

APPROACHES FOR EVALUATING AND FINANCING INVESTMENT PROJECTS

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Abstract

This article presents the financial investment approach and the investment evaluation methods, which are criteria for assessing both investment projects and their funding sources. An important role in the analysis carried out is played by the investment decision and financing decision quality. Making an investment decision implies computing the related investment efficiency indicators. They allow the comparison of several variants of the same investment project as well as their comparison with other projects in the same industry or in other industries. The financing decision concerns the selection between their own sources (share capital, depreciation fund, profits, reserve funds, additional capital, revenues from investments), attracted sources (domestic resource mobilization) and borrowed sources (credits).

Keywords: *financial approach, investment evaluation methods, investment decisions, profitability, funding sources.*

Introduction

Adopting an investment project involves a careful analysis of the company overall standing. Investment projects have a particular importance for developing a business as they prepare the production capacity and conditions to be achieved, therefore influencing the results and the financial balance. The project idea comes from the need to meet a current demand or from the desire to take advantage from some opportunity.

The decision regarding the project accomplishment requires that a lot of elaborated basic actions should be carried out by specialists from various fields of interest. As investments require important long-term financial resources, investment projects present significant risks, most often their launching being irreversible. Favorable financial perspectives can be obtained either by continuing the existing activities or by making investments and launching new activities. The company's financial managers must assess past investments and future investment needs. The past investments must be evaluated and the effects of the future accepted projects must be foreseen.

The term "investment" means, strictly speaking, the use of financial resources that are meant to allow the entry into the company's patrimony of fixed inputs (buildings, constructions, machinery, plants, equipment, tools, etc.) either by acquisition or by their effective creation.

In financial terms, investment means a long-term capital asset undertaking so as to achieve higher future returns.

The funding of investments covers, to a large extent, the sphere of financial requirements at company level and takes into account both the own and borrowed sources as well as the permanent and temporary sources.

The investment effect enhances the volume and quality of a company's activity.

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1. Financial approach of investment projects

Defining investment and delimiting the field of investment policy can be made in various ways. In terms of accounting and legal areas, expenses are considered investment only when they result in a purchase of durable goods, as tangible, financial or intangible assets. Thereby the purchase of a building, of a land, of means of transport, of the shares or investment certificates appearing as investment operations. Any expense that has no direct patrimonial incidence is not considered an investment, even if it increases the potential and business performance. This exclusion doesn't seem to be justified because recent economic studies evaluate only about 40% of the investment property in the global effort of investment of the companies and thus emphasize the determinant role, of 60% of "immaterial" investments which are not found in simple purchases assets.¹

While accounting and legal approach of investments highlights the nature of the items purchased by making expenditures, the psychological definition is focused on the intention of the individual or the company which invests, insisting that, in time, investment leads to the offset consumption. From this perspective, the investment is giving up immediate goods in exchange for future goods.

The monetary definition considers that investments are all costs incurred in order to obtain monetary income in the future. Any immediate payment which is capable to bring future revenue is assumed as investment policy.

The investment decision is based on complex and accurate information about need, opportunity, duration of implementation and operation investments, the expenditure volume and financial resources, the input and output flows of funds throughout the investment operation, the ensurance of profitability and liquidity, the recovery of invested capital, etc.

The investment decisions are founded on a convenience and efficiency study based on several versions of the project from which is going to be chosen the one that ensures maximum results with minimum effort.²

The opportunity is closely related to the need, the effectiveness and the optimal time for delivery and commissioning of the production's capacities, to the formation of financial resources and supplying and trading conditions.

Efficiency is reflected in the ratio of operating results or in the outcomes of the investment and the efforts or expenditures for the investment. The efficiency of investments depends on a number of factors, the most important being the cost of production and the sales volume. Unit production costs will be even lower, since the investments and operating costs will be distributed on some higher sales. Therefore, it is necessary for strategic analysis of markets to be made, knowing that the investment requirements and profitability will differ depending on the sellers and the degree of competition. A dominant enterprise will be more profitable than those that own small market segments.

Assessment indicators of investment efficiency should allow the comparison to other projects from the same branch, from other branches and even from across the entire economy as well as the comparison of several project variants for the same investment and choosing the best among them.

All operations that represent lasting enrollment of various capital forms (monetary, material, human) are subscribed in the area of investment policy in order to maintain or to improve business potential and performance.

In an enterprise, investments are of great diversity: technical, human, social, financial, commercial, for publicity and advertising etc.

¹ Ilie, Vasile, *Gestiunea financiară a întreprinderii*, Meteor Press Publishing House, Bucharest, 2008, p. 244

² M. Adochiței, *Finanțele întreprinderii în economia de piață*, Mitrea Typographer, Piatra Neamț, 1994, p. 62-71

Depending on the risk that investments involve for the enterprise's future, we can structure them in: replacement, modernization, development (expansion) and strategic investment.

Replacing investments of completely absolute equipment has a very low risk because it doesn't involve changes in the manufacturing technology, the new equipment generally have, similar characteristics to the old ones.

Modernization investments for the operational existing equipment involves a low risk as a result of a few essential changes in the manufacturing technology. These investments are intended to improve profitability and productivity, resulting in: lowering the production's costs, direct labor savings, standardization of production process.

Development investments, the expansion of some sections, plants, require a higher risk related to the enterprise growth in traditional or recent markets.

Strategic investments structurally involve the enterprise and they assume a high degree of uncertainty and considerable risk. These investments relate to automating the entire manufacturing process, the merger with another company or the setting up of foreign subsidiaries.

Financing sources for the first two categories of investments are generally long-term credits granted under advantageous conditions of payment, repayment and guarantees because profitability is safe and has low risk. The last two categories will be funded, particularly from their own sources or external sources. The latter are more difficult to obtain due to the high risk and less probability of investment's profitability.

The financial criteria for evaluating the investment projects are:

- the projects' influence on the enterprise's results and profitability;
- the influence on financial stability;
- the impact of projects on the risk borne by the enterprise.

The projects' influence on the enterprise's results and profitability. Each investment project taken under consideration or made on business's expenses needs income throughout its lifetime. The evaluation of the project contribution to the profit of the company is made through results which are determined by comparing the initially allocated funds with the future possible results. On the one hand, the project evaluation is based on accounting profits resulted from the comparison of the total revenue with the total expenditure incurred during each project, and on the other hand the assessment could be based on gross income or cash flow, the additional revenue resulting from the deduction of the additional payments of the companies' activities that are incurred by implementing the investment.

The influence on financial stability. This criterion takes into account the investment operations incidence over the enterprise solvency. The initial project funding allocation for the purchase of fixed assets questions global financing, either by purchasing additional external resources or by carrying out a sampling of the working capital and accepting a certain damage to the treasury. The investment involves over its lifelong the need for additional working capital. This corresponds to the attributable allocations to the project deemed necessarily. This can be written as:

The need for additional working capital due to an investment project = investment + Changes in inventories attributable to trade receivables - Change in liabilities to suppliers³

The incidence of financial investments on the financial balance results from the deduction of additional resources with additional needs which they generate:

³ Vintilă, Georgeta, *Gestiunea financiară a întreprinderii*, EDP Publishing House (Editura Didactică și Pedagogică), Bucharest, 2000, p. 353

Additional Needs	Additional Resources
<ul style="list-style-type: none"> - Initial costs (property acquisition and related expenses) - Additional working capital needs 	<ul style="list-style-type: none"> - Additional cash flow - Recoveries of possible assignments

Source: Ilie, Vasile, *Gestiunea financiară a întreprinderii*, Meteor Press Publishing House, Bucharest, 2008

The impact of projects on the risk borne by the enterprise. The investment projects taken under consideration or launched by the company affect the level of risk which the enterprise bears. Three types of risk can be identified:

- The expenses for treasury business finances which affect investment involve a risk of solvency or bankruptcy
- The uncertainty of future operations and results imply a worsening of the risk of exploitation. The specific risk is defined in relation to the variability or instability of the results and the company is, therefore doubly affected by the new investment which increases the dispersion of possible results and tends to increase the fixed costs incurred by it.
- Additional funding required to cover additional needs arising from the investment project exposes the company to financial risk whose magnitude depends on the ratio between the rate of return of invested assets, the economic profitability, and the cost of the used resources, which are mainly acquired.

2. The evaluation of investments profitability

The financial evaluation of investment projects generally aims at two objectives. It primarily aims at making comparisons between competing projects, in order to set up priorities. Secondly an assessment of the inner value of the project should be made.

The investment profitability is one of the basic criteria on which the decision of choosing a investment is made. Financial evaluation of investment projects can be done either by putting emphasis on the average profitability or through updated methods.

The methods based on the average profitability are:

- Average rate of return to service
- The term of recovery of costs

The searching methods based on measuring the size of the *average return rate* of type are the relationships between the average annual outcome and the average annual operating expenditure. Their application determines various formulations according to the indicator chosen to measure the annual results (benefit accounting, gross operating surplus) and the size chosen for the used capital.

Cost recovery period is the time for the fund investor to reconstruct the original advanced funds.⁴ This is the number of years in which the initial investment is recovered, based on annual cash flow released from the project and it is a way of choosing the investment alternatives according to the duration of the initial investment recovery.

The term recovery can be determined by summing annual flows that the investment yields until the initial value is reached, without exceeding it, resulting the number of years of recovering the project. It is calculated as the ratio between the initial cost of investment and the annual cash-flow environment.

According to a variant of this method, at the end of each year we calculate the recovery period by comparing the cash flow obtained from the commissioning of the investment with the initial cost of investment.

⁴ Ilie, Vasile, *Gestiunea financiară a întreprinderii*, Meteor Press Publishing House, Bucharest, 2008, p. 251

The interest in such a method is that it takes into account the time, the duration of operation, but the methods of evaluation of the investment projects based on updating take into account time in a much more satisfactory way.

The methods based on updated cash flows are:

- Net Present Value (NPV)
- Profitability Index (PI)
- Internal rate of return (IRR)

The three methods are in the mean time criteria for the evaluation of investment projects.

Net Present Value (NPV) of an investment project is the difference between the total expected discounted cash flows and the initial cost of investment.

NPV criterion determines actuarial profit which is generated from the investment project as the difference between the sum of all discounted future cash flows and the initial investment.

If $NPV < 0$ then the project is rejected because the rate of return of the investment project is less than the cost of capital.

If $NPV = 0$ the project can be accepted or not because the capital invested is remunerated at compound interest charged by commercial banks.

If $NPV > 0$ the project is accepted for the return of the investment is higher than the interest rates or the cost of capital.

Out of the projects that the company holds, by applying the NPV criterion they can identify the acceptable set of projects.

Concerning investment project that requires initial funds F_0 and determines a set of cash-flow forecast $F_1, F_2, F_3, \dots, F_n$ during its lifetime, if the discount rate applied by the firm is r , NPV can be calculated as follows:

$$NPV(r) = - \text{cost} + \text{initial amount predictable cash-flows discounted}$$

$$NPV = - F_0 + \frac{F_1}{1+r} + \frac{F_2}{(1+r)^2} + \dots + \frac{F_n}{(1+r)^n} \text{ or } NPV = - F_0 + \sum_{j=1}^n \frac{F_j}{(1+r)^j}$$

Applying NPV meets two difficulties. The first is to forecast the cash-flows that will be generated by the investment. Technical, economic and financial studies prior to the financial evaluation of the investment are needed.

The profitability index (PI) is the net return on invested monetary unit and it is the relative form of expression to net added value. This index is calculated as the ratio of future cash flows and initial expenses. The disadvantage of this indicator is that it supports projects with low initial costs and that is why the NPV indicator is used.

For each project – exclusively, the IP profitability index falls often in conflict with the NPV. In such a case the project as best shown by the NPV is selected.

Internal Rate of Return (IRR) is the discount rate that makes net present value of zero.

$$F_0 = \frac{F_1}{1+r} + \frac{F_2}{(1+r)^2} + \dots + \frac{F_n}{(1+r)^n}$$

This rate corresponds to the maximum cost that the company could bear for financing the investment. IRR should be interpreted by comparing with the *weighted average cost (WAC)* of the enterprise resource. If $r > WAC$, the investment cost is low and allows compensation resources. Internal rate of return is an important criterion to classify the degree of potential investment return.

This involves determining the rate of profitability of the investment capital equivalent to the return that would be obtained if the investor would put the net investment value over a period of time equal to the lifetime of the project, in the system of compounded interest at a bank. Basically, this internal return of investment value is obtained by equating the sum of all future financial flows discounted at the specific rate which is generated during the lifetime of the investment.

The use of IRR criterion is limited. If the company has several projects available for investment then it will choose that internal rate project of return which is the highest. Limited nature of this criterion is that it does not give any reference if the project is accepted or not. For the acceptability of an investment project, in financial practice the NPV is used.

3. Sources of investment funding

In practice, the decision to finance and investment can not be separated. Concerning the capital, with impact over the investments, there are a number of limitations determined by the ability of the company's debt, the market conditions, etc. Such a situation requires rationalization of capital and it implies taking into account the financial factors in measuring the expenses of the investment.

As usual ways of overcoming the financial constraints, expenditure distribution with investments is used for a period of time or doing it in cooperation. In case of financial constraint the decision rule seeks to achieve maximum efficiency for the activity, taking into account the capital costs and the risk class of the project.

If self-financing capacity is insufficient, the company uses external sources of capital.⁵ Financing on investment can be made through their own sources (capital fund, depreciation, profits, reserve funds, additional capital, income from investments), attracted sources (domestic resource mobilization) and borrowed funds (loans).

The social capital is the source of financing the investment by which a company is created. Its size is determined by the initiative group, which proposes to the holders of capital the development of the business that the future company is represented by. The depreciation fund aims to replace of fixed assets when they are out of service. Since creating the fund is gradually made on account of sales, the fund is available between the time of formation and the time of use, so that during this time it can be used to finance the investment.

Its destination is thus expanding the volume of additional fixed assets and, on this occasion, their technical improvement (technical progress).

Profit as a source of investment financing, aims at increasing the stock of capital (net fixed capital formation company) and as a complementary destination the replacement of fixed assets. The part of the profit used for this purpose is included within the profit it is determined annually by the Board of Directors in conjunction with the dividend policy, but also with other factors, such as investment, financing needs and other activities/operations, attracting other sources, size profit etc.

Reserve funds are made by profits, annually, through allowances provided either in legal rules (which lead to the formation of legal reserves) or in the status of the company's formation or in the decisions of the Board of Directors. In terms of balance sheet, these funds have equity scheme. The formation of these funds is the existence of additional resources which ensures their reserves of major financial risks. The continuity of collecting these funds makes their quantum important.

The investment decision to use the part of the legal reserve that exceeds the rate established by law is taken as a decision of additional social equity.

The company can earn income from investments in the form of dividends, interest and exchange differences. These revenues "round" the existing availability and can be used to finance the investments when one of the projects for expansion, modernization, renewal included in the company's long term strategy becomes useful.

Mobilizing domestic resources is another source of financing the investment. This source is temporary and it can be used for a relatively short time (three months, usually), until the possibility

⁵ Stancu, Ion, *Finanțe.Gestiunea financiară a întreprinderii*, vol. III, Economica Publishing House, Bucharest, 2003, p. 329

to establish long-term sources arises. Unlike all other sources of investment, which are recorded in separate accounts, this one doesn't appear in any account.

Domestic resources represent only a temporary release of resources resulting from changes in a given time (one month, one quarter), of the accounts balances of uses and requirements that reflect the investment business.

Loans are another important source of investment financing. The call for credits can be:

- short term (less than one year) to cover monthly or quarterly gap between the investment is borrowing requirements (planned spending is for investment or just starting current) and their sources available for such investment

- medium to long term (over one year) to supplement its own resources.

In the second case the call credit is usually established when the investment project is made. The repayment of loans and associated expenses is made by the company's current and future results and by the net financial flows released from the investment after its entry into service. For short-term loans, the repayment is made from their own sources, if they are available in the following period, in conformity with the existing funding schedules which are approved by the investment project. The formulas of financing the investment through loans vary a lot:

- *Issuance of single-issue bonds*

- *Issuance of convertible bonds*

- *Eurobond* issuance is usually made by banking groups, with multinational interests, in order to invest in an area of interest without having to export capital.

- *Loans from financial institutions* are based on economic resources mobilized by them as investment funds or from insurance companies.

- *Bank credit* is obtained from banks (commercial, investment, mortgage, etc..) under a loan contract credit which states the repayment terms and the guarantees that are required to be established by the debtor.

- *Credit-lease*, called lease or "creditbail", the entrepreneur is the beneficiary of the credit, the creator of the investment and life interest of the resulting object from the investment he made.

The leasing contract is concluded for a period equal to the required one for the full amortization of the investment and cannot be cancelled at the same time by either party. The object of the investment appears only in the annual balance sheet of the owner, while in the entrepreneur's balance there are included only the financial commitments assumed through the contract.

Other sources. This category includes amounts derived from the liquidation of fixed assets, asset sales and recovery of materials resulting from the preparation of the land for construction, from digging foundations or liquidation of temporary buildings on the site.

Conclusions

Given that each investor is interested in obtaining higher profits from the invested funds, considering the specific circumstances of each year and the existing market standing, it is necessary to make assessments of the project or the investment level, in other words this means making the financial analysis of the investment project.

The development of procedures for diagnosing, evaluating and investment decision-making requires a prior delimitation of the operations defined as investments. The analysis based on investment project appreciation criteria leads to the selection of the most beneficial ones.

The provision in due time of the resources needed for the financial covering of investments is a first order necessity and an objective of the company's finances. Investments involve a significant capital mobilization, which determines the need for purchasing or acquiring the related resources.

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