

THE PROFITABILITY – AN ATTRIBUTE OF FINANCIAL AND ACCOUNTING NATURE IN THE DECISION TO INVEST

Associate Professor PhD **Mihaela TULVINSCHI**
"Ștefan cel Mare" University of Suceava, Romania
mihaelat@seap.usv.ro

Abstract:

The investments represent the primary factor in the development strategy of an economic entity. The role of the investments begins with their purpose, meaning that the investments involve the increasing of a stock portfolio. The research methodology that is approached in this article is based on the analysis of two factors: net present value and internal rate of profitability. Capital budgeting in an investment project that, without a prior analysis of the efficiency of such a decision, can lead to the total or partial loss of the invested capital. An investment project is efficient if the net present value is positive and has a larger value. An investment project becomes more profitable as the value of the internal rate of profitability gets higher. If the two factors are correctly interpreted they lead to exactly the same conclusions regarding the determination of an investment profitability. We can conclude that the two efficiency factors are complementary, their simultaneous use leading to a better grounding of the investment decision than their separate use.

Key words: investments, profitability, efficiency signs, evaluation, net present value, internal rate of profitability .

JEL classification: M41, M20, E22

INTRODUCTION

The investments play a very important role in restoring the ecological balance, in protecting the environment, following the principles of sustainable development. Any investment project subjected to analysis needs an ecological component and the sustainable development demands must be included in the criteria system on which the investment decision is being taken. A point of view accepted by the branch literature (Rojansch, V., 2006, 18) is the sustainable development one within which aims the interaction and the compatibility of four systems: economic, human (social), ambient (environmental or ecological) and technological. Sustainable development is based on three objectives (Jianu, I., 2007, p. 23): the increase of the financial performance of the company, the environment efficiency development, the encourage of social development.

In time, researchers identified the main stages in choosing the investment projects. These are (Prelipcean, G., 2001, 142):

- generating investment proposals;
- the selection of investments projects;
- the results implementation, control and analysis.

The profitability is being analysed through the relation between the result and the invested capital. Analyzed by accounting and financial criteria, the investments profitability can not be separated from the performance. Didier Noye (Noye, 2002, 6) considers that performance consists in reaching the goals that were given to you in convergence with the entity guidelines. The performance ensures competitiveness for the entity and stability on the market.

In order to take the decision to invest, the performance can be interpreted as a factor of future potential results that appear as result of meeting strategic objectives. Because investment projects prepare the capabilities and the conditions of future production, they condition long term competitiveness of the entity and, in consequence, they influence the financial results and balance. Because the investments engage important long term financial resources, these projects present important risks, their launch having, most often, an irreversible feature.

The decision to invest is a general political one for the company. It needs, in the agriculture farm, an organizational system that allows a good information flow and ensures the coherence of the decisions.

THE EVALUATION OF INVESTMENT PROFITABILITY

The manager's strategies and policies have an essential role in the design and grounding of investments. The investment flow of information is characterized by the information efficiency. Without the investment projects evaluation in real time, the implementation of the most profitable strategies and investment policies would not be possible.

A project of investment targeted by the economic entity determines, all its life, expenses and income. It is then possible to calculate several factors of the result that allows the specific contribution to the global profitability to be measured. On one side, the project evaluation focuses on the accounting benefit size resulted from the comparison between the income and the expenses determined by the project during every future year of exploitation. On the other side, the cash-flow or the gross result represent a second kind of factors. These measure the monetary surplus released by the investment during future years.

The decision to invest needs a financing policy in order to obtain the necessary funds. It is being taken into consideration the allocation of available or collectable capital. This fact is known in the anglo-saxon branch literature as the "capital budgeting" (Yves – Eglem, J., 1991, 142).

The determination of the investments profitability must take into consideration the existence of a time gap in the financial flow (Badea, F., 2006, 234). In other words, it is necessary the use of updating techniques. The benchmark is the net present value (NPV). The determining formula of the net present value is (Ilie, V., 2006, p. 235):

$$NPV = F_0 + \sum_{i=1}^n F(1+r)^{-i} \quad (1)$$

where: NPV = net present value;

F_0 = initial funds;

F = net cash-flows;

r = discount rate between moment 0 and n ;

i = period

Another factor that needs to be used to evaluate a project's profitability is the internal rate of profitability (IRP). This represents the rate for which the net present value is null. The internal rate of profitability is assimilated with the minimum cost of capital that the investor is willing to accept. The use of this factor involves the acceptance of the investment project given that the internal rate of profitability is higher than the agricultural entity's minimum necessary.

THE ANALYSIS OF AN INVESTMENT PROJECT'S OPPORTUNITY

The investment is seen, in general, as an expense made by juridical entities with the purpose to obtain additional income, having as defining elements the notions of length of time, risk and efficiency.

The assigned capital resources in a investment project can lead to the partial or total loss of the invested capital without a prior analysis of the profitability. The relevance of the net present value and of the internal rate of profitability will be emphasized, during the investment project's analysis, as follows:

A company from the agriculture branch aims for an investment in the irrigation system that uses the latest automation and informatics applications. Considering the importance of the project,

its development (design and testing) lasts for two years and two financial years: N and N+1. N+2 will be the first year in which the system will be operational. It is estimated that during the years N+2, N+3, N+4 and N+5 the system can be used without updating and without a new investment. For achieving the irrigation system, the analysed company receives in the year N a grant of 10.000 m.u. and in the year N+1 invests 35.000 m.u. (monetary units). In the years N+2, N+3, N+4 and N+5, the maintenance expenses of the irrigation system are in the sum of 4000 m.u. / year. Thanks to the new system of irrigation, a growth of the income with 12000 m.u. / year in the years N+2, N+3, N+4 and N+5 is estimated to be recorded.

We want to analyse if this investment project is convenient or not. In order to do this we will determine:

- the projected cash-flows (table no. 1);
- the net present value for values of updating rates of 5%, 10% and 15% (table no. 2);
- the internal rate of profitability.

Table no.1: The projected cash – flows

The year	Income	Expenses	Net cash-flow
N	10 000		10 000
N+1		35 000	- 35 000
N+2	12 000	4 000	8 000
N+3	12 000	4 000	8 000
N+4	12 000	4 000	8 000
N+5	12 000	4 000	8 000

Table no.2: The net present value calculation

The year	Cash-flow	Updating coefficient			Updated cash-flow		
		r=5%	r=10%	r=15%	r=5%	r=10%	r=15%
N	10 000	1	1	1	10 000	10 000	10 000
N+1	- 35 000	0,952	0,909	0,869	- 33 320	- 31 815	- 30 415
N+2	8 000	0,907	0,826	0,756	7 256	6 608	6 048
N+3	8 000	0,864	0,751	0,657	6 912	6 008	5 256
N+4	8 000	0,823	0,683	0,572	6 584	5 464	4 576
N+5	8 000	0,784	0,621	0,497	6 272	4 968	3 976
		Total	NPV		3 704	1 233	- 144

From table no. 2 we can observe that for a update rate of 15%, the net present value becomes negative, which involves that the internal rate of profitability value to be within 10% and 15%. On the model presented in Table nr.2, for a update rate of 12% we obtain a net present value of +435,4. Under these terms, we can calculate the internal rate of profitability through linear interpolation:

$$\frac{IRP - IRP_{min}}{IRP_{max} - IRP_{min}} = \frac{NPV +}{NPV + INPV - 1} \quad (2)$$

$$\frac{IRP - 12}{15 - 12} = \frac{435,4}{144 + 435,4}$$

$$IRP = 14\%$$

The update rate we are looking for is 14%.

The obtained results can be represented in graphical chart by tracing the NPV curve by the updating rates. (Figure no.1)

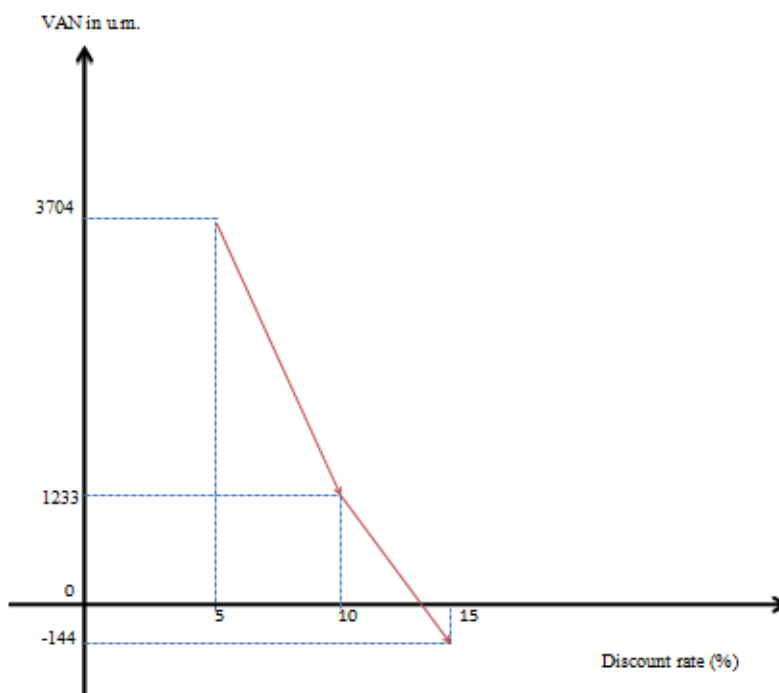


Figure no. 1: Net present value by the updating rate

For a updating rate of 10% we consider that the investment project is advisable because the internal rate of profitability (14%) is superior to the updating rate.

Over time researchers tried to identify the main attributes of an investment in the agriculture branch, establishing the following four attributes: location, familiarity, control and profitability.

The location is an attribute that focuses on the business potential of the local communities from around agriculture farms. The familiarity is an attribute that focuses on the knowledge level of the manager in the agriculture branch. It must be familiar with the business environment and with the specifics of the branch in which the investment is being made. The control and the profitability are two attributes that focuses on the financial an accounting problems. The using of accounting in agriculture allows for a better understanding of the economic performance and presents a particular importance in the decision grounding regarding the investments.

The investment projects profitability evaluation made on the basis of one factor is not relevant because both the net present value and the internal rate of profitability present a series of advantages and disadvantages.

Regarding the net present value, the main problem is the opportunity cost of the invested capital represented by the updating rate. This rate, most often, is the minimal value of the estimated profitability. It does not take into consideration the financial dimension of the investment or the financing resources. It is very hard to establish a real updating rate, any change of its value leading to a change of the net present value.

From the three values of the updating rate analysed in table nr.2 we consider that the most appropriate value is 10% because most specialists choose an updating rate value close to the nominal rate of interest on the financial market.

The determination of the net present value presents the advantage that it is based on the direct calculation according to the known parameters. The internal rate of profitability calculation needs successive attempts but this disadvantage can be solved by using the modern calculation

techniques, Even if sometimes it can't be calculated or has multiple values, the internal rate of profitability is used when investment projects of different sizes are being analysed.

The internal rate of profitability presents the advantage that it is much more representative than the net present value in the case we compare some investment projects with moments different from the beginning or the ending. In the same time it must be mentioned that the internal rate of profitability presents the disadvantage to not take into consideration the cash-flow sign.

A frequent critic brought to the profitability rate managers refers to the fact that some investment projects have several internal rates of investments which means that the net present value is cancelled in several points. Several internal rates of profitability are possible in the case of investment projects with multiple sign changes of cash-flows. For the investment project analysed above there is no question regarding this kind of multiple changes.

The positive influence of an investment on the entities results and profitability appears as a surplus of wealth created by the investment as a monetary surplus. The financial and accounting approach of the investment can not be stopped at just the evaluation of the profitability. It must be analysed the incidence of the investment on the financial balance and the financial risk.

The discussion regarding the financial balance involves the analysis of the investment incidence on the entity solvency. The company is forced to cover the expenses due to investments or by purchasing external additional sources or by taken from the working capital and in this way accepting a certain atrophy of the treasury. The investment trains, all its life, the additional need for working capital. This additional need is determined by the increase of stocks and the commercial debt determined by the new investment.

Regarding the investment project incidence on the company's financial risk, it can be identified three types of risks. The risk of bankruptcy can appear as a consequence of the surplus of expenses that decreases the treasury and threatens the entity's solvability. The risk of exploitation is determined by the new investment which increases the results uncertainty and increases the stable expenses of the company. The financial risk is inevitably as a consequence of the additional funding necessary to cover the expenses determined by the investments.

From the presented example it can be observed that the significant changes of the updating rates bring a more or less important change of the net present value, by the size or the sign of the cash-flows. On the other side, it can be observed that the internal rate of profitability is dependent more or less of the cash-flow structure. In this case, it can be said that the net present value represents an absolute measure of an investment project efficiency, while the internal rate of profitability is rather a relative measure. The two factors don't exclude themselves but they complement each other.

CONCLUSIONS

The main objective of an investment is to obtain the maximum profit by maintaining the lowest level of the risk. All investments that can perform a simple foresight over the cash-flows involve taking into consideration their risks and profitability.

For the evaluation of the investments profitability it is necessary to use the updating techniques because it is needed to take into consideration the existence of a time gap in the financial flows.

The net present value and the internal rate of profitability are two factors that that can be used both for selecting investment projects and for selecting the financial alternatives available to the agricultural companies.

From the theoretical point of view the net present value is better grounded than the internal rate of profitability. Anyway the theoretical grounding of the net present value can prove to be deficient if its practical application in the investment evaluation uses incorrect estimated items. An estimation error in the initial expense or the investment, in the treasury flows estimation or in the grounding of the updating rate can lead to wrong results for the net present value and to arbitrary decisions in the investment policy.

Being independent from the updating rate, the internal rate of profitability is the managers favourite factor when assigning the resources for investments. The internal rate of profitability is associated with a minimum cost of capital that the manager is willing to accept.

We can conclude by saying that both the net preset value and the internal rate of profitability are complementary factors. Both factors can be adjusted at risk in order to give the best picture of the investment project.

REFERENCES

1. BADEA F., DOBRIN C., (2006), *Gestiunea bugetară a sistemelor de producție*, Editura Economică, București
2. DRUKER P., (2001), *Management strategic*, Editura Teora, București
3. HALPERN P., WESTON J.F., BRIGHAM E.F., (1998), *Finanțe manageriale*, Editura Economică, București
4. HOFSTRAND D., (2007), *Energy agriculture – farmer investment decisions*, <http://www.extension.iastate.edu/agdm/articles/hof/HofSept07.html>
5. Ilie, V., (2006), *Gestiunea financiară a întreprinderii*, Editura Meteor Press, București
6. NOYE D., (2002), *Manager les performances*, INSEP CONSULTING, Editures Paris
7. PĂUN C., (2002), *Relevanța ratei interne de rentabilitate în evaluarea proiectelor de investiții*, http://www.finint.ase.ro/Materiale/Relevanta_RIR_articol.htm
8. PRELIPCEAN G, (2001), *Restructurare și dezvoltare durabilă*, Editura Economică, București
9. ROJANSCHI V., BRAN F., GRIGORE F., IOAN I., (2006), *Cuantificarea dezvoltării durabile*, Editura Economică, București
10. YVES – EGLEM J., MIKOL A., (1991), *Mécanismes financières de l'entreprise*, Montchristien, Paris