
UNIT 10 INVESTMENT DECISIONS

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10.1 INTRODUCTION

Investment decision refers to the process of allocating resources to long-term assets or projects that are expected to generate future cash flows. The primary objective of making investment decisions is to maximize the shareholder's wealth by identifying and selecting investment opportunities that are expected to generate the highest return with the lowest possible risk.

Investment decisions involve a systematic approach that includes the identification of potential investment opportunities, the evaluation of the viability of each investment opportunity, and the selection of the most profitable investment option.

The process of investment decision making involves a careful analysis of various factors such as the expected cash flows, the risk associated with the investment, the cost of capital, and the expected return on investment. The investment decision making process is crucial for the long-term success and growth of a company. Therefore, it requires a thorough understanding of the company's financial position, market trends, and industry dynamics.

Thus, investment decision making involves evaluating and selecting long-term investment opportunities that are expected to generate future cash flows, and it is a critical aspect of financial management that requires careful analysis, planning, and execution.

10.2 OBJECTIVES

After reading this unit you will be able to understand:

- Investment Decisions.
- Types of Investment Decisions.
- Project Cash Flow Analysis.
- Capital Budgeting Techniques.

10.3 INVESTMENT DECISIONS

Investment decisions refer to the process of selecting an investment opportunity based on various criteria such as risk, return, liquidity, and time horizon. It involves assessing the potential risks and benefits of an investment and making a decision based on the available information. Various key factors to consider when making investment decisions are as follows:

1. **Risk:** Risk is an inherent part of investing. It refers to the possibility of losing some or all of your investment due to market fluctuations, economic conditions, or other factors. Different investments carry different levels of risk. For example, stocks are generally considered riskier than bonds, while real estate investments may carry a different set of risks. When making investment decisions, it's important to assess the potential risks and determine if you're comfortable with the level of risk involved.
2. **Return:** Return refers to the potential gain or loss from an investment. It's important to consider both the potential return and the time horizon of the investment. Generally, investments with higher potential returns come with higher risks. It's also important to consider the time horizon of the investment - some investments may offer higher returns over the long term, while others may provide short-term gains.
3. **Liquidity:** Liquidity refers to how easily an investment can be bought or sold without incurring significant costs. Some investments are more liquid than others. For example, stocks are generally more liquid than real estate investments. It's important to consider the liquidity of an investment based on your specific needs. If you need to access the funds quickly, you may want to consider more liquid investments.
4. **Diversification:** Diversification refers to the practice of investing in a variety of different assets. This can help to spread risk and minimize losses. For example, if you

invest all of your money in a single stock and that stock performs poorly, you could lose a significant portion of your investment. However, if you spread your money across a variety of stocks, bonds, and other assets, the impact of any one investment's performance is likely to be less significant. When making investment decisions, it's important to consider diversification and ensure that your portfolio is balanced.

5. **Fees:** Investment fees can eat into your returns over time. When making investment decisions, it's important to consider the fees associated with an investment, including management fees, transaction fees, and other costs. High fees can significantly reduce the overall return on your investment over time.

Thus, while taking investment decisions, it's important to consider a variety of factors, including risk, return, liquidity, diversification, and fees. It's also important to consider your specific financial goals, risk tolerance, and investment time horizon. A financial advisor can help you navigate these factors and make informed investment decisions.

Importance of Investment Decisions

Investment decisions play a crucial role in the growth and success of a company, and they are important for the following reasons:

- **Maximizing shareholder wealth:** The primary objective of investment decisions is to maximize the shareholder's wealth by identifying and selecting investment opportunities that are expected to generate the highest return with the lowest possible risk.
- **Creating value:** Investment decisions can create value by investing in profitable projects that generate cash inflows higher than the initial investment, resulting in an increase in the company's value.
- **Enhancing competitiveness:** Investment decisions help companies stay competitive by investing in new technology, products, and services that can increase market share and revenue.
- **Long-term planning:** Investment decisions involve long-term planning that ensures the company's sustainability and growth in the long run.
- **Risk management:** Investment decisions involve analyzing the risks associated with an investment and taking steps to manage and mitigate those risks.
- **Efficient resource allocation:** Investment decisions help companies allocate their resources efficiently by identifying the most profitable investment opportunities.

10.4 CAPITAL BUDGETING

Capital budgeting is the process of evaluating and selecting long-term investments that are expected to generate future cash flows beyond one year. The goal of capital budgeting is to

allocate resources to the most profitable investments that will maximize shareholder wealth. The various key steps involved in capital budgeting are as follows:

1) **Identify potential projects:**

- a) **Analyze industry trends:** This involves analyzing trends in the industry to identify potential investment opportunities. This can be done by reviewing industry reports, market research, and economic data.
- b) **Conduct market research:** This involves gathering information about potential customer demand, market size, and growth potential for the investment opportunity.
- c) **Evaluate the competitive landscape:** This involves assessing the competitive environment to determine whether the investment opportunity is likely to be profitable. This can be done by analyzing market share, pricing strategies, and other factors.

2) **Estimate cash flows:**

- a) **Forecast revenues:** This involves estimating the expected revenues associated with the investment opportunity. This can be done by analyzing historical financial data, market research, and other factors.
- b) **Estimate costs:** This involves estimating the expected costs associated with the investment opportunity, including labor costs, material costs, and overhead expenses.
- c) **Analyze tax implications:** This involves considering the tax implications of the investment opportunity and estimating the expected tax savings or costs associated with the investment.
- d) **Evaluate the timing of cash flows:** This involves evaluating the timing of the expected cash inflows and outflows associated with the investment opportunity. This can help to determine the project's net present value (NPV) and internal rate of return (IRR).

3) **Evaluate risk:**

- a) **Assess sensitivity to market conditions:** This involves evaluating the sensitivity of the investment opportunity's cash flows to changes in market conditions, such as changes in interest rates, inflation, and exchange rates.
- b) **Evaluate regulatory risk:** This involves assessing the risk associated with changes in regulations that could impact the investment opportunity.
- c) **Analyze operational risk:** This involves evaluating the risk associated with the investment opportunity's operational performance, such as delays in construction or unexpected equipment failures.

4) Analyze the costs of capital:

- a) **Determine the cost of debt:** This involves calculating the cost of debt financing, which is the interest rate that the company pays on its debt.
- b) **Determine the cost of equity:** This involves calculating the cost of equity financing, which is the return required by investors to compensate them for the risks associated with the investment.
- c) **Calculate the weighted average cost of capital (WACC):** This involves calculating the WACC, which is the average cost of capital for the company based on its debt and equity financing.

5) Evaluate investment criteria:

- a) **Net present value (NPV):** This is the difference between the present value of the expected cash inflows and the present value of the expected cash outflows associated with the investment opportunity.
- b) **Internal rate of return (IRR):** This is the rate of return that the investment opportunity is expected to generate over its expected life.
- c) **Payback period:** This is the length of time it takes for the investment opportunity to generate enough cash inflows to cover its initial investment cost.
- d) **Profitability index:** This is the ratio of the present value of the expected cash inflows to the initial investment cost.

6) Make a decision:

- a) **Accept or reject the investment opportunity:** This involves evaluating the investment opportunity based on the criteria above and making a decision on whether to accept or reject the investment opportunity.
- b) **Monitor performance:** After accepting the investment opportunity, it's important to monitor its performance to ensure that it's meeting expectations and generating the expected cash flows.

Thus, capital budgeting is a crucial process that helps companies allocate resources to the most profitable investments. By following the steps outlined above, companies can make informed decisions about which investments to pursue and ensure that they maximize shareholder wealth.

10.5 TYPES OF INVESTMENT DECISIONS

There are three main types of investment decisions as follows:

- 1) **Capital budgeting decisions:** Capital budgeting decisions involve investing in long-term assets that have a life of more than one year, such as machinery, buildings, and land. These investments require a significant amount of capital and can have a significant impact on the company's future profitability. Capital budgeting decisions involve analyzing the expected cash inflows and outflows associated with the investment opportunity and evaluating the project's potential return on investment. The objective is to choose the projects that will generate the highest return on investment and create the most value for the company.

Example: Suppose a manufacturing company is considering investing in a new production line that costs Rs. 1 million. The company expects the new production line to generate additional revenue of Rs. 500,000 per year and has an estimated life of 10 years. To evaluate the investment opportunity, the company would need to estimate the cash inflows and outflows associated with the project, calculate the net present value (NPV) of the investment, and compare it to the cost of capital. If the NPV is positive and exceeds the cost of capital, the investment may be deemed worthwhile and feasible.

- 2) **Working capital management decisions:** Working capital management decisions involve managing the short-term assets and liabilities of the company, such as accounts receivable, inventory, and accounts payable. These decisions are critical to ensuring that the company has enough cash to meet its short-term obligations and to fund its daily operations. Working capital management decisions involve analyzing the company's cash conversion cycle and determining the optimal level of working capital needed to operate the business effectively. The objective is to maintain a balance between having enough working capital to operate the business and minimizing the costs associated with carrying excess inventory or having too much cash tied up in accounts receivable.

Example: Suppose a retail store needs to manage its inventory to ensure it has enough products to meet customer demand while minimizing the cost of carrying excess inventory. The store would need to estimate its inventory turnover rate, set a target level of inventory, and monitor its inventory levels to ensure they remain within the target range. Additionally, the store would need to manage its accounts receivable by setting credit policies, monitoring customer payments, and following up on overdue payments.

- 3) **Portfolio management decisions:** Portfolio management decisions involve managing the company's investment portfolio, which may include stocks, bonds, and other financial instruments. The objective is to maximize the return on investment while managing the level of risk associated with the portfolio. Portfolio management decisions involve analyzing the risk-return trade-off of different investment opportunities and determining the optimal mix of investments that will maximize the return on investment while managing risk. The objective is to diversify the portfolio across different asset classes and sectors to reduce the risk associated with any one investment.

Example: Suppose an investment firm manages a portfolio of stocks and bonds on behalf of its clients. The firm would need to analyze the risk-return trade-off of different investment opportunities and determine the optimal mix of investments that will maximize the return on investment while managing risk. Additionally, the firm would need to diversify the portfolio across different asset classes and sectors to reduce the risk associated with any one investment. The firm would need to monitor the performance of the portfolio and make adjustments as needed to ensure it remains aligned with the client's investment objectives and risk tolerance.

Thus, capital budgeting decisions involve investing in long-term assets that have a significant impact on the company's future profitability, working capital management decisions involve managing short-term assets and liabilities to ensure the company has enough cash to operate effectively, and portfolio management decisions involve managing the company's investment portfolio to maximize return on investment while managing risk..

10.6 PROJECT CASH FLOW ANALYSIS

Project cash flow analysis is a method of evaluating the financial viability of a project by examining the expected cash inflows and outflows associated with the project over its lifetime. The objective of project cash flow analysis is to determine the net present value (NPV) of the project and assess whether the project is financially feasible and worthwhile. The main steps involved in project cash flow analysis are as follows:

- 1) **Estimate the initial investment:** This involves identifying the costs associated with starting the project, such as equipment, materials, labor, and any other expenses required to get the project off the ground.
- 2) **Estimate the expected cash inflows:** This involves estimating the cash inflows the project is expected to generate over its lifetime. For example, if the project is a real estate development, the cash inflows may come from rent payments, while if it is a product launch, the cash inflows may come from sales revenue.
- 3) **Estimate the expected cash outflows:** This involves estimating the costs associated with running the project, such as labor, materials, and overhead costs. Additionally, it may also include any financing costs or debt payments associated with the project.
- 4) **Discount the cash flows:** To account for the time value of money, the estimated cash flows are discounted back to their present value using a discount rate. The discount rate reflects the cost of capital and the level of risk associated with the project.
- 5) **Calculate the net present value (NPV):** The NPV is calculated by subtracting the initial investment from the sum of the discounted cash inflows and outflows. A positive NPV indicates that the project is financially feasible and worthwhile, while a negative NPV indicates that the project may not be a good investment.

- 6) **Sensitivity analysis:** It's essential to conduct a sensitivity analysis to examine how the NPV changes under different scenarios. For example, if the project is a real estate development, what would happen to the NPV if rent payments decrease, or if interest rates increase.

Thus, project cash flow analysis is a critical tool used to evaluate the financial viability of a project by analyzing the expected cash inflows and outflows associated with the project over its lifetime. The objective is to determine the net present value (NPV) of the project and assess whether the project is financially feasible and worthwhile.

10.7 INCREMENTAL CASH FLOWS

Incremental cash flows are the additional cash flows generated or incurred by a project that would not have occurred otherwise. In other words, they represent the difference between the cash flows generated by a project and the cash flows that would have been generated if the project did not exist.

When evaluating a new project, it's important to consider the incremental cash flows generated by the project rather than the total cash flows generated by the company as a whole. This is because the incremental cash flows represent the true economic impact of the project and can help determine whether the project is a worthwhile investment, few examples of incremental cash flows are as follows:

- a) **Sales revenue:** If a company decides to launch a new product line, the incremental cash flow generated by the project would be the additional sales revenue generated by the product line. This would be calculated by subtracting the revenue generated by the existing product lines from the total revenue generated by the company with the new product line.
- b) **Operating expenses:** The incremental cash flows may also include the additional operating expenses incurred as a result of the new project. For example, if the company needs to purchase new equipment to manufacture the new product, the incremental cash flow would be the additional operating expenses associated with the new equipment.
- c) **Taxes:** The incremental cash flows may also include the impact of taxes. For example, if the project generates additional revenue, the company may need to pay additional taxes on that revenue. This would reduce the incremental cash flow generated by the project.
- d) **Salvage value:** If the company plans to dispose of assets at the end of the project, the incremental cash flows may include the salvage value of those assets. For example, if the company plans to sell the equipment purchased for the project at the end of its useful life, the incremental cash flow would be the amount received from the sale of the equipment.



Check Your Progress-A

Fill in the blanks.

1. is the rate of return that the investment opportunity is expected to generate over its expected life.
2. involve managing the company's investment portfolio, which may include stocks, bonds, and other financial instruments.

10.8 TERMINAL CASH FLOWS

Terminal cash flows are an important part of capital budgeting and project evaluation because they represent the cash flows that occur at the end of a project's life. These cash flows can have a significant impact on the overall net present value (NPV) of the project.

The terminal value of the project is the present value of all the cash flows that are expected to occur beyond the end of the project's life. This is sometimes called the residual value or the salvage value of the project. To calculate the terminal value, analysts use a perpetuity formula or a multiple of the project's final year cash flow. The perpetuity formula assumes that cash flows will continue indefinitely at a constant rate, while the multiple method uses a multiple of the final year cash flow to estimate the future cash flows. Both methods are based on assumptions about the project's future cash flows and are subject to a degree of uncertainty.

The perpetuity formula for calculating the terminal value is:

Terminal Value = (Cash flow in final year x (1+growth rate)) / (Discount rate - growth rate)

where:

Cash flow in final year is the expected cash flow in the last year of the project

Growth rate is the expected growth rate of the cash flows beyond the final year

Discount rate is the required rate of return on the project

The multiple method involves multiplying the final year cash flow by a multiple to estimate the terminal value. The multiple can be based on industry standards, comparable projects, or other factors. For example, if the final year cash flow is Rs. 1 million and the multiple is 5, the terminal value would be Rs. 5 million.

The disposal cash flows are the cash flows associated with the disposal of the project's assets at the end of its useful life. This includes the proceeds from the sale of the assets as well as any taxes or fees associated with the sale. Disposal cash flows can be positive or negative depending on the expected sale value of the assets and the costs associated with their disposal.

To calculate the net present value (NPV) of a project, the cash flows that occur during the project's life are discounted to their present value and then summed. The terminal value is also discounted to its present value and added to the sum of the discounted cash flows. If the NPV is positive, the project is expected to generate a return that is greater than the required rate of return and is therefore considered a worthwhile investment.

It's important to note that terminal cash flows are based on assumptions about the project's future performance and are subject to a degree of uncertainty. Analysts should use conservative estimates and sensitivity analysis to account for this uncertainty and ensure that the project remains financially viable even under adverse conditions.

10.9 BASIC PRINCIPLES OF CASH FLOW ESTIMATION

Cash flow estimation is an important process in capital budgeting and investment decision-making. The following are some basic principles of cash flow estimation:

- **Be comprehensive:** Cash flow estimation should include all relevant cash inflows and outflows associated with the project. This includes explicit cash flows, such as revenue, expenses, and taxes, as well as implicit cash flows, such as the opportunity cost of using a resource for the project. Analysts should also consider any relevant external factors, such as inflation or changes in interest rates, that may impact the project's cash flows.
- **Be realistic:** Cash flow estimates should be based on realistic assumptions and should take into account the expected economic conditions and other relevant factors. Analysts should avoid overly optimistic or pessimistic assumptions, and instead use conservative estimates that reflect the most likely outcome. This can be achieved by conducting thorough research and analysis, and by consulting with experts in the relevant fields.
- **Be consistent:** Cash flow estimates should be consistent with the project's underlying assumptions, such as the expected useful life of the asset or the depreciation method used. This ensures that the cash flow estimates are internally consistent and reflect the project's true economic value. Analysts should also be consistent in the treatment of cash flows over time, for example by using the same inflation rate or discount rate for all periods.
- **Be incremental:** Cash flow estimates should be incremental, meaning that they reflect the additional cash flows generated by the project, compared to the cash flows that would have been generated without the project. This ensures that the cash flows reflect the true value added by the project and are not double-counted. Analysts should also be careful to exclude any sunk costs or other costs that are not relevant to the project's incremental cash flows.

- **Be time-sensitive:** Cash flow estimates should be sensitive to the timing of cash flows. Cash flows that occur earlier are generally more valuable than those that occur later, due to the time value of money. Therefore, it's important to estimate the timing of cash flows accurately and to discount them appropriately to their present value. Analysts should also consider any relevant factors that may impact the timing of cash flows, such as delays in project completion or changes in market conditions.
- **Be clear:** Cash flow estimates should be presented clearly and in a format that is easy to understand. This helps stakeholders to make informed investment decisions based on accurate and transparent information. Analysts should use clear and concise language, avoid jargon or technical terms where possible, and provide clear explanations for any assumptions or calculations used.

10.10 CAPITAL BUDGETING TECHNIQUES

The various techniques of project evaluation and selections are broadly categorized as follows:

1. Non-discounted Cash Flow Criteria:

a) Payback Period:

Payback period is a simple method used to evaluate the time required for a project to recover its initial investment. It is the time duration within which the net cash inflow generated from the project will recover the initial investment. The payback period formula is as follows:

$$\text{Payback Period} = \text{Initial Investment} / \text{Annual Cash Inflows}$$

The payback period helps investors to determine the time it will take to recover the initial investment and can be useful for comparing different investment projects based on their expected payback period. The shorter the payback period, the better the investment opportunity is, as it indicates that the investment will generate returns in a shorter amount of time.

For example, suppose you invest Rs. 50,000 in a project that generates annual cash inflows of Rs. 10,000. The payback period would be:

$$\text{Payback Period} = \text{Rs. } 50,000 / \text{Rs. } 10,000 \text{ per year} = 5 \text{ years}$$

This means that it would take 5 years for the project to recover the initial investment cost.

b) Accounting Rate of Return:

The accounting rate of return is another non-discounted cash flow criterion used to evaluate investment opportunities. It is also known as the Average Rate of Return (ARR). The ARR is calculated by dividing the average annual profit of an investment by the initial investment. The formula for ARR is as follows:

ARR = Average Annual Profit / Initial Investment

The ARR method is based on the idea that an investment's worth is determined by its ability to generate profits. This method is commonly used by accountants and financial analysts to evaluate the profitability of an investment.

For example, suppose you invest Rs. 100,000 in a project that generates average annual profits of Rs. 15,000. The accounting rate of return would be:

Accounting Rate of Return = Rs. 15,000 / Rs. 100,000 = 15%

This means that the project is expected to generate a 15% return on investment.

2. Discounted Cash Flow Criteria:

a) Net Present Value:

Net Present Value (NPV) is a discounted cash flow method that compares the present value of cash inflows generated by an investment to the initial investment. NPV calculates the present value of expected cash inflows by discounting them to their present value using a predetermined discount rate.

A positive NPV indicates that the investment is expected to generate a return that is greater than the initial investment. A negative NPV indicates that the investment is expected to generate a return that is less than the initial investment. An NPV of zero indicates that the investment will generate a return equal to the initial investment. The formula for NPV is as follows:

$$NPV = \sum (\text{Cash Inflows} / (1 + r)^t) - \text{Initial Investment}$$

where:

r = discount rate

t = time period

For example, suppose you invest Rs. 100,000 in a project that generates cash inflows of Rs. 20,000 per year for 5 years, and the discount rate is 10%. The NPV would be:

$$NPV = (\text{Rs. } 20,000 / (1 + 0.10)^1) + (\text{Rs. } 20,000 / (1 + 0.10)^2) + (\text{Rs. } 20,000 / (1 + 0.10)^3) + (\text{Rs. } 20,000 / (1 + 0.10)^4) + (\text{Rs. } 20,000 / (1 + 0.10)^5) - \text{Rs. } 100,000 = \text{Rs. } 16,468.81$$

b) Internal Rate of Return:

The Internal Rate of Return (IRR) is the discount rate at which the NPV of an investment equals zero. It is the rate of return that an investment is expected to generate over its useful life. The IRR method helps investors to determine the expected rate of return on an investment and compare it to other investment opportunities. The formula for IRR is calculated by solving for the discount rate that makes the NPV of an investment equal to zero. For example, using the same project as above, the IRR would be calculated as follows:

$$NPV = \sum (\text{Cash Inflows} / (1 + IRR)^t) - \text{Initial Investment} = 0$$

where:

IRR = internal rate of return

t = time period

Solving for IRR, we get:

$$IRR = 13.4\%$$

This means that the project is expected to generate a 13.4% return on investment, which is greater than the discount rate of 10%.

c) Profitability Index:

The Profitability Index (PI) is a ratio that measures the present value of future cash flows generated by an investment relative to the initial investment. The formula for PI is as follows:

$$PI = \text{Present Value of Cash Inflows} / \text{Initial Investment}$$

A PI greater than 1 indicates that the investment is expected to generate a return that is greater than the initial investment. A PI less than 1 indicates that the investment is expected to generate a return that is less than the initial investment.

Suppose you are considering investing in a project that requires an initial investment of Rs. 100,000 and generates cash inflows of Rs. 20,000 per year for 5 years. The discount rate is 10%. To calculate the profitability index, you need to calculate the present value of the cash inflows and the present value of the initial investment.

$$\text{PV of Cash Inflows} = (\text{Rs. } 20,000 / (1 + 0.10)^1) + (\text{Rs. } 20,000 / (1 + 0.10)^2) + (\text{Rs. } 20,000 / (1 + 0.10)^3) + (\text{Rs. } 20,000 / (1 + 0.10)^4) + (\text{Rs. } 20,000 / (1 + 0.10)^5) = \text{Rs. } 74,468.81$$

$$\text{PV of Initial Investment} = \text{Rs. } 100,000 / (1 + 0.10)^0 = \text{Rs. } 100,000$$

$$PI = \text{PV of Cash Inflows} / \text{PV of Initial Investment} = \text{Rs. } 74,468.81 / \text{Rs. } 100,000 = 0.7447$$

The profitability index in this case is less than 1, which indicates that the project is not expected to generate a return greater than the discount rate. Therefore, the project should be rejected.

d) Discounted Payback:

Discounted Payback is a method that calculates the time required for the discounted cash inflows generated by an investment to recover the initial investment. The Discounted Payback period formula is as follows:

Discounted Payback Period = Number of years before cumulative discounted cash inflows are equal to the initial investment

The discounted payback method is similar to the payback period method, but it takes into account the time value of money by discounting future cash inflows to their present value.

Suppose you are considering investing in a project that requires an initial investment of Rs. 50,000 and generates cash inflows of Rs. 10,000 per year for 5 years. The discount rate is 10%. To calculate the discounted payback, you need to calculate the present value of the cash inflows for each year until the cumulative present value equals the initial investment.

Year 1: $\text{Rs. } 10,000 / (1 + 0.10)^1 = \text{Rs. } 9,090.91$

Year 2: $\text{Rs. } 10,000 / (1 + 0.10)^2 = \text{Rs. } 8,264.46$

Year 3: $\text{Rs. } 10,000 / (1 + 0.10)^3 = \text{Rs. } 7,513.14$

Year 4: $\text{Rs. } 10,000 / (1 + 0.10)^4 = \text{Rs. } 6,827.40$

Year 5: $\text{Rs. } 10,000 / (1 + 0.10)^5 = \text{Rs. } 6,200.36$

Cumulative Present Value: $\text{Rs. } 9,090.91 + \text{Rs. } 8,264.46 + \text{Rs. } 7,513.14 + \text{Rs. } 6,827.40 + \text{Rs. } 6,200.36 = \text{Rs. } 37,896.27$

The discounted payback period is the year in which the cumulative present value equals the initial investment. In this case, the discounted payback period is between years 4 and 5, since the cumulative present value after year 4 is Rs. 37,195.67 and the cumulative present value after year 5 is Rs. 44,395.03. Therefore, the discounted payback period is 4 years plus the remaining investment required to reach the initial investment:

Discounted Payback Period = $4 + (\text{Rs. } 50,000 - \text{Rs. } 37,195.67) / \text{Rs. } 6,200.36 = 4.5 \text{ years}$

This means that it would take 4.5 years to recover the initial investment cost of the project, assuming the cash flows continue at the same rate beyond year 5.

Check Your Progress- B



Write True or False.

3. Net Present Value (NPV) is a discounted cash flow method that compares the present value of cash inflows generated by an investment to the initial investment.
4. The ARR is calculated by dividing the average annual profit of an investment by the initial investment.
5. Terminal Value = (Cash flow in final year x (1+growth rate)) x (Discount rate - growth rate).

10.11 SUMMARY

Investment decisions refer to the process of evaluating, selecting, and committing resources to long-term assets and projects that are expected to generate future cash flows. There are two main types of investment decisions: capital budgeting and working capital management.

Capital budgeting involves evaluating long-term investments in fixed assets such as machinery, equipment, buildings, and land. The four most commonly used capital budgeting techniques are net present value (NPV), internal rate of return (IRR), and profitability index (PI), and payback period. NPV involves discounting all expected cash flows to their present value and comparing them to the initial investment. IRR is the discount rate that makes the NPV of a project equal to zero. PI compares the present value of the expected cash inflows to the present value of the initial investment. Payback period calculates the time it takes for the initial investment to be recovered.

Working capital management involves managing short-term assets and liabilities, such as inventory, accounts receivable, and accounts payable, to ensure the company has sufficient liquidity to meet its operational needs.

Investment decisions are crucial for companies to achieve their strategic objectives and maximize shareholder value. It requires a thorough analysis of potential projects and assets, including estimating future cash flows, determining the cost of capital, and evaluating risk. Companies need to make well-informed investment decisions to remain competitive and achieve sustainable growth.

10.12 GLOSSARY



- **NPV:** Net present value (NPV) is a financial metric used in capital budgeting to evaluate the profitability of an investment or project. NPV calculates the difference between the present value of all expected future cash inflows and the present value of all expected future cash outflows. In other words, NPV determines the net value of an investment after accounting for the time value of money and the cost of capital. If the NPV is positive, the investment is considered profitable, while a negative NPV indicates that the investment is not profitable.
- **IRR:** Internal rate of return (IRR) is a financial metric used in capital budgeting to evaluate the profitability of an investment or project. IRR is the discount rate that makes the net present value (NPV) of all expected future cash inflows equal to the initial investment. In other words, IRR is the rate at which the present value of expected future cash inflows is equal to the present value of expected future cash outflows. If the IRR is greater than the required rate of return or cost of capital, the investment is considered profitable. If the IRR is less than the required rate of return or cost of capital, the investment is considered unprofitable.

10.13 ANSWERS TO CHECK YOUR PROGRESS



Check Your Progress –A

1. IRR
2. Portfolio management decisions

Check Your Progress –B

3. True.
4. True.
5. False.

10.14 REFERENCES



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10.15 SUGGESTED READINGS



1. Prasanna Chandra, Financial Management - Theory and Practice, McGraw-Hill; 10th edition (2019)
2. Eugene F. Brigham and Michael C. Ehrhardt., Financial Management: Theory & Practice Cengage Publications; 14th edition (2015)
3. M.Y. Khan and P.K. Jain, Basic Financial Management, Tata McGraw-Hill Education India; (2000)
4. I.M. Pandey, Financial Management; Vikas Publishing House Pvt. Ltd.; 11th edition.

10.16 TERMINAL QUESTIONS



1. Define investment decisions?
2. Elaborate Capital Budgeting?
3. Explain the Capital Budgeting Techniques.