Development of a model for financing the mining companies accepted in the Exchange in order to increase NPV

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ABSTRACT: Financing the mining projects is one of the issues against investors at different stages of the project. There are several options for financing mining projects and each of them has its properties. The rate of using these choices depends on the plan's circumstance and investors' Preferences. In the present study, after identifying the criteria affecting the NPV of mining companies, with the help of a questionnaire and using the Delphi technique, five criteria of refund mechanism, the volume of capital, interest rates, access costs, and risks, were selected as the main criteria for studying different financing alternatives (including stock exchange, sukuk, banks and financial and credit institutions, internal capital, and foreign bank). Since these criteria are not independent and the dependency between them affects the choice of financing method and as a result the goal of this research, the method of Analytical Network Process (ANP) was used and the relative weight of each criterion is obtained. In the next step, according to the mentioned criteria and determining the impact of each on the NPV of mining companies, the alternatives should be prioritized in such a way as to achieve the highest NPV. The findings of the research show that foreign banks with a final relative weight of 0.398 is the best option. After that, the use of internal capital with a relative weight of 0.217, sukuk with a final relative weight of 0.161, the stock exchange with a final relative weight of 0.138, and finally, internal banks with a final weight of 0.086 are the most appropriate methods, respectively.

1- Introduction

Mining companies need a large capital to continue and develop their life and production activities. Also, these companies have a strong dependence on financial markets to provide their capital. The method and the amount of financing are one of the basic points of attention to financial managers. In any business, capital is one of the most important production factors, and entrepreneurs and investors need to provide the necessary capital or finance to produce their products or provide their services. In this regard, obtaining capital and financing to start a business and develop it has always been a serious issue for these companies. This capital can be provided in different ways. The ability of companies to identify potential financial sources to provide capital for investment and to prepare appropriate financial plans are among the main factors of business growth and development [1, 2]. The financing methods, such as stock issuance, bank loans, finance, etc., have advantages and disadvantages. Therefore, choosing the appropriate method, or a combination of them, is a thoughtful and important issue. Since these criteria are not independent and the dependency between them affects the choice of financing method, therefore, in this research the Analytical Network Process (ANP) method was used to obtain the relative weight of each criterion, and finally, to choose the best alternative for financing the mining projects.

2- Methodology

In the present study, after identifying the criteria affecting the NPV of mining companies, with the help of a questionnaire and using the Delphi technique, five criteria of refund mechanism, the volume of capital, interest rates, access costs, and risks, were selected as the main criteria for studying different financing alternatives (including stock exchange, sukuk, banks and financial and credit institutions, internal capital, and foreign bank). Since these criteria are not independent and the dependency between them affects the choice of financing method, hence, the ANP technique is used to study the different financing alternatives, calculating the relative weight of each criterion, and selecting the appropriate option [3-5]. Figure 1 shows the dependence between alternatives, criteria, and goals, and the relationship between clusters using Super Decisions software.

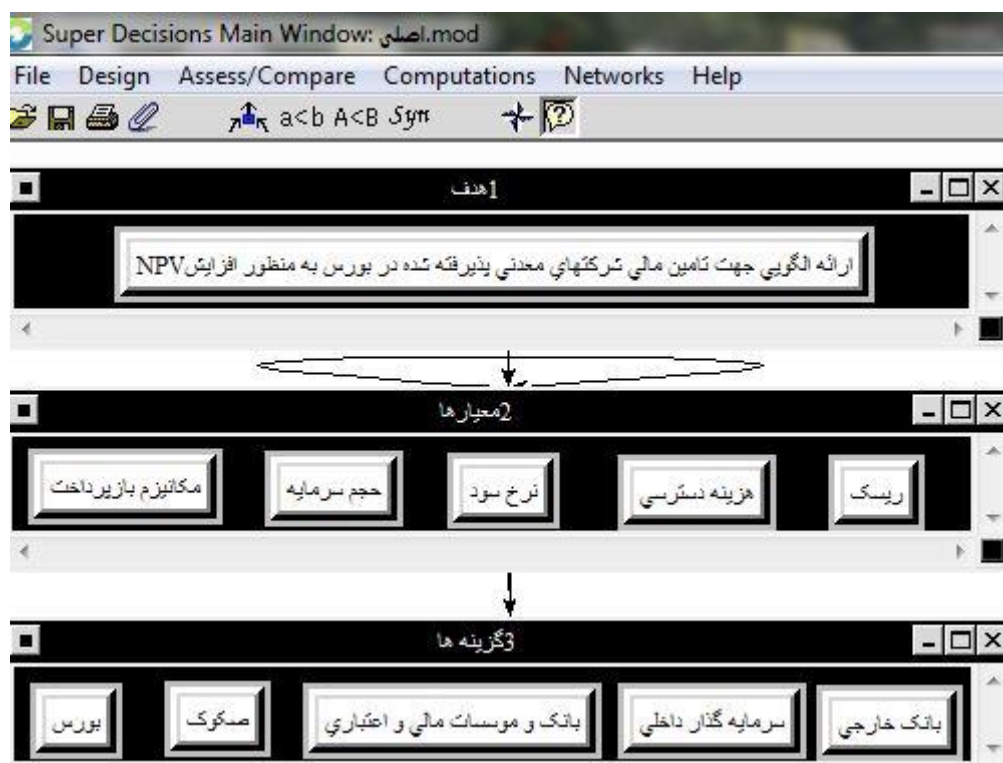*Corresponding author's email: map60@aut.ac.ir

Fig. 1. The graphical representation of dependence between alternatives, criteria, and goal, and the relationship between clusters using Super Decisions software

3- Results and Discussion

By implementing the ANP method, the relative weight of each financing criterion and alternative was calculated. According to the mentioned criteria and determining the impact of each on the NPV of mining companies, the alternatives are prioritized in such a way as to achieve the highest NPV.

The findings of the research show that foreign banks with a final relative weight of 0.398 are the best option. After that, the use of internal capital with a relative weight of 0.217, sukuk with a final relative weight of 0.161, the stock exchange with a final relative weight of 0.138, and finally, internal banks with a final weight of 0.086 are the most appropriate methods, respectively.

4- Conclusion

In the present study, after identifying the criteria affecting the NPV of mining companies, with the help of a questionnaire and using the Delphi technique, five criteria of refund mechanism, the volume of capital, interest rates, access costs, and risks, were selected as the main criteria for studying different financing alternatives (including stock exchange, sukuk, banks and financial and credit institutions, internal capital, and foreign bank). Since these criteria are not independent and the dependency between them affects the choice of financing method and as a result the research's goal, the Analytical Network Process (ANP) technique is used to obtain the relative weight of each factor, which shows the importance and preference of each criterion. In the next step, according to the mentioned criteria and determining

their impact on the NPV of mining companies, the financing alternatives should be prioritized in such a way that the highest NPV (providing capital for mining companies in a way that results in the lowest cost and the highest return) is obtained. The results of the experts' opinions and the application of the Analytical Network Process (ANP) method show that, first, it is better to use foreign banks. After foreign banks, the use of internal capital is preferred, and then sukuk, stock exchange, and internal banks are the most appropriate methods, respectively.

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