**CHAPTER- 1**

**1.1 INTRODUCTION**

The term capital budgeting includes two different words

1. Capital
2. Budgeting

## CAPITAL:

Capital means amount brought into the business to do the business.

**BUDGET**:

Budget is a financial plan prepared for specific period in future.

**BUDGETING**:

All steps involved in preparing budgets is named as budgeting or simple words building budgets is named as budgets.

## CAPITAL BUDGETING

It is a process of investing funds. Current funds which are long term activities with view to earn more profits.

## CONCEPT OF CAPITAL BUDGETING

Efficient allocation of capital is one of the most important functions of the financial management in modern times. This function involves the firm decision to commit its funds in long-term assets and other profitable activities. The decision to invest funds in the long term assets of a firm are quite significant and they will influence the firms wealth, determine the size, get the pace and direction of its growth and also affect the business risk.

The capital investment refers to the investment in various fixed assets whose returns would be available only after a year. The investment in fixed assets will be quite heavy and to be made immediately, but the returns will be available after a period of one year. The investment decision of a company is commonly called as the capital budgeting decisions of capital expenditure decisions.

## In Authors View Capital Budgeting Means

Charles T. Horngren:

“Capital Budgeting is a long term planning for making and financing proposed capital outlays.”

Robert N. Anthony:

“The capital budget is essentially a list of what management believes to be worthwhile projects for the acquisition of new assets together with the estimated cost of each project.”

## Features of Capital Budgeting:

The following are the features of the capital budgeting

* The exchange of current funds for future benefits.
* The funds are invested in long-term assets.
* The future benefits will occur to the firm over a series of years.

## TYPES OF INVESTMENT DECISIONS:

There are many ways to classify the investment decisions. One classification is as follows.

* Expansion of existing business
* Expansion of new business
* Replacement and modernization

**Expansion of existing business**: A company may add capacity to its existing product lines to expand existing operations. The firm may makes investment in the expectation of additional revenue. This is also called “Related Diversification”.

**Expansion of new business**: A firm may expand its activities in a new business. Expansion of new business requires investment in new products and a new kind of production activity with the firm. This is also called as “Unrelated Diversification”.

**Replacement and Modernization**: The main objective of modernization and replacement is to improve operating efficiency and costs. Replacement decisions help to introduce more efficient and economical assets and therefore, are also called Cost-Reduction investments.

However, replacement decisions that involve substantial modernization and technological improvements expand revenues as well as reduce costs.

## CAPITAL BUDGETING PROCESS

The Capital budgeting process involves generation of investment proposals, Estimation of cash flows for the proposals, evaluation of cash flows, selection of projects based on acceptance criterion, and finally the continual revaluation of investment after their acceptance. The steps involved in capital budgeting process are as follows.

1. Project generation
2. Project evaluation
3. Project selection
4. Project execution

## SIGNIFICANCE AND PRESENTATION

Capital budget decisions are among the most crucial business decision. A number of factors are responsible for capital budget decisions. Care must be taken while making capital budget decisions influence all the departments of the company such as production, marketing, personal etc. the other reasons for keeping more attention include the following.

1. Investment of huge funds
2. Long-term implications
3. Irreversible decisions
4. Capital budgeting decisions are most difficult to take
5. Raising of funds
6. Ability to complete

**1.2 OBJECTIVES OF THE STUDY**

The study of the capital budgeting in PVS Laboratories Ltd is being attempted with the help of the following objectives.

* The main objective of the project is to evaluating the proposed projects undertaken by PVS Laboratories Ltd., by applying the capital budgeting techniques.
* To offer suggestions to the PVS Laboratories Ltd., to improve its financial performance.
* To study the capital budgeting process in PVS Laboratories Ltd.
* To analyze and access the financial viability of the investment proposal using the Traditional and modern methods of capital budgeting.
* To achieve and maintain a leading position as supplies of quality equipment.

## 1.3 NEED FOR THE STUDY

It is a significant to emphasize that expenditures and benefits of an investment should be measured in cash. In the investment analysis it is cash flow which is important not the accounting profit. It may also be pointed out that investment decisions affect the firm’s value. The firms value will increase if investments are profitable and to the shareholders wealth. That investment should be evaluated on the basis of criterion which is compatible with the objective of the shareholders wealth maximization. An investment will add to the shareholders wealth. If it yields benefits in a excess of the minimum benefits as for the opportunity part of capital.

## 1.4 SCOPE OF THE STUDY

The scope of the present study includes the following.

* + Understanding the importance of the Capital Budgeting in PVS Laboratories Ltd.,
  + Evaluating an investment proposal of setting up facility at PVS Laboratories Ltd.,
  + To measure the cash inflow and out flow of the company
  + To measure the managerial efficiency of the company
  + To determine the future potential of the company.

## 1.5 RESEARCH METHODOLOGY

# DATA COLLECTION

**PRIMARY DATA**

The study depends upon secondary data from various sources.

The information is collected directly from the experts, on the basis of which actual position was identified.

## SECONDARY DATA:

Secondary Data is collected from Annual reports, schedules, budgets, and other statements provided by the finance department of PVS Laboratories Ltd

## 

## 1.6 LIMITATIONS OF THE STUDY

The following are the limitations of the study

* The study was conducted with the data available and analysis was made accordingly.
* Detailed analysis could not be carried for the project work because of the limited time span.
* Since the study is based on the financial data that are obtained from the company’s financial statements, the limitations of financial statements shall be equally applicable.

**CHAPTER-2**

**2.1 INDUSTRY PROFILE**

|  |
| --- |
|  |

The Pharmaceutical industry in India is the world's third-largest in terms of volume and stands 14th in terms of value. According to Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, the total turnover of India's pharmaceuticals industry between 2008 and September 2009 was US$21.04 billion. While the domestic market was worth US$12.26 billion. Sale of all types of medicines in the country is expected to reach around US$19.22 billion by 2012. Exports of pharmaceuticals products from India increased from US$6.23 billion in 2014-15 to US$8.7 billion in 2008-09 a combined annual growth rate of 21.25%. According to PricewaterhouseCoopers (PWC) in 2010, India joined among the league of top 10 global pharmaceuticals markets in terms of sales by 2020 with value reaching US$50 billion.

Some of the major pharmaceutical firms including Sun Pharmaceutical, Cadila Healthcare and Piramal Healthcare. The government started to encourage the growth of drug manufacturing by Indian companies in the early 1960s, and with the Patents Act in 1970. However, economic liberalization in 90s by the former Prime Minister P.V. Narasimha Rao and the then Finance Minister, Dr. Manmohan Singh enabled the industry to become what it is today. This patent act removed composition patents from food and drugs, and though it kept process patents, these were shortened to a period of five to seven years.

The lack of patent protection made the Indian market undesirable to the multinational companies that had dominated the market, and while they streamed out. Indian companies carved a niche in both the Indian and world markets with their expertise in reverse-engineering new processes for manufacturing drugs at low costs. Although some of the larger companies have taken baby steps towards drug innovation, the industry as a whole has been following this business model until the present.

India's biopharmaceutical industry clocked a 17 percent growth with revenues of Rs.137 billion ($3 billion) in the 2009-10 financial year over the previous fiscal. Bio-pharma was the biggest contributor generating 60 percent of the industry's growth at Rs.8,829 crore, followed by bio-services at Rs.2,639 crore and bio-agri at Rs.1,936 crore.

**Pharmaceutical industry today**

The number of purely Indian pharma companies is fairly low. Indian pharma industry is mainly operated as well as controlled by dominant foreign companies having subsidiaries in India due to availability of cheap labour in India at lowest cost. In 2002, over 20,000 registered drug manufacturers in India sold $9 billion worth of formulations and bulk drugs. 85% of these formulations were sold in India while over 60% of the bulk drugs were exported, mostly to the United States and Russia. Most of the players in the market are small-to-medium enterprises; 250 of the largest companies control 70% of the Indian market. Thanks to the 1970 Patent Act, multinationals represent only 35% of the market, down from 70% thirty years ago.

Most pharma companies operating in India, even the multinationals, employ Indians almost exclusively from the lowest ranks to high level management. Mirroring the social structure, firms are very hierarchical. Homegrown pharmaceuticals, like many other businesses in India, are often a mix of public and private enterprise. Although many of these companies are publicly owned, leadership passes from father to son and the founding family holds a majority share.

In terms of the global market, India currently holds a modest 1-2% share, but it has been growing at approximately 10% per year. India gained its foothold on the global scene with its innovatively engineered generic drugs and active pharmaceutical ingredients (API), and it is now seeking to become a major player in outsourced clinical research as well as contract manufacturing and research. There are 74 U.S. FDA-approved manufacturing facilities in India, more than in any other country outside the U.S, and in 2005, almost 20% of all Abbreviated New Drug Applications (ANDA) to the FDA are expected to be filed by Indian companies. Growth in other fields notwithstanding, generics are still a large part of the picture. London research company Global Insight estimates that India’s share of the global generics market will have risen from 4% to 33% by 2007.

**Challenges**

All of these changes are ultimately good for the Indian pharmaceutical industry, which suffered in the past from inadequate regulation and large quantities of spurious drugs. They force the industry to reach a level necessary for global competitiveness. However, they have also exposed some of the inadequacies in the industry today. Its main weakness is an underdeveloped new molecule discovery program. Even after the increased investment, market leaders such as Ranbaxy and Dr. Reddy’s Laboratories spent only 5-10% of their revenues on R&D, lagging behind Western pharmaceuticals like Pfizer, whose research budget last year was greater than the combined revenues of the entire Indian pharmaceutical industry. This disparity is too great to be explained by cost differentials, and it comes when advances in genomics have made research equipment more expensive than ever. The drug discovery process is further hindered by a dearth of qualified molecular biologists. Due to the disconnect between curriculum and industry, pharmas in India also lack the academic collaboration that is crucial to drug development in the West.

**R&D**

Both the Indian central and state governments have recognized R&D as an important driver in the growth of their pharma businesses and conferred tax deductions for expenses related to research and development. They have granted other concessions as well, such as reduced interest rates for export financing and a cut in the number of drugs under price control. Government support is not the only thing in Indian pharma’s favor, though; companies also have access to a highly developed IT industry that can partner with them in new molecule discovery in r&d.

**Labour force**

India’s greatest strengths lie in its people. India also boasts of well-educated, English-speaking labor force that is the base of its competitive advantage. Although molecular biologists are in short supply, there are a number of talented chemists who are equally as important in the discovery process. In addition, there has been a reverse brain drain effect in which scientists are returning from abroad to accept positions at lower salaries at Indian companies. Once there, these foreign-trained scientists can transfer the benefits of their knowledge and experience to all of those who work with them.

**2.2 COMPANY PROFILE**

PVS Laboratories Limited is the parent company of Animal health care giant, P.V.S. Group in India. P.V.S. Group is a Flagship Company having experience around two decades in Manufacturing and Marketing of Animal Health care specialties. P.V.S. Group set up its business network in many Asian and European countries including Vietnam, Turkey, Egypt, South Korea, Bangladesh, Nepal, Syria, The Netherlands etc.,

P.V.S. Core business and remains the development of wide range of pharmaceutical formulations covering all the sectors related to human, poultry, veterinary and aquaculture species. A strong team of professionals working with a passion of business synergizing the energies in a dynamic and congenial environment towards a common goal i.e., QUALITY & SERVICE. PVS is engaged in a spectrum of activities to fall its obligations towards environment, society and its community.

The Founder Chairman and Managing Director of P.V.S. Group, Dr. Seshaiah V Pamulapati is a Post Graduate in Veterinary Sciences (Pharmacology and Toxicology) having profound knowledge in Health and Pharma sectors. Dr. Seshaiah V Pamulapati is a young dynamic entrepreneur established the P.V.S. Group both in Domestic and International Market with remarkable reputation.

**MANUFACTURING FACILITIES:**

PVS is accredited with cGMP, ISO 9001:2008, and ISO 14001:2004 certifications with a strong commitment and ability to deliver the quality products. There are dedicated areas in our Manufacturing units for different segments like feed supplements and drug formulations. PVS core competency is its product quality backed by skilled professionals with high quality and efficiency. PVS Manufacturing plants are equipped with sophisticated Machinery, supported by fully equipped and high standard laboratory apart from well qualified, experienced and expertise manufacturing and quality control checkups. PVS follows all stringent quality control methods to assure best quality product.

**PRODUCT RANGE:**

PVS produces the range of products covering… feed additives/premixes of various kinds... vitamins, minerals, amino acids, probiotics, prebiotics, enzymes and antibiotics (tablets, bolus, liquid orals, powders and injectable) etc.

**GLOBAL PRESENCE:**

PVS intends to export its products to various countries across the globe since P.V.S. Group of companies already established in many countries with its strategic business plans.

**FUTURES:**

* To take place in the top class short listed International Animal Healthcare Companies
* To Expand both in domestic and international potentional markets.
* To produce unique and high quality formulations continuously.
* To be recognised as best healthcare servants.

**MANUFACTURING**  
Factory premises located in the industrial area of Vijayawada city, Andhra Pradesh, INDIA where the facilities required for manufacturing of healthcare products are abundant. Production is taking place in three separate plants as the range of products is more than 100 and all the products are divided into three groups for more perfection in the quality and production. In each plant we have sophisticated machinery and facilities to take care the production process as well as quality assurance. All formulations are processed under the keen supervision of qualified and experienced technocrats. All plants are well planned in production capacity to meet the future demands also. All PVS products meets the highest quality standards and is considered as one of the fastest growing animal healthcare companies in India.

**COMPANY MANAGEMENT**

**DIRECTORS**

CHAIRMAN & MANAGING DIRECTOR

Dr. SESHAIAH V.PAMULAPATI

M.V.Sc (PHARMACOLOGY & TOXICOLOGY)

EXICUTIVE DIRECTOR : P.VIJAYA LAKSHMI , B.Com,

DIRECTOR : M.KANDA SAMY

DIRECTOR : M.SUJITHA

DIRECTOR : M.VENKATESWARA RAO

DIRECTOR : P.NAGAMANEENDRA RAO

DIRECTOR : P.MALATHI

**MAN POWER**

MANAGEMENT : 6

MANUFACTURING CHEMISTS : 6

QUALITY CONTROL CHEMISTS : 6

MICROBIOLOGISTS : 2

SUPERVISORS : 4

OPERATORS : 14

SKILLED WORKED MEN : 60

SEMI SKILLED WORK MEN : 60

**MARKETING STAFF**

POULTRY DIVISION : 38

VETERNARY DIVISION : 20

AQUA DIVISION : 48

**CERTIFICATION**

G.M.P

ISO 9001:2000

ISO 14001:2004

FSMS 22000:2005

**Contact us**

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**CHAPTER-3**

**THEORETICAL FRAME WORK** **OF THE STUDY**  

**METHODS OF CAPITAL BUDGETING**

The capital budgeting appraisal methods or techniques of evaluation of investment proposals will help the company to decide upon the desirability of an investment proposals depending upon their relative income generating capacity and rank them in proposal depending upon their desirability. These methods provide the company a set of norms on the basis of which, either it has to accept or reject the investment proposal. Therefore, a sound appraisal method should enable the company to measure the real worth of the investment proposal.

All Capital Budgeting Techniques Divided in to Two Types

1. Traditional (or) Non Discounted Cash Flow Techniques
   1. Pay Back Period Method (P.B.P)
   2. Accounting Rate of Return Method (or) Average Rate of Return Method (A.R.R)
2. Modern (or) Time Adjusted (or) Discount cash flow Techniques
   1. Net Present Value Method (N.P.V)
   2. Internal Rate of Return Method (I.R.R)
   3. Profitability Index Method (P.I.M)

1. **Non Discounted Cash Flow (or) Traditional Methods**

These methods are based on principles to determine the desirability of an investment project on the basis of its useful life and expected returns. These methods depend upon the accounting information available from the books of accounts of the company. These will not take into account the concept of ‘time value of money’, which is a significant factor to determine the desirability of a project in terms of present value.

1. **Pay Back Period Method (P.B.P)**

Pay Back Period Method is one of the used popular methods in Traditional cash flow techniques. Here pay back refers “The number of years required recovering the original cash outlay invested in a project”.

According to Weston and Brigham “The payback period is the number of years it takes for the firm to recover its original investment by net returns before depreciation, but after taxes”.

Pay back period method cab be calculated with the help of the following formula

# Cash Out Lay

**Pay Back Period = ---------------------------**

**Annual Cash Inflows**

### Acceptance Rules

You should accept the project it payback period is less

You should reject the project it payback period is high

**Merits of the Method**:

1. Easy to understand
2. Easy calculation
3. Less cost
4. Easy availability of information
5. More useful to small sector
6. Possibility for quick decision making

**Demerits of the Method**:

Here time value of money is not consider

Maximization of market value not possible

Failure in considering time value of money

Non-consideration of interest factor

Failure in taking magnitude and timing of possible

B) **Accounting (or) Average Rate of Return Method (A.R.R)**

It is an accounting method, which uses the accounting information revealed by the financial statements to measure the profitability of an investment proposal. It can be determined by dividing the average income after taxes by average investment that is the average book value after depreciation. According to Solomon, according to rate of return on an investment can be calculated as the ratio of accounting net income to the initial investment.

Accounting (or) Average rate of return method can be calculated with the help of the following formula

|  |
| --- |
| Average Income  Average Rate of Return (A.R.R) = ------------------------- X 100  Average Investment |

Here

|  |
| --- |
| Total Profit Earned by the project in all the years  Average Income = -------------------------------------------------------------  No of years |

|  |
| --- |
| Initial Investment + Closing investment  Average Investment = ------------------------------------------------- x 100  2 |

**Acceptance Rules:-**

Accept the project if calculated average rate of return is greater than the cost of capital.

Reject the project if calculated average rate of return is less than cost of capital.

**Merits of the Method:**

1. Easy to understand
2. Easy to calculate
3. It can be readily computed with the help of the available accounting data
4. It uses the entire stream of earnings to calculate the ARR
5. It is better method when we compare with payback period method because here the entire cash inflow values generated by the project were considered.

**Demerits of Method**:-

1. Time value money is not considered
2. It is not based on cash flows generated by a project.
3. It does not take into account the fact that the profits can be reinvested.
4. It ignores the time value of money.
5. This method does not consider the objective of wealth maximization.

2. **Modern (or) Discounted Cash flow methods**

The discounted cash flow methods provide a more objective basis for evaluating and selecting an investment project. These methods considered the magnitude and timing of cash flow methods enable us to is late the differences in the timing of cash flow of project by discounting them to know the present value. The present value can be analyzed to determine the desirability of the project. These techniques adjust the cash flow over the life of a project for the time value of money.

The discounted cash flow methods are:

1. Net Present Value Method
2. Internal Rate of Return Method, and
3. Profitability Index Method.

A) **Net Present Value Method (N.P.V)**

Net Present Value method is the wildly used and more sophisticated project Evaluation methods under discounted cash flow method. It is a superior method because the value of cash inflow is taken at discounted value of one rupee. Net present value is calculated by sub stating present value of cash inflow from present value of cash out flows. It recognizes the importance of time value of money.

According to Ezra Solomon, “It is a present value of future returns, discounted at the required rate of return, minus the present value of the investment”. Net present value method can be calculated with the help of the following formula,

|  |
| --- |
| Net Present Value (N.P.V) = Present Value of Cash In Flows – Present Value of Cash Out Flows |

**Acceptance Rules**:-

The present value of investment out lays and cash inflows are to be calculated using present value table. The decision criteria for accepting or rejecting.

**A project a given under**:

NPV>Zero Accept the proposal

NPV<Zero Reject the proposal

In other words, if the NPV is positive, (that is the present value of cash inflows is more than the present value of cash outflows or investment outlays, the project should be accepted, otherwise rejected.

NPV>C Accept the proposal

NPV<C Reject the proposal

Here

NPV = Present value of cash in flows

C= Present value of cash outflows

Zero NPV implies a situation where the

Firm can only recover the original investment.

**Merits of the Method**:-

It consider time value of money, it consider all cash inflow values generated by the project, it considers the cost of capital for discounting rates of one Rupee which is more appropriate method it is considered as true method of profitability.

1. Recognition to the time value of money: This method explicitly recognizes the time value of money, which is inevitable for making meaningful financial decisions.

2. Consideration to total cash inflows: The NPV method considers the total cash inflows of investment opportunities over the entire lifetime of the project unlike the payback period method.

**Demerits of the Method**:

1. Difficult to understand
2. Difficult to calculate
3. The concept of discounting factor may not suttees for all projects in a similar way
4. The NPV calculated by using the cost of capital as a discount rate. But the concept of cost of capital itself is difficult to understand and determine.

B**) Internal Rate of Return Method (I.R.R)**

The Internal Rate of Return is to be determined by trial and error method. The following steps can be used for its computation.

1. Compute the present value of the cash flows from an investment, by using an arbitrarily selected interest rate.
2. Then compare the present value so obtained with investment cost.
3. If the present value is higher than the cost, then the present value of inflows is to be determined by using higher rate.
4. This procedure is to be continued until the present value of the flows from the investment is approximately equal to its cost.
5. The interest rate that brings about this equality is the ‘Internal Rate of Return’.

If the Internal Rate of Return exceeds the required rate of return, then the project is accepted. If the project’s IRR is lower than the required rate of return, it will be rejected. In the case of ranking the proposal, the technique of IRR is significantly used. The projects with highest rate of return will be ranked as firs, compared to the lowest of return projects.

Internal Rate of Return method can be calculated with the help of the following formula

|  |
| --- |
| ( Positive Value – Investment)  I.R.R=Lower Discount Rate + ---------------------------------------------------------------- X(HDR–LDR) (Difference Between Positive and Negative Constants}  \*HDR =Higher Discount Rate \* LDR =Lower Discount Rate |

**Merits of the Methods**:-

1. Consideration of time value of money
2. Consideration of total cash flows
3. Easier appeal to the users
4. Maximization market share possible
5. Provision for risk and uncertainty
6. Elimination of pre-determined discount rate

**Demerits of the method:**

1. It is very difficult to understand and use
2. It involves a very complicated computational work
3. It may not give unique answer in all situations
4. The assumption re-investment of cash flows may not be possible in practice

C**) Profitability Index Method (P.I)**

This method is also known as “Benefit cost ratio”, According to van Horne, The profitability index of a project is the ratio of the present value of future net cash flow to the present value of initial cash out flows.

Profitability index method can be calculated with the help of the following formula.

|  |
| --- |
| Present Value of Cash In Flows  Profitability index(P.I)= --------------------------------------------  Present Value of Cash Out Flows |

**Acceptance Rules**:-

* We will accept the project it profitability index is >1
* We will reject the project if profitability index is <1

**Merits of the Method**;-

1. It takes into account time value of money
2. It requires less computation work than IRR method
3. It helps to accept/reject investment proposal on the basis of the value of index
4. It is useful to rank the proposal on the basis of the highest/lowest value of the index

In this work cash inflow values are not given directly. In order to calculate cash inflow values we will use the following formula

|  |
| --- |
| Cash In Flow Values= PAT + Depreciation |

A number of capital budgeting techniques are used in practice. They may be grouped as follows

1. Net Present Value Method
2. Internal Rate Of Return Method And
3. Profitability Index method

**CHAPTER – 4**

**DATA ANALYSIS & INTERPRETATION**

TRADITIONAL CAPITAL BUDGETING APPRISAL METHODS RELATED TO COMPANY:

1. **PAY BACK PERIOD METHOD**

Pay back period method is a traditional method of evaluation of capital budgeting decision. The term pays back out or payoff refers to the period in which the project will generate the necessary cash and recoup the initial investment or the cash out flows.

MBP is case, to calculate the pay period, the cumulative cash flows will be calculated and by using interpolation the exact period may be calculated.

The MBP of APMDC has Rs. 1546.60 lacks and the initial investment (as shown in the capital expenditure table of MBP and the annual cash flows for the year 2003, 2004, 2005, 2006 and 2007. Then the payback period may be calculated as follows

CALCULATION OF PAY BACK PERIOD OF PVS LABOROTARIES LTD.

|  |  |  |  |
| --- | --- | --- | --- |
| Sl. No. | YEAR | CASH IN FLOW | CUMULATIVE CASH FLOWS |
| 1 | 2010-11 | 651.55 | 651.55 |
| 2 | 2011-12 | 819.30 | 1470.85 |
| 3 | 2012-13 | 379.70 | 1850.55 |
| 4 | 2013-14 | 242.91 | 2092.91 |
| 5 | 2014-15 | 1191.42 | 3292.33 |

The above table shows that, the payback period lies in second and third year with Rs. 1470.85 and 1850.55 i.e initial investments 1546.05. The amount has been recovers in the second year and the remaining amount in third year (1546.05-1470.85=75.20) recovered in 3 years. This means the payback period lies between second and third year. The payback period is computed below.

Different in cash flows

Payback period = Actual year + ……………………………………

Next year cash flows

75.2

Pay Back Period = 2 + -----------

379.70

= 2+0.19

= 2.19 years

Payback period (PBP) = 2.19 year.

**ACCEPT-REJECT CRITERION**

PBP can be used as criterion to accept or reject an investment proposal. A proposal whose actual payback period is more than what is pre-determined by the management.

PBP thus is useful for the management to accept the investment decision on the PVS LABOROTARIES LTD and also to assist management to know that the initial investment is recorded in 2.19 years

**MERITS:**

* This method makes it clear that no profit arise till the payback period is over
* This method is simple to understand and equal to calculate.
* This method prefers investment in short-term periods therefore it reduces the possibility of loss on account of obsolescence’s

**DEMERITES:**

* This method does not take into account the time value of money. A rupee today is definitely worth more than a rupee after a year. This basic fact ignored by this method.
* Hazy as long term outlook when future is uncertain is uncertain on account conditional, this method may be appropriate but not always suitable.

II. **ACCOUNTING OR AVERAGE RATE OF RETURN METHOD:**

It is another traditional method of capital budgeting evaluation. According to this method the capital investment proposals are judged on the basis of their relative profitability. The capital employed and related incomes are determined according to the commonly accepted accounting principles and practices over the certain life of project and the average yield is calculated. Such a rate is called the accounting rate of return or the average return or ARR.

It may calculate according to any one the following methods:

Annual average net earnings

(i) --------------------------------------- x 100

Original investment

Annual average net earnings

(ii) --------------- ------------------------ x 100

Average investment

Increase in expected future annual net earnings

(iii) -------------------------------------------------------------- x 100

Initial increase in required investment

The term average annual net are the average of the earnings after depreciation and tax. Over the whole of the economic life of the project order and these giving on ARR above the required rate of may be accepted.

658.46

\*100 =42.5902

1546.05

Here 1546.05 is initial investment, and 658.46 is annual average net earnings.

The amount of average investment can be calculated according to any of the following methods.

Original investment

(a) ----------------------------

2

Original investment + scrap value

(b) -------------------------------------------

2

Original investment + scrap value + net additional + scrap value working capital

(c) -------------------------------------------------------------------------------------------

2

**ACCEPT-REJECT CRITERION**

ARR method allows PVS LABOROTARIES LTD to fix a minimum rate of return. Any project expected to give a return below it will be straight away rejected. The average rate of return is as good as 40% of MBP depicts the prospects of management efficiency.

**MERITS**:

* It is very simple to understand and easy to operate.
* It uses the entire earnings of the projects in calculating rate of return and not only the earning up to the payback period and hence gives a better view of profitability as compared to pay period.
* As this method is based upon accounting concept of profit, it can be readily calculated from the financial data.

**DEMERITES:**

* This method also like payback method ignore the time value of money as the profits are earned at different points of time are given equal weight by averaging the profits. It ignores the fact that rupee to day is more value than the rupee earned a year after or so.
* It does not take into consideration those cash flows, which are more important than the accounting profits.
* This method cannot be applied to a situation where investment in a project is to be made in parts.

**TIME ADJUSTED (OR) DISCOUNTED CASH FLOW METHOD**

The time adjusted or discounted cash flow methods into accounts the profitability time value of money. These methods are also called the modern methods of capital budgeting.

1**. NET PRESENT VALUE METHOD (NPV)**

Net present value method or NPV is one of the best of evaluating the capital investment proposals. Under this method cash flows and outflows associated with each project are first calculated.

# ROLE OF DISCOUNTING FACTOR

The cash inflows and outflows are converted to the present values using discounting factors which is the actually discounted factor of mangampet barites project of PVS LABOROTARIES LTD is 8%. The rate of return is considering as cut off rate or required rate or rate generally determined on the bases of cost of capital to allow for the risk element involved in the project.

**STEPS FOR CALCULATION OF NPV:**

* Calculation of each cash flows after taxes of three years, which is arrived at by deducting depreciation, interest and tax from earnings before tax and interest (EBIT). This residue is profit after tax arrives at cash flow after tax.
* This cash flow after tax is multiplied with the value obtained from the A-3 table (the present value annuity table against the 8% actuary discount. Rate i.e. in the case of mangampet barites project.
* NPV is derived be deducting the sum of present values from the initial investment.
* Initial investments are the sum of cash flows of 5 years shown in capital expenditure table i.e., 1546.05.

NPVAT 8%

Statement showing calculation of NPV

(Rs. In lacks)

|  |  |  |  |
| --- | --- | --- | --- |
| YEARS | CFAT’S | [PVIF@8%](mailto:PVIF@8%25) | PV’S |
| 2010-11 | 651.55 | 0.926 | 603.33 |
| 2011-12 | 819.30 | 0.857 | 702.14 |
| 2012-13 | 379.70 | 0.794 | 301.48 |
| 2013-14 | 242.91 | 0.735 | 178.13 |
| 2014-15 | 1191.42 | 0.680 | 815.60 |
| TOTAL | | | 2600.68 |
| LESS: Initial investment | | | 1546.05 |
| NPV | | | 1054.63 |

**ACCEPT-REJECT CRITERION**

The accept reject decision of NPV is very simple. If the NPV is positive the project should be accept and if NPV is negative the project should be accepted and if NPV is negative the project should be rejected.

NPV > 0 (ACCEPT)

NPV < 0 (REJECT)

Hence in the case of mangampet barites project it is visible that the positive NPV shows the acceptance and importance of the project.

**MERITS**:

* It recognizes the time value of money and is suitable to be applied in situations with
* Uniform cash outflows and uneven cash flows at different periods of time.
* It takes into account the earnings over the entire life profitability of the investment proposal can be evaluated.
* It takes into consideration of objective of maximum profitability.

**DEMERITES:**

* As compared to the traditional method, the NPV is more difficult to understand.
* It may not give good result wile comparing projects with unequal investment of funds.
* It is not easy to determine an appropriate discount rate.

2. **INTERNAL RATE OF RETURN METHOD (IRR)**

The internal rate of return method is also a modern technique of capital budgeting that takes into account the time value of money. It is also known as “TIME ADJUSTED RATE OF RETURN” “DISCOUNTED CASH FLOW” “DISCOUNTED RATE OF RETURN”, “YEILD METHOD” and “ TRAIL AND ERROR YEILD METHOD”.

IRR is the rate the sum of discounted cash inflows equals the sum of discounted cash outflows. It equals the present value of cash inflow to present value of cash outflow.

In this method discounted rate is not known, but the cash inflows and cash outflows are known. It is the rate of return, which equates the present value of cash inflows to out flows or it, is the rate of return, which renders NPV TO ZERO.

**STEPS INVOLVED IN THE CALCULATION OF IRR**

1) Calculation of out flow after tax.

2) Calculation fake payback period or factor the initial investment by average cash flows.

Initial Investment

i.e. Factor of face payback period = -----------------------

Average cash flows

3) Look for the factor in the present annuity table in the year’s column until arriving at the figure, which is at the closest to the fake payback period.

4) Note corresponding percentage.

5) Calculated NPV at that percentage

6) If NPV is positive take the higher rate and if the NPV is negative take the rate lower and once again calculated NPV.

7) Continue step 5 until arriving at two rates, one giving the positive NPV and the one negative

8) Using interpolation to arrive at the actual IRR i.e. actual IRR can be calculated by using the following formula.

Present value of lower rate – cash out flow

Lower rate+ ------------------------------------------------ x Difference in two rates

Present value of lower rate – present value of

Higher rate

**FORMULATION OF STEPS**

STEP 1: Calculation of cash flows after taxes

|  |  |
| --- | --- |
| YEARS | CASH FLOWS AFTER TAXES (CFAT) |
| 2010-11 | 651.55 |
| 2011-12 | 819.30 |
| 2012-13 | 379.70 |
| 2013-14 | 242.36 |
| 2014-15 | 1199.42 |
| TOTAL | 3292.33 |

STEP 2: Calculation of fake payback period (FPBP)

Initial investment

FPBP = -----------------------

Average CFAAT’S

Total Amount

Average CFAT’S = -------------------

No. of years

3292.33

= -------------- = 658.46

5

Initial investment = 1546.05

1546.05

FPBP = ---------------- = 2.5063

616.85

2.50 63 lies between 28% and 32% of IRR method.

STEP3 : Present value of taxes (PVAT) tables indicate the values closes to 2.5063 against five years are 2.5320 at 28%

Statement showing calculation of [NPV@28%](mailto:NPV@28%25) under IRR method

(Rs. In lacks)

|  |  |  |  |
| --- | --- | --- | --- |
| YEARS | CFAT’S | [PVIF@8%](mailto:PVIF@8%25) | PV’S |
| 2010-11 | 651.55 | 0.781 | 508.86 |
| 2011-12 | 819.30 | 0.610 | 499.77 |
| 2012-13 | 379.70 | 0.476 | 180.73 |
| 2013-14 | 242.91 | 0.372 | 90.15 |
| 2014-15 | 1199.42 | 0.291 | 349.03 |
| TOTAL | | | 1628.54 |
| LESS: Initial investment | | | 1546.05 |
| NPV | | | 82.49 |

The above NPV is positive

STEP 4: calculation of NPV is negative by taking 32%

Statement showing calculation of [NPV@32%](mailto:NPV@32%25) under IRR method

(Rs. In lacks)

|  |  |  |  |
| --- | --- | --- | --- |
| YEARS | CFAT’S | [PVIF@8%](mailto:PVIF@8%25) | PV’S |
| 2010-11 | 651.55 | 0.757 | 493.22 |
| 2011-12 | 819.30 | 0.574 | 470.27 |
| 2012-13 | 379.70 | 0.435 | 165.16 |
| 2013-14 | 248.36 | 0.392 | 79.73 |
| 2014-15 | 1199.42 | 0.249 | 298.65 |
| TOTAL | | | 1507.0354 |
| LESS: Initial investment | | | 1546.05 |
| NPV | | | -39.04 |

Lies between 28% and 32%

## Net present value of lower

## IRR=Lowe rate + …………………………………….. x difference in rate

Difference in present value cash flows

1628.54 – 1546.05

= 28+ ----------------------- x (32-28)

## 1628.54-1507.03

82.49

= 28+ ----------- x 4

## 121.51

=30.72%

INTERNAL RATE OF RETURN= 30.72%

## ACCET-REJECT CRITERION

IRR is the maximum rate of interest which an organization can afford capital invested in, is accepted if IRR exceeds the cutoff rates and rejected if it is bellow the cutoff rate.

The cutoff rate of MBP in PVS LABORATORIES LTD is 8% which is less than the IRR i.e. 30.72. Hence the acceptance of MBP is quit a good investment decision taken by management.

**MERITS**:

* It takes into account the time value of money can be usually applied in situation with even as well as uneven cash flows at different periods.
* It considers the profitability of the project for its entire economic life and hence enables evaluation of the profitability.
* It provides for uniform ranking of various proposals due to the percentage rate of return.
* It is also compatible with the objectives of maximum profitability and is considered to be more reliable technique of capital budgeting.

**DEMERITS**:

* It is difficult to understand and is most difficult method of evaluating investment proposals.
* The result of NPV method and IRR method may differ with the projects under evaluation differ in the size, life and timing of cash flows.

3. **PROFITABILITY INDEX**

Profitability index method is also known as time adjusted method of evaluating the investment proposals. Profitability also called as benefit cost ratio in relationship between present value of cash inflows and the present value of cash outflows.

Present value of cash inflows

Profitability index= ------------------------------------------

Present value of cash outflows

**CALCULATION OF BCR:**

STEP 1: Calculation of cash flows after taxes

STEP 2: Calculation of present values of cash inflows @8%

STEP 3: APPLICATION OF THE FORMULA

## STATEMENT FOR CALCULATION OF BENEFIT COST RATIO

|  |  |  |  |
| --- | --- | --- | --- |
| YEARS | CFAT’S | [PVIF@8%](mailto:PVIF@8%25) | PV’S |
| 2010-11 | 651.55 | 0.926 | 603.33 |
| 2011-12 | 819.30 | 0.857 | 702.14 |
| 2012-13 | 379.70 | 0.794 | 301.48 |
| 2013-14 | 242.36 | 0.735 | 178.13 |
| 2014-15 | 1191.42 | 0.680 | 815.60 |
| TOTAL | | | 2600.68 |

Present value of cash inflows

Profitability index = ----------------------------------------

Initial cash outlay

2600.68

= -------------

1546.05

PI = 1.68 Years

## ACCET-REJECT CRITERION

There is a slight difference between present value index method and profitability index method. Under profitability index method the present value of cash inflows and cash outflows are taken as accept reject decision.

i.e. The accept reject criterion is

if profitability index > 1 (ACCEPT)

profitability index 1 < (REJECT)

The acceptance of PVS LABORATORIES LTD Project by the management is evaluated through profitability index method of as the PI >1 (i.e.1.68)

**FINDINGS**

**The following are the findings during the study of the project**

* The project is accepted when pay back is less than 2 years 2 months which is standard pay back set by the management. The project gives less payback is accepted.
* As per the management the minimum rate of return expected is 40%. The project ARR greater than 40% greater than 40% is accepted.
* The net income of the project is discounted at the minimum required rate return – 8% and NPV is positive so the project is accepted.
* The capital invested is getting more return which is greater than 10%

The project showing Profitability Index is more than one. So the project is accepted.

**SUGGESTIONS**

* It is concluded that the project is viable and profitable as the ARR is getting more than 40%
* The pay back indicates that the investment is fully recovered in short period.
* NPV of the project is considered as better because of its higher net present value.
* The IRR of the project is giving higher rate of return.
* The profitability index is more than the giving value and where projects

shows NPV as positive.

**CONCLUSION**

According to the study the capital budgeting techniques are very useful to estimate future inflows and outflows relating to the purchasing power and time value of money.

After analyzing the capital budgeting techniques in tradition the modern methods are very useful investment techniques to PVS laboratories Ltd.