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Maximizing the value of a company through the financial decision using the genetic algorithms method

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Abstract

At the level of an economic entity, a manager is confronted with three main categories of decisions: investment decisions, financing decisions and profit allocation decisions. The first category of decisions is closely tied to financing decisions.
Financing decisions do not just represent allocation of capital, but it is also a useful activity in a certain segment of the market, using material resources and hiring human resources in order to obtain superior results.
Financing decisions have an important impact over the impact of liabilities, modifying their chargeability degree and the average cost of capital. Financing decision aim for the selection of optimal sources of financing for enterprising and establishing the most adequate ratio between internal sources resulting from self-financing and from divestment of fixed and current assets, on one hand, and external sources that attract capital from outside enterprise on the other hand. The criteria on which the financial structure of the enterprise is established is based on achieving the lowest cost of the capital in the conditions of a reasonable and controllable level of debt of the company.
A constant preoccupation of companies is finding financing sources for their activity with the lowest possible costs, which means minimal guarantees and easy access to them.

Keywords: optimal financing structure; leasing; factors; genetic algorithms; financing decision.

1. Introduction

On a perfect market, the financial decision or self-financing would have no implication on the value of the company and on its investment projects. But the operation of the economic activity is far from the perfect model of

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the market and that is why there is asymmetry of tax treatment, of information and that is why the financial decision has a major impact on the value of the company, and the purpose of any economic activity is the maximization of its value.

The selection of the financing sources for investments is complex because besides the main criteria concerning the costs of achieving the capital, there are a series of restrictions concerning the access on the capital market, the difficult legislation, the decision of the authorized institutions in approving the usage of these types of financing sources, the financial situation of the company. For example, only a small amount of companies have access to debenture loan, namely the ones that provide sufficient guarantee for such a commitment, additionally such a type of loan it is very complicated from the formalities stand point of view.

Most companies are not connected to the capital market and, as a consequence, they are not allowed to sell titles through the capital market. Thus, they are left with the only option of self-financing or normal bank loan, leasing, factoring or the selling of assets.

Entrepreneurs' options, although quite numerous and active, can be grouped in two main categories: *internal* (own) sources and *external* (attracted) sources. In the category of the own sources of the company are self-financing and contribution to capital, as to external sources there are many more and have become more numerous in time. Thus, we can talk about traditional external sources such a credit in all its forms: bonds, banking and commercial, grants and subventions, as well as external modern sources, such as leasing, factoring, business angels, etc.

2. Financial decision using genetic algorithms method

This paper work does not have as a purpose the complete presentation of financing sources, that is why we will only be presenting some aspects concerning leasing and factoring, the accent being on the method used to choose the most adequate financing sources to obtain the maximization of the company's value.

Leasing, as a modern way of financing investments, came to Romania, first only as an economical reality and only after did it come as a juridical reality through its regulation. Taking into consideration that the Romanian legislation concerning leasing came quite late comparing to other countries, it is very close to the IAS 17 - leasing stipulations, the harmonization with the international standards of accounting being more efficient in this domain.

Factoring, a product used in the dynamic business environments in the whole world, represents a quick solution to release the working capital stuck in account receivables, assuring a productive use of financial resources. As an alternative to the standard credits, factoring is a method of financing with low risks that is more and more requested by commercial companies in Romania.

Factoring is the operation through which the client called “adherent” transfers the property of its own claims that came from commercial invoices, towards a bank (financier), named “factor”, which has the obligation, according to the contract, to collect the adherent debts, assuming or not, the risk of these not being payed. The bank, based on the received documents, pays on presentation a part of the invoices under an advance (approximately 80% from the value of the claim), and the difference at a future date after the presentation - a little less agio

Choosing the financial method is not an easy decision. Although there aren't any general standards, every company has to analyse what method is more suitable for creating a proper mix between self-financing and external financing. This analysis requires the use of a very sophisticated financial method, which allows the creation of some financial projection under different scenarios. The purpose of creating an optimal financial mix is to find a debt/capital ratio that supplies the biggest actions value on the long term.

It is known that the maximum value of an entity is obtained in the conditions of the existence of what specialists call optimal financial structure, meaning the optimal relation between own capital and debts. The question that arises is 'which is this optimal relation?'.

Managers' options concerning the entity's activity are varied, each of them having effects on its future value. That is why in the conditions of an investment plan taken into consideration, considering the investment decision already taken, the problem of financing decision arises, meaning what available sources are available for the manager and which is their optimal combination so that they have as the desired effect, the maximization of the entity's value.

Starting from this desideratum, we tried to find the answer using the modern technique of optimization known as genetic algorithms or GA.