision.

The above studies made it possible to form an alternative selection system from invesvision projects aimed at the effective use of funds to be invested [6]. The system of preparation for the selection and implementation of investment programs and projects is based on a three-level functional distribution of tasks and obligations. At the first stage, a register of priority projects is being formed, which is supported and directly funded by local authorities.

Investision projects are classified according to the nature and extent of their impact on the economy of the

Republic of Uzbekistan: support of small businesses, high-performance commercial sectors, improvement of the environmental situation, development of the industrial and scientific and technical potential of the Republic [7] and projects of social facilities. First, all projects that meet the priorities of the development of Republican insurance activities are considered, and then their preliminary examination is carried out by the Working Committee of the competition.

At the second level of the competition, the project is subject to a comprehensive financial and economic examination, which includes a comprehensive analysis of the entrepreneurial activity of the enterprise, audit, assessment of the commercial effectiveness of the project and risk analysis. The third stage examines the compliance of investment projects with such selection criteria as employment, infrastructure development, growth of budget revenues, production level, environmental safety, growth of technical potential, volume of financing, net current value, profitability of investments and the payback period of discounting.

Projects are evaluated on a scoring scale, which allows

their ranking to be calculated using the following formula:

$$R_i = \frac{1}{a_i(max)} \sum_{i=1,n}^{n} a_i x_i \ ;$$

here, R_i − ranking of the project by Group i criteria, x_i − i weight factor of the criterion, a_i − i criterion evaluation value, n − number of criteria in the group.

As a result of the analysis, the total number of points obtained by the project (the result rating of the project) is determined by the sum of the points accumulated for each group of criteria. The results obtained during the invesvision project selection process allow the rejection of projects that do not meet the criteria of economic and social efficiency, the acceptance of those who meet them for financing and implementation.

Invesvision assumes the need to use econometric models [8] based on a specialized software package for econometric modeling to assess the effectiveness of projects. To create regression models, Time series of factorial and efficiency indicators for 2019-2023 were

selected and 19 investision projects of joint-stock companies were evaluated. Investision selected factors affecting the performance of projects. When discounting rounds, investing in rent, determining rates and net capital, independent investors can count on a certain quality: X1- number of jobs, people; X2- number of new jobs, people; X3 - the budget of the republic in US dollars, billion amounts; X4- the amount of monetary income, billion. Soum; X5- the net worth of the project, billion. Soum; X6- Payments to the Republican budget, billion. Soum; X7- annual profit, billion. Soum; X8 - due to the creation of new jobs, the salary, billion. Soum; X9- general financing, billion. Soum; X10 - own funds, billion. Soum; X11- unallocated income, crore; X12 - depreciation of the main means, billion. Soum; X13 - credits, billion. Soum.

Then, using the automated complex "EKM-3", a matrix of even correlation coefficients was built and checked for multicolarity, excluding factorial properties with statistically non-significant coefficients [9] in regression models according to the student criterion.

Table 3

Regression models for the payback period of discounting, profitability of investments, internal norm of profit, analysis and forecast of net current value

Performance indicators	Features of Regression dependence
Coverage period (DPP), month	$\hat{Y}_1 = 3{,}439 \cdot e^{-0{,}088 X_3} \cdot X_6^{0{,}0003}$
	$\hat{Y}_1 = 3{,}169 \cdot X_{12}^{-0{,}00005} \cdot e^{0{,}089 X_{13}}$
Profitability of investments (PI), interest	$\hat{Y}_2 = 3{,}140 \cdot X_6^{0{,}016} \cdot X_8^{0{,}241} \cdot X_{10}^{-0{,}008} \cdot e^{-0{,}088 X_{11}}$
	$\hat{Y}_2 = 3{,}201 \cdot 0{,}0215^{X_8} \cdot 0{,}00009^{X_{11}}$
	$\hat{Y}_2 = 3{,}187 \cdot 0{,}00004^{X_4} \cdot 0{,}0221^{X_8}$
	$\hat{Y}_2 = -2{,}819 \cdot X_1^{0{,}422} \cdot X_3^{-0{,}0001} \cdot e^{0{,}648 X_4} \cdot X_3^{-0{,}0003}$
Internal norm of profit (IRR), percentage	$\hat{Y}_3 = 3{,}171 \cdot 0{,}000001^{X_3} \cdot 0{,}000003^{X_4} \cdot 0{,}0273^{X_5}$
	$\hat{Y}_3 = 4{,}697 \cdot X_1^{-0{,}159} \cdot X_1^{0{,}00001} \cdot e^{0{,}855 X_4} \cdot e^{0{,}006 X_6} X_9^{-1{,}085}$
	$\hat{Y}_3 = 3{,}701 \cdot X_2^{-0{,}0001} \cdot e^{0{,}488 X_3} \cdot X_8^{0{,}011} \cdot X_{10}^{-0{,}599}$
Net current value (NPV), soums	$\hat{Y}_4 = 2{,}571 \cdot X_7^{0{,}554} \cdot e^{0{,}001 X_8}$

The payback period of each discounting, the profitability of investments, the internal norm of profit, the main factors affecting the methods of net current value are determined through the coefficients of elasticity and β coefficients. Based on the calculations performed, regression models were compiled, which depend on the

payback period of discounting and the return on investments of discounting(Table 4).

The factors that most significantly affect the implementation of (Which can be found by calculating the coefficients of elasticity and β coefficients of the corresponding factors)investment projects [10] have

been identified. Thus, the most important effect on the profitability of investments is carried out by factors X6, X8, X10. Similar parameters have been determined for other studied indicators.

Conclusions and discussions

In conclusion, addressing the issues discussed in this study plays a critical role in expanding both domestic and foreign investment flows directed toward the national economy. The implementation of improved investment evaluation mechanisms contributes to mitigating investment risks, strengthening investor confidence, and creating a more stable and predictable business environment. These outcomes collectively support sustainable economic growth and promote broader socio-economic development, ultimately enhancing the living standards and overall welfare of the population.

The application of multi-factor regression models in assessing the effectiveness of investment projects provides significant methodological advantages. Such models enable the identification of the most efficient and economically viable project alternatives not only during the project design phase but also throughout the implementation stage. By incorporating expected values of key influencing factors into the analytical framework, regression-based approaches allow for dynamic monitoring of project performance under changing economic conditions.

Furthermore, the integration of discounted payback periods and profitability indicators within multi-factor models enhances the accuracy of investment appraisal by reflecting both time value of money and risk-adjusted returns. This comprehensive evaluation facilitates timely corrective actions, improves capital allocation efficiency, and reduces the likelihood of suboptimal investment decisions. Overall, the adoption of advanced quantitative modeling tools in investment project assessment strengthens strategic planning in joint-stock companies and contributes to long-term economic resilience and inclusive growth.

Jizzakh grain products, considered one of the largest Joint-Stock Companies of the Republic of Uzbekistan, has a practical study of the problems of forming a system for selecting investment projects and assessing their effectiveness. A three-stage system for assessing the selection and effectiveness of investment projects of Jizzakh Grain Products JSC has been formed. The society's recommendations for assessing the effectiveness of investment projects using econometric models have been developed, which make it possible to determine the impact of discounting on the net current value, profitability of investments, the internal norm of profit and the period of recovery.

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