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Management of the Company's Investment Projects in Anti-Crisis Management and Their Impact on the Environment

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Abstract:

Neglect of social and environmental aspects can lead and, unfortunately, does lead to unplanned risks, the damage from which can significantly affect the economic component of the project, and in critical situations even reduce the feasibility and the very possibility of project implementation to zero. That is why, at all stages of work in the framework of a newly created or already existing investment project, it is necessary to pay close attention to the study of the widest range of social and environmental aspects and their impact on its economic component. Therefore, the role of anti-crisis management in the management and development of the organization is very important, as it affects all indicators of the enterprise's development, optimizing them.

Keywords: investment; investment project; entrepreneurial activity; integration; investment; capital budgeting; strategy; environment.

JEL Classification: Q56, Q57.

Introduction

The social component of the assessment of investment projects has been most deeply worked out within the framework of a number of relevant documents of international organizations - the European Economic Community, the Organization for Economic Cooperation and Development, the International Finance Corporation and the European Bank for Reconstruction and Development. Nevertheless, the direct application of the recommendations contained in them is always associated with significant difficulties, which in each specific case necessitates their methodological refinement.

The modern globalization of the world economy, the expansion of international integration not only to the Kazakh market and the growing role of import substitution form the relationship between the supply and demand of the markets, which leads to increased competition between trade organizations. The difficult economic situation of a significant part of trade organizations, the unpredictability of the market conditions in the external and internal economies, inflation, non-payment crises and other factors force us to look for effective ways to manage organizations and projects, in particular, the creation of a highly competitive institutional environment that stimulates entrepreneurial activity and attracts capital to the economy, which is one of the directions of the transition to an innovative socially-oriented type of economic development of the Republic of Kazakhstan, indicated in the Concept of long-term socio-economic development of the Republic of Kazakhstan.

1. Research Background

The investment process is a part of the strategic activity of an economic entity and is aimed at ensuring the development of the enterprise in the long term. In addition, such key factors as time and risk are closely interconnected with this process, which necessitates the development of investment projects when investing, as well as ensuring the formation of the process of managing investment projects during their planning and further implementation.

An investment project is a justification of the economic feasibility, volume and timing of capital investments, including the necessary design and estimate documentation, developed in accordance with the legislation of the Republic of Kazakhstan and standards approved in the prescribed manner, as well as a description of practical actions for making investments.

The intensive development of the transport services market, the creation of a competitive environment in the field of commodity circulation and international transportation of goods, the strengthening of integration trends in the world economy make it necessary to search for adequate market mechanisms to ensure the effective functioning of the transport complex.

In the economic literature, there is still no consensus on what should be understood as investment activity. So, McConnell K.R. and Bru S.L. investment activity is identified with the investment process, considering them as the process of investing investment resources in a project (Chkalova, Efremova, Kiryushin and Muranova 2020).

It should be noted that the investment process has all the characteristics of a system. That is, it contains a subject (investor), an object (investment object), the connection between them (investing in order to obtain investment income) and the environment in which they exist (investment environment). At the same time, the connection acts as a system-forming factor, since it unites all the other elements into one whole.

The main challenge for portfolio managers is to find a feasible schedule while ensuring that the resources needed for activities are available at the dates they are scheduled, which is the classic goal of the Resource Limited Multi-Project Planning (RCMPSP) problem (Villafañeza *et al.* 2020).

In their studies, Sobieraj J., Metelski D. (2020) identified a number of factors that make it possible to better understand the management of investment processes, which consist in conducting a questionnaire survey. These factors include:

- the activity of companies in the market environment;
- pro-social policy of the state;
- highly developed technologies;
- the use of appropriate market relations.

The solution to the problem of assessing and selecting investment projects aimed at the development of territorial communities, taking into account the concept of sustainable development, are reflected in the studies of Maksyshko N., Vasylieva O., Polova A. (2020). The authors believe that the problem of choosing from possible alternative solutions is not easy for decision-makers and requires qualified justification. Decision-making based on the concept of sustainable development determines the assessment of investment projects in terms of their effectiveness in solving social, economic and environmental problems, finding a balance between these components. The peculiarity of assessments is not so much in quantitative as in qualitative nature, which makes it expedient to use the apparatus of fuzzy logic. A fuzzy model for evaluating an investment project aimed at developing a territorial community has been built and substantiated. The model is based on quantitative and qualitative assessments of the social, economic and environmental components of the concept and allows us to quote the "soft" - qualitative assessment of the investment project under consideration. The simulation results are based on the methodology for making a decision on the choice of investment projects for the development of territorial communities.

According to M.E. Kosov (2020) state guarantees are also one of the key instruments of state support for investment activities, since the implementation of projects within the framework of public-private partnership (PPP) leads to the completion of the project on time and in accordance with its budget more often than when the project is implemented only on the basis of government funding.

Publications Chechenova L.M., Volykhina N.V., Egorov Y.V. (2020) are devoted to the study of improving the use of expert assessments for analyzing risks affecting the effectiveness of the implementation of a complex investment project in the context of global instability of the economic space, which describes the existing methods of expert assessments and methods of modeling the assessment of risks of investment projects and proposes an approach to risk analysis that affects the effectiveness of the implementation of complex investment projects based on existing methods using the concept of a "reduced" random factor. This approach is used to analyze the risks of project implementation in conditions of market instability with the development of recommendations for managing the main project risks. The author's classification of the risks of investment projects is important at the stage of analyzing risks arising from the study of sales markets, as well as in the process of making management decisions, which minimizes the possible adverse impact on the organization, including losses caused by random events. The proposed approach can be applied to the analysis, express analysis and risk management of long-term complex investment projects in the context of global instability of the economic space.

It is important to note that investment is aimed at ensuring the development of an economic entity in the long term, that is, the development of an investment project is carried out in conditions of uncertainty and includes such a factor as risk (Grebennikova and Smutkin 2020).

In recent years, the attention of the world community to the impact of business on the environment has been steadily growing. The 2030 Agenda for Sustainable Development (Transforming our world, 2015), adopted in September 2015 by the leaders of 193 countries, together with 17 Sustainable Development Goals (SDGs), require concerted efforts of all participants in the process of social reproduction, and especially the business community. Large companies are beginning to declare their commitment to SDGs, but the toolkit for assessing the efforts made is not developed, which makes it difficult to analyze the attractiveness of a new business model built on the basis of adherence to the principles of sustainable development.

An indicator reflecting the development of business environmental responsibility is the share of investments in fixed assets aimed at environmental protection and rational use of natural resources at the expense of companies' own funds in the total volume of these investments.

The current research agenda of the theory of entrepreneurship development, according to Metsik O.I., Petrenko E.S., Vechkinzova E.A. (2019), requires the study of the factors that determine its change in modern conditions, and readiness for the challenges of the future. In all the variety of social, economic and technological transformations, it is necessary to highlight the factors that make a significant contribution and form the root trends in the transformation of entrepreneurial activity for the next 5-10 years.

One of the priority goals of the strategic development plan of Kazakhstan until 2050 is to create a favorable investment climate. Production of competitive and export-oriented goods in industry and services, which in turn will contribute to an increase in macroeconomic indicators, such as: growth in investment in fixed assets, GDP growth, an increase in employment, an increase in consumer demand, leading to an increase in domestic and foreign trade countries, as well as import substitution, aimed at increasing the level of production of Kazakhstani goods, works and services in the total volume of consumption of goods, works and services. The goal is for these enterprises to contribute 50% to the country's GDP by 2050.

The questions of studying the theoretical aspects of the existing methods and conditions for financing investment projects in the Republic of Kazakhstan with an analysis of the dynamics of the development of small and medium-sized businesses, which allow to determine the interaction of the state and business, to determine effective mechanisms for financing investment projects with the identification of optimal instruments for attracting investments, are becoming relevant.

The COVID-19 pandemic has caused some damage to the financial performance of companies, as a result of which, firms are recovering from the pandemic. The impact of COVID-19 on industry has varied widely, with investment management as a whole suffered less damage than some other sectors of the economy. The income of investment management firms remained largely intact, but the people, operations, and technology used by investment managers were affected. At the same time, market volatility and price movements accelerated sharply at the level of the industry sector and asset class (Bukhvald 2020).

2020 challenged the investment management industry and the industry has responded. Volatility, personal hardship, and industry commitment to both customers and employees are likely to lead to a stronger, more digitally capable investment management industry in late 2021. Investment management companies have re-

prioritized based on the experiences and needs of the COVID-19 pandemic, highlighting the concept of capital budgeting.

Capital budgeting is one of the most important decisions faced by the financial management of any organization (Batra and Verma 2018). It is a planning mechanism used by an organization to make appraisal decisions on how to allocate resources among investment projects (Al-Mutairi *et al.* 2018) and to evaluate investment projects that will create benefits over a period of more than one year and which will help the company to obtain income or reduce future costs (Khamees *et al.* 2019).

Evaluating capital budgeting proposals is part of the investment decision. In this context, financial management and capital investment decision making are fundamental to a company's long-term survival and success (Bennouna, Meredith and Marchant 2019).

The effectiveness of the process of budgeting the capital of the organization and the corresponding method of financial analysis depends, ultimately, on how it affects the behavior of managers in the allocation of scarce resources among competing investment alternatives (Petrov and Khorolskaya 2020).

The construction of a systems analysis for capital budgeting is considered by many scholars such as (Bennouna *et al.* 2019), (Hall and Millard 2019), (Andrés *et al.* 2020), (Souza and Lunkes 2020).

As a rule, cost reductions apply primarily to investment projects with domestic financing. Investments financed by development partners are usually set aside for specific projects and are not fungible. Decisions about which projects should be closed or postponed should be integrated into the overall decision-making procedures for resolving budgetary implications.

The parameters of measures and goals should ensure the development of a specific set of selection criteria that can be used as a guideline when adjusting the investment portfolio (Figure 1).

Figure 1. Criteria for postponement or cancellation of projects

Decision making matrix	Transfer	Cancellation
Project approved but not yet started	Yes	Yes
Project started. costs are less than 10%	Yes	No
Project in progress, cost / benefit ratio > 1.5	No	No
Project in progress, cost / benefit ratio < 1.5	Yes	No
Project in progress, cost / benefit ratio < 1.0	Yes	Yes
Creation of a large number of jobs	No	No
Significant synergy with other projects	Yes	No
High project cancellation costs (besides cost-benefit ratio)	Yes	No

Source: compiled by authors

The initial data used for the information content of the model for quantifying the economic, social and environmental aspects of the implementation of investment projects must meet the following basic requirements:

- reliability (maximum correspondence of the used initial data to the real state of the investigated project);
- relevance (reflection of the state for a period of time of interest to the researcher);
- impartiality (absence of any significant influence on the reliability of information on the part of interested parties);
- interpretability (the ability to translate into quantitative indicators) (Henry and Stier 2021).

The algorithm of information support of the model consists of the following main steps:

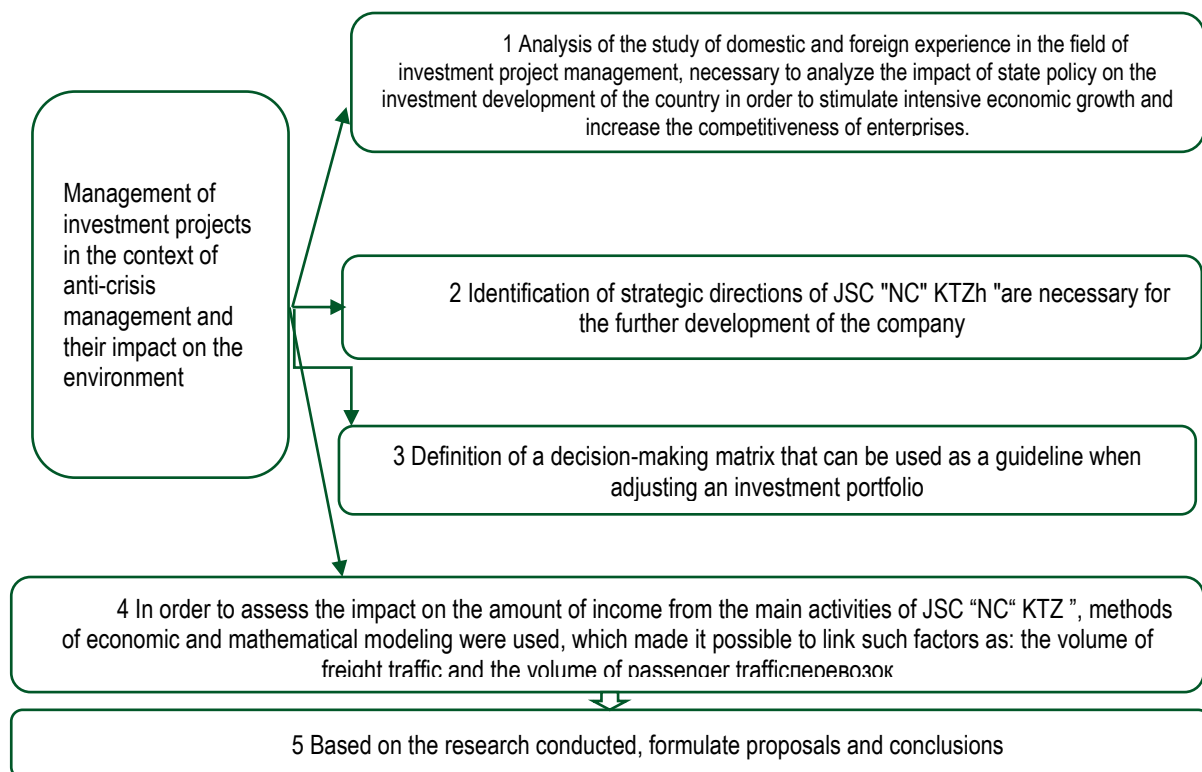
- search for available information (performed in all available sources of information, in accordance with the set of indicators used to evaluate a specific project, while ensuring the maximum degree of coverage of the estimated indicators);
- selection of the information received (a selection of data that meets the set requirements is carried out);
- generalization of information (data that have passed the selection are aggregated into a single databank to optimize the further use of the information received);
- interpretation and assessment of information (carried out in accordance with methodological recommendations, individual for each indicator);
- entering information into the model (estimates of indicators and their weights are entered into the model).

2. Research Questions

To increase the effectiveness of anti-crisis management, it is necessary to identify production reserves, which allow to correctly determine the real promising trends in the further development of production and, as a rule, precede the drawing up of the current plan of investment activities.

The main measure to improve the situation in the issue of eco-modernization of production, which the state can take without much effort, is to change the mechanism for investing in environmental protection measures, since due to the targeted use of revenues (for environmental activities, including those implemented by the corporate sector), it will also acquire regulating function. Thus, more environmental projects will be implemented and the technogenic load on the environment will be reduced to a greater extent. The author put forward a hypothesis that there is a relationship between the volume of freight traffic and the volume of passenger traffic. To prove or refute this hypothesis, a regression analysis was carried out, as a result of which it was concluded that it is necessary to replenish new and modernize new investment projects in operation, aimed at their further development.

Figure 2. Research questions

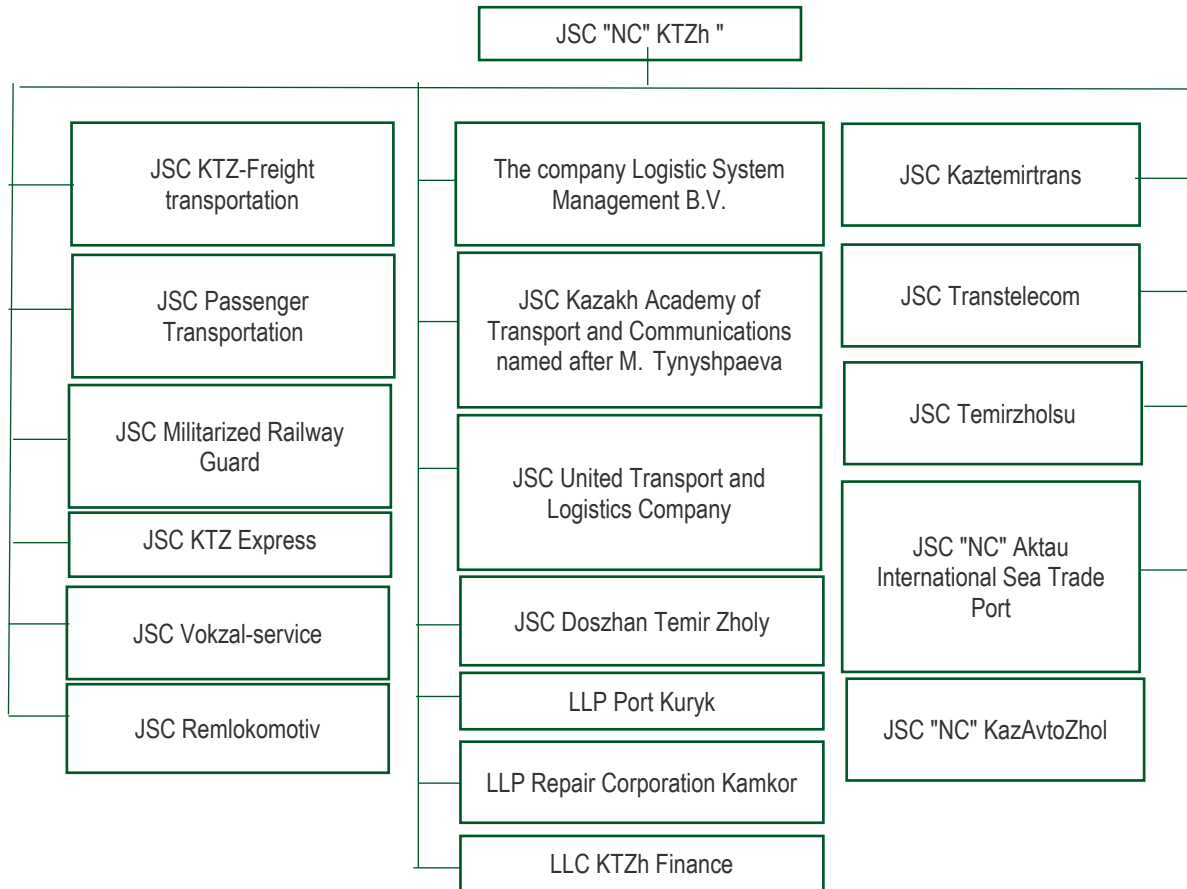


Source: compiled by authors

Investment design involves the long-term nature of the investment of financial, property and intellectual values and rights in certain areas of activity in conditions of risk and uncertainty, which necessitates the implementation of management measures at all stages of the investment project

Since the object of the study is the management of investment projects, the author considered the activities of JSC KTZ-Freight Transportation, which is a subsidiary dependent organization and belongs to the holding company National Company JSC Kazakhstan Temir Zholy (Figure 3).

Figure 3. The structure of the group of companies JSC "National Company "Kazakhstan Temir Zholy"



Source: compiled by authors

To master the ever-increasing traffic and further increase the throughput and carrying capacity, intensify the entire transportation process, accelerate the delivery of goods and wagon rolling stock, it is necessary to replenish with new ones and modernize those in operation, which requires new investment projects aimed at further development. Therefore, in order to effectively achieve its main goal, JSC "NC" KTZh "systematically carries out its activities in the following four strategic areas:

1. Improving the efficiency of production and economic activities of JSC "NC" KTZh ". The increase in profitability will be achieved by increasing revenues and optimizing administrative and production costs. Objectives within the strategic direction:

- increasing the efficiency of production processes, labor productivity and production assets;
- improve the quality of production processes (transportation services);
- modernization and development of means of production;
- differentiation of government regulations and standards for services, facilities and resources;
- Achievement of the best delivery conditions and their implementation;
- improving the supplier relationship management process;
- increasing investment attractiveness and achieving the best conditions for borrowed funds;
- improving the quality of employees;
- increasing the efficiency of the borrowed funds management process;
- automation of process control;
- introduce new production processes (transportation services).

In this regard, a special Program for increasing labor productivity and production assets will be implemented, which will include the following measures:

- introduction of innovative systems for planning, organizing and carrying out transportation, fundamentally increasing the efficiency of using rolling stock and the capacity of network sections;
- improvement and differentiation of operating standards and technical standards, allowing to optimize the cost of maintenance and maintenance of fixed assets;
- renewal of fixed assets and transition to the principles of repair based on modern diagnostic tools and methods;
- increasing the level of mechanization of production processes for servicing technical equipment (reducing manual labor);
- introduction of resource and energy saving technologies in transportation activities;
- implementation of production management systems based on lean manufacturing methods and cyclical improvement of the linear enterprises.

2. Maintaining a leading position in the freight transport market - expanding the segment of transportation of products with high added value will require an increase in the supply share in the market of high-tech transport services, since the condition for the competitiveness of domestic products with imported counterparts transfers international requirements for the efficiency of production and logistics

3. Formation of an effective structure of portfolio and production assets - restructuring of production assets by getting rid of idle or low-performing assets, and also formed an asset base to expand the range of transport and logistics services.

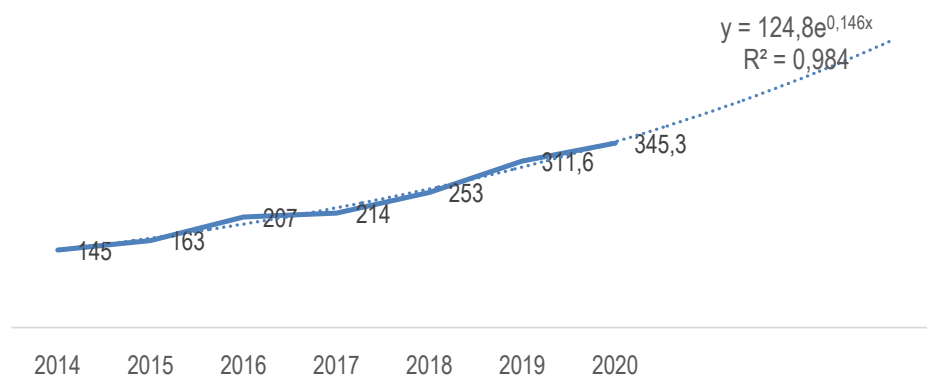
4. Improving the manageability of activities (Souza, Lunkes, 2020).

As a result of the effective management of the company, in 2020 KTZ demonstrates operating indicators that exceed the average level for the sector, thanks to the stable results in the cargo transportation segment. Unlike many transport infrastructure operators around the world, KTZ was less affected by the pandemic's travel restrictions, as more than 90% of its revenue comes from the trucking segment.

3. Methodology and Analysis

KTZ's cargo turnover for the full year of 2020 increased by almost 3% due to active exports and transit traffic to China, which began to recover from the pandemic in the second quarter of 2020. Therefore, the value of EBITDA (the indicator is calculated based on the financial statements of the company and serves to assess how profitable the company's activities are without taking into account depreciation deductions, as well as from the depreciation method) amounted to about 312 billion tenge, which corresponds to the level of 2019 (Figure 4).

Figure 4. Dynamics of the indicator characterizing the profit of JSC "KTZ-Freight Transportation", in billion tenge



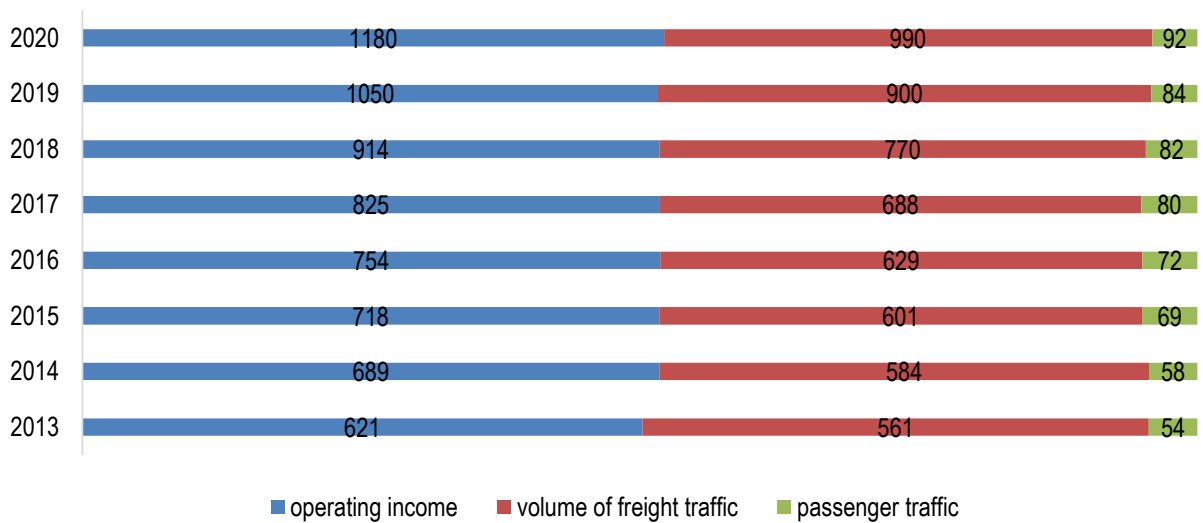
Source: compiled by authors

We will apply regression analysis to assess the impact on the amount of income from the main activities of JSC "NC" KTZ" (y , bln. tenge). Of such factors as:

- 1) the volume of freight traffic (x_1 , billion tenge);
- 2) the volume of passenger traffic (x_2 , billion tenge).

The statistical data required to build a regression model are shown in Figure 5.

Figure 5. Dynamics of income from core activities, volumes of freight and passenger traffic, in billion tenge



Source: compiled by authors

After approximating the initial data, we obtain a protocol for performing the regression analysis.

<i>Regression statistics</i>	
Multiple R	0,99746
R- square	0,99493
Normalized R- square	0,99239
Standard error	12,80247
Observations	7

<i>Analysis of variance</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	128547,24417	64273,62208	392,14369	0,00003
Remainder	4	655,61297	163,90324		
Total	6	129202,85714			

	<i>Coefficient</i>	<i>Standard error</i>	<i>t-Statistics</i>	<i>P- Meaning</i>
<i>a</i>	-53,43300	32,25166	-1,65675	0,17291
<i>b₁</i>	0,98453	0,08162	12,06227	0,00027
<i>b₂</i>	2,57564	0,84193	3,05921	0,03769

Thus, the income equation will take the form:

$$Y = -53,433 + 0,985x_1 + 2,576x_2, \quad R^2 = 0,994$$

(-1,657) (12,062) (3,059)

After constructing the multiple linear regression equation, it is necessary to assess the quality of the model in the following areas:

- 1) checking the quality of the regression equation (correlation coefficient, determination coefficient);
- 2) checking the significance of the regression equation (Fisher's criterion);
- 3) analysis of the statistical significance of the model parameters (Student's test);

4) verification of the fulfillment of the premises of the least squares method (tests for heteroscedasticity and autocorrelation of random components).

The multiple correlation coefficient is $R = 0,997$, which indicates a close relationship of the resulting trait with two factorial traits at the same time. The coefficient of determination is $R^2 = 0,994$, that is, 99.4% of the variation in the dependent variable is due to the resulting regression.

We will check the statistical significance and reliability of the obtained regression equation using the F-statistic. From the data of the protocol of the regression analysis, we have that the observed value of the Fisher criterion is $F_{observ.} = 392,144$. Fisher's criterion critical value at the significance level $\alpha = 0,05$ and the number of degrees of freedom $k_1 = m = 2$, $k_2 = n - m - 1 = 4$ (where n – number of observations, m – number of factors) equals $F_{Crit.}(0,05; 2; 4) = 6,944$. Because $F_{Observ.} > F_{Crit.}$ ($392,144 > 6,944$), then we can conclude about the statistical significance and reliability of the obtained regression equation.

Significance of the coefficients b_1 and b_2 we estimate using the Student's t-test. In the regression model, the t-statistics for the corresponding coefficients are indicated in parentheses. Since the observed values of the t-statistics for the two considered parameters are greater than the critical $t_{Crit.} = 2,776$ (at significance level $\alpha = 0,05$ and the number of degrees of freedom $k = n - m - 1 = 4$), then, according to the Student criterion, the coefficients of the equation b_1 and b_2 statistically significant and reliable.

Let us check the fulfillment of the premises of the least squares method: the absence of heteroscedasticity and autocorrelation of random components.

Heteroscedasticity means violation of the condition of constancy of variances of random deviations: $D(\varepsilon_i) = D(\varepsilon_j) = \sigma^2$ for any observation i and j . This can lead to the fact that the estimates of the parameters of the regression equation become ineffective.

To detect heteroscedasticity, we will use Spearman's rank correlation test. When using this test, it is assumed that the variance of the deviation will either increase or decrease with increasing values of X. Therefore, for the regression, built by the method of least squares, the absolute values of deviations e_i and values x_i of the random variable X will be correlated.

Let's apply Spearman's test for the first variable x_1 – the volume of freight traffic. Calculate deviations $e_t = y_t - \tilde{y}_t$, as the difference between the actual and predicted values of the resulting attribute. Let's rank the value x_i and e_i .

Determine the rank correlation coefficient:

$$r_{x,e} = 1 - 6 \cdot \frac{\sum d_i^2}{n(n^2 - 1)} \tag{3.1}$$

where:

d_i – difference between ranks x_i and e_i , $i = 1, 2, \dots, n$;

n – number of observations.

In our case, we get:

$$r_{x,e} = 1 - 6 \cdot \frac{60}{7 \cdot 48} = -0,071$$

Next, we calculate the observed value of the t-statistic:

$$t = \frac{r_{x,e} \sqrt{n-2}}{\sqrt{1-r_{x,e}^2}} = \frac{-0,071 \cdot \sqrt{5}}{\sqrt{1-(-0,071)^2}} = -0,16$$

At the significance level $\alpha = 0,05$ and the number of degrees of freedom $k = n - 2 = 5$ determine the critical value t-Statistics $t_{cr.} = 2,571$.

Since the observed value does not exceed the critical value, it is necessary to accept the hypothesis of the absence of heteroscedasticity.

In the regression model we have constructed, there are two explanatory variables, therefore, the hypothesis of the absence of heteroscedasticity should be tested using t-statistics for each of them separately. But due to the fact that the ranks in the second variable x_2 (the volume of passenger traffic) will coincide with the ranks in the first variable, the rank correlation coefficients will be equal. Therefore, we can conclude that there is no heteroscedasticity in the second variable as well, i.e. the variance of random deviations is constant (residuals are homoscedastic).

Another important prerequisite for constructing a qualitative regression model using the least squares method is the independence of the values of random deviations ε_i from the values of deviations in all other observations. The lack of dependency ensures that there is no correlation between any deviations ($\sigma(\varepsilon_i, \varepsilon_j) = 0$ if $i \neq j$) and, in particular, between adjacent deviations ($\sigma(\varepsilon_{i-1}, \varepsilon_i) = 0$), $i = 2, 3, \dots, n$. Autocorrelation is defined as the correlation between observed indicators ordered in time or space. As a result, the estimates obtained on the basis of the least squares method cease to be effective.

To check the presence of autocorrelation of random components, we determine the first-order autocorrelation coefficient:

$$r_{e_t, e_{t-1}} = \frac{\sum e_t e_{t-1}}{\sqrt{\sum e_t^2 \sum e_{t-1}^2}} = -0,414$$

To make a decision on the presence or absence of autocorrelation in the studied series, the actual value of autocorrelation is comparable to the critical value. $r_{crit.} = 0,360$ at significance level $\alpha = 0,05$. Since the observed value of the autocorrelation coefficient is less than the critical one, we accept the hypothesis that there is no autocorrelation.

The performed analysis of the quality of the multiple linear regression equation allows us to carry out further research of the constructed model.

Let's analyze the obtained regression coefficients:

- with an increase in the volume of freight traffic by 1 billion tenge, income from core activities will increase by 0.985 billion tenge with a constant volume of passenger traffic;
- an increase in the volume of passenger traffic by 1 billion tenge entails an increase in income from core activities by 2.576 billion tenge with a constant volume of freight traffic.

The multiple linear regression equation can be supplemented with comparable indicators of the closeness of the relationship between the factor and the result, which make it possible to rank the factors according to the strength of their influence on the result. These indicators include the aggregate average elasticity coefficients:

$$\bar{E}_{yx_i} = b_i \cdot \frac{\bar{x}_i}{y}, \quad 3.2$$

The indicators show by what percentage, on average, the result will change if the corresponding factor changes by 1%. In our case, we get:

$$\bar{E}_{yx_1} = 0,836\% , \quad \bar{E}_{yx_2} = 0,231\% .$$

Having analyzed these elasticity coefficients, we obtain the following conclusions:

- 1) with an increase in the volume of freight traffic by 1% from the average level, the income increases by 0.836% from its average level, while the volume of passenger traffic remains unchanged;
- 2) with an increase in the volume of passenger traffic by 1% from the average level, the income increases by 0.231% from its average level with a constant volume of freight traffic.

Thus, at the moment, freight transportation is of the greatest importance for generating income from the main activity of KTZ-Freight Transportation.

To increase the efficiency of anti-crisis management, it is necessary to identify production reserves, which allow to correctly determine the real future trends in the further development of production and, as a rule, precede the drawing up of the current plan.

The identification and use of production reserves depends on the state of technical and economic planning at the enterprise, on the thoroughness of the development of plans.

1 Increase in the volume of traffic - the growth of traffic contributes to the improvement of their organization, improvement of the indicators of the use of rolling stock, etc., which also leads to a decrease in the cost of transportation.

2 Improvement of the technical equipment of railways - significantly depends on the operating conditions on the road, the density and structure of traffic, the profile of the track and other factors.

3 Improving the use of rolling stock.

4 Increase in labor productivity - leads to the release of some workers and provides significant annual savings in operating costs.

5 Changes in the consumption rates of fuel, electricity and materials.

6 Decrease in the level of prices for fuel, electricity and materials.

7 The degree of use of fixed assets - provides a reduction in the cost in terms of depreciation charges.

The investment activity of JSC NC Kazakhstan Temir Zholy is aimed at implementing a set of measures to ensure the sustainable operation of railway transport, improve the quality and safety of transportation services, and therefore, in 2021, within the framework of investment activities, the Company plans to:

- the beginning of the implementation of measures to modernize the railway transit corridor Dostyk - Aktogay - Moiynly;
- completion of the project Construction of a ferry crossing in the village of Kuryk;
- purchase of 60 units and overhaul of 45 units locomotives;
- purchase of 2,440 units and overhaul of 1,005 units freight cars;
- overhaul of 157 units passenger cars;
- overhaul the track superstructure in the amount of 583 km;
- to continue the implementation of measures aimed at updating the fixed assets of the railway infrastructure and increasing the level of traffic safety.

In investment activities and project management, JSC "NC" Kazakhstan Temir Zholy has introduced a project management process by milestones for all projects, including those initiated by the state. This approach made it possible to reduce the project implementation time, improve the accuracy of budget forecasting, avoid the implementation of a number of suboptimal projects and reduce the role of manual control. At the same time, it is necessary that the investment policy be flexible enough for the fastest possible reaction to both:

1) deterioration of the external market situation, for example, a reduction in capital investments in response to a sharp drop, for example, in freight turnover, which occurred in 2015;

2) the emergence of new growth opportunities that provide the maximum possible economic effect for the company in the face of diminishing investment opportunities necessary to support key strategic initiatives, such as an increase in container transit and projects to improve performance.

Rigidly planning large capital investments for a period of more than one year, as it was previously accepted for cars and locomotives, is impractical in a weak market, and corrective actions are required to take into account the factor of support for Kazakhstan producers, such as communicating the full cost of support to producers, taking into account both capital and future operating costs, as well as, if necessary, adjusting the EVA targets set by the shareholder to reflect the cost of supporting local producers.

In the medium term, the capital investment plan, first of all, should include measures to maintain the network capacity, its reliability and safety, as well as to ensure the company's growth in accordance with the new priorities with the necessary infrastructure and rolling stock. At the same time, decisions on new investments in the expansion of "narrow" infrastructure sections should be made taking into account the actual growth dynamics of container transit in the context of individual directions as late as possible, in order to obtain the most recent information to justify investments.

In finance and control, in recent years, emphasis has been placed on strengthening the role of finance in decision-making, making a gradual transition towards value creation management. Particular emphasis is placed on integrated performance management. It was also supposed to determine the priorities for the development of the financial function on the basis of a component-wise assessment of the current importance / degree of development in the company of functions for managing cash and profitability, creating shareholder value, investor relations, managing the capital structure, organizing supporting functions.

Thus, the modern approach to anti-crisis management in the company's activities requires the development of specific tools in order to form the organizational and methodological support of the enterprise's competitiveness and its increase in conditions of increasing market competition.

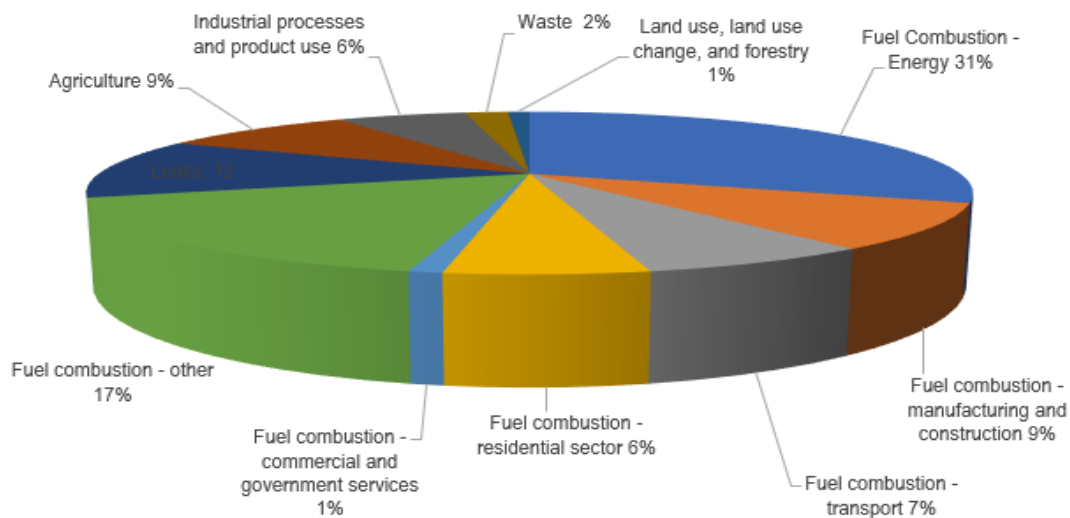
4. Environmental Impact

It should be noted that the larger the volume of industrial activity, the more environmental pollution occurs, which occurs due to the release and evaporation of greenhouse gases in the atmosphere.

The problem of climate change is global in nature, and therefore the world is witnessing a tightening of carbon regulation. Joining the global fight against climate change, the Republic of Kazakhstan, within the framework of the Paris Agreement on Climate Change, has committed itself to reducing greenhouse gas (GHG) emissions. In this regard, it is expected to strengthen carbon regulation in the near future: strengthening of policies related to the regulation of GHG emissions in Kazakhstan, as well as in the country's important trading partners - the EU and China.

Greenhouse gas emissions in Kazakhstan are mainly associated with energy production: 82% of all generated emissions in the country are concentrated here (Figure 6).

Figure 6. Sources of greenhouse gas emissions



Source: compiled by authors according to https://www.ey.com/ru_kz

In Kazakhstan, only large sources of greenhouse gas emissions are subject to regulation within the framework of the emissions trading system, emissions of which currently account for about 43% of all GHG emissions in the country. Despite the fact that ETS in Kazakhstan has been operating since 2013, emissions at the national level continue to grow.

In 2021, national GHG emissions exceeded 1990 levels by 4.05%, with facility operators receiving surplus free allowances.

In connection with the obligations of the Republic of Kazakhstan under the Paris Agreement on climate change, the country is expected to introduce additional measures of carbon regulation. No decisions have yet been made on the exact timing and starting configuration of these measures, but Kazakhstan's recently updated plans to meet its commitments (Nationally Determined Contributions - NDCs) suggest an upcoming strengthening of the ETS and the introduction of a carbon tax in Kazakhstan. The introduction of a carbon tax will also increase the prices of basic fossil fuels. Table 1 shows the indicative growth of the wholesale price by type of fuel in Kazakhstan, based on the results of the project "Updating the NDC of the Republic of Kazakhstan until 2030".

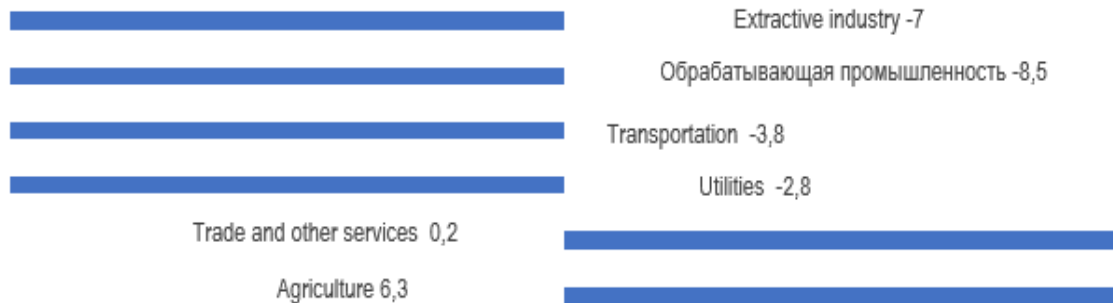
Table 1. Impact of a carbon tax on the cost of major fossil fuels by 2030

Fuel	Price increase, EUR
Coal, per ton	42,2
Gasoline, per liter	0,1
Diesel fuel, per liter	0,1
Natural gas, on 1000 m ³	101,5

Source: compiled by authors according to https://www.ey.com/ru_kz

An increase in the cost of hydrocarbon fuels, an increase in electricity prices by 2030 will increase the costs of companies, which, in turn, may have a negative impact on demand, or, in other words, on the production of goods and services in relevant sectors of the economy, including transport companies (Figure 7).

Figure 7. Impact of carbon regulation on output by 2030



Source: compiled by authors according to https://www.ey.com/ru_kz

According to the data presented at the beginning of 2021 from the project "Renewal of the NDC of the Republic of Kazakhstan until 2030", the cost of a carbon unit in Kazakhstan may increase:

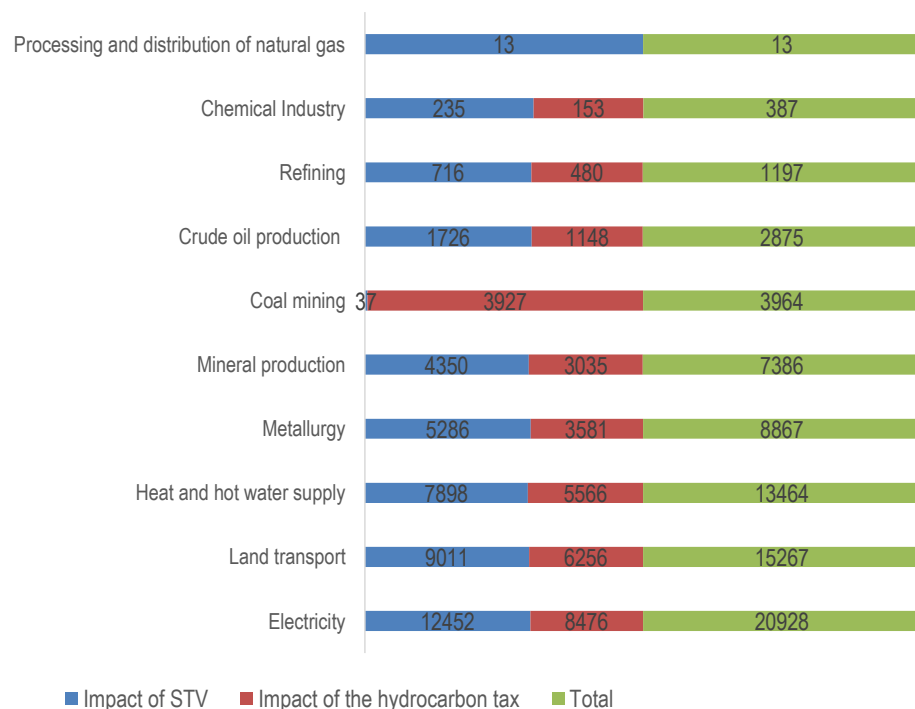
- from 1 euro / tCO₂ in 2022;
- up to 15 euro / tCO₂ in 2023–2025;
- up to 45 euro / tCO₂ in 2026–2030.

And the estimated carbon tax rate could be:

- € 21.4 / tCO₂ in 2023–2025;
- € 26 / tCO₂ in 2026–2030.

EY's experts have made a rough estimate of how much the cost in the most carbon-intensive sectors of the economy could increase due to the purchase of additional allowances under the ETS and the payment of the carbon tax for the period from 2023 to 2030 (Figure 8).

Figure 8. Costs in the most carbon-intensive sectors of the economy due to the purchase of additional allowances under the ETS and the payment of the carbon tax for the period from 2023 to 2030



Source: compiled by authors according to https://www.ey.com/ru_kz

Companies, including JSC "NC" Kazakhstan Temir Zholy", should now turn their attention to the upcoming tightening of carbon regulation measures and determine what this regulation will mean for their industry, competitors, suppliers, consumers and for themselves.

Modeling and assessing the impact of carbon regulation can help determine GHG emissions and assess the impact on the economic development of a company. After all, the upcoming changes may affect the companies in the industry in different ways. This will depend on the specific circumstances of the industry and the willingness of the company itself to change.

The investment decision-making process is quite lengthy and varies depending on the industry, the donor country, where the corporate procedures of the companies have a great influence. If we talk about the statistics of foreign direct investment, then according to the National Bank of Kazakhstan, in the first quarter of 2020, the volume of gross FDI inflows amounted to over \$ 3.5 billion, while most of it traditionally attracted:

- the mining industry - 65%;
- the manufacturing industry accounts for 9% of the total volume of foreign direct investment;
- the transport and warehousing industry accounted for more than 5%.

Today, with the participation of foreign investors in the country, about 200 investment projects are being implemented in non-resource sectors of the economy: agro-industrial complex, mining and metallurgical complex, mechanical engineering and production of components, petrochemical and chemical industry, renewable energy sources, transport and logistics and others.

Responsible investing movement ESG (environmental, social and governance), which includes taking into account environmental, social and governance factors when investing, is becoming an increasingly important part of the decision-making process in attracting a company's investment.

KTZ is committed to introducing ESG factors into all stages of the investment process - from the search for project proposals to monitoring the environmental and social impact of financed projects. The ESG integration method involves an assessment of the risks and opportunities identified as a result of the analysis of factors related to the environment, social sphere and management, which are materially significant for KTZ. Particular attention is paid to the observance of the principles of careful and rational attitude to the environment. In accordance with the Sustainable Development Policy, KTZ in its activities is guided by the following principles in the field of environmental protection:

- application of methods of rational use of resources in activities, which in the best way ensure the prevention of adverse effects on the environment;
- striving to reduce excess resource consumption and minimize the existing negative environmental impact by introducing energy efficient technologies, reducing water consumption, reducing paper consumption for office needs through the introduction of an electronic document management system and the practice of double-sided printing;
- increasing the level of environmental awareness of the Company's employees;
- support of counterparties in the application of the environmental risk management system (environment) for the identification, assessment of actual and possible impacts on the environment and society, determination and effective implementation of appropriate management measures, control and level of environmental risks.

Conclusion

To improve the efficiency of anti-crisis management, it is necessary to identify production reserves, which allow to correctly determine the real promising trends in the further development of production and, as a rule, precede the drawing up of the current plan of investment activities.

Focusing on the financial aspect of investment management is necessary, since a number of key functions are implemented within the framework of financial project management, which were considered in the research process.

In modern conditions of the transformation of the economy into a digital environment and the development of information technologies, financial management of investment projects involves the use of certain information technology products in the field of finance, which provide more efficient and automated project management. These information technology products are designated as financial technologies, and at this point in time there is a set of programs that expand the possibilities of developing and evaluating the effectiveness of investment projects.

The problem of developing and improving financial technologies is relevant in modern realities, since the financial aspect of managing investment projects is important and necessary both for optimal planning and formation of an investment project and assessing its effectiveness, and for achieving planned targets.

As a result of the analysis of the financial activities of JSC "NC" KTZ ", the author built an econometric model, which made it possible to apply regression analysis to assess the impact of such factors as the volume of freight traffic, the volume of As a result, it was concluded that it is necessary to replenish with new and modernize new investment projects in operation, aimed at their further development.

The modern approach to anti-crisis management in the company's activities requires the development of specific tools in order to form the organizational and methodological support of the company's competitiveness and its improvement in the context of increasing market competition, which occurs due to the release and evaporation of greenhouse gases into the atmosphere.

Responsible investing movement ESG (environmental, social and governance), which includes taking into account environmental, social and governance factors when investing, is becoming an increasingly important part of the decision-making process in attracting a company's investment.

KTZ is committed to introducing ESG factors into all stages of the investment process - from the search for project proposals to monitoring the environmental and social impact of financed projects.

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