

Introduction to financial management-unit 3, question # 2

[Finance](#)



Question #2 Explain how simulation works. What is the value in using a simulation approach? Whenever a new investment is made, there is always a need to assess its level of risk. This is quite easy for the organization if the new investment is similar to the organization's existing projects. In this case, the organization only requires to evaluate the level of project's systematic risk for the firm and use this as a proxy for the project's risk. However, this is not the case many times and organizations are forced to use complex and systematic methods of evaluating the risk of their investment decisions like simulation.

Simulation basically involves the imitation of the performance of the investment project being evaluated. This is achieved by randomly selecting observations from all the distributions that influence the outcome of the project and this goes on until a representative record of the probable outcome of the project is obtained. An illustration for this is a chemical producer who wants to extend its processing plant. The first step will be to determine the probability distributions for all factors that will influence the returns of the project such as investment required, fixed costs, operation costs, selling price, market size among others. After this, the computer randomly picks out one observation from this list according to the chances of its actual occurrence in the future. The observations are then combined and a Net Present Value (NPV) or Internal Rate of Return (IRR) figure is calculated. This is repeated severally until a clear portrait of the expected outcome is obtained (Keown et al, 1998).

The value in using a simulation approach

Unlike the risk-adjusted discount rate method which gives one value for the

risk-adjusted NPV, simulation gives the investment's IRR or NPV probability distribution. According to Keown et al (1998), this method provides the range of possible outcomes for the project under the best, worst and most likely cases. It should also be noted that the inputs to a simulation comprises of all the key factors affecting the profitability of a project. In addition to this, the output obtained provides the probability of various outcomes occurring. This output is a probability distribution of the internal rates of return or the net present values for the project.

From the above explanation, it is reasonable to state that the value of this method is quality decision making. Decision makers will use the whole range of possible outcomes of the project to determine the level of risk of the project and use this information to make the most appropriate decisions.

Simulation is also very important for the conduction of sensitivity analysis or what if analysis of a project. This process involves determining how a change of a particular input variable could affect the internal rates of return or possible net values of a project. This information is also important for making quality decisions on the type of changes that can be made on a project.

Reference

Keown, A., Martin, J. Petty, J. and Scott , D. (1998). Foundations of finance the logic and practice of financial management. (6th Ed). New Jersey. Pearson Education Inc.