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## MAIN CHARACTERISTICS OF PROJECT FINANCING OF INFRASTRUCTURE FACILITIES AND ITS DEVELOPMENT IN KAZAKHSTAN

### Abstract

The article deals with the issues of current stage of development process of project finance in Kazakhstan. The purpose of the study is to develop new recommendations based on the analysis of foreign experience in the applying project finance to implement the infrastructure projects. One of the most relevant economic development problems of Kazakhstan is the increase in investment activity, which requires the formation of an effective investment market. The complexity of its formation and the investment financing mechanism corresponding to a market economy lies in the fact that the Kazakhstani's economy is in the stage of developing the necessary market infrastructure that ensures the free exchange of information between all business entities. However, there are very few reliable and adapted financing instruments that ensure the healthy functioning of investment activity. Therefore, in order to overcome the crisis and launch economic growth it is necessary to create new production capacities, to renew fixed assets and, on this basis, to implement innovative strategies of breakthrough and modernization. As follows from the above, the relevance and insufficient theoretical and practical study of the issues related to project financing in Kazakhstan, determined the choice of the topic, purpose and objectives of this study.

**Key words:** economic development, project financing, investment market, infrastructure projects, financing instruments, project risks, innovation strategies.

### Introduction

So, as of today, one of the rapidly developing infrastructure financing tools is the Project Finance. Its popularity was widely spread in the last few decades of the 20th century and has been successfully applied for implementing large-scale investment projects in different economically vital industries since then. Due to the peculiarities of the process of development and the current institutional environment, it is challenging to adopt the model of Project Finance of Western national and transnational corporations in Kazakhstan. The formation of an effective system of Project Finance can be created through rigorous studying of theoretical materials of the approaches of the organization of Project Finance that are used by highly developed countries in the combination of the scientific generalization of our own experience in the field of investment financing.

### Literature review

Many foreign scientists as E.R. Yescombe, J.D. Finnerty, I.A. Nikonova, B.C. Esty, H.L. Beenhaker and many more were engaged in the study of the essence of Project Finance and the ways of its development in comparison to other tools of financing. These scientists have given very important recommendations on the development and further implementation of Project Finance as the alternative to the traditional types of financing. Nevertheless, it should also be noted that despite numerous

references by various experts that project finance is used in relation to large-scale and capital-intensive projects. But there is a shortage of certain types of quantitative criteria for the use of Project Finance. The criteria for qualifying for Project Finance are more qualitative than quantitative. In addition, the use of Project Finance depends on the ratio of income and expenses associated with the use of Project Finance in comparison with traditional methods of financing rather than on the amount of funds raised.

**Materials and methods**

The research used general scientific and special research methods: dialectical method of cognition, induction and deduction, scientific abstraction, system analysis, system of indicators and methods of evaluation, causal and comparative methods, static-economic method.

**Main provisions**

Beginning from generally accepted terminology, infrastructure is an artificial, permanently located linear particular object of public use. That forms the basis of economic life due to their original functions for maintaining the movement of people and goods, the electricity and water supply, and so on. According to results of conducted research on the given topic by many leading economists, the social infrastructure indirectly supports the development of the economy, and as a result helps meeting the intangible needs of the population.

Table 1 – Main types of infrastructure projects

Technical infrastructure projects			Social infrastructure	
Communications	Energy	Water supply	Society	Management
- Transport projects such as overpasses, bridges, ports, terminal; - Communications, including new systems	- Electricity; - Enterprises of the oil and gas sector; - Heating systems, heating plants	- Water collectors. - Sewerage. - Water purification facilities; - Distillers	- Healthcare; - Science; - Culture; - Education; - Sports	- Public administration and law enforcement bodies - Public places for various purposes;
Note – Made by the authors on the basis of the literature source [1].				

Infrastructure plays a leading role in the development and functioning of the socio-economic system. Since the development of roads, sea terminals, water pipes and electricity networks is considered as the part of the responsibility of local authorities it is generally believed that infrastructure activities are associated with local self-government. Financing infrastructure projects requires public participation. For instance, in case of Europe, the importance of this problem is emphasized and as a result, solved by co-financing infrastructure project from their internal European budget.

Elements of economic-technical infrastructure are divided into means and objects of communication, energy and water supply networks. Their recipients are households and manufacturing enterprises. Social infrastructure encompasses institutional and social subsystems. Infrastructure projects can also be divided according to the criterion of impact of local, regional, national and international range and accessibility. Economists often Core distinctions between public and private infrastructure can be identified depending on their status.

The term “infrastructure investment” means the deliberate spending of funds on acquiring infrastructure assets to gain specific benefits at an assumed risk. Taking into account the classification of investments, the following types of financing of infrastructure projects can be proposed. These can be financial investments when an investor decides to buy securities of a company investing in infrastructure, or to provide an investment loan for the construction or expansion of the corresponding infrastructure. The investor can also decide on direct investments, including some following examples:

a) expansion, b) modernization, c) reconstruction or construction of a new infrastructure facility. In the context of infrastructure investments, so-called intangible investments, including R&D expenditures, which play a crucial role in sectors such as communications and energy, should not be ignored. Infrastructure investments can be classified according to the type of enterprise or organization

that provides financing. Here we are talking about public, private and public-private investments carried out by both sectors. The infrastructure is characterized by specific features that give certain consequences when planning and implementing investment projects [2].

Obviously, these features influence the choice of financing models.

1) High capital intensity: the construction and operation of infrastructure facilities involve significant costs with a long payback period.

2) Technical unity and indivisibility: infrastructure projects require the creation of the entire facility at once to achieve the planned functionality.

3) Particular objectives: it is essential for the government to finance infrastructure facilities, which provide public services in the field of production or consumption

4) Durability: once constructed objects can determine the development of spatial structures of production and population systems for a long period of time, continuing to serve for decades.

5) Lack of mobility: it should be remembered that infrastructure facilities are permanently connected to a specific area, requiring the use of infrastructure services on site.

The above mentioned features reflect the specific features of the infrastructure. Financing formulas for infrastructure projects should take into account high level of risks, capital intensity, and particularly a long cycle of an investment project. So as a result, this significantly limits the available financing options, and excludes the participation of a private investor who expects an immediate return on invested capital [3].

Project finance was presented for the first time ever in the countries of North America as a special tool for financing large investment projects. It has existed in its present form for more than 50 years, but its use has increased dramatically in recent years because of the scaling up of energy, mining and industrial projects.

Above-mentioned projects carry out a technical, economic and political risk. Therefore, the following responsibility of any project outcome is divided equally between project beneficiaries and banks involved in financing them.

Although the term “Project Finance” is widely used in banking and industry sectors, it is often misunderstood. There are two main forms of Project Finance:

- 1) relative project finance
- 2) core project finance.

Relative Project Finance is a way of regular financing, where project beneficiaries or borrowers receive resources for a given project, but under the guarantee of the beneficiaries and with a full turnover on the income and assets of the borrower or guarantor. Since there is no separation of responsibility for the project from other responsibilities of the beneficiaries and, accordingly, no sharing of risks it cannot be considered as the Project Finance in a classical way [4].

The main participants in the project financing process are presented in Figure 1:

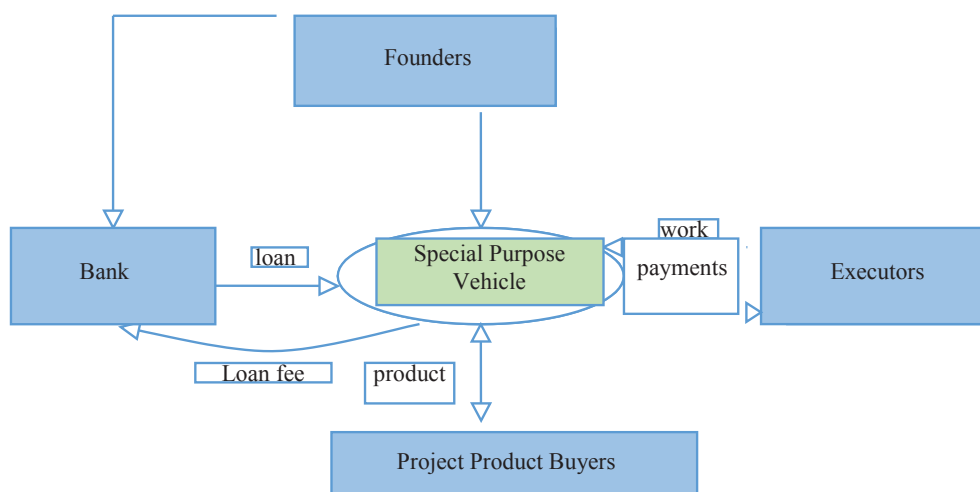


Figure 1 – Financial scheme of the project implementation

Note – Made by authors on the basis of the data from literature source [4].

The creation of an independent company in the form “legal entity” is used to implement the project according to the following scheme: the founders / beneficiaries of the project, or companies willing to take part in the implementation of any large project, create a new company – a subsidiary, which is designed to independently respond for the project implementation [5].

Currently, there are few definitions of the concept of «Project Finance», which can be understood in different ways.

However, according to the results of research of this article, it can be identified that «Project Finance» is a method of financing long-term infrastructure, industrial and other projects, which allows the beneficiaries of an investment project to limit their liability for the project only by their contribution to the authorized capital of the project, distributing risks and counting on certain dividends from cash flows generated by the project. The main feature of «Project Finance» is that the object of investment of credit funds is a specific project, and not the borrowing company. This broad definition of «Project Finance» allows it to include various options currently available, differing mainly in the degree of risk assumed by the project beneficiary [6].

The article shows the process of assessing the effectiveness of the project, and as follows, the results of calculation of such indicators as:

1. Project payback period (PPP).
2. Competitiveness.
3. Sources of loan and interest repayment.
4. The index of project profitability (IPP).
5. Internal rate of return (IRR) (return on investment rate).
6. Net present value of the project (NPV).
7. Debt coverage ratio for the crediting period (LLDSCR).
8. Debt coverage ratio for the entire life of the project (PLDSCR).
9. Equity-to-borrowing ratio (LBR).

The risk management system also affects the effectiveness of the project [7].

The research paper analyzes 4 projects of financing the facility in various segments of the industry:

1. Project 1: Financing the construction of a shopping center.
2. Project 2: Financing the construction expenses of high-rise residential buildings.
3. Project 3: Financing the construction of a business class residential building.
4. Project 4: Financing of construction and reconstruction of low-rise residential buildings.

Cash flow models were built for each project, as well as the main performance indicators of the projects were calculated:

Comparative characteristics of key performance indicators of projects are presented in Table 2.

Table 2 – Key performance indicators of projects (comparative features)

Key effectiveness indicators	Project 1	Project 2	Project 3	Project 4
NPV	3 745	5 998	14 913	574 792
LLDSCR	1,2	1,2	2,2	3,4
PLDSCR	1,4	1,3	2,3	3,4
ISCR	8,1	4,2	12,6	20,4
KOCC	19%	0,0%	25,4%	23,7%
IRR	51,6%	48,2%	38,6%	51,2%
The total amount of all loan payments *thousand USD	11 768	28 392	17 825	356 860
Note – Made by the authors on the basis of the literature source [7].				

As part of a comprehensive analysis of each project, 3 options for the development of project scenarios (basic, optimistic and pessimistic) were considered.

Figure 2 shows the results of this analysis.

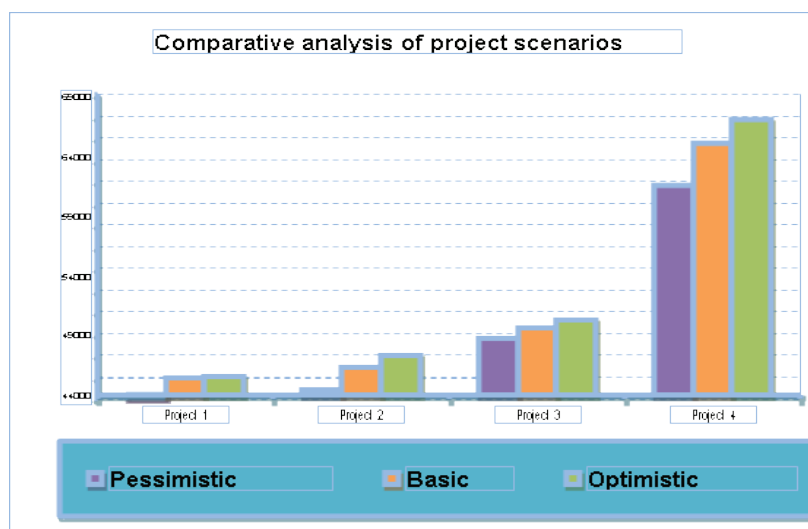


Figure 2 – Comparative analysis of construction project scenarios

Note – Made by the authors on the basis of the Table 2.

After the analysis, the project specific risks were identified and the risk reduction ways for each of the projects were proposed.

Also, the main project indicators' sensitivity to were defined. The obtained data is presented in Table 3.

Table 3 – Projects sensitivity (NPV change in %)

Key indicators changes 1%	Project 1	Project 2	Project 3	Project 4
Selling price	1,4%	5,4%	2,7%	1,4%
Expenses	3,3%	3,5%	0,2%	0,4%
Loan interest rate, %	2,7%	0,7%	1,5%	1,8%

Note – Made by the author on the basis of the Table 2.

According to the data from the table above, three of the four projects are most sensitive to the sale price of rental space. And only the first project turned out to be the most sensitive to the selling costs of the project itself. Therefore, it can be concluded that in order to improve the system of Project Finance, first of all it is necessary to pay attention to the profitability of the project, especially considering the fact that in the process of work we considered the construction of large real estate objects, where the results of the «Object to Volume»-ratio of the construction and installation work is approximately the same.

Further, an analysis of the development of various segments of the construction industry, which includes the projects discussed above, was carried out. Accordingly we can conclude that it is highly profitable to invest in this industry. The annual increase in profitability is around 20–30%. This circumstance attracts a huge number of developers to the housing construction market where they earn the biggest profit in the shortest possible time [8]. Relying on the given data from numerous researches, the average efficiency of investments is 3 times higher than the yield on regular bank deposits.

Thus, speaking about an effective system of Project Finance, it is necessary to consider the «Risk to Profitability»- ratio of the project [9].

From the point of view of the any entity making investment decisions, the «Risk to Return»-ratio is the basic category underlying the decision to invest funds. Therefore, striving to approach systematically, we can formulate the following: both the reduction of investment risks and the increase

in investment profitability, as well as the combination of both of these factors, will determine the formation of an effective system of Project Finance.

So in the next stage, we are going to identify the ways to improve the «Risk to Return»-ratio in this research.

Based on this, the available empirical data on the implementation of investment projects on the terms of Project Finance in the construction industry were analyzed in order to identify the laws that made it possible to implement these projects.

Secondly, an analysis of the legislative framework of our country was carried out in order to identify possible shortcomings, the correction of which will have a positive effect and the possibility of large-scale distribution of this type of financing.

The result of the work carried out was the identification of two main ways to implement an effective system of Project Finance:

1. Elimination of deficiencies in legislation.

According to the authors, in order to form an effective system of Project Finance, it is necessary to improve the legal norms that regulate the most important issues of Project Finance in the framework of investment design of commercial banks and the activities of project companies.

2. Minimization of project risks

In order to minimize risks in Project Finance, it is proposed to use a method of scoring risk assessment providing the information about the main indicators of any particular project, such as:

1. Market/competition in the market, where the main features can be:

- ◆ market conditions;
- ◆ competitive position of the Project /a project company on the market.

2. Dependence on market factors:

- ◆ price risks;
- ◆ dependence on suppliers;
- ◆ dependence on customers.

3. Dependence on non-market factors:

- ◆ court proceedings.

4. Reliability of the company:

- ◆ reliability of Founders/initiators;
- ◆ access to the debt capital market [10].

## Results and discussion

Based on the results of the research, the following main conclusions can be drawn:

Project Finance is a relatively new form of lending for Kazakhstan, but it is quite effective and promising. This type of lending has been widely developed in banks in recent years, but not all credit organizations correctly interpret this term. Project Finance in its pure form in Kazakhstan is only at the stage of implementation of its system. Existing experience in managing projects financed by Project Finance in the country in the conditions of stagnation of the industry in particular and the economy as a whole.

Today, a highly relevant task of the study is the formation of an effective system of project financing in the infrastructure financing industry, as well as tools that allow you to analyze the project as quickly and accurately as possible, choose the most profitable and less risky project, determine the “sustainability” of the project under the influence of external factors.

Currently there are no generally accepted methods of structuring the project. Each potential investor develops their own project assessment systems, including a system for analyzing project risks. So it is significant to create a common system of implementing Project Finance method in infrastructure projects financing.

During the global financial crisis many investors faced the problem of the lack of tools that allow them to analyze project risks and trends precisely in a short time.

In order to form an effective system of Project Finance, it is necessary to adopt a set of legal norms that clearly regulate the most important issues of Project Finance within the framework of investment design of commercial banks and the activities of project companies.

## Conclusion

First of all, it is necessary to solve the following requirements:

- ◆ facilitation the procedure for registration of land relations, especially in terms of long-term land lease and mortgage registration;

- ◆ expanding the possibilities of using collateral in the implementation of lending;
- ◆ revaluation of fixed assets in accordance with inflation;
- ◆ improvement of tax regulations.

1) It is necessary to identify all possible project risks: a) specific risks of each project, b) general: political, macroeconomic, marketing, etc. risks.

2) In order to manage project risks more effectively, it is necessary to use a point (quantitative) risk assessment system.

3) It is not enough to conduct a risk analysis of the project only at the stage of “entering the project”. Regular monitoring of project risks will ultimately have a positive impact on the effectiveness of the project.

4) The practical application of the proposed risk assessment system has shown that it can dramatically increase the effectiveness of the Project Finance system.

It should be noted that in most research papers Project Finance is considered in connection with the study of other, broader issues of investment management and the organization of its financing. There are clearly not enough independent studies on the problems of Project Finance and its organization in Kazakhstan. Existing number of the studies carried out are not of a comprehensive nature, many of the issues raised in them are just staging. In the economic literature there is not enough publicly available information on the content of Project Finance as a special form of investment financing and the role of the state in regulating the relations of its participants is not defined.

The great practical significance of this research paper lies in the formation of the domestic concept of Project Finance via elaborating the whole complex of theoretical and methodological problems in the infrastructure industry.

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## **ОСНОВНЫЕ ХАРАКТЕРИСТИКИ ПРОЕКТНОГО ФИНАНСИРОВАНИЯ ОБЪЕКТОВ ИНФРАСТРУКТУРЫ И ЕГО РАЗВИТИЕ В КАЗАХСТАНЕ**

### **Аннотация**

В статье рассматриваются вопросы текущего этапа процесса развития проектного финансирования в Казахстане. Целью исследования является разработка новых рекомендаций, основанных на анализе зарубежного опыта применения проектного финансирования для реализации инфраструктурных проектов. Одной из наиболее актуальных проблем экономического развития Казахстана является повышение инвестиционной активности, что требует формирования эффективного инвестиционного рынка. Сложность его формирования и соответствия рыночной экономике, механизм финансирования инвестиций заключается в том, что экономика Казахстана находится на стадии развития необходимой рыночной инфраструктуры, обеспечивающей свободный обмен информацией между всеми субъектами хозяйствования. Однако существует очень мало надежных и адаптированных инструментов финансирования, которые обеспечивают здоровое функционирование инвестиционной деятельности. Поэтому для преодоления кризиса и запуска экономического роста необходимо создавать новые производственные мощности, обновлять основные фонды и, исходя из этого, реализовывать инновационные стратегии прорыва и модернизации. Как следует из вышеизложенного, актуальность и недостаточная теоретическая и практическая проработка вопросов, связанных с проектным финансированием в Казахстане, определили выбор темы, цели и задач данного исследования.

**Ключевые слова:** экономическое развитие, проектное финансирование, инвестиционный рынок, инфраструктурные проекты, инструменты финансирования, проектные риски, инновационные стратегии.

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## **ИНФРАҚҰРЫЛЫМ ОБЪЕКТІЛЕРІН ЖОБАЛЫҚ ҚАРЖЫЛАНДЫРУ ЖӘНЕ ОНЫ ҚАЗАҚСТАНДА ДАМЫТУДЫҢ НЕГІЗГІ СИПАТТАМАЛАРЫ**

### **Андатпа**

Мақалада Қазақстанда жобалық қаржыландыруды дамыту процесінің ағымдағы кезеңінің мәселелері қарастырылады. Зерттеудің мақсаты инфрақұрылымдық жобаларды іске асыру үшін жобалық қаржыландыруды



қолданудың шетелдік тәжірибесін талдауға негізделген жаңа ұсынымдар әзірлеу болып табылады. Қазақстанның экономикалық дамуының ең өзекті мәселелерінің бірі инвестициялық белсенділікті арттыру болып табылады, бұл тиімді инвестициялық нарықты қалыптастыруды талап етеді. Оны қалыптастырудың және нарықтық экономикаға сәйкес келетін инвестицияларды қаржыландыру тетігінің күрделілігі Қазақстан экономикасының барлық шаруашылық жүргізуші субъектілер арасында еркін ақпарат алмасуды қамтамасыз ететін қажетті нарықтық инфрақұрылымды дамыту сатысында тұрғандығында. Алайда, инвестициялық қызметтің дұрыс жұмыс істеуін қамтамасыз ететін сенімді және бейімделген қаржыландыру құралдары өте аз. Сондықтан дағдарысты еңсеру және экономикалық өсуді бастау үшін жаңа өндірістік қуаттылықтар құру, негізгі қорларды жаңарту және осыған сүйене отырып, серпіліс пен жаңғыртудың инновациялық стратегияларын іске асыру қажет. Жоғарыда айтылғандардан көріп тұрғанымыздай, Қазақстанда жобалық қаржыландырумен байланысты мәселелердің өзектілігі мен жеткіліксіз теориялық және практикалық пысықталуы осы зерттеудің тақырыбын, максаттары мен міндеттерін таңдауды айқындайды.

**Тірек сөздер:** экономикалық даму, жобалық қаржыландыру, инвестициялық нарық, инфрақұрылымдық жобалар, қаржыландыру құралдары, жобалық тәуекелдер, инновациялық стратегиялар.