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# Evaluation of investment decisions in the health sector A case study at Amir Al-Momineen Specialized Hospital

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## Abstract

The importance of research in studying investment decisions in the health sector highlights the importance of this sector, and as one of the main and important pillars upon which infrastructure development depends, and the importance of using investment decision evaluation methods. To extract the highest value from its use and reduce the economic and environmental costs of the health sector, therefore there is the problem of the research (Is the health sector dependent on methods for evaluating investment decisions), and the research was applied in the Amir Al-Momineen Specialist Hospital .

The researcher reached the conclusion, the most important of which is that there is a close relationship between the feasibility study and investment decisions. The more the proposed investment projects are evaluated to choose the optimal project, the more the investment decision will be in the right direction, and in light of the conclusion, the researcher recommends that companies and institutions should give a study of the investment project great attention because it is considered one of the most difficult tasks .

## Introduction

The investment decision is considered one of the most important and most dangerous economic decisions, due to its association with many economic variables whose behavior is difficult to predict, so it is necessary to carry out a feasibility study, which is considered as a sequential and integrated series of studies that help to choose the appropriate investment decision, this study is reflected in its importance in sparing the investor From slipping into risks, and bearing losses, it also helps in reaching the best possible allocation of economic resources that are characterized by relative scarcity, and also helps in knowing the economic, political and legal changes expected to occur during the life of the project. The feasibility study includes all studies (legal, marketing, financial and economic) that enable the

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provision of a certain amount of data and information that helps the investment decision-makers in making their decision to achieve their objectives .

The issue of investment decisions is very important in the fields of management accounting, financial management and economic feasibility studies for investment projects .

Making the investment decision in investment projects, whether industrial, agricultural or service, requires the use of all available information in order to achieve the efficient and effective completion of the investment process, which facilitates rational decision-making, and employing that information to form a comprehensive study of the project and in all its aspects, and for the optimum use of scarce resources, He made these studies an inevitable necessity, and whenever the feasibility study is based on sound and sound foundations, it gives good results and studies the project from a legal, marketing, technical and financial point of view .

## The first topic: research methodology

In this study, the researcher explains the research methodology represented by the following :

**1-1-1: Research problem**

The research problem was represented in the study, which took an important aspect of the attention of specialists in this sector. The reason is due to the deterioration of the health and medical situation by the health centers and the apparent negligence in providing medical and health services to the citizen. Therefore, the evaluation of investment decisions in this sector acquires great importance, which works to advance the health reality and provide medical and health services to the citizen, and the research can be formulated by the following question :

Does the health sector depend on methods for evaluating investment decisions ?

**1-1-2: search objective**

1- Apply investment decisions evaluation methods to a sample of one of the health sectors included in the strategy to extract the highest value from its use and reduce the economic and environmental costs of the health sector.

2- Clarify theoretical frameworks for evaluating investment decisions and the strategic dimension .

**1-1-3: research importance**

The importance of the research lies in the study of investment decisions in a health field due to the importance of this sector, as it is an essential and important basis that depends on a basic development, and the importance of use.

**1-1-4: Research Hypothesis**

This research is based on the following hypothesis:

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Relying on scientific methods in evaluating investment decisions within the strategy for the health sector, leads to the optimal allocation of economic resources .

**1-1-5: search limits**

The limits of the search included the following :

**1- time limits:** Data and information for the years (2017-2031) were selected .

**2- spatial boundaries:** The Amir Al-Momineen Specialized Hospital in Najaf was chosen from among the well-known health institutions in Iraq, as well as for the diversity of services and activities it provides to patients and visitors .

**1-1-6: Sources of collecting information and data**

The process of collecting information and data necessary to complete the research was carried out in two aspects :

**1- the theoretical side:** The researcher relied on Arabic and foreign books available in the libraries of the faculties of administration and economics, and adopted Arab and foreign letters and theses available in libraries or obtained from websites and internet pages, and Arab and foreign research, periodicals and articles that were obtained from libraries or through websites and web pages.

**2- The practical side** : The researcher relied on the data and reports of the Amir Al-Momineen Specialized Hospital, as well as on the observations, which are among the important tools in collecting information .

**1-1-7: Research Methodology**

**1- the theoretical side:** The inductive approach was relied upon, as some previous studies, sources and research available in libraries and on the Internet were reviewed **.**

**2- The practical side :** An applied study at the Amir Al-Momineen Specialized Hospital in Najaf .

## theoretical side

## The concept of investment decisions

Investment decisions relate to the process of planning, setting goals and priorities, arranging financing, and using certain criteria for selecting long-term assets. Since investment decisions put large amounts of resources at risk for long periods of time and at the same time affect the future development of a company, they are among the most important decisions that managers make. Every organization has limited resources, which should be used to maintain or enhance its profitability in the long run . (Hansen,et.al.,2022:974) .

A long-term investment decision is defined as allocating a known amount of money and resources to an economic unit and sacrificing at the present time based on a logical prior approach of analysis, apportionment and comparison in order to achieve

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or obtain appropriate expected returns over relatively long future periods .( Weston & Brigham ,2016:59 ) .

Merett&Allen,2017:25) It is one of the most difficult decisions, and once implemented, it is irreversible, and the management expects future profits from its implementation, but profits are uncertain.

It can be said that the investment decision is the decision that is based on choosing the investment alternative that gives the greatest return on investment from among two alternatives and more.

**1-The importance of investment decisions**

The investment decision is considered one of the most difficult decisions taken by the management in the economic unit, as these decisions aim to determine the optimal structure for the size of the investment, as these decisions affect the survival, continuity and growth of the economic unit, and investment decisions are of great importance for the following reasons .

1- The amounts spent on these investments are usually huge, and represent an important weight of the financial structure of the economic unit.

2- The results of the investment are translated in the long run and last for a long time, as this fact means that the decision maker loses a lot of his flexibility . ( Al tamimi ,2020:28-29).

3-Making the investment decision in case of considering the project phases and the progress of work in it .

4- Serious investment is in line with the institution's activity and objectives. The investment policy may conflict with the objectives of the institution, which may affect its future. This requires the institution to define the objectives and general policies against which the investment policy is to be evaluated . (Eder, Susi, 2017 :20).

**2- Characteristics of investment decisions**

**2-1: Characteristics related to the time dimension**

1- Investment decisions are always long-term, “starting at several stages in the investment”, and on that day, while the value of seeking great value for certain costs, the time interval between when to spend money and investment decisions and when to obtain returns is associated with this law . Investment and time to receive returns.( abu khashabah, 2010,3-4).

2- Planning for investment decisions is of great importance, especially with the continuation of technological progress in the modern era, which led to a great

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development in the means of production and marketing, which increased the difficulty of making an investment decision.( alkinani , 2020 : 86 ).

**2-2: Characteristics related to the investment decision**

1- The expected return is uncertain, given the association of investment decisions with elements of risk and uncertainty and their association with the future.

2- The risks of the investment decision lie in the difficulty of returning to it without incurring significant losses. Therefore, investment decision-making must be subject to more specialized scientific studies to ensure its proper success in the future.

3- Investment decisions face many problems such as forecasting sales due to fluctuations in price levels and how to estimate their costs for a number of future years under conditions of risk and uncertainty, range of rate of return on investment as well as average capital cost. (shahira , naziha ,2019:15).

**2-3 : Characteristics related to the financing structure**

Financing the investment decision is one of the most important aspects that must be studied during the investment decision-making process, as decision-making requires taking into account the method of financing the future project, as future expansion projects require financing in huge amounts in order to obtain future benefits . (Bin Ibrahim Al-Ghali, 2013:77-78).

Expanding the volume of investments requires a large amount of expenses, so a feasibility study must be conducted before disbursing the funds . (Bukrumah, 2019: 39).

**3- Criteria for evaluating investment projects**

The process of evaluating investment projects means setting the necessary criteria through which to reach the selection of the appropriate alternative from among several proposed alternatives. (Salman, 2020: 113).

**3-1: Undiscounted evaluation criteria**

It means those traditional criteria used in evaluation, or those criteria that take time into consideration, or criteria that are not modified by time and are divided into the payback period and the accounting rate of return. (Shaimaa, 2020: 31).

**First: Payback Period (PBP)**

The payback period of an investment is the length of time required for the cumulative after–tax cash flows from an investment to recover the initial investment expenditures. At that stage, the investor recovered the amount of money invested in the project, hence the term payback period.

**Determine payback period with identical annual cash flows**

**Payback period = total initial capital investment / annual cash flow after taxes**

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(Blocher,et,al.2019:489).

**Second : Accounting Rate Of Return (ARR)**

This criterion depends on the concept of accounting profit and the results of matching the expected revenues for each year of the project's life span with the expected costs of obtaining this revenue. (Shaimaa, 2020: 34).

**Accounting rate of return = average annual profit / average investment**

The criterion of rejecting or accepting a project is based on the higher rate of return that the project will achieve than the rate specified by the unit core. (Abdul Hamid, 2017: 518-519).

**3-2: Discounted evaluation criteria**

Discounted cash flow (DFC) methods measure all projected future cash inflows and outflows for a project discounted to the current point in time. The main characteristic of DFC is the time value of money, which means that a dollar (or other monetary unit) received today is worth more than a dollar received at any future time. (Horngren,2021:871).

**First: Net Present Value(NPV)**

It is the "difference between the present value of the cash inflows and outflows."

This means that all annual cash inflows must be discounted to the zero point in time (the start of project implementation) based on a predetermined discount rate and when subtracting the cash outflows (expenses) from the inflows (returns) without The process of discounting, we get the so-called (net cash flow) and we can get the same result if we discount each paragraph of costs and each paragraph of revenue separately and then sum them the present values of each paragraph of costs and revenues algebraically on the basis that costs are negative and returns are positive. (Al-Aboudi, 2020: 228).

**Calculating the net present value**

**The net present value = the present value of the annual net cash inflows - the cost of the investment project. (Al-Rukabi, 2020: 278).**

When the NPV is used to make accept and reject decisions, the decision criteria are:

a- If the NPV is greater than zero, accept the project .

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b– If the net present value is less than zero, the project is rejected.

c– If the NPV is greater than zero, the company will earn a return greater than the cost of capital, This action should increase the market value of the company, and therefore the wealth of its owners, by an amount equal to the net present value. (Gitman & Zutter , 2015 : 376).

**Second: Internal Rate Of Return (IRR)**

It is the rate of return of an investment project over its useful life. The internal rate of return is calculated by finding the discount rate that equals the present value of the project's cash outflows with the present value of its cash inflows. In other words, the internal rate of return is the discount rate that results in a net present value of zero. (Garrison,et,al.2022:577).

Decision criteria When using the internal rate of return to make acceptance and rejection decisions, the decision criteria are as follows :
A - If the internal rate of return is greater than the cost of capital, accept the project.
B - If the internal rate of return is less than the cost of capital, reject the project.
(Gitman&Zutter,2015:380).

To calculate the internal rate of return, we must find the adjusted discount that will result in a zero NPV. How is this done? The simplest and most straightforward approach when the net cash flow is the same each year is to divide the project investment by the projected annual net cash flow. This calculation results in a factor by which the internal rate of return can be determined. The formula is as follows:
**Internal rate of return = investment required / annual net cash flow factor**
(Garrison,et,al.2022:577)

**Third: Profitability Index(PI)**

It is the ratio of the present value of the cash inflows to the cash outflows, as the present value of the cash inflows is calculated in the same way as the net present value, whether these cash inflows are calculated in the same way as the net present value, whether these inflows are equal or unequal, and the project accepts only If the result is greater than one. (Al-Malik, 2013: 85).
Define (alshare, 2008: 52) and this method is based on the idea that it is not necessary to prefer the project whose net present value is positive and greater than the competing investment project because the amount of money required in the project where the important thing is the relationship between the present value of future cash flows and the value of the initial investment in The project is as follows:
**Profitability Index = Present value of cash inflows / Present value of cash outflows**

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If the indicator is less than one correct, this means that the present value of investment spending exceeds the present value of cash flows, and therefore the investment is unprofitable and vice versa. (Al-Mustafa, 2016: 84)
The researcher summarizes the focus of investment decisions in the decision to accept or reject the available alternatives and decisions to arrange investment projects from priority in achieving returns and reducing costs. It is known that the economic value of the economic project is derived from the cash flows generated by it, and the exclusion of losing investment projects from account.

## practical side

## Evaluation of investment decisions for Amir Al-Momineen Specialized Hospital

In this section, the evaluation of investment decisions for the Amir Al-Momineen Specialist Hospital is determined as a research sample, as well as focusing on the most important criteria in evaluating investment decisions so that we deal with those that are on a large scale. It is used in practical life and is characterized at the same time as being accurate and theoretically correct.

**3-1-1: Brief about the research sample (Amir Al-Momineen Specialized Hospital)** :
The hospital was established in its current location corresponding to (April 12, 2017), and this hospital is considered the first and most modern specialized educational eye hospital in the country, and it was equipped with the latest equipment and advanced supplies such as laser devices and others. The hospital is located in the health district near the Najaf Court of First Instance, with a total area of 2,250 square meters , with a capacity of (200) beds, and the hospital contains several floors. The ground floor includes the consulting clinic, laboratories, optometrists' rooms, minor operations, specialized clinics, the administrative department, accounts, statistics and maintenance. The first floor includes the inpatient ward and the other wing. For major operations, training unit halls, library and research unit. As for the second, third, and fourth floors, they were designated for sleeping patients, and the fifth floor was for residents' housing, while the basement floor contained the kitchen, food, storage and laundry.

**3-1-2: Methods for evaluating investment decisions**:

**3-1-2-1: Undiscounted evaluation criteria**

**1- Pay Back Period (PP)**

It means the period during which the expenses of the primary investment are allowed to be recovered as quickly as possible. To get its value, we divide the size of the investment by the annual rate of net cash flow.

$$T = \frac{I}{B}$$

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T : Pay Back Period , I : Initial investment , B : Annual net cash flow

It means the net operating profit after tax deduction plus the annual depreciation premium ,

$$T = \frac{18335797}{69343973} = 0.26$$

This means that the project is able to recover its investment during the four years. Therefore, the hospital is an economically feasible project according to the financial analysis, and therefore the project is acceptable according to this criterion.

**2- simple Rate of Return.**

The ratio between the annual net profit of a project in a regular year and the value of the initial investment, where the percentage of the proposed hospital net profit is calculated and compared to the estimated cost. There is a ratio of the annual net profit to the initial cost of the hospital and in light of this method the annual profit of the hospital is estimated, and therefore we find the ratio of profit to the initial cost, which is meant by the initial cost of the hospital (which are the costs of buildings and equipment in addition to other investment expenses).

The method of calculating the average or simple rate of return can be adopted with the following formula:

1

$$SRR = \left[\frac{AP(Pn - Cn)}{N}\right] \div IC \times 100$$

SRR= simple Rate of Return

AP= Production volume per year

Pn= Unit price per year

Cn= Production cost of production per unit for that year

IC= Initial cost of the proposed project

N= Number of years project life

If the hospital's simple rate of return is higher than the interest rate in the financial market, the project is good and acceptable. If there is room to choose between several projects, of course, the one whose simple rate of return is greater than that of other projects is chosen, assuming all other aspects surrounding it are equal. Projects.

$$10782700$$

Source: The system Internal of Specialized Hospital

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$$SSR = \frac{\qquad\qquad}{69343973} = 1.5$$

This means that the dinar that invests receives an annual return of 1.5 dinars, and this is economically feasible according to the financial analysis of the Amir Al-Momineen "P" Specialized Hospital, and this is considered an acceptable return, so the project is feasible according to this criterion .

**3-1-2-2: Evaluation criteria discounted**

**1- Net Present Value (NPV)**

The difference between the present value of the project's cash inflows and the present value of the cash outflows. In the sense of discounting the cash flows at a discount rate that represents the required rate of return on the investment.

This method assumes that there is a minimum return that the company wants to achieve. This minimum is usually called the opportunity cost of money, or what the owners of the business could achieve if they invested their money outside the project. This required rate is used to arrive at the present value of all the cash flows, then we compare the present value with the amount to be invested. If the comparative result is positive, we accept the capital proposal, and if the result is negative, the capital proposal is rejected .

The criterion of the net present value came to exceed the negative aspects of the previous criteria, especially with regard to neglecting the life of the productive apparatus and the change in purchasing power in cash flows and the opportunity costs of resources and activities. The net present value is usually defined as the difference between the present (discounted) value of the future cash flows (inflows and outflows of the project) .

This criterion is expressed in the following figure :

$$NPV = \frac{CF0}{(1+r)^0} + \frac{CF1}{(1+r)^1} + \frac{CF2}{(1+r)^2} + \ldots\ldots \frac{CFn}{(1+r)^3} = \sum \frac{\sum Ft}{(1+r)^n} \rangle 0 \quad \ldots\ldots\ldots\ldots\ldots\ldots (5)$$

CF : Cash Flow

r : Discount Rate

CF0 : investment costs

CF1,CF2,CF3 : net inflows or net returns

To apply this formula, it is necessary to specify :-

- Appropriate machine life for each project .
- The discount rate that reflects expected changes in general levels and is also proportional to the opportunity costs of resources and activities. Here,

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whenever interest rates approach their changes from the price indices, a single rate of discount can be set for each of the costs and returns.

- Basic investment costs.
- Annual net return. $CF1+CF2.....+CFn=\sum_{t-1}^{n} CFt$

The following table shows the net present value equal to :

Table () net present value of a hospital for the period (2017-2031)

| Discounted returns | pv 0.07 | Annual net return | years | N |
|---|---|---|---|---|
| 4352083500 | 0.582 | 7477809000 | 2017 - 2019 | 1 |
| 4474720500 | 0.544 | 8225590500 | 2020 -2022 | 2 |
| 4333206000 | 0.508 | 8529936000 | 2023 - 2025 | 3 |
| 4973122500 | 0.474 | 10491820500 | 2026 - 2028 | 4 |
| 5152272000 | 0.442 | 11656725000 | 2029 - 2031 | 5 |
| 23285404500 | | 46381881000 | Total | |

Source: From the researcher's work based on the results of equation (5)

NPV= 26620075.11

Since the net present value represents a positive value, the project is considered economically feasible according to the financial analysis, and this project is considered acceptable according to this criterion .

**2- Benefit Cost Rate**

This criterion deals with the time value of money, and this criterion is sometimes called the profitability index and the point of difference between it and the NPV index.

The benefit-to-cost criterion can be obtained by the following formula :

$$BCR=\frac{\sum R_t\left(\frac{1}{1+p}\right)^t}{\sum C_t\left(\frac{1}{1+r}\right)^t}$$

BCR : Benefits to costs .

RT : Returns during the years of the life of the project's supposed productive device .

Ct : Costs during the years of the life of the project's supposed productive device.

R : The discount rate is derived from expected trends in interest rates .

T : Time in years .

p reflects the change in purchasing power of the cash inflows and r represents the opportunity cost of the cash outflows .

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It can be assumed that p = r, in order to simplify the application of the criterion, especially when (r) is affected by (p) at a high rate .

Profitability index > 1 NPV is positive .

Profitability Index < 1 NPV is negative .

In general, it can be said that the two methods, net present value and evidence of profitability, lead to the same result in the case of future investment proposals that .require an acceptance or rejection decision

The following table shows the rate or the equal benefit/cost ratio .

Table ()

The ratio of the discounted returns to the discounted costs for the period (2017-2031)

| Discounted costs | Discounted revenue | pv 0.07 | Costs ( C ) | Revenues ( R ) | years |
|---|---|---|---|---|---|
| 8455776000 | 13136904000 | 0.582 | 14528824500 | 22572000000 | **2017 - 2019** |
| 8694048000 | 13507084500 | 0.544 | 15981706500 | 24829200000 | **2020 -2022** |
| 8419099500 | 13079923500 | 0.508 | 16573030500 | 25747879500 | **2023 - 2025** |
| 9662407500 | 15011529000 | 0.474 | 20384827500 | 31669891500 | **2026 - 2028** |
| 10001203500 | 15537882000 | 0.442 | 22627158000 | 35153580000 | **2029 - 2031** |
| 45232536000 | 70273323000 | | **Total** | | |

Source: From the researcher's work based on the results of the equation .

$$BCR = \frac{70273323000}{45232536000} = 1.55$$

We note that the return-to-cost ratio has exceeded the correct one. Thus, this project is considered feasible in terms of financial analysis, and therefore it is acceptable according to this criterion .

**3- Internal Rate of Return( IRR )**

The objective of estimating the internal rate of return is limited to reaching a previously unknown price or discount rate, at which the net present value is equal to zero, followed by a comparison of this rate with the discount rate, which represents the alternative opportunity for capital investment in society, in order to judge the feasibility of the project or not. If this rate is greater than the discount rate, which represents the opportunity expense available for investment, this means the feasibility of the project and vice versa.

$$IRR = r2 + \frac{(r2 + r1)NPVr1}{NPVr1 - NPVr2}$$

IRR : Internal Rate of Return .

r1 : Minimum discount rate .

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r2 : Maximum discount rate .

NPV r1 : Minimum price is the net value present .

NPV r2 : Maximum price is the net value present .

The higher the discount rate, the lower the net present value (NPV), and the internal rate of return can be said to be equal :

$IRR^{*} = 19$

Since the assumed interest on capital is about 7%, the project is acceptable, as its internal rate of return (19%) is greater than the assumed interest rate, and from here we can conclude that the project is economically feasible due to the return achieved by the project, and this is according to what the analysis showed financial .

Since the net internal rate of return = 19% - 7% = 12%, this means that the project generates a net annual return of 12% .

**3-1-3 : Results of sensitivity analysis for a hospital**

It is indicated that the sensitivity analysis is the amount of change in the measures of financial and economic profitability of the hospital research sample (present value, internal rate of return) as a result of the change in one or more of the factor values determining the project .

Given the importance of the research sample hospital as one of the important projects in Iraq, and given the great competition that characterizes medical services, it has become necessary to conduct a sensitivity analysis of the hospital research sample for two reasons :

1- Include the factor of risk and uncertainty when evaluating the hospital research sample from an economic point of view, as there must be an impact of risk and uncertainty when evaluating any project to face unexpected future events .

2- Intense competition between local and international medical services .

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| 2029 - 2031 | 2026 - 2028 | 2023 - 2025 | 2020 -2022 | 2017 - 2019 | code | paragraphs |
|---|---|---|---|---|---|---|
| 42142326000 | 37966060500 | 30866715000 | 29765395500 | 27059451000 | V | Initial investment spending |
| %7 | %7 | %7 | %7 | %7 | i | interest rate |
| 8663548800 | 7043535615 | 6792223350 | 6174748500 | 5613406500 | SV | value at the end of the period |
| 15 years | 15 years | 15 years | 15 years | 15 years | N | The useful life of the research sample hospital |
| 11656725000 | 10491820500 | 8529936000 | 8225590500 | 7477809000 | R | annual net cash flow |

() Table

Indicators used in sensitivity analysis

Source: from the researcher's work

To find the net present value, we apply the following formulas :

NPV* = -v + R( p/A,I,n ) + SV(p/F,I,n)

NPV : Net Present value .

V : investment spending .

R : annual flow .

p/A,I,n) = the present value of a regular series for (n) years and given the interest rate ) (I) and (P) the cash flow when time is zero, (A) the cash flow at the end of the period up to (n) .

P/F,I,n) = the future value of one payment, (F) the cash flow through the end of the ) period (n ) .

NPV** = -27503695500 + 6174748500 (p/A,7%,20) + sv(p/F,7%,20)= 18329563500

That is, the net present value of the hospital research sample = 18329563500, which represents the most likely estimate for the factors of the investment project.

In order to know the sensitivity of the project present value to various project factors, we will assume incremental changes in the project factors of ±10% up to ±100% .

In the beginning, we formulate the equations for the rates of increase for each of the project factors as follows :

1- When investment spending (V) changes by ± P%, the present value changes according to the following equation:

NPV= - (1± p%/100) (27503695500) + 6079522500 (p/A,7%,20) + 6174748500 (p/F,7%,20 )

If we make the ratio change in increasing and decreasing steps from ±10% up to ±100%, we will get the values in the table ().

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2- The present value equation can be modified to denote a change of ± a% in the annual cash flow, as follows :

NPV=- + (27503695500) (1± a%100) (6079522500) (p/A,7%,20) 6174748500 (p/F,7%,20 )

The table ( ) shows the results of the effect of changing the cash flow in incremental and decreasing steps from ±10% to ±100% on the present value of the project .

3- When the value of the last period (SV) changes, the net present value changes by s%, and the present value (NPV) changes as follows :

NPV=−+ (p/A,7%,10)+ (1± s%100) 6174748500 27503695500 (p/F,7%,20) (6079522500).

4− M% can represent the positive and negative ratio of the useful life of the hospital research sample (n) that affects the net present value of the project as follows:

= + [(p/A,7%,20) (1±m%100)]+ 6174748500 [(p/F,7%,20) (1±m%100)] 6079522500

NPV (27503695500)

Where m% changes in increasing and decreasing steps of ±10% within the limits of ±100%, and the table () shows these results .

When the interest rate (L) changes by ± x % the net present value changes

5− Where L% changes in increasing and decreasing steps, its value is ±10% within the limits ±100%, and the table () shows that these results :

= - + 27503695500 +(PV(0.07*(1+L),20,- 6079522500)+ 6174748500 / [ (1+0.07*(1+L) ^ 10

Table ()

Project factor values change by ±10% and up to ±100% on the net present value

| Interest rate | Investment cost | Annual flow | Useful life | The last value | % Change |
|---|---|---|---|---|---|
| 26,310,847 | 30,559,297 | (16,243,178) | (14,219,298) | 10,130,881 | -100% |
| 24,515,788 | 28,725,717 | (13,396,510) | (10,700,738) | 10,340,143 | -90% |
| 22,822,831 | 26,892,138 | (10,549,842) | (7,412,364) | 10,549,405 | -80% |
| 21,225,034 | 25,058,558 | (7,703,174) | (4,339,117) | 10,758,667 | -70% |
| 19,715,993 | 23,224,978 | (4,856,507) | (1,466,923) | 10,967,929 | -60% |
| 18,289,788 | 21,391,399 | (2,009,839) | 1,217,369 | 11,177,191 | -50% |
| 16,940,950 | 19,557,819 | 836,829 | 3,726,054 | 11,386,452 | -40% |
| 15,664,417 | 17,724,239 | 3,683,497 | 6,070,620 | 11,595,714 | -30% |
| 14,455,504 | 15,890,660 | 6,530,165 | 8,261,802 | 11,804,976 | -20% |

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| | | | | | |
|---|---|---|---|---|---|
| 13,309,873 | 14,057,080 | 9,376,832 | 10,309,636 | 12,014,238 | **-10%** |
| 12,223,500 | 12,223,500 | 12,223,500 | 12,223,500 | 12,223,500 | **0%** |
| 11,192,655 | 10,389,920 | 15,070,168 | 14,012,158 | 12,432,762 | **10%** |
| 10,213,875 | 8,556,341 | 17,916,836 | 15,683,800 | 12,642,024 | **20%** |
| 9,283,944 | 6,722,761 | 20,763,503 | 17,246,083 | 12,851,286 | **30%** |
| 8,399,873 | 4,889,181 | 23,610,171 | 18,706,161 | 13,060,548 | **40%** |
| 7,558,883 | 3,055,602 | 26,456,839 | 20,070,719 | 13,269,810 | **50%** |
| 6,758,388 | 1,222,022 | 29,303,507 | 21,346,007 | 13,479,072 | **60%** |
| 5,995,980 | (611,558) | 32,150,175 | 22,537,866 | 13,688,334 | **70%** |
| 5,269,416 | (2,445,137) | 34,996,842 | 23,651,752 | 13,897,596 | **80%** |
| 4,576,605 | (4,278,717) | 37,843,510 | 24,692,767 | 14,106,857 | **90%** |
| 3,915,595 | (6,112,297) | 40,690,178 | 25,665,678 | 14,316,119 | **100%** |

Source: from the researcher's work

The table shows the sensitivity of the present value of the hospital research sample to the estimates of each factor as a percentage, assuming that other factors remain constant. The degree of sensitivity to the current value of each factor is indicated by the slope (SLOP) curves. Horizontal is the amount of percentile and best change for that factor at which the present value becomes zero.

**Conclusions:**

1- There is a close relationship between the feasibility study and investment decisions. The higher the evaluation of the proposed investment projects to choose the optimal one, the more the investment decision will be in the right direction.

2-The investment decision is one of the most important decisions that must be taken with caution due to its seriousness

3-There are criteria that help in the process of evaluating investment projects to rationalize investment projects.

4- Investment projects are the basis for advancing economic development

5- The evaluation of the investment project does not depend on a single method, but rather requires integration between several methods that differ according to circumstances.

**Recommendations:**

1- Companies and institutions must pay great attention to studying the investment project, because it is considered one of the most difficult tasks

2- The need for each investor, before embarking on any investment project, to conduct an integrated economic feasibility study from all legal, marketing, technical and financial aspects, in a way that guarantees that he will not enter into a losing project.

3- The researcher recommends applying the scientific methods used in evaluating investment projects.

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4- In the long run in combination with social profitability criteria, to see at least projects that present less losses or do not harm the environment.
5- The cadres specialized in the economic units should re-evaluate the investment project after its implementation in order to find out the extent of the success rate achieved and the extent of the percentage of shortcomings and errors, with the aim of preparing feasibility studies well. Avoid past mistakes in the future.

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