

How to Improve the Evaluation System of Enterprise Investment Project

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Abstract The investment system reform has raised new demands for evaluating economic feasibility of enterprise investment project in China. Based on the analysis of the influence by the innovation of the investment system to the evaluation of economic feasibility of project, this paper puts forward the overall conceives and specific plan to improving the economic feasibility evaluation system for enterprise investment project, so as to create a advantage condition of the decision makers of enterprises to make a scientific decision and effectively improve benefit of investment.

Keywords Evaluation system; Investment project; Economic feasibility

1 Introduction

Take a broad view of the research state of evaluation system of domestic and international investment project, the performance evaluation in investment project before the fifties of the 20th century only applies the financial evaluation. Since the end of the fifties, the evaluation of project investment has added the economic evaluation. After the end of the sixties, it increased the content of social assessment as well. Since the eighties, the project performance evaluation has been further improved. Its representative figure or the organization include: the water planning project group of Harvard University improved the theory of the analysis of project investment in 1926; Nobel Prize winner of economics in 1958, J. Tinbergen, the econometrician of Holland which uses the theory of "Shadow Price" in the economic analysis of the investment project; the famous welfare economist I. Little and of Oxford University economic mathematician J. Mirrlees which was jointly written "the Analysis Manual of Industrial Project" in 1968 and propose L-M law; London economist Professor P. Dasgupta and S. Marglin Professor of Harvard University which propose UNTDO law in "Analysis of Project Evaluation; researcher L.Squire and H.Vander Tak of World Bank which have proposed S-V-T law in the book of "Economic Analysis of Project" in 1975. In China, the State Planning Commission issued "the Tentative Measure of the Feasibility Research of Construction Project" in 1983. The National Development & Reform Commission and Ministry of Construction of China issue the "Methodology of Economic Evaluation and Parameter of Construction Project" in 1993 and 2006 (2nd, the third editions), etc. However, these cannot totally meet the new demand of the system reformation of investment (2004) yet, it still needs to study and perfect the evolution system of investment project further.

The key content of the investment system reform is as following. First, revolutionize the enterprise investment management method of approval by governments and related departments according to investment scale disregards investors, capital source and project nature. Second, government approval will no longer be required for projects not funded by the government, instead, the systems of "Authorization" and "Record-filing" will be used where appropriate^[3].

The investment system reform suggests that the enterprise investment decision-making autonomy should be further delegated authority, and project investment decision should be becoming more and more important in fulfilling enterprise's development strategy. So it is a huge problem for corporate heads to make scientific and normative project decision to avoid a situation of disorganization and blindness. In this context, improving economic feasibility evaluation system of enterprise investment project appears essential especially to meet the new demands of investment system reform^[4].

2 Investment System Reform Has Raised New Demands for Economic Feasibility Evaluation System of Enterprise Investment Project

The investment system reform aims is to practice the principle that the one who invests, makes decision, benefits and takes risk. The enforcement of this principle established the position of main investors of an enterprise^[5]. This forms the new situation of investment, capital and credit are restricted mutually, and fulfilling their duties. So this new situation raises new demands for economic feasibility evaluation system of enterprise investment project^[6].

2.1 Project investment decision must fit business strategy.

The project investment decision in the market economy is an integral component of enterprise general decision-making system. In the traditional economic feasibility evaluation system of enterprise investment project, the economic feasibility evaluation was approved by government. And government did not check whether investment project comply with business strategy or not. Ignoring the project investment decision fitting the business strategy would bring out project investment not complying with business strategy and the multi-channels of blindness investment would weaken the core competition ability and cause repeated construction^[7]. So investment system reform is bound to require the matching analysis of investment decision to be an important part of the economic feasibility evaluation of enterprise investment project.

2.2 Economic feasibility evaluation of investment project emphasizes sharply the market research and price expectation.

Traditional economic feasibility evaluation of enterprise investment project also contained market research and price expectation. So most enterprise only made market analysis and price expectation at the end of project construction, basing their sale proceeds during production period on the market research and the project planned production capacity. Actually they supposed the same price and the same output every year during the production period, which on most case is obviously impossible.

After the reformation of investment system, the market research and market analysis shall take leading role in project, and market decides the project investment, decides investment scale, cost, economic benefits and anti-risk capability, inspects advanced technology, and arouses investment interest. Therefore, economic feasibility evaluation system of enterprise investment project shall have an improved and strong market research and analysis ability.

Improving the economic feasibility evaluation system of enterprise investment project also demand an accurate price expectation and price system. The price system and value chain can not be formed in one day, it is a dynamic process, a historical stage, coupled with the development of science and technology, economic growth, resource exploitation, expanding application and people's deepening understanding. Therefore, price system insurance must base on historical price statistical data obtained under the real market economy, which is a challenge for price expectation system of economic feasibility evaluation of investment project.

2.3 Multi-channels of financing way require more attention on financing choices in evaluating economic feasibility of investment project.

With the deepening reform of investment system, the financing subject and its duties are becoming more explicit and the financing constraints are becoming one of the main constraints of project investment. The different financing channels decide financing cost and the channels fundamentally affect the final economic benefits and the risk of the project. We can see the simple analysis and description for financing way and repayment of economic feasibility evaluation of investment project no longer meet the needs of new situation^[8].

The economic feasibility evaluation system of investment project has special study in financing issues, then disbursement schedule, financing structure, repayment method, repayment period, financing cost, lending rate, foreign currency balance, cash flow, return on invested capital and so on are analyzed item by item. And all kinds of result for financing problem can be predicated from economic analysis. All these analysis finally provide feasible alternative on minimized financing cost and risk for project investors.

2.4 New change in the relationship between bank and government stresses on project risk analysis.

Under the traditional investment system, the government approval shall be the important basis for requesting a loan from a bank. The bank approval is in a subordinate position. The investment system reform is that the bank may self lend and takes risk itself. And bank shall consider the risk and pay more attention to risk evaluation of the project when they provide a loan^[9].

The project risk analysis method turns the traditional uncertain analysis method to the multi-analysis method of project risk and the probability of risk occurrence. Risk analysis index of the project is fully connected with bank risk assessment method.

3 Improving the General Idea and Objective of the Economic Feasibility Evaluation of Enterprise Investment Project

At the moment, electronic report is internationally used in data analysis and table processing in evaluating enterprise project. And in China, the economic feasibility evaluation of enterprise investment

project is on the stage of probing, which can be generally divided into two types. The one type is with high-level language planning, the other one is with electronic report. Most current systems were designed based on the third edition of Methodology of Economic Evaluation and Parameter of Construction Project. The basic functions realized make related report forms and economic evaluation index according to required feasibility report form. Those functions obviously can not meet the new requirements for evaluating enterprise investment project under the investment reform^[10].

3.1 General idea

Comprehensively apply various methods, like data base, financial budget, market analysis, risk assessment and so on, to realize multiple functions, like project financing and economic evaluation, project strategy matching evaluation, market analysis and predication, uncertain analysis and probability analysis, investment planning choice and so on, so as to possess practicability, pertinence and innovation.

3.2 General objectives

Improve evaluation system to adapt to the new demands raised by investment reform for the economic feasibility evaluation of enterprise investment project, to greatly improve the effectiveness, scientific value and veracity of enterprise investment decision, and to bring the economic feasibility evaluation of enterprise investment project to a new level.

4 Main Contents, Functions and Process To Improving the Economic feasibility Evaluation of Enterprise Investment Project

4.1 Contents

4.1.1 The foundation database

This module aims to provide mighty data support. Generally speaking, database contains law data bank, policy data bank, standard specification data bank, industry statistics information bank, project data bank and so on. Of all these data banks, industry statistics information bank covers industry related international development scale, import and export data, sales data, development trends, situation of the manufacturing enterprise and sales company and the development trends of technology and so on. The project data bank is including the consultation achievements of similar projects and their practicing information and data, building scale, investment evaluation, technology source, tech. standard, major equipment, properties of products and target market and so on^[11].

4.1.2 Project strategy matching analysis

This module aims to analyze whether investment project matches with enterprise overall strategy. This module mainly provides analysis report structure with two functions. On the one hand, with proposed project, by aid of External Factor Evaluation Matrix, Competitive Profile Matrix, Internal Factor Evaluation Matrix and SWOT Matrix, it assesses and reports project strategic value, analyzes whether the project matches with the overall strategy through comprehensive analyzing external opportunities, risk, internal strength and weakness. On the other hand, without proposed project, through analysis tools, like BCG Matrix, General Matrix and so on, it finds out and establishes effective project alternatives with external factors matching with internal ones. Through Quantitative Strategic Planning Matrix, it compares the project alternatives to ensure which project can be most successful. We can see this module provide every screening process.

4.1.3 Market analysis and expectation

This module is closely around two key indexes— “Price” and “Business volume”, to analyze and make prediction, finding out the important factors affecting these two indexes to build modules. Analyze and predict these two index with comprehensive applying various analysis methods, like simple regression method, multiple regression, coefficient of elasticity and consumption coefficient and so on, with multiple extended forecasting method, like simple moving average, exponential smoothing, growth curve model, seasonal fluctuation model and so on, and with other qualitative forecasting method, like analogy, expert meeting and Delphi method^[12].

4.1.4 Project budget analysis

The main outcomes cover analysis for total investment estimate, financing choice, yearly investment plan, working capital estimate, on production and production progress, total cost, income and taxation, projected profit-and-loss statement, statement of profit distribution, forecasting statement of cash flow (pre-tax and after tax) and pro forma balance sheet.

Making use of the basic data from the related module of basic data and module of market analysis and expectation, this module calculates and normatively outputs the project financing budget, providing

calculation basis for economy evaluation.

This module utilizes simple estimate methods, like index of production capacity, breakdown estimates method and coefficient estimates method, to analyze investment opportunity and estimate project aggregate investment during feasibility evaluation period of project.

During feasibility evaluation period of the project, this module takes methods of investment estimate and investment classification to estimate the project aggregate investment, employs expanding index estimate method and breakdown estimate method to estimate gross working capital, to analyze financing cost of various financing package (renting, BOT, bond etc.). The most important function is to identify and calculate cash flow that may occur in the project according to with and without comparison method.

4.1.5 Economic assessment system

The main function of this module is to assess project financial evaluation and national economy. Financial evaluation is the core, supported by national economy assessment.

The project financial evaluation contains assessment of financial profit ability and debt-paying ability and financial sustainable development capacity. It applies static and dynamic evaluation methods. The static and dynamic calculative indexes for financial profit ability include its return on capital, investment payoff period, financial net present value, internal rate of return, interest coverage ratio, debt repayment ratio and repayment period. And select the most feasible project by comparing related basic parameters (financial basic return rate, industry average payback period, the average profit rate of investment and profit and tax investment ratio) and comparing key financing indexes from different programs.

The investment project financial assessment system is for developing two kinds of project. One is for the new project and the other one is for the expansion project. This module comprehensively employs dynamic methods to compare programs, like internal rate of return of incremental investment, comparative present value approach, comparative yearly value approach, minimum price method, effectiveness/cost method, static analysis method, method of return rate of incremental investment, payback method of incremental investment, calculating cost method and so on.

National economy assessment mainly takes economic indexes, like shadow price, shadow exchange rate, shadow wages and social discount rate, to analyze and calculate national economy cost and benefits of the investment project and assess its macroscopic feasibility.

4.1.6 Risk assessment

Through uncertainty analysis and probability analysis, this module is to qualitatively ensure the possibility of turning economic feasible situation to infeasible situation, so as to predicate project risk degree, providing basis for project decision-maker. The uncertainty analysis mainly takes sensitivity analysis and profit and loss balance analysis, while the probability analysis takes probability tree analysis and Monte Carlo analogy. By analyzing variables affecting project risk, like exchange rate, interest rate, sales volume of production and service, selling price, cost, investment and construction period, this module aims to confirm situation that may occur and its probability. It also calculates the probability distribution of project evaluating indexes—IRR, NPV, so as to confirm the project' s deviating degree from an intended course and the deviating probability^[13].

Meanwhile, this module also shows risk factor and it's affecting degree with comprehensive usage of risk identification and classification. Based on this, it provides countermeasures for risk prevention.

4.2 Functions

The system possesses five functions, including meeting national requirements for construction project financial assessment, project strategy matching analysis, market analysis and prediction, project risk assessment and analysis, investment project choice.

Through inputting basic data, the system shall output construction investment estimate sheet, working capital estimate sheet, and plan of money use and fund raising sheet, cost graph, balance sheet, debt-repayment sensitivity analysis graph, return on equity, investment payoff period, internal rate of return, interest coverage ratio, debt repayment ratio and repayment period.

4.3 Process

4.3.1 Basic data input and project strategy matching analysis

With basic data input, the system automatically analyzes whether the project investment matches with the enterprise overall strategy. The matching project shall proceed to the next steps of the process and the unmatched items shall directly output suggestive results.

4.3.2 Market analysis and expectation

The system is closely around two key indexes: "Price" and "Business volume" to analyze and make

prediction, providing the predicted data within prediction time as a basis for financial budget.

4.3.3 Financial budget

By using the predicted data and original data, the system takes initial prediction, outputting basic statements, like construction investment estimate sheet, working capital estimate sheet, plan of money use and fund raising sheet, and other supplementary statements.

4.3.4 National economy assessment

For national economy assessment, the system mainly takes economic indexes, like shadow price, shadow exchange rate, shadow wages and social discount rate, to analyze and calculate national economy cost and benefits of the investment project and assess its macroscopic feasibility.

4.3.5 Financial evaluation

The system shall analyze assessment of financial profit ability and debt-paying ability and financial sustainable development capacity, outputting return on capital, investment payoff period, financial net present value, internal rate of return, interest coverage ratio, debt repayment ratio and repayment period.

4.3.6 Risk assessment

Through uncertainty analysis and probability analysis, the system predicts the project risk degree by taking sensitivity analysis, profit and loss balance analysis, probability tree analysis and Monte Carlo analogy.

4.3.7 Scheme choice and general conclusion

Select the most feasible project by comparing related basic parameters (financial basic return rate, industry average payback period, the average profit rate of investment and profit and tax investment ratio) and comparing key financing indexes from different programs. Following chart are the details (Figure 1).

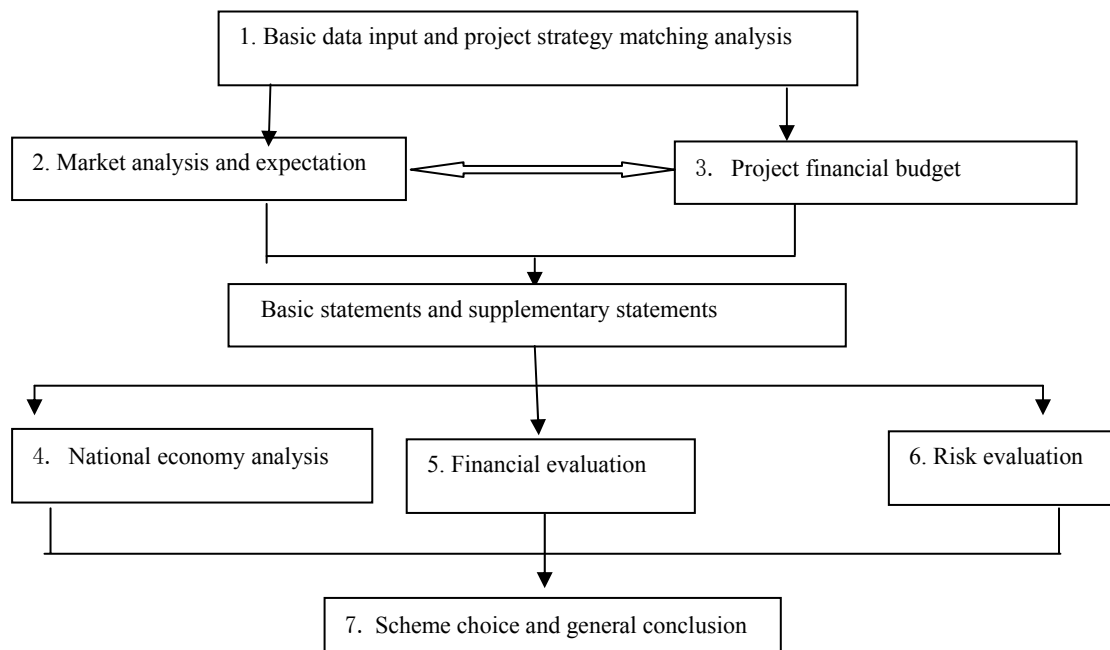


Figure 1 System Flowchart of Economic Feasibility Evaluation of Investment Project

5 Conclusion

To perfect the evaluation system of the economic feasibility of the investment project of the enterprise project is to perfect the requirements reformation of investment system. This system stress on the economic benefits, however, it also gives consideration to social benefit. It emphasis on analysis evaluation of market survey, price expectation, key financial index, and risk assessing, etc., so as to create a advantage condition of the decision makers of enterprises to make a scientific decision and effectively improve benefit of investment.

Certainly, the analysis and evaluation of the companies has its own special focus due to its different industries. The evaluation system of the economic feasibility of the investment project of the enterprise shall ensure a good compatibility and interaction, so as to meet demands of different enterprises. This

shall be the key issue which shall be focused on in the future.

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