Module-1: Introduction to Financial Management & Tools for Financial Decision Making

Notes

Structure:

Unit-1.1 Introduction to Financial Management

1.1.1 Financial Management-Overview

1.1.2 Role of Finance Managers

1.1.3 Decision Areas in Financial Management & Objectives of the firm

1.1.4 Indian Financial System-Overview

1.1.5 Financial Statement Analysis-Analysis of fund flow & Cash Flow statement

1.1.6 Financial Statement Analysis-financial ratio analysis

1.1.7 Financial Statement Analysis-common size & Comparative statement

1.1.8 Financial Statement Analysis-trend analysis & time series analysis

Unit-1.2 Time Value of Money

1.2.1 Concept of Time value of Money

1.2.2 Process of Compounding and Discounting

1.2.3 Future Value of a Single amount

1.2.4 Future Value of an Annuity

1.2.5 Present Value of a Single Amount

1.2.6 Present Value of an Annuity

1.2.7 Time value of Money-Numerical -1

1.2.8 Time value of Money-Numerical -2

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Notes

Unit-1.1: Introduction to Financial Management and Tools for Financial Decision Making

Learning Objectives

After studying this chapter, you should be able to:

- Understand the meaning, nature, and importance of financial management.
- Understand the process of financial management of an organisation.
- Understand the Indian Financial System
- Understand the various aspects of financial statement analysis.
- Understand the various tools for financial decision making.
- Understand the concept and applications of time value for money.
- How compounding and discounting affects the financial management.

Introduction

Financial management refers to that part of management activity which is solely concerned with planning and controlling of the organisation's financial resources.

Financial management is applicable to all types of organisation's irrespective of its size, kind of business, locations etc. Every management aims to utilize its financial resources in the "best possible", "least expensive" and "most profitable way".

Every business is operated in order to maximize wealth of the owners and to maximize the profit of the business firm.

Financial management is the application of general management principles to an organization's financial assets. Quality fuel and regular service are provided by proper financial management in order for an organization's operations to run smoothly. If an organization's finances aren't handled correctly, it will face roadblocks that might stifle its growth and development.

In any organisation, financial management is a critical activity. It is an ideal practise for managing an organization's financial operations, such as fund procurement, fund utilisation, accounting, payments, risk assessment, and everything else involving money.

1.1 Introduction to Financial Management

Financial management refers to planning, designing, devising, directing, organising and controlling the financial activities, such as procurement and utilisation of the funds, of the organization. It is more towards application of general management principles towards financial resources of the organisation.

Scope/Elements

- Investment decisions include investment in fixed assets—capital budgeting. Investment in current assets are also a part of investment decisions—working capital decisions.
- Financial decisions - They relate to the eliciting of finances from various

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resources, which depends upon decision on type of source, period of financing, cost of financing and the returns, thereby.

- Dividend decision - The finance manager takes decision in lieu of the net profit distribution. Net profits are generally divided into two:
  1. Dividend for shareholders: Dividend and the rate of it requires to be decided.
  2. Retained profits: Amount of retained profits has to be finalized, which depends upon expansion and diversification plans of the enterprise.

Objectives of Financial Management

The financial management is generally referred as procurement, allocation and control of financial resources of a concern. The objectives can be:

- To ensure regular, even, periodic and adequate supply of funds to the pertained.
- To ensure adequate returns to the stakeholders, which depends upon the earning capacity, market price of the share, expectations of the shareholders.
- To ensure optimum utilization of the finances. Once the funds are secured and received, they should be utilized in the maximum possible way, at the least cost.
- To ensure safety on investment funds or finances, i.e, finances need to be invested in safe embarks so that the adequate and decent enough rate of return can be achieved.
- To plan a healthy and heavy capital structure: There should be a healthy, heavy and fair composition of capital so that an equilibrium is maintained between debt and equity capital.

Functions of Financial Management

Appraisal of capital demands: A finance manager makes an appraisal with regard to capital essentials of the firm. This depends upon anticipated costs and profits and future programmes and policies of a business. Estimations need to be made in a decent manner that increases earning capacity of the enterprise.

Determination of capital composition: Once the appraisal has been made, the capital structure needs to be decided. This involves short-term and long-term debt equity analysis. This depends on the proportion of equity capital a company is owning and additional funds that need be brought up from outside parties.

Choice of sources of funds: For additional finances to be secured, an organisation has many options like-

- Issue of shares and debentures
- Loans to be taken from banks and financial institutions
- Public deposits to be drawn like in form of bonds.

Choice of factor depends on relative merits and demerits of each source and period of financing.

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Investment of funds: The finance manager decides to distribute funds into profitable ventures so that there is safety on investment and regular, periodic returns are possible.

Disposal of surplus: The net profits decision has to be made by the finance manager. This can be done in two ways:

1. Dividend declaration: It includes identification of the rate of dividends and other gains, like bonus.
2. Retained profits: The volume has to be decided, which depends upon expansion, path-breaking, variegation plans of the organisation.

Management of cash: Finance manager has to make decisions with regards to cash management and direction. Cash is required for many purposes like payment of wages and salaries, payment of electricity and water bills, payment to creditors, meeting current liabilities, maintenance and sustenance of enough stock, purchase of raw materials, etc.

Financial controls: The finance manager not only plans, procures, secures and utilizes the funds, but also exercises control over finances. This can be done through many techniques like ratio analysis, financial forecasting, cost and profit control, etc.

1.1.1 Financial Management: Overview

Financial management is the whole process of the planning, direction, monitoring, organising, and control of the financial and monetary resources of the Unit-as individual, family or organisation. It is the process towards programming, planning, budgeting and execution for managing the financial and monetary assets. It is mainly done to determine the priorities and use the financial resources accordingly. The purpose of this management planning is to own a plan, program and budget to function financially as a unit. It deals with the ways in which a Unit-can raise funds in the most productive and efficient way, to exercise control over those funds, and to distributer the returns of the funds to various shareholders/stakeholders.

Financial management ensures that the organisation meets its primary objective of maximising the stakeholder's wealth, downsizing the financial toll, and other nonfinancial activities, such as the government, employees and the suppliers.

Scope of Financial Management

Financial management comprises of the following key areas:

1. **Financial functions**: This is mainly in lieu of dealing with decisions on ways to raising funds for financing or sponsoring the activities of the organisation. The short- term sources of funds for the financial management include bank overdrafts, factoring, commercial papers, account payable delays, sale and leaseback, and account receivables collections. Whereas, the long- term sources of funds for the financial management include ordinary share capital, preference share capital, long term loans (debt capital) and leases.

   Before choosing the source of funds factors such as cost, tax effects, dilution of ownership and control, financial risks, collateral securities, access to capital markets,

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nature of project to be financed and other conditions and restrictive covenants must be considered by a financial manager.

2. **Investment function**: This function involves decisions regarding the allotment of funds to various projects. These projects need to be verified and evaluated by financial manager to embark into considering both their level of returns and risks. These decisions are difficult to make as they involve difficult to predict assessment of future with precision and as most of them are irreversible.
3. **Liquidity function**: These decisions are regarding the management of working capital to avoid problems regarding liquidity. Thus, it generally involves investments related to current assets (easily convertible to cash within a year) and current liabilities (mature for payment within a financial year).
4. **Dividend function**: This involves decisions on the amount of total earnings of organisations to be paid as dividends to the shareholders and the amount that needs to be retained by the organisations for re-investment. The dividend decision corresponds to the dividend policy of the organisation, contained in the article of association. It should be ensuring by the finance manager that the organisation has the optimal dividend pay-out ratio.

Goals or Objective of a Firm

The main goal for an organisation is to maximise the wellbeing of its owners and shareholders/stakeholders. This is indicated by sustaining the following parameters.

Profit maximisation: This is in regard to maximising the income of a firm by either increased sales value or increased price in return to the maximised profit leading to increase in dividends paid to stakeholders.

Capital gain and wealth maximisation: It is represented by the market value of shares where wealth is maximised when the value of those market shares increases. Therefore, wealth gain is with respect to the increase in the value of market shares.

The secondary objectives of the firms are the responsibilities in pursuit of the main objectives. For example, responsibilities owed to the employees are providing them with reasonable accommodation, medical, transport, pension and training facilities. Responsibilities owed to customers are providing them with high-quality goods within reasonable price range. Responsibilities owed to the society are participating in charitable organisations ensuring that those activities are environment favourable.

Role of financial managers

Accounting and bookkeeping. A financial manager prepares or supervises the preparation of the various financial statements, activity reports, and forecasts, ensuring that there is an effective accounting system in the organization.

Estimating the amount of capital required in lieu of purchase of assets, growth, and expansion of the business and meeting working capital requirements

Ensuring that debt and equity ratios are maintained and balanced while funds being raised from various sources.

Analyzing the market trends for identifying readily available opportunities for both investment and expansion of the business.

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Financial control. Exercising financial control through the use of techniques like an internal audit.

Forecasting cash flow into the business and out of the business, to ensure that there is no shortage of funds or even surplus cash within the firm. Funds must be made available requiring to meet the day-to-day expenses of the organisation, such as wages to employees.

Importance of financial management to organizations

1. Financial management ensures enabling organisation to meet its day-to-day expenses, such as wages to workers, maintaining enough product to meet customer demands and enough funds for investment and expansion of the business.
2. Budgeting (tool of financial management) ensures that a business makes prominent and spectacular decisions with the use ofavailable information and resources
3. Bookkeeping. This helps tracking the daily fiscal activities of the organization, such as sales.
4. Through financial management, a firm is able to allocate funds appropriately. Proper use of allocated funds to assets enhances the operational proficiency for the business concern.
5. Growth and stability: Financial management ensures business plans for its resources regarding both investment and growth needs.

1.1.2 Role of Finance Managers

Financial activities of a firm are considered to be one of the most important and complex activities of a firm. Therefore, a financial manager performs all the requisite financial activities to take care of these activities.

A financial manager is an individual taking care of all the important financial functions and needs of an organization. The person-in-charge should assert far sightedness and be able to foresee, in order to ensure that the funds are used in the most efficient manner. The person's actions directly affect the profitableness, lucrativeness, growth and goodwill of the firm.

Following are the main functions of a Financial Manager:

1. Raising of Funds

   To fulfill the function of meeting the obligation of the business, it is important to have enough cash and liquidity—readiness and availability of money. A firm can deduce funds by the way of equity and debt. The financial manager is responsible for the decision of the ratio between debt and equity. A good balance between equity and debt is equally and extremely important.

2. Allocation of Funds

   Once the funds are raised through different channels and transports, allocation of the funds is the next of importance in line. The funds should be allocated in such a manner that they are optimally and fully utilized to its best of capacity. The following points need to be considered for allocating funds in the best possible manner:

Notes

- The size of the firm and its growth capacity
- Status of assets as to whether long-term or short-term
- Mode of fund raising

These financial decisions directly and indirectly influence other managerial activities. Hence, formation of a good asset mix and proper allocation of funds is of utmost importance.

3. Profit Planning

Profit making is one of the prime functions and goals of a business organization. Profit earning is important for survival and sustenance of organization. Profit planning refers to proper usage of the profit generated by the firm.

Profit is achieved due to many factors, such as pricing, industry contention, economic state, demand and supply mechanism, cost and output. A healthy mix of variable and fixed factors of production leads to an increase in the profitability of the firm.

Fixed costs are obtained with the use of fixed factors of production, such as land and machinery. For maintenance of a tandem—one behind other, it is important to continuously value the depreciation cost of fixed cost of production. An opportunity cost must be calculated to replace those factors of production that have undergone wear and tear. If this is not noted, then such fixed costs can cause vast variations in profit.

4. Understanding Capital Markets

Shares of a company are traded on stock exchange, and there is a continuous sale and purchase of securities. Hence, clarity of capital market is an important function of a financial manager. When securities are traded on stock market, a huge risk is involved. Therefore, a financial manger fully understands and calculates the risks involved in such trading of shares and debentures, and how it can affect the organisation.

It is on the prudence of a financial manager on the way to distribute the profits. Many investors do not like the firm to distribute the profits amongst shareholders as dividend, instead want to invest in the business itself to enhance growth. The practices of a financial manager directly impact the operations in capital market.

1.1.3 Decision Areas in the Financial Market and Objectives of the Firm

The company must have a Finance Manager having the power, ability and training to deal key financial management decisions. The main prospects of the financial decision-making process relate to investments, financing, dividends and asset management.

Financial management refers to the acquisition, financing and management in terms of focus of assets. This decision-making process is very sensitive and raw, and must be under the control of a Financial Manager to analyze external and internal variables affecting the normal development of company activities.

The decision-making process can be divided into the below given areas:

- **The Investment decision**. It is one of the most important decisions taken by the finance manager as here they decide in which project (the one which

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Notes

is most profitable) will they invest the firm's money, which will yield them a greater share of amount in the near future. The investment decision relates to the selection of assets in which funds will be invested by the firm. The assets which can be acquired by the the firm falls into two broad categories:

I. Long term assets which yield a return over a period of time in future.

II. Short term or current assets, defined as those assets which in the normal course of business are convertible into cash without dimunition in value usually within a year.

The first of these involving the first category of assets is popularly known as capital budgeting and the aspect of financial decision made with reference to current assets or short- term assets is referred to as working capital management.

Capital budgeting: Is basically financing of long- term assets which yield a return over a period of time of the project and these decisions are irrevocable in nature once taken /implemented cannot be changed as massive amount of money is invested in these projects and are related to potentially large anticipated benefits.

Working capital management: is concerned with the management of current assets. it is an important and integral part of financial management as short term survival is a pre-requisite for long term success.

In the investments area, the Financial Manager is responsible for defining and etching out the optimal sizeable organisation. In this regard, it is of utmost importance to have a market study in situ and a clarity on the goals that the company necessitates to meet. It is important to comprehensively be aware and in a depth knowledge of the requirement, technology and equipment, financing methods and human resources available. Secondly, the director must analyse whether the resources that are in demand for the company adapt to the optimal size. If they do not, in order to achieve efficient, impeccable management, it is necessary to cut the types of assets that the company must gain, or otherwise sell or get rid of

Financing: The second major decision involved in financial management is the financial decisions. The financing decision of the firm related to the choice of the proportion of these sources (debt or equity) to finance the investment requirements. Business firm prefers choosing finance from the "cheapest and optimal source of capital" under which a proper combination of debt and equity is maintained.

Defining a financing strategy: It is essential to the continuity of the business concern over the long term. Access to financing is closely concerned with asserting and conserving a constant inflow of assets, since the savings margin does not allow operations to sustain longer without the support of additional liquidity or fluidity. The Financial Manager must delineate various aspects of the financing strategy. For example, study the sources willing to extend credit to the organization and define the best financing options for operations. The Financial Manager also designs a mixed financing strategy for efficient financial management: this is called the company's "financing mix". Sometimes the company benefits from a combination of short- and long-term financing to meet various investment funds and financial scheme objectives.

Asset management: Asset management is one of the principal aspects for a company to adequately meet its duties and, in turn, to position itself for meeting the

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objectives or growth targets that have been laid out. In other words, the Financial Manager must specify and affirm that the existing assets are managed in the most efficient way possible. Generally, manager prioritizes current asset management before fixed asset management. Current assets are those that become effective in the near future, such as accounts receivable or inventories. By contrast, fixed assets lack fluidity, since they are needed for permanent, fixed operations. This includes offices, warehouses, machinery, vehicles, etc.

Dividend Policy: One of the most significant financial decisions that a Financial Manager must make relates to the company's dividend policy. It concerns with regard to the amount of the company's earnings paid out to stakeholders. Specifically, it is necessary to determine whether generated earnings will be reinvested in the company for improvisations of operations or its distribution among shareholders. It is also possible to choose a mixed policy in this regard—distributing a part among various stakeholders and investing the rest in the organisation. However, if the dividends that are to be distributed are too high, the company may come across limitations for expansion or improvisation of the management of its operations. It is important to consider that short-term reinvestments are essential for growth perspectives over the long term.

1.1.4 Indian Financial System—Overview

The Indian Financial System is one of the most important aspects of the economic development of our country. By definition, this system manages the flow of funds between the people (household savings) of the country and the ones who may invest it wisely (investors/businessmen) for the benefit of both the parties.

Given below are the features of the Indian Financial system:

- It plays an important role in the economic development of the country by encouraging both savings and investment
- It helps in mobilizing and allocating one's savings
- It facilitates the expansion of financial institutions and markets
- It plays a key role in capital formation
- It helps form a link between the investor and the one saving it
- It is also concerned with the Provision of funds

Components of the Indian Financial System

There are four main components of the Indian financial system.

1. Financial Institutions: They act as an intermediary between investor and borrower. The savings of the investor are mobilized either directly or indirectly through the financial markets.

   The main functions of the financial institutions are as follows:

   - Conversion of a short-term liability into a long-term investment.
   - Conversion of a risky investment into a risk-free investment.

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- Acting as a medium of a convenience denomination—matching a small deposit with large loans and a large deposit with small loans

The best example of a financial institution is a bank. The bank acts as an intermediary body between the two—people with surplus amount of money and people in dire need of money. People with surplus amount of money make savings in their accounts, whereas, people in dire need of money take loans.

Financial institutions are further divided into two types:

1. Banking Institutions or Depository Institutions: This category includes banks and other credit unions collecting money from the public against interest provided on the deposits made and contribute that money to the ones in need.
2. Non-banking Institutions or Non-Depository Institutions: This category consists of Insurance, mutual funds and brokerage companies. They cannot ask for monetary deposits but rather sell financial products to their customers.

Further, financial institutions can be categorized into three categories:

1. Regulatory: Institutes regulating financial markets like RBI, IRDA, SEBI, etc.
2. Intermediates: Commercial banks providing loans and other financial assistance, such as SBI, BOB, PNB, etc.
3. Non-intermediates: Institutions providing financial aid to corporate customers or institutions. For example, NABARD, SIDBI.

2. Financial Assets: The products that are traded in the financial market are called financial assets. The securities in the market also differ from each other based on the various requirements and needs of the credit seeker.

   Some important financial assets are as follow:

   - Call Money: When a loan is granted for one day and is repaid on the second day, it is called call money. No collateral securities are required for such transaction.
   - Notice Money: When a loan is granted for more than a day and for less than 14 days, it is called notice money. No collateral securities are required for such transaction.
   - Term Money: When the maturity period of a deposit is beyond 14 days, it is called term money.
   - Treasury Bills: Also known as T-Bills, these are Government bonds or debt securities with maturity of less than a year. Buying a T-Bill means lending money to the Government.
   - Certificate of Deposits: It is a dematerialized form (electronically generated) for finances deposited in the bank for a particular period of time.
   - Commercial Paper: It is an unsecured, unguaranteed, short-term debt instrument issued by corporations.

3. Financial services: These are the services provided by the asset management and liability management companies. Such companies help to get required funds and also make sure that they are efficiently handled and invested.

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The financial services in India include:

- Banking Services: Any small or big service provided by banks like granting loan, depositing money, issuing debit/credit cards, opening accounts, etc.
- Insurance Services: Services like issuing of insurance, selling policies, insurance undertakings and brokerages, etc., are all a part of the Insurance services
- Investment Services: It mostly includes asset management.
- Foreign Exchange Services: Exchange of currency, foreign exchange, etc., are a part of the Foreign exchange services. The main aim of the financial services is to assist a person with selling, borrowing or purchasing securities, allowing payments and settlements and lending and investing.

4. Financial markets: The marketplace where buyers and sellers interact with each other and participate in trading of money, bonds, shares and other assets is called a financial market. The financial market can be further divided into four types:
    1. Capital Market: Designed to finance the long-term investment, the Capital market deals with transactions that take place in the market for over a year. The capital market can further be divided into three types: (a)Corporate Securities Market (b)Government Securities Market (c)Long Term Loan Market
    2. Money Market: As it is mostly dominated by Government, Banks and other Large Institutions, this type of market is authorized for small-term investments only. It is a wholesale debt market working on low-risk and highly liquid instruments. The money market can further be divided into two types: (a) Organized Money Market (b) Unorganised Money Market
    3. Foreign exchange Market: One of the most developed markets across the world, the Foreign exchange market, deals with the requirements related to multicurrency. The transfer of funds in this market takes place on the basis of foreign currency rate.
    4. Credit Market: A market where short-term and long-term loans are granted to individuals or organisations by various banks and Financial & Non-Financial Institutions is called Credit Market.

1.1.5 Financial Statement Analysis—Analysis of Fund Flow or Cash Flow

Cash Flow vs. Fund Flow—An Overview

In accounting, there are generally four different types of financial statements: the balance sheet, the income statement, the cash flow statement, and the fund flow statement. Here, we will delve into the final two.

In financial accounting, the statement of cash flows refers to the change in a company's cash and equivalents from one period to the next. The fund flow, however, has two different meanings—One for accounting purposes, whereas, the other one serves investment purposes.

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Key aspects:

- A company's cash flow or input and fund flow statements reflect two different variables during a specific/particular period of time.
- The cash flow will record a company's inflow and outflow of actual cash (cash and cash equivalents).
- The fund flow records the movement of cash in and out of the company.
- Both help provide investors and the market a snapshot of the way company is doing on a periodic basis.
- The cash flow statement is the best suited to estimate a company's liquidity profile, whereas, the fund flow statement is the best pitched towards long-term financial planning.

Cash Flow

Cash flow is registered on a company's cash flow statement. This statement—one of the main statements for a company—shows the influx and outflow of actual cash (or cash-like assets) from its operational activities. It is a required report under Generally Accepted Accounting Principles (GAAP).

This is much different from the income statement, which records data or transactions that may not have been fully realized, such as uncollected revenue or unpaid income. The cash flow statement, on the other hand, already has this information entered and gives a more accurate portrait of how much cash a company is generating.

Cash flow sources can be divided into three different classes for a cash flow statement:

- **Cash flows from operating activities:** Cash generated from the general or core operation of the business.
- **Cash flows from investing activities:** This section covers cash flow spent on investments like new equipment.
- **Cash flows from financing activities:** Financing activities include the inflow of cash from investors such as banks and shareholders, as well as the outflow of cash to shareholders as dividends as the company generates income.

Companies receive inflows of cash revenue from selling goods, providing services, selling assets, earning interest on investments, rent, taking out loans, or issuing new shares. Cash outflows can result from making purchases, paying back loans, expanding operations, paying salaries, or distributing dividends.

Since, investors and lenders rely on the statement of cash flow to evaluate a company's liquidity and cash flow management, as the Securities and Exchange Commission (SEC) requires all listed companies to use accrual accounting, which largely ignores the actual balance of cash in hand. It is a much more reliable tool than the metrics companies use to fancy up their earnings, such as earnings before interest, taxes, depreciation, and amortization (EBITDA).

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Illustration:

From the following Cash Account, prepare a cash flow statement of ABC Ltd. for the year ended March 31, 2020.

Cash Account			
Particulars	**Amount**	**Particulars**	**Amount**
To Bal b/d	19,600	By suppliers	73,800
To customers	2,00,800	By operating expenses	20,000
To borrowings	60,000	By interest expense	2,400
		By taxes	27,200
		By Property, Plant, and Equipment	1,35,500
		By dividend	7,200
		By bal c/d	14,300
	2,80,400		2,80,400

Solution:

Abc Inc. The Cash Flow Statement For The Year Ended March 31, 2020	Amount (Rs.)
CASH FLOW FROM OPERATING ACTIVITIES	
Cash Received from Customers	200,800
Cash Paid to Suppliers	(73,800)
Cash Payments for Operating Expenses	(20,000)
Cash Payments for Interest	(2,400)
Cash Payments for Taxes	(27,200)
NET CASH FLOW FROM OPERATING ACTIVITIES	77,400
CASH FLOW FROM INVESTING ACTIVITIES	
Purchase of Property, Plant and Equipment	(135,500)
NET CASH FLOW FROM INVESTING ACTIVITIES	(135,500)
CASH FLOW FROM FINANCING ACTIVITIES	
Proceeds from Borrowings	60,000
Payment of Dividends	(7,200)
NET CASH FLOW FROM FINANCING ACTIVITIES	52,800
NET INCREASE (DECREASE) IN CASH FOR THE PERIOD	(5,300)

Notes

Abc Inc. The Cash Flow Statement For The Year Ended March 31, 2020	Amount (Rs.)
Cash at the beginning of the period	19,600
CASH AT THE END OF THE PERIOD	14,800

The cash inflow from operating activities is Rs. 77400 and from financing activities is Rs. 52800. The cash outflow from investing activities is Rs. 135,500. Therefore, the net cash outflow of the business for the year is Rs. 5,300.

Fund Flow

The fund flow statement was required by GAAP between 1971 and 1987—accounting side. The statement of fund flow was primarily used by accountants to report any change in a company's net working capital when it was required, or the difference between assets and liabilities, during a fixed time period. Much of this information is now captured in the statement of cash flow.

The fund flow does not give the cash position of a company in lieu of investment; if a company wants the same, it prepares its cash flow statement.

The fund flow highlights the movement of cash only—it reflects the net movement after examining inflows and outflows of monetary funds. It also keys out any activity that might be out of persona for the company, such as an atypical expense.

The use of the fund flow statement in investing is more useful today. Investor sentiment can be gauged as it relates to different asset classes. For example, if the flow of funds for equities is positive, it suggests that investors have a generally optimistic view of the economy—or, at least, the short-term profitability of listed companies.

Key Differences

The fund flow statement is the earlier version of the cash flow statement. The cash flow statement is much more comprehensive and, rather than just focusing on working capital, details the various cash flows of a company.

The cash flow statement is the best used to comprehend the liquidity position of a business firm, whereas, the fund flow statement is the best suited for long-term financial planning, which is why it is an important tool for investors. The fund flow statement is able to identify the sources of cash and their uses, and the cash flow statement starts with looking at the current level of cash and the way it leads to the closing balance of cash.

1.1.6 Financial Statement Analysis—Financial Ratio Analysis

Financial ratio analysis is the quantitative ability to gain perceptiveness into company's liquidity, operational efficacy, and profitability by studying its financial statements, such as balance sheet and pay slip. It is the base of the equity analysis.

Financial ratios are formulated using numerical values taken from financial statements for gaining meaningful information about a company. The numbers found

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on a company's financial statements—balance sheet, income statement, and cash flow statement—are used to perform quantitative analysis and assess a company's liquidity, leverage, growth, margins, profitability, rates of return, valuation, and more.

Financial ratios are grouped into the following categories:

- Liquidity ratios
- Leverage ratios
- Efficiency ratios
- Profitability ratios
- Market value ratios
- Uses and Users of Financial Ratio Analysis

Analysis of financial ratios serves two main purposes:

1. Track company performance

Determining individual financial ratios per period and tracking the change in their values over time is performed to identify trends and tendencies that may be developing in a company. For example, an increasing debt-to-asset ratio may suggest that a company is weighed down with debt and may eventually be facing default risk.

2. Make comparative judgments regarding company performance

Comparison of financial ratios with that of major competitors is done to discover whether a company is performing better or worse than the average of industry performance. For example, comparing the return on assets between companies helps an analyst or investor to determine which company is making the most efficient use of its assets.

Users of financial ratios include parties external and internal to the company:

External users: Financial analysts, retail investors, creditors, competitors, tax authorities, regulatory authorities, and industry observers

Internal users: Management team, employees, and owners

Liquidity Ratios

Liquidity ratios are financial ratios measuring a company's ability to repay both short- and long-term obligations. Common liquidity ratios include the following:

The current ratio measures a company's ability to pay off short-term liabilities with current assets:

Current ratio = Current assets/Current liabilities

The acid-test ratio measures a company's ability to pay off short-term liabilities with quick assets:

Acid-test ratio = Current assets – Inventories/Current liabilities

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The cash ratio measures a company's ability to pay off short-term liabilities with cash and cash equivalents:

Cash ratio = Cash and Cash equivalents/Current Liabilities

The operating cash flow ratio is a measure of the number of times a company can pay off current liabilities with the cash generated in a given period:

Operating cash flow ratio = Operating cash flow/Current liabilities

Leverage Financial Ratios

Leverage ratios measure the amount of capital that comes from debt. In other words, leverage financial ratios are used to evaluate a company's debt levels. Common leverage ratios include the following:

The debt ratio measures the relative amount of a company's assets that are provided from debt:

Debt ratio = Total liabilities/Total assets

The debt-to-equity ratio calculates the weight of total debt and financial liabilities against shareholders'/stakeholders' equity:

Debt-to-equity ratio = Total liabilities/Shareholder's equity

The interest coverage ratio shows how easily a company can pay its interest expenses:

Interest coverage ratio = Operating income/Interest expenses

The debt service coverage ratio reveals how easily a company can pay its debt obligations:

Debt service coverage ratio = Operating income/Total debt service

Efficiency Ratios

Efficiency ratios, also known as activity financial ratios, are used to measure how well a company is utilizing its assets and resources. Common efficiency ratios include:

The asset turnover ratio measures a company's ability to generate sales from assets:

Asset turnover ratio = Net sales/Average total assets

The inventory turnover ratio measures how many times a company's inventory is sold and replaced over a given period:

Inventory turnover ratio = Cost of goods sold/Average inventory

The accounts receivable turnover ratio measures how many times a company can turn receivables into cash over a given period:

Receivables turnover ratio = Net credit sales/Average accounts receivable

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Notes

The days' sales in inventory ratio measures the average number of days that a company holds on to inventory before selling it to customers:

Days sales in inventory ratio = 365 days/Inventory turnover ratio

Profitability Ratios

Profitability ratios measure a company's ability to generate income relative to revenue, balance sheet assets, operating costs, and equity. Common profitability financial ratios include the following:

The gross margin ratio compares the gross profit of a company to its net sales to show how much profit a company makes after paying its cost of goods sold:

Gross margin ratio = Gross profit/Net sales

The operating margin ratio compares the operating income of a company to its net sales to determine operating efficiency:

Operating margin ratio = Operating income/Net sales

The return on assets ratio measures how efficiently a company is using its assets to generate profit:

Return on assets ratio = Net income/Total assets

The return on equity ratio measures how efficiently a company is using its equity to generate profit:

Return on equity ratio = Net income/Shareholder's equity

Market Value Ratios

Market value ratios are used to evaluate the share price of a company's stock. Common market value ratios include the following:

The book value per share ratio calculates the per-share value of a company based on the equity available to shareholders:

Book value per share ratio = (Shareholder's equity – Preferred equity)/Total common shares outstanding

The dividend yield ratio measures the amount of dividends attributed to shareholders relative to the market value per share:

Dividend yield ratio = Dividend per share/Share price

The earnings per share ratio measures the amount of net income earned for each share outstanding:

Earnings per share ratio = Net earnings/Total shares outstanding

The price-earnings ratio compares a company's share price to its earnings per share:

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Notes

Price-earnings ratio = Share price/Earnings per share

Illustration:

Following information is given by a company from its books of accounts as on March 31, 2019:

Inventory 50,000

Total Current Assets 80,000

Shareholders' funds 2,00,000

13% Debentures 1,50,000

Current liabilities 50,000

Net Profit Before Tax 1,75,500

Cost of revenue from operations 2,50,000

Calculate: i) Current Ratio ii) Liquid Ratio iii) Debt-Equity Ratio iv) Interest Coverage Ratio v) Inventory Turnover Ratio

Solution:

i) Current Ratio = Current Assets/Current Liabilities = Rs. 80,000/Rs. 50,000 = 1.6 : 1

ii) Liquid Assets = Current assets – Inventory = Rs. 80,000 – Rs. 50,000 = Rs. 30,000

Liquid Ratio = Liquid Assets/Current Liabilities = Rs. 30,000/Rs. 50,000 = 0.6 : 1

iii) Debt-Equity Ratio = Long-term Debts/Shareholders' Funds = Rs. 1,50,000/Rs. 2,00,000 = 0.75 : 1

iv) Net Profit before interest = Net Profit before Tax + Interest on Long & Tax term Debts = Rs. 1,75,500 + (13% of Rs. 1,50,000) = Rs. 1,95,000

Interest Coverage Ratio = Net Profit before Interest & Tax/Interest on Long Term Debts = Rs. 1,95,000/Rs. 19,500 = 10 times

v) Inventory Turnover Ratio = Cost of Revenue from Operations/Average Inventory = Rs. 2,50,000/Rs. 50,000 = 5 times

1.1.7 Financial Statement Analysis—Common Size and Comparative Statement

Common size analysis, also referred as vertical analysis, is a tool that financial managers use to analyze financial statements. It evaluates financial statements by showing each line item as a percentage of the base amount for that period.

The technique can be used to analyze the three primary financial statements—balance sheet, income statement, and cash flow statement. In the balance sheet, the common base item to which other line items are expressed is total assets, while, in the income statement, it is total revenues.

Formula for Common Size Analysis

Common size financial statement analysis is computed using the following formula:

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Notes

Percentage of Base = Amount of Individual item/Amount of Base Item ×100

Types of Common Size Analysis

Common size analysis can be conducted in two ways—vertical analysis and horizontal analysis. Vertical analysis refers to the analysis of particular line items in relation to a base item within the same financial period. For example, in the balance sheet, we can assess the proportion of inventory by dividing the inventory line using total assets as the base item.

On the other hand, horizontal analysis refers to the analysis of particular line items and comparing them to a similar line item in the previous or subsequent financial period. Although, common size analysis is not as detailed as trend analysis using ratios, it does provide a simple way for financial managers to examine financial statements.

Balance Sheet Common Size Analysis

The balance sheet common size analysis mostly uses the total assets value as the base value. On the balance sheet, the total assets value equals the value of total liabilities and shareholders' equity. A financial manager or investor uses the common size analysis to see how a firm's capital structure compares to rivals. They can make important observations by examining particular line items in relation to the total assets.

For example, if the value of long-term debts in relation to the total assets value is too high, the company's debt levels are shown too high. Similarly, looking at the retained earnings in relation to the total assets as the base value can reveal amount of the annual profits retained on the balance sheet.

Illustration:

From the following Balance Sheet of XYZ Ltd., prepare a common-size balance sheet for the year ended 31st march 2020:-

Particulars	Note no.	31.3.20
I. Equity and Liability		
1. Shareholders' Funds		
(a) Share Capital		300000
(b) Reserves and Surplus		40000
2. Non-Current Liabilities		
(a) Long term borrowings		100000
3. Current Liabilities		
(a) Trade Payables		60000
Total		500000
II. Assets		
1. Non-current Assets		
(a) Fixed Assets		300000
(i) Tangible Assets		
(ii) Intangible Assets		60000
2. Current Assets		
(a) Inventories		100000

Notes

(b) Cash and Cash Receivables		40000
Total		500000

Solution:

Common-size Balance Sheet
For the year ended 31st march 2020

Particulars	Note no.	Absolute Amount (Rs)	Percentage of Balance Sheet Total (%)
III. Equity and Liability			
4. Shareholders' Funds			
(c) Share Capital		300000	66.7
(d) Reserves and Surplus		40000	10
5. Non-Current Liabilities			
(a) Long term borrowings		100000	20
6. Current Liabilities			
(b) Trade Payables		60000	3.3
Total		500000	100
IV. Assets			
2. Non-current Assets		300000	66.7
(b) Fixed Assets		60000	3.3
(iii) Tangible Assets		100000	20
(iv) Intangible Assets		40000	10
3. Current Assets		500000	100
(a) Inventories			
(b) Cash and Cash Receivables			
Total			

Income Statement Common Size Analysis

The base item in the income statement is usually the total sales or total revenues. Common size analysis is used to calculate net profit margin, as well as gross and operating margins. The ratios tell investors and finance managers about the way the company is doing in terms of revenues, and they can make forecasting's of future revenues. Companies can also use this tool for analysing competitors to know the proportion of revenues that goes to advertising, research and development, and other essential expenses.

Illustration:

From the following Statement of Profit and Loss of XYZ Ltd. for the year ended 31st March 2020, prepare a Common-size Statement of Profit and Loss:-

Notes

Particulars	Note no.	31.3.2020 (Rs.)
Revenue from Operations		200000
Employee Benefit Expense		100000
Other Expenses		10000

Solution:

Common-size Statement of Profit and Loss for the year ended 31st March 2020

Particulars	Note no.	Absolute Amount (Rs)	Percentage of Revenue from Operations
I. Revenue from Operations		200000	100
II. Employee Benefit Expense Other Expenses		100000 10000	50 5
III. Total expenses		110000	55
IV. Profit before Tax (I – III)		90000	45

Importance of Common Size Analysis

One of the benefits of using common size analysis is that it allows investors to identify drastic changes in a company's financial statement. This primarily applies when the financials are compared over a period of two or three years. Any significant movements in the financials across several years can help investors decide whether to invest in the company. For example, large drops in the company's profits in two or more consecutive years may indicate that the company is going through financial distress. Similarly, considerable increases in the value of assets may indicate that the company is implementing an expansion or acquisition strategy, making the company an attraction to investors.

Common size analysis is also an excellent tool to compare companies of different sizes but in the same industry. Looking at their financial data can reveal their strategy and their largest expenses that give them a competitive edge over other comparable companies. For example, some companies may sacrifice margins to gain a large market share, which increases revenues at the expense of profit margins. Such a strategy allows the company to grow faster than comparable companies, because they are more preferred by investors.

1.1.8 Financial Statement Analysis—Trend Analysis and Time Series Analysis

Time series data analysis is the analysis of datasets that change over a period of time. Time series datasets record observations of the same variable over various points of time. Financial analysts use time series data, such as stock price movements or a company's sales over time, to analyze a company's performance.

Correlation

Unlike cross-sectional data analysis, time series data analysis cannot make use of the random sampling framework. This makes time series data analysis much more

Notes

complex and computationally demanding than cross-sectional data analysis. Random sampling cannot be used, because the past values of a variable are almost always highly correlated with the present value of that variable.

For example, the GDP of the US in the fourth quarter of 2017 is highly correlated with the GDP in the third quarter of 2017. The degree of correlation is much higher than the correlation across economic entities at the same point in time.

The correlation coefficient between the US GDP in the current quarter and the US GDP in the previous quarter for the period 2008–2018 is 0.998. The correlation coefficient between the US GDP in the current year and the US GDP in the previous year for the period 2008–2018 is 0.992.

Check your Understanding

1. The _____ measures how efficiently a company is using its equity to generate profit
2. _____also known as activity financial ratios, are used to measure how well a company is utilizing its assets and resources. Common efficiency ratios include:
3. _____ensures that the organisation meets its primary objective of maximising the stakeholder's wealth, downsizing the financial toll, and other nonfinancial activities, such as the government, employees and the suppliers.
4. _____: This category consists of Insurance, mutual funds and brokerage companies. They cannot ask for monetary deposits but instead sell financial products to their customers
5. One of the benefits of using _____is that it allows investors to identify drastic changes in a company's financial statement

Summary

Making a business plan and then ensuring that all departments stay on track is known as financial management. Solid financial management allows the CFO or VP of finance to provide data that aids in the development of a long-term strategy, informs investment decisions, and provides insights into how to fund those investments, liquidity, profitability, cash runway, and more.

Thus in a nutshell, Financial management is the process of managing a company's finances in such a manner that it is both profitable and compliant with the law. This necessitates both a high-level strategy and on-the-ground execution.

Activity

1. Find out the balance sheet of any company of your choice and implement the various types of ratios analysis on them.

Questions and Exercises

1. What is the importance of Financial Management?
2. What is your understanding towards the role of a finance manager?
3. How does the Indian Finance System functions?

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4. What are the various liquidity ratios?

Notes

Glossary

Management of cash: Finance manager has to make decisions with regards to cash management and direction. Cash is required for many purposes like payment of wages and salaries, payment of electricity and water bills, payment to creditors, meeting current liabilities, maintenance and sustenance of enough stock, purchase of raw materials, etc.

Dividend Policy: One of the most significant financial decisions that a Financial Manager must make is related to the company's dividend policy. It concerns as to the amount of the company's earnings paid out to stakeholders. Specifically, it is necessary to determine whether generated earnings will be reinvested in the company for improvisations of operations or its distribution among shareholders

Financial ratio analysis: is the quantitative ability to gain perceptiveness into company's liquidity, operational efficacy, and profitability by studying its financial statements, such as balance sheet and pay slip. It is the base of the equity analysis. Financial ratios are formulated using numerical values taken from financial statements for gaining meaningful information about a company. The numbers found on a company's financial statements—balance sheet, income statement, and cash flow statement—are used to perform quantitative analysis and assess a company's liquidity, leverage, growth, margins, profitability, rates of return, valuation, and more.

Financial ratios are grouped into the following categories:

- Liquidity ratios
- Leverage ratios
- Efficiency ratios
- Profitability ratios
- Market value ratios
- Uses and Users of Financial Ratio Analysis

Further Readings and References

1. Strategic Corporate Finance: Applications in Valuation & Capital Structure by Jitendra Kushwaha and Pallavi k. Kindle Edition.
2. Financial Management: Text, Problems and Cases by M. Y. Khan, P. K. Jain, 8th Edition, McGraw Hill Education. 2018.
3. Pandey, I. M. Ninth Edition, Financial Management, Vikas Publishing House Pvt. Ltd.
4. Brearly R.A. and Myers, S.C. Eighth Edition Principles of Corporate Finance, Tata Mc-Graw Hill
5. Chandra, P. Fundamentals of Financial Management, Sixth Edition, Tata McGraw Hill.
6. Horne. V. Tenth Edition, Financial Management and Policy, Prentice Hall of India

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Notes

Check your Understanding – Answers

1. return on equity ratio
2. Efficiency ratios,
3. Financial management
4. Non-banking Institutions or Non-depository Institutions
5. common size analysis

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Unit-1.2: Time Value of Money

Notes

Learning Objectives

After studying this chapter, you will be able to understand:

- Concept of Time value of Money
- Process of Compounding and Discounting
- Future Value of a Single amount
- Future Value of an Annuity
- Present Value of a Single Amount
- Present Value of an Annuity
- Time value of Money-Numerical -1
- Time value of Money-Numerical -2

Introduction

Time value of money corresponds to a concept that money present now is worth more than identical sum in the future due to its potential earning capacity. This is the core principle of finance states that the provide money can earn interest, any amount of money is worth more the sooner it is obtained.

Thus, it is also referred as present discounted value.

1.2.1 Concept of Time Value of Money

It is the concept that, all else being equal, money is more valuable when it is received closer to the present. The key to conceptualising the time value of money is the concept of opportunity cost. To illustrate, consider the fact that, if an investor receives money today, they can invest that money and earn a positive return. If, on the other hand, they receive that money one year in the future, they effectively lose the positive return they could have otherwise earned.

The time value of money absorbs from the concept that rational investors prefer to receive money today rather than the same amount of money in the future, because of money's potential to grow in a value over a given period of time. For example, money deposited into a savings account earns a certain interest rate and is, therefore, said to be compounding/intensifying in value.

It is of utmost importance because it can help guide financial investment decisions. For instance, suppose an investor can choose between two projects: Project A and Project B. Both projects have identical descriptions except that Project A promises a $5 million cash disburse in year 1, whereas Project B offers a $5 million cash disburse in year 5. If the investor did not understand the time value of money, they might believe that these two projects are equally attractive. In fact, however, time of money dictates that Project A is more attractive than Project B, because its $5 million disburse or cash payout has a higher present or current value.

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Notes

Main Points

- Time value of money is based on the concept that people would rather have money today than in the future.
- Given that money can earn compound interest, it is more valuable in the present rather than the future.
- The formula for computing time value of money considers the current payment, the future value, the interest rate, and the time frame.
- The number of compounding periods during each time frame is an important determinant in the time value of money formula as well.

Time Value of Money Formula

Depending on the exact situation in question, the time value of money formula may change slightly. For example, in the case of annuity or perpetuity payments, the generalized formula has additional or less factors. But, in general, the most fundamental TVM formula takes into account the following variables:

FV = Future value of money

PV = Present value of money

i = interest rate

n = number of compounding periods per year

t = number of years

Based on these variables, the formula for TVM is:

$$\mathbf{FV = PV \times [\, 1 + (i / n)\,]^{(n \times t)}}$$

Effect of Compounding Periods on Future Value

The number of compounding periods can have a drastic or forceful effect on the TVM calculations.

Thus, TVM not only depends on interest rate and time horizon, but also on the number of times the compounding calculations are computed annually.

Time Value of Money

The factors that determine time value money are:

i. Investment: For instances “A” and “B” are given an option of either taking Rs 1000 today or after a week. “A” choose to take the money today while “B” chooses to take it after a week. “A” invest the money gaining a return of 10% within a week. After a week “A” will have 1100 Rs. While “B” will have only 1000 Rs. So, from the above example we can state that money multiples itself and a rupee of today is more worth than a money of tomorrow

ii. Inflation: Suppose the price of rice is 50 rs per kg the person having 100 rs can buy 2kgs of rice today. after 5 years the price of rice rises from 50 to 75 Rs per kg so now the person having 100 Rs can only buy 1.3 kg of rice. Due to inflation it can be seen that the value of same 100Rs note has depreciated due to running inflation

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Notes

iii. Discounting factor: Every asset depreciates with time. Money being an asset also depreciates eventually over a certain period of time for instance a rupee today will not be a rupee tomorrow if 1 Rupee is depreciated at 10% per annum then its present value will be 0.909

The time value of money is the concept that, all else being equal, money is of more value when obtained or incurred closer to the present. The key to understanding the time value of money is the concept of opportunity cost. To illustrate, consider the fact that, if an investor obtains money today, they can invest that money and earn a positive payback. If, on the other hand, they obtain the same amount of money one year ahead in the future, they effectively lose the positive return they could have otherwise earned.

Importance of Time Value of Money

Time value of money is very important as it helps guide financial investment decisions. For instance, suppose an investor has a choice between two projects: Project A and Project B. Both projects have identical descriptions, except that Project A promises a $5 million cash payout in year 1, whereas Project B offers a $5 million cash payout in year 5. If the investor did not understand the time value of money, they might believe that these two projects are equally attractive. In fact, however, time of money dictates that Project A is more attractive than Project B, because its $5 million payout has a higher present value.

Use of Time Value of Money in Finance

- Time value of money is the fundamental key concept inbuilt and integral in Discounted Cashflow Analysis (DCF), which is one of the most popular and influential methods for valuing various investment opportunities.
- It is also an integral part of financial planning and risk management activities, such as in the case of pension fund managers who need to ensure their account holders will have adequate monetary resources to finance their retirement.
- Simply put together, it would be hard to find even a single significant area of finance that is not influenced in some way or other by the flawless concept of time value of money.

1.2.2 Process of Compounding and Discounting

Important Terms:

- Present Value = It is the value of a sum of money today.
- Future Value = It is the value of a sum of money in the future.
- Compounding = Finding the future value from present value.
- Discounting = Finding the present value from future value.

1. Compounding

The process of determining the present value of the amount to be received in the future is known as discounting. Compounding applies compound interest rates, whereas, discount rates are used in discounting. Compounding of a current amount indicates what one will get tomorrow if the person invests a certain sum today.

Notes

Compounding helps to find the future value of a present value (or amount) that is compounded for a given interest rate for a given number of years.

Mostly, compounding is done annually. But, here are some of the common compounding type.

Interest compounded annually: This means we are calculating the interest once per year.

Interest compounded half-yearly: This means we are calculating the interest twice per year.

Interest compounded quarterly: This means we are calculating the interest 4 times per year.

Interest compounded monthly: This means we are calculating the interest every month per year.

For instance, Let's say we have $10,000 and we need to find its future value when the amount is invested for 10 years at 10% interest rate compounded annually. To calculate this, use of **Compounding is required**.

Compounding uses Compound Interest concept.

Formula for Compounding Annually

When we calculate interest once per year, then it is called compounding annually.

The formula we use to calculate this is given below.

$FV = PV(1 + r)^n$

Where,

FV = Future Value

PV = Present Value

r = Rate of interest

So, if rate is 10%

Then $r = 10/100 = 0.1$

n = Number of years

Example

Let's say we have $10,000 today and we want to find the future value if the amount is invested for 10 years at 10% interest rate compounded annually.

We have

PV = 10000

r = 10%

= 10/100

= 0.1

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Notes

$n = 10$

So, future value

$FV = PV(1 + r)^n$

$= 10000(1 + 0.1)^{10}$

$= 25937.42$

So, after 10 years, the future value will be $25,937.42, when the amount is compounded annually.

Generalised formula for Compounding

Following is the generalised formula for compounding.

$FV = PV(1 + r/f)^{fn}$

Where,

FV = Future Value

PV = Present Value

f = Number of times interest is calculate per year

f = 1 for yearly

f = 2 for half yearly

f = 4 for quarterly

f = 12 for monthly

r = Rate of interest

So, if rate is 10%

Then $r = 10/100 = 0.1$

n = Number of years

Formulae for Compounding Half Yearly

When we calculate interest twice per year, then it is called compounding half yearly.

Example

Let's say we have the same amount $10,000 today, and we want to find the future value if the amount is invested for 10 years at 10% interest rate compounded half yearly.

We have

PV = 10000

$r = 10\%$

$= 10/100$

$= 0.1$

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Notes

f = 2 (as we are compounding half yearly)

r/f = 0.1/2

= 0.05

n = 10

fn = 2x10

= 20

So, future value

$FV = PV(1 + r/f)^{fn}$

$= 10000(1 + 0.05)^{20}$

= 26532.98

So, after 10 years, the future value will be $26,532.98 when the amount is compounded half yearly.

2. Discounting

Discounting helps us to find the present value or present worth of money for a given future value (or amount).

Using discounting, we can figure out the present value.

$100 is worth more now than 10 years from now. This is because of inflation. Purchasing power of money falls as time passes by. We can buy more stuff today with $100 than 10 years from now.

Formula for Discounting Annually

Following is the formula for annual discounting.

$PV = FV/(1+r)^n$

Where,

PV = Present Value

FV = Future Value

r = Discount rate

So, if rate is 10%

Then, r = 10/100 = 0.1

n = Number of years

Example

Calculate the present value if the discount rate is 10%, and future value 10 years from now is $50,000.

FV = 50000

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Notes

r = 10%

= 10/100

= 0.1

n = 10

So, present value will be

$PV = FV/(1+r)^n$

$= 50000/(1+0.1)^{10}$

= 19277.16

So, present value is $19,277.16 for future value $50,000 at 10% discount rate 10 years from now.

Generalised Formula for Discounting

Following is the generalised formula for discounting.

$PV = FV/(1 + r/f)^{fn}$

Where,

FV = Future Value

PV = Present Value

f = Number of times interest is calculated per year

f = 1 for yearly

f = 2 for half yearly

f = 4 for quarterly

f = 12 for monthly

r = Discount rate

So, if rate is 10%

Then, r = 10/100 = 0.1

n = Number of years

1.2.3 Future Value of a Single Amount

Future value of a single amount is the amount we save or invest today, the present cost of the item, and such multiplied by one plus the interest rate to the nth power. Here, n is the number of corresponding periods we hold that principle in the bank or the number of periods that we invest in the money.

Future value of a single sum of money is the amount that will accumulate at the end of n periods, if the sum of money at time 0 grows at an interest rate i. The future value is the sum of present value and the total interest.

The future value (FV) of a single sum depends on the initial sum of money called present value (PV), interest rate, total time period, nature of interest (simple vs. compound) and number of compounding periods per year.

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Notes

If the present value, the annual percentage interest rate, and the time period are the same, a sum of money that grows under the compound interest and has more compounding periods per year will have higher future value than a corresponding sum which grows only at simple interest rate and which has lower number of compounding periods per year.

Formula

The future value of a single sum of money, in case of a simple interest, can be computed using the following formula.

Future Value (Simple Interest)
= Present Value × $(1 + i \times n)$

However, compound interest is the most common method of interest accumulation in which case the future value can be calculated using the following formula:

Future Value (Compound Interest)
= Present Value (PV) × $(1 + i)^n$

Where,

i is the periodic interest rate (= annual percentage rate divided by compounding periods per year; and

n are the total number of compounding periods.

$(1 + i \times n)$ and $(1 + i)^n$ are the future value factors, in case of simple interest and compound interest, respectively.

1.2.4 Future Value of an Annuity

Future value of an annuity is the value of a group of recurring payments at a certain date in future, assuming a particular rate of return, or discount rate. The higher the discount rate, the greater is the annuity's future value.

Annuity due refers to a series of equal payments made at the same interval at the beginning of each period.

The first payment is received at the start of the first period and, thereafter, at the start of each subsequent accompanying period.

The present value of an annuity due uses the basic present value concept for annuities, except that cash flows are discounted to time zero.

Key Points

- The future value of an annuity is a way of calculating the amount of money a series of payments will be worth at a certain point in the future.
- By contrast, the present value of an annuity measures the amount of money that will be required to produce a series of future payments of money.
- In an ordinary annuity, payments are made at the end of each agreed-upon period. In an annuity due, payments are made at the beginning of each period.

Understanding the Future Value of an Annuity

Because of the time value of money, money received or paid out today is worth more than the same amount of money will be in the future. That is because the money

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Notes

can be invested and allowed to grow over the period ofa certain time. *By the same logic, a lump sum of $5,000 today is worth more than a series of five $1,000 annuity payments spread out over five years.*

Important Fact: Ordinary annuities are more common, but an annuity due will result in a higher future value, all else being equal.

Example of the Future Value of an Annuity

The formula for the future value of an ordinary annuity is as follows.

(An ordinary annuity pays interest at the end of a particular period, rather than at the beginning, as is the case with an annuity due.)

$$C * \left[\frac{(1+i)^n - 1}{i}\right]$$

- Where C= Cash flow per period
- i=interest rate
- n= number of payments

All else being equal, the future value of an annuity due will be greater than the future value of an ordinary annuity, because it has had an extra period of time to accumulate compounded interest.

1.2.5 Present Value of a Single Amount

Present value is stated as current value of a single payment or series of payments to be obtained at a later date, given a specific interest rate being provided. For example, if someone offered 5 million dollars today versus 5 million dollars 20 years from now.

Present value of a future single sum of money is the value obtained when the future value is discounted at a specific given rate of interest being provided. In other words, present value of a single sum of money is the amount that, if invested on a given date at a specific rate of interest, will be equal to the total of sum of the amount invested and the compound interest earned on its investment along with the face value or nominal value of the single sum of money in future.

Formula

The formula to calculate present value of a future single sum of money is:

$$PV = \frac{FV}{(1+i)^n}$$

Where, **i** is the interest rate per compounding period, which equals to the annual percentage rate divided by the number compounding periods in one year; and **n** is the number of compounding periods.

$1/(1+i)^n$ is called the present value factor.

Examples

Example 1: Calculate the present value on Jan 1, 2011 of $1,500 to be received on Dec 31, 2011. The market interest rate is 9%. Compounding is done on monthly basis.

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Notes

Solution

We have,

Future Value **FV**= $1,500

Compounding Periods ***n***= 12

Interest Rate ***i***= 9%/12 = 0.75%

Present Value **PV**= $1,500 / (1 + 0.75%)^12

= $1,500 / 1.0075^12

≈ $1,500 / 1.093807

≈ $1,371.36

Example 2: A friend of you has won a prize of $10,000 to be paid exactly after 2 years. On the same day, he was offered $8,000 as a consideration for his agreement to sell the right to receive the prize. The market interest rate is 12% and the interest is compounded on monthly basis. Help him by determining whether the offer should be accepted or not.

Solution

Here you will compute the present value of the prize and compare it with the amount offered to your friend. It will be good to accept the offer if the present value of the prize is less than the amount offered.

So,

Future Value **FV** = $10,000

Compounding Periods ***n***= 2 × 12 = 24

Interest Rate ***i*** = 12%/12 = 1%

Present Value **PV** = $10,000 / (1 + 1%)^24

= $10,000 / 1.01^24

≈ $10,000 / 1.269735

≈ $7,875.66

Since the present value of the prize is less than the amount offered, it is good to accept the offer.

1.2.6 Present Value of an Annuity

The present value of an annuity is the total value of the cash of all the future annuity payments, given a determined rate of return or discount rate. Knowledge of present value of annuity helps to work out exactly how much value you have left in the annuity one purchased.

Which would one prefer: $10,000 today or $10,000 received in annual $1,000 installments over the course of 10 years? Instinctively, one probably would choose to receive money right now rather than later.

And yes, one should choose to receive money right now – but for more reasons than “I just couldn’t wait.”

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Notes

That's because $10,000 today is worth more than $10,000 received over the course of time. In other words, the purchasing power of your money decreases in the future.

The Present Value of Annuity Calculator applies a time value of money formula used for measuring the current value of a stream or flow of equal payments at the end of future periods. This is also called discounting.

The present value of a future cash-flow represents the amount of money today, which, if invested at a particular interest rate, will grow to the amount of the sum of the future cash flows at that time in the future.

Present Value of Annuity Calculation

Below you will find a common present value of annuity calculation. Studying this formula can help you understand the way present value of annuity works. For example, you'll find that the higher the interest rate, the lower the present value because the greater is the discounting.

PV of ordinary Annuity =C* $\left[\frac{1-(1+i)^{-n}}{i}\right]$

C = Cash flow per period (payment amount)

i = Interest rate

n = Number of payments (in this calculator, derived from the payment interval and number of years)

When Is the Present Value of Annuity Calculator Used?

The most common uses for the Present Value of Annuity Calculator include calculating the cash value of a court settlement, retirement funding needs, or loan payments.

For example, a court settlement might entitle the recipient to $2,000 per month for 30 years, but the receiving party may be uncomfortable getting paid over time and request a cash settlement. The equivalent value would then be determined by using the present value of annuity formula. The result will be a present value cash settlement that will be less than the sum total of all the future payments, because of discounting (time value of money).

Real estate investors also use the Present Value of Annuity Calculator when buying and selling mortgages. The mortgage represents a future payment stream combining interest and principal that can be discounted back to a present cash value to allow the investor to know the amount that mortgage is worth on a mathematical basis. This shows the investor whether the price being paid is above or below expected value.

Present Value of Annuity Calculator Terms & Definitions

Annuity: A fixed sum of money paid to someone – typically each year – and usually for the rest of their life.

Payment/Withdrawal Amount: This is the total of all payments received (annuity) or made (loan) receives on the annuity. This is a stream of payments that occur in the future, stated in terms of nominal, or today's, dollars.

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Notes

Annual Interest Rate (%): This is the interest rate earned on the annuity. The present value annuity calculator will use the interest rate to discount the payment stream to its present value.

Number of Years to Calculate Present Value: This is the number of years over which the annuity is expected to be paid or received.

Payment/Withdrawal Frequency: The payment/deposit frequency one wants the present value annuity calculator to use for the present value calculations. The interval can be monthly, quarterly, semi-annually or annually.

Present Value of An Annuity: Based on inputs, this is the present value of the annuity you entered information for. The present value of any future value lump sum and future cash flows (payments).

Illustration:

Mr. Ramanathan borrows Rs.10,00,000 to buy a house. If he pays equal instalments for 20 years and 10% interest on outstanding balance what will be the equal annual instalment?

Solution:

Here, PV= Rs.10,00,000 ; r = 10% yearly; t = 20 years

N= 20

$10,00,000 = A[1-(1+10/100)^{-20}]/0.10$

A = Rs. 1,04,020

1.2.7 Time Value of Money—Numerical 1

An amount of $50,000 was invested on Jan 1, 20X0 at annual interest rate of 10.8% compounded on quarterly basis. On Jan 1, 20X1 the terms or the agreement were changed such that compounding was to be done twice a month from Jan 1, 20X1. The interest rate remained the same. Calculate the total value of investment on Dec 31, 20X1.

Solution

The problem can be easily solved in two steps:

STEP 1: Jan 1 - Dec 31, 2010

Present Value $\mathbf{PV_1}$ = $50,000

Compounding Periods $\boldsymbol{n}$ = 4

Interest Rate $\boldsymbol{i}$ = 10.8%/4 = 2.7%

Future Value $\mathbf{FV_1}$ = $50,000 × (1 + 2.7%)^4

= $50,000 × 1.027^4

≈ $50,000 × 1.112453

≈ $55,622.65

STEP 1: Jan 1 - Dec 31, 2011

Present Value $\mathbf{PV_2} = FV_1$ = $55,622.65

Compounding Periods $\boldsymbol{n}$ = 2 × 12 = 24

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Notes

Interest Rate $i = 10.8\%/24 = 0.45\%$

Future Value $FV_2 = \$55{,}622.65 \times (1 + 0.45\%)^{24}$

$= \$55{,}622.65 \times 1.0045^{24}$

$\approx \$55{,}622.65 \times 1.113778$

$\approx \$61{,}951.2838717$

1.2.8 Time Value of Money—Numerical 2

An amount of $50,000 was invested on Jan 1, 20X1 at annual interest rate of 8%. Calculate the value of the investment on Dec 31, 20X3. Compounding is done on quarterly basis.

Solution

We have,

Present Value $PV = \$50{,}000$

Compounding Periods $n = 3 \times 4 = 12$

Interest Rate $i = 8\%/4 = 2\%$

Future Value $FV = \$50{,}000 \times (1 + 2\%)^{12}$

$= \$50{,}000 \times 1.02^{12}$

$\approx \$50{,}000 \times 1.268242$

$\approx \$63{,}412.1$

Check your Understanding

1. _____ **is** a fixed sum of money paid to someone – typically each year – and usually for the rest of their life.
2. _____is the value of a group of recurring payments at a certain date in future, assuming a particular rate of return, or discount rate.
3. _____is the total value of the cash of all the future annuity payments, given a determined rate of return or discount rate.
4. The process of determining the present value of the amount to be received in the future is known as _____

Summary

- Thus, the idea of the time value of money (TVM) states that money you have now is worth more than money you will have in the future due to its earning potential. This basic financial principle states that if money can earn interest, any amount of money earned sooner is worth more. The term “TVM” is often used to refer to the present discounted value. The concept of time value of money is based on the notion that people would prefer to have money now rather than later.
- Money is more valuable in the present than in the future because it will gain compound interest.
- The time value of money formula takes into account the current payment, the future value, the interest rate, and the time frame.

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Notes

Activity

1. If the inflation rate is 10% what is the actual value of Rs 1000 after 10 years?
2. Study the inflation and deflation rate and hoe it impacts the appreciation and depreciation of money.

Questions and Exercises

1. What is the importance of the time value of money and how it is used in finance?
2. Why does the purchasing power of money decreases in the future?

Glossary

Annuity: is a financial product that pays out a fixed stream of payments to an individual, and these financial products are primarily used as an income stream for retirees. Annuities are contracts issued and distributed (or sold) by financial institutions, which invest funds from individuals. They help individuals address the risk of outliving their savings. Upon annuitization, the holding institution will issue a stream of payments at a later point in time.

Inflation: refers to the rise in the prices of most goods and services of daily or common use, such as food, clothing, housing, recreation, transport, consumer staples, etc. Inflation measures the average price change in a basket of commodities and services over time.

Deflation: In economics, deflation is a decrease in the general price level of goods and services. Deflation occurs when the inflation rate falls below 0%. Inflation reduces the value of currency over time, but sudden deflation increases it.

Further readings and References

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Check your Understanding – Answers

1. Annuity
2. Future value of an annuity
3. The present value of an annuity
4. discounting

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Module-2: Analysis and Techniques of Capital Budgeting

Notes

Structure:

Unit-2.1 Capital budgeting

2.1.1 Capital Budgeting- Introduction

2.1.2 Types of capital budgeting decisions

2.1.3 Preparation of capital budgeting proposal

2.1.4 estimating cash flows for project appraisal

2.1.5 Green capital budgeting

Unit-2.2 Techniques of Capital budgeting

2.2.1 Techniques of Capital Budgeting-Payback Period

2.2.2 Accounting Rate of Return

2.2.3 Net Present Value (NPV)

2.2.4 Internal Rate of Return (IRR) & Modified IRR

2.2.5 Profitability Index

2.2.6 Discounted Payback Period

2.2.7 Capital Rationing

2.2.8 Illustration/Numerical on Capital Budgeting-1

2.2.9 Illustration/Numerical on Capital Budgeting-2

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Notes

Unit-2.1: Capital budgeting

Learning Objectives

Capital expenditures are huge and have a long-term effect. Therefore, while performing a capital budgeting analysis an organization must keep the following objectives in mind:

- Selecting profitable projects
- Capital expenditure control
- Finding the right sources for funds

2.1.1. Capital Budgeting- Introduction

Introduction

Capital budgeting is a strategy of evaluating investments and enormous expenses to obtain the most productive returns on investment.

An organization is ceaselessly faced with the challenges of selecting between two projects/investments or the purchase vs. substitute choice. Ideally, a company would like to put money into all successful projects however because of the limitation on the availability of capital a company has to choose from other projects/investments.

Capital budgeting as a concept affects our day-to-day lives. Let's look at an example-

Capital Budgeting

Your mobile phone has stopped working! Now, you could have two choices: Either purchase a new one or get the same phone repaired. Here, you could conclude that the prices of repairing the cell will increase the lifetime of the phone. However, there could be a possibility that the price to shop for a new mobile phone could be lesser than its restore costs. So, you decide to switch your mobile phone and also you proceed to have a look at other phones that suit your funds!

What are the targets of Capital budgeting?

Capital expenditures are huge and feature a long-term impact. Therefore, whilst performing a capital budgeting research a company must keep the following goals in mind:

1. Selecting appealing initiatives

An organization comes throughout more than a few successful initiatives without a break. But due to capital restrictions, an organization needs to select the right combination of profitable initiatives that can build up its shareholders' wealth.

2. Capital expenditure control

Selecting essentially the most profitable funding is the primary goal of capital budgeting. However, controlling capital prices is also the most important objective.

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Forecasting capital expenditure requirements and budgeting for it and making sure no funding alternatives are lost at the crux of budgeting.

3. Finding the proper resources for funds

Determining the quantum of budget and the sources for purchasing them is every other necessary objective of capital budgeting. An important goal of Capital Budgeting is finding the balance between the cost of borrowing and returns on investment.

Capital Budgeting Process

The process of capital budgeting is as follows:

1. Identifying funding alternatives

A group must first determine an investment alternative. A funding opportunity could be from a brand-new business line to product enlargement to buying a new asset. For example, an organization may also announce two new merchandises, they would be adding to their product line.

2. Evaluating funding proposals

Once a funding alternative has been recognized an organization wishes to gauge its choices for investment. That is to mention, as soon as it's made up our minds that new product/products should be added to the product line, the next step could be to propose on how to achieve these products. There might be multiple tactics of obtaining them. Some of those products may be:

- Manufactured In-house
- Manufactured via Outsourcing production the method, or
- Purchased from the market

3. Choosing a profitable funding

Once the investment opportunities are known and all proposals are evaluated an organization must come to a decision essentially the most beneficial funding and make a choice on it. While deciding on a selected venture a company could have to make use of the technique of capital sharing to rank the initiatives as in keeping with returns and make a choice on the most suitable option available.

In our example, the corporate right here has to decide what's more successful for them. Manufacturing or buying one or both of the goods or scrapping the idea of obtaining both.

Notes

4. Capital Budgeting and Apportionment

The next move is to categorise the investment based on how long it will last. Long-term investments are typically factored into capital budgeting. This move aids in the monitoring of an individual investment's results.

5. Performance Review

The final step in capital budgeting is to review results. The management is expected to equate the actual results to the predicted results in this case. When the operations have normalised, it is the best time to make this comparison.

The capital budgeting committee comes to the following conclusions as a result of this review: To what degree were the assumptions reasonable? The effectiveness of which decisions are made; If any judgmental biases exist; Whether or not the project's sponsors' hopes are realised; As a result, the procedure is fulfilled, with several steps that must be followed precisely before the finalisation.

Capital Budgeting Methods

A modern business company employs a variety of strategies to devote its limited capital to the most profitable investments. These are methods for determining the feasibility of a project.

1. Payback Criterion:

Probably the most commonly used form of capital budgeting is the payback criterion. Capital funds are distributed using this approach by estimating the time it would take for the cash earnings on a given investment to return the original cost to the owner. Payout, pay-off, or payback period are both terms used to describe this metric (or the period of recovery). It can be used both before and after taxes. It is expressed in terms of cash earnings only to account for the fact that depreciation costs must be factored into the earnings figures, i.e., earnings are calculated before depreciation. This approach is used to predict a steady stream of annual earnings over the project's lifetime. Assume we use the letters I and u to represent the initial investment. Assume we have I for the initial investment and E for the uniform (average) annual cash flow.

As a result, the payback period P is written as:

I/E = P

or x years = capital outlay/net annual cash inflow

For example, a business will be able to invest Rs. 10,000 in a new machine that will produce Rs. 2000 in annual cash flow. (Rs. 10,000/Rs. 2,000) = 5 years is the payback period.

As a result, the project with the shortest payback period should be chosen using this approach. It is obvious that profitability will differ inversely with the payback period over the project's life, and profitability will vary directly over the payback period over the project's life. This explains why management focuses on short payback periods for investments.

Notes

Advantages include:

Given a cash outlay and cash inflow, calculating the payback period of a project and making an investment decision based on it is easy. This metric is particularly well suited to the early stages of an investment decision, when figures are likely to be sloppy. The inverse of the payback provides a fair estimate of return on investment for a project with a long life.

Disadvantages

The payback period does not account for the following factors: I The life of the project system cannot be used to choose between projects with different costs, payback periods, and productive lives. In reality, a short payback period does not always imply high profitability. As a result, if the project's useful life is less than the payback period, the return on investment will be negative; if the project life and payback period are equivalent, the return on investment will be zero. In this case, there is a financial loss. if an amount of Rs. 10,000 is spent and Rs. 2,500 is earned per year, and the machine's useful life is just four years, the investment is repaid but nothing more. Return on investment is not the same as return on investment.

Uneven Cash Flow:

Several investments are made in anticipation of potential net cash inflows that fluctuate year to year. For example, there may be significant initial (start-up) costs, and positive cash flows may not appear for many years.

Another project may generate a high level of positive cash flow for two or three years before rapidly declining.

Let's look at two projects whose profiles are listed in the table below to illustrate the problem. The question is, which is the better investment of the two?

Initial Cash Outlay	
Investment A	**Investment B**
Rs. 10,000	**Rs. 10,000**

After two years at 6% interest, it's worth Rs. 1.124. As a result, Rs. 1.124 has a current value of Re. 1.124 two years from now (discounted at 6%).

We can describe and illustrate the term "rate of return" by demonstrating how rupees at different time periods can be made equal using the common denominator of an interest rate.

Definition: The rate of return on an investment (or the rate of discount) that compares the present value of future profits (cash flow) from the investment to the project's expense (cash outlay). In other words, the rate of return on an investment is the rate of interest at which the discounted cash flow of an investment is repaid.

In general, the annual net receipts or cash flows from an investment are divided by the total sum of the investment to calculate the rate of return.

Notes

Thus, if a Rs. 2000 investment in a small plot of land yielded a Rs. 400 return for ever, the rate of return would be Rs. 400 + Rs. 2000 =.2 percent. Since no portion of the return of Rs. 400 is used to pay the original expenditure of Rs. 2000, the whole return of Rs. 400 is return on capital.

We must, however, 'capitalise' this investment in order to determine its current value.

This is conveniently accomplished by multiplying the profits (Rs. 400) by the rate of interest (.2%), which equalises the current value of the investment to its present expense.

As a result, Rs. 400 +.2 percent equals Rs. 2000. In our example, the rate of return on investment is.2% since it is the only rate of interest that equalises the present value of the income stream and the present value of the cost of the investment. In other words, it is the only interest rate that can completely recover the investment when applied to cash flow or net receipts. It is more difficult to measure the rate of return as the annual receipts contain both interest and principal. However, in order to keep our analysis straightforward and manageable, we will assume a situation in which the present value of a uniform sequence must be calculated. This example is about an investment that will produce a consistent cash flow over its useful life, and the return in the previous year will include the asset's scrap value.

2. The Return on Investment Criterion

The return on investment (KOI) criterion is used by many businesses when making investment decisions. This is a calculation of operating Unit-efficiency expressed as an accounting return (unadjusted).

ROI = income/investment

This formula comes in a variety of forms. Operating income is used by some businesses (income before interest, taxes, and corporate overhead). Others use the term "net profits." Others use net investment (after depreciation) or gross investment (before depreciation). Some businesses make use of the average investment.

For example: Assume the following two projects are being considered by a company:

1. A Rs. 10,000 investment with a Rs. 2,000 annual income; 2. A Rs. 10,000 investment with a Rs. 2,500 annual income.

Project A has a return of (Rs. 2,000/Rs. 10,000) = 20%, while project B has a return of (Rs. 2,500/Rs. 10,000) = 25%.

A organisation with a Rs. 10,000 investment will choose project B based on the accounting return as a measure of viability.

Advantages include:

This approach is somewhat similar to how business managers' performance is normally assessed. If managers are kept accountable and their bonuses are focused on achieving a 15% ROI, they will almost certainly favour only those investments that have this minimum return.

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Notes

Disadvantages:

This approach, however, is similar to the payback period method in that it ignores the existence of a project or the flow of money over time.

3. The Discounted Cash Flow (DCF) Method:

Both of the methods above neglect what is known as the time value of income. However, unless they are expressed in terms of a common denominator, rupees at various times are not directly comparable. The market rate of interest, which serves as the discount factor, is the common denominator for this reason.

As a result, if capital can be invested at 6% interest, a rupee invested today will be worth Rs. 1.06 the following year. In the same way, Rs. 1.06 next year is equal to Rs. 1.06 plus 6% of that number, for a total of Rs. 1.124 the following year. Compounding is the term for this procedure. So, if an amount of Rs. R is invested today at an interest rate of r, it will become R + rR = R (1+r) after one year.

After a year, the total R (1+r) will be R (1+r)2. This procedure can be repeated for an unlimited number of years. Furthermore, we can use this method to compare a given amount of money at the present time with a different amount of money at a later date.

Discounting is the inverse of the preceding procedure. We travel backward from the future to the present, just as in compounding. As a result, we'd like to know how much Rs. 1.124, which will be available in two years, is worth today at 6%. Re. 1 is now known to us.

4. Rate of Return and Decision Making:

The marginal utility of capital, or internal rate of return, is the rate of return on investment described by equations (1) and (2) above. Only for a uniform set of cash flows are these two terms equivalent. However, applying these principles in practise is challenging since the solution for r is dependent on both the quantities and the timings of the cash flows, both of which are uncertain.

As a result, the rate of return is just an approximation, and insisting on a definite solution for r would be impractical. "The rate of return on an investment can never be stated with certainty until the ownership of the investment has been terminated," say Seo and Winger.

Two factors must be considered in order to make the best capital budgeting decision: the internal rate of return and the firm's cost of capital on the project.

Profit maximisation includes adherence to the following basic concept of marginal analysis, given these two option indicators:

All projects with expected rates of return that are higher than the cost of capital should be pursued. When the internal rate of return (or marginal productivity of capital) approaches the cost of capital, new investment will stop.

The practical approach to project selection is to set r equal to the firm's cost of capital. As a result, the r value of the amount of the cash flows from alternative ventures can be discounted.

Notes

Only then can projects be ranked according to their current value per rupee of investment. In order to add some realism to the ranking method, each project can be 'weighted' by a risk factor that represents the likelihood of realising the estimated return.

The capital budgeting principle states that a company should raise the requisite capital for all non-conflicting ventures that aim to raise the company's value and, as a result, its share prices. However, a company cannot or may not raise enough money to fund all of its investment opportunities.

2 Reasons-

It's possible that two projects would be mutually exclusive.

Rationing problems of capital is a possibility.

The decision maker's problem in each situation is to rate investment proposals in such a way that the available capital is completely used in the most efficient way possible.

We will begin by describing the relationship between the two variants of the DCF method, namely the NPV method and the IRR method, before moving on to the above two capital budgeting problems.

5. Capital Rationing Problems:

We've noticed that the accept/reject decision is always the same when using two discounted cash-flow methods: NPV and IRR. Since investment ventures with an IRR greater than the company's cost of capital would also have a positive NPV when discounted at the cost of capital, this is the case.

If the total funds available for reinvestment in a period are limited to a fixed amount, whether due to management's policy of limiting investment expenditure, difficulties in raising extra finance from the stock market, or some other excuse, complications can and do occur.

Managers must choose between competing projects in such a situation, approving some and refusing others in order to remain within the company's total funds cap. As a result, using the DCF method can be difficult. In fact, when capital expenditures are limited and a range of alternative proposals must be ranked in order of desirability, the NPV and IRR methods can have contradictory results.

6. Project Size and Project Life

In fact, projects vary not only in size but also in the length of time they are operational. These two considerations make contrasting ideas in a capital-rationing situation much more complicated.

Assume the scale of two projects is different. The larger one with a higher NPV cannot be considered since it is more advantageous in this situation. The reason for this is that the NPV only provides a single-figure surplus for the project and fails to relate this to the size of the investment.

Only if the larger project's NPV is proportionately higher than the smaller project's will it be favoured. A comparison of relative value in this situation entails relating the

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NPVs of each project to the amount of capital needed by each, and then comparing the resulting ratios.

Of course, if the smaller of the two projects has a higher IRR or a higher NPV, it will win.

It cannot, however, be tolerated on the grounds that it may not be the most profitable option.

7. Financing Investment: Since the expense and availability of funding from internal and external sources affects a project's profitability, it's important to calculate the cost of capital. In reality, the cost of capital varies from one time to the next, depending on the method of funding investment projects. There are a number of different ways to fund an investment project.

2.1.2. Types of capital budgeting decisions

Businesses are typically faced with three forms of capital budgeting decisions.

1. The accept-reject decisions;
2. mutually exclusive decisions; and
3. capital rationing decisions.

1. **Accept-or-reject decisions:** A business is presented with various investment proposals. If the plan is approved, the company must make the investment. All investment plans that yield a rate of return greater than the cost of capital are generally accepted, whereas the rest are refused. All independent proposals are approved under this criteria.

2. **Mutually Exclusive Decisions:** It encompasses all projects that compete with one another in such a way that approval of one precludes acceptance of the other or others. As a result, some technique must be used to pick the best of all options and delete the rest.

3. **Capital Decision** In firms where funds are not a constraint, capital budgeting is an easy procedure, but in the majority of cases, firms have a fixed capital budget. There are so many initiatives vying for these restricted funds. As a result, the company rations them in order to increase long-term profits. As a result, capital rationing applies to circumstances in which a company's appropriate expenditure requires more capital than the company has available. It is concerned with selecting a group of investments from a large number of investment proposals ranked in the descending order of the rate or return.

2.1.3. Preparation of Capital Budgeting Proposal

The Capital Budgeting process is a method of preparation that is used to assess future investments or expenses with a high dollar value. It aids in assessing the company's long-term fixed asset investments, such as plant and machinery additions or replacements, new facilities, research and development, and so on. This procedure involves deciding on a source of funding and then estimating the profit that can be made from the investment.

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Notes

Six Steps to Capital Budgeting Process

1. Identifying Investment Opportunities

The first move is to look at the various investment options. The capital budgeting committee of the company must determine the projected revenues in the immediate future. Following that, they identify investment opportunities while keeping in mind the sales goal they set. There are a few things to consider before beginning your quest for the best investment opportunities. It entails constant analysis of the external environment in order to gain an understanding of potential investment opportunities. Defining the corporate strategy, which is focused on the organization's SWOT review, i.e., an examination of its strengths, weaknesses, opportunities, and threats, as well as soliciting feedback from employees by reviewing the organization's strategies and objectives.

It entails constant analysis of the external environment in order to gain an understanding of potential investment opportunities. Defining the corporate strategy, which is focused on the organization's SWOT review, i.e., an examination of its strengths, weaknesses, opportunities, and threats, as well as soliciting feedback from employees by reviewing the organization's strategies and objectives.

For Example:

Until choosing a particular investment, identify the market's underlying patterns, which can be focused on the most credible information. For example, before making an investment in a gold mining business, it is necessary to first decide the underlying commodity's future direction; whether analysts think there are more chances of price getting higher.

2. Compilation of Investment Proposals

assemble potential investment opportunities Before reaching the capital budgeting process committee, these plans are reviewed by various approved persons in the company to ensure that they meet the criteria, and then the investment is classified into different categories such as growth, replacement, welfare investment, and so on. This categorization is done to make the decision-making process more comfortable, as well as to make the budgeting and control processes easier.

For Example:

The real estate company has found two potential sites for their project. Just one of the two lands need to be completed. As a result, proposals from all departments will be submitted, and they will be reviewed by various appointed individuals within the company to ensure that the proposals submitted meet the various criteria. Additionally, the same will be graded for a better understanding and decision-making process.

3. Capital Budgeting Decision-Making Process

The third step is to make a decision. The executives will have to determine the investment is required from the investment opportunities available, while keeping in mind the sanctioning power they have.

Example:

For example, managers at the lower levels of management, such as job managers and plant superintendents, may have the authority to approve investments up to

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Notes

$10,000, in which the board of directors or senior management must approve the investment. If the investment cap is increased, lower management must consult with top management to obtain approval for the investment.

4. Preparation of the Capital Budget and Appropriations

Following the step of decision-making, the next step is to categorise the investment outlays into higher and lower value investments.

Consider the following scenario:

When the value of an investment is smaller and it is accepted by a lower level of management, it is usually protected by blanket appropriations in order to get quick action. However, if the investment outlay is higher in value, it will be included in the capital budget after the requisite approvals are obtained. The aim of these funds is to assess the investment's success as it is implemented.

5. Implementation

The investment plan under review is adopted, or turned into a concrete project, after all of the preceding measures have been completed. There are many difficulties that management staff can face when implementing projects, as they can be time-consuming. The following items may be useful for implementing at a fair cost and in a timely manner:

Appropriate project formulation: Inadequate project formulation is one of the most common causes of project delays. As a result, the concerned person should gather all relevant information ahead of time and conduct thorough review to prevent any delays in the project's implementation.

Use of the responsibility accounting principle. Unique duties should be delegated to project managers for the timely execution of different tasks and cost control, i.e., the timely completion of the project within the prescribed cost limits.

Usage of a network technique: Several network techniques, such as the Critical Path Method (CPM) and the Program Evaluation and Review Technique (PERT), have been developed.

For Example

Before a project can be implemented, the capital budgeting committee must ensure that management has done their homework on preliminary studies and the detailed formulation of the project. After that, the project is effectively executed.

6. Performance Review

The final step in capital budgeting is to review results. The management is expected to equate the actual results to the predicted results in this case. When the operations have normalised, it is the best time to make this comparison.

For example

Capital budgeting committee concludes on the following points.

To what degree were the assumptions reasonable?

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Notes

The effectiveness in which decisions are made

If any judgmental biases exist, they should be addressed.

If the project's sponsors' expectations are realised; therefore, the procedure is complicated, involving several steps that must be taken precisely before the project can be completed.

Conclusion

Capital budgeting is a technique used by businesses to make long-term investment decisions. It all begins with identifying various investment opportunities. Then, after gathering and reviewing various investment proposals, deciding on the most profitable investment, and finally, deciding on Capital Budgeting and apportionment. Finally, the decision made must be followed, and results must be evaluated on a regular basis.

2.1.4. Estimating Cash Flows for Project Appraisal

Capital budgeting can seem to be a simple process. After all, there are only three stages. The first step is to identify the cash flows; the second is to determine a reasonable discount rate that reflects the cash flows' time value and riskiness; and the third step is to combine all of these inputs and discount the cash flows at the chosen rate. In reality, however, things aren't so easy. There are several issues that occur during the procedure. The fact that none of the variables we're using in the projection is certain normally causes complications. As a result, we're making best guesses. It's critical to determine if our predictions are accurate. A small change may result in a completely different price.

In this chapter, we'll look at how to calculate cash flows from accounting income, and then we'll look at some of the problems that can occur during the estimation process.

Deriving Accounting Profits from Cash Flows

Cash flows are entirely reliant on capital budgeting. It is unconcerned with a project's accounting earnings. However, most financial statements prepared by investors will refer to the accounting benefit. As a result, they must calculate the cash flows based on the accounting benefit. This can be accomplished by undoing the two benefit changes made by accountants:

1. Income is counted by accountants in the time in which it is paid. Cash flow, on the other hand, must be compensated for in the timeframe in which it is obtained. As a result, the figures must be updated.
2. Accountants also divide cash outflows into two categories: expenses and asset growth. When it comes to cash, however, it's just an outflow. As a result, when calculating the cash flows that must be discounted, this presumption must be undone once more.

Only Incremental Cash Flows

Secondly, each project must be treated as a separate investment, with only the incremental cash flows arising as a result of the investment decision being considered.

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Notes

Consider the case where we plan to open a restaurant in a building, we've already leased out for $10,000 per year. This restaurant is expected to bring in $25,000 a year in revenue. Even though the nominal amount of cash inflows is $25,000, we are only making an extra $15,000 in this situation. As a result, instead of $25,000, we'll use $15,000 for our cash-flow estimates.

The trick is to think about your company's worth both with and without the investment. The idea is to consider all scenarios and choose which one we want to be a part of. For many people, this section is counter intuitive. But keep in mind that we're just thinking about the extra money we'll make as a result of this investment.

Incidental Effects

It's also crucial to understand the unintended consequences of such programmes. In theory, projects are self-contained. However, we know for a fact that this is not the case. Many projects' fates are commonly intertwined.

Let's say a car manufacturer is debating whether or not to launch a new model. The old model's sales would decline by $12,000 as a result of these changes.

As a result, we must deduct $12,000 from the cash inflows from the current model when measuring the cash inflows. This is because the company has $12,000 without the project, but it stands to lose $12,000 if the project is completed. It can earn more money, but $12,000 is a one-time expense associated with completing this project. As a result, incidental costs must also be considered when determining the project's true worth.

Opportunity Costs

The term "opportunity costs" refers to fictitious or implied costs. This implies that the money never leaves our possessions. In fact, they are not expenses. They are, instead, fictitious expenses. The benefit of the next best option that has been foregone in order to devote money to a project is known as opportunity cost.

Incremental Working Capital

We can just include the incremental cash outflow that comes from a rise in working capital as a result of the new ventures, just as we did with capital expenditures. The old working capital should clearly be left out of any estimates because it is untouched whether the project is completed or not.

We must be cautious when calculating the amount of working capital needed. Since working capital is typically rolled over from one cycle to the next, this is the case. So we put down a lump sum and it keeps going until the project is completed, seldom requiring additional cash infusions.

Principles of Cash Flow Estimation

The capital budgeting method is mainly concerned with the calculation of a project's cash flows, rather than the project's contribution to accounting income. A capital expenditure usually necessitates an initial cash outflow, referred to as the net investment. As a result, it's critical to evaluate a project's success in terms of the net (operating) cash flows it's supposed to produce over time.

Notes

The figure depicts the projected cash flows for a specific project. The project is projected to produce a stream of net cash inflows of $50,000 in year 1, $40,000 in year 2, $30,000 in year 3, and 25,000 in 12 months in year four; and $5,000 in 12 months in year 5.

Illustration of Estimated Cash Flows for a Normal Capital Investment Project

Nonstandard or unconventional ventures have cash flow patterns that include several sign changes or none at all. The cash flow trends for three sample projects are shown in the table. As we can see in the discussion of the internal rate of return criterion in the following sections, Projects X and Y may trigger some analytical issues. Project X could necessitate the shutdown and rebuilding of some facilities in year 3, while Project Y could be an investment in a mining property, with the negative cash flow in year 5 reflecting the costs of abandoning the mine after its mineral wealth has been exhausted.

Finally, using the decision-making criteria developed in the next chapter, Project Z, which produces negative cash flows over the entire life of the investment, such as an investment in pollution control equipment, may be difficult to assess. Regardless of whether the cash flows from a project are supposed to be normal or nonnormal, certain fundamental rules should be followed when estimating them, including the following:

Cash flows should be calculated incrementally. In other words, the cash flow stream for a specific project should be calculated from the standpoint of how the project would impact the firm's entire cash flow stream if it is implemented, as opposed to how the stream will be affected if the project is not adopted. As a result, the report should include all adjustments in the firm's sales, expense, and tax streams that will result from the project's acceptance. Cash flows that are not affected by the investment, on the other hand, should be ignored.

Cash flows should be calculated after deductions for taxes. Since the initial investment in a project is made in after-tax cash dollars, the project's returns should be calculated in the same units, namely after-tax cash flows.

Many of a project's indirect results should be included into the cash flow figures. If a planned plant expansion necessitates an increase in working capital for the company as a whole — perhaps in the form of greater cash reserves, inventories, or accounts receivable — the increase in working capital should be factored into the project's net expenditure.

If revenues grow over the course of the project, a company will need to plan for additional working capital increases. These extra working capital needs should be accounted for as outflows in the annual net cash flows. Net working capital balances, on the other hand, decrease as the project progresses; these should be included in.

For example, when considering Ford's capital expenditure decision earlier in the chapter, the company should consider the effect of increased Volvo production on demand for Ford's other luxury car brands, Lincoln and Jaguar.

- Sunk costs must now not be considered when comparing an undertaking. A sunk value is an outlay that has already been made (or committed to be made).

Notes

Because sunk prices can't be recovered, they will have to no longer be thought to be in the decision to simply accept or reject a mission. For instance, in 2004, the Chemtron Corporation was considering establishing a new chemical disposal facility. Two years previous, the company had hired the R.O.E. Consulting Group to do an environmental impact analysis of the proposed website at a price of $500,000.

Because this $500,000 value can't be recovered whether or not the project is undertaken or not, it must not be regarded in the accept –reject analysis taking place in 2004. The handiest relevant prices are the incremental outlays that can be created from this point ahead if the mission is undertaken.

- The worth of assets utilized in an undertaking will have to be measured with regards to their alternative prices. Opportunity prices of assets (assets) are the cash flows those sources may just generate if they don't seem to be used within the challenge under consideration. For example, think that the website online Chemtron is considering to use for its disposal facility has been owned by way of the company for some time. The belongings in the beginning value $50,000, however a contemporary appraisal indicates that the valuables could be offered for $1 million.

  Because Chemtron must forgo the receipt of $1 million from the sale of the site if the disposal facility is constructed, the appropriate alternative value of this piece of land is $1 million, not the original value of $50,000. These 5 rules of cash go with the flow estimation could also be applied to the particular problem of defining and calculating a challenge's net funding and net cash flows.

2.1.5. Green Capital Budgeting

Every 12 months' executive presents the Budget for future aspiration of nation. With the increasing worry against sustainable surroundings from the sector fraternity, the nation's worldwide have started the method of Green capital budgeting. The green finances are one house the place governments can affect human's interaction with the surroundings by means of discouraging environmental destruction, and inspiring beneficial habits. Through this procedure, the coalition of nationwide conservation organizations and environmental group identifies one of the crucial systems to be integrated in the Green Budget. This finance shows how the central investment for conservation can assist, reminiscent of:

- To meet the environmental and climatic challenges of a changing local weather,
- Sustain our country's natural resources like lands, waters and so forth, and
- Develop our blank energy assets.

Green budgeting is the practise of using the budgetary method to produce better environmental results (OECD 2018). Some of fiscal policy's environmental effects are optimistic. Support for environmental conservation, green technology R&D, environmental policy, environmental data collection, tracking, and reporting, and environmental science are just a few examples.

Notes

Other fiscal policies may have detrimental environmental consequences, such as subsidies for fossil fuels and livestock, or subsidies for water and energy use. According to the OECD, direct government subsidies for fossil fuels totalled US$373-617 billion annually across 76 major economies. between 2010 and 2015.

Government spending on biodiversity, on the other hand, is just about a tenth of that. Furthermore, the tax system is a crucial mechanism for 'correcting' prices for activities that produce negative externalities, such as carbon emissions and poliution. However, according to World Bank figures, specific carbon taxes and emissions trading schemes only cover about 15% of global emissions. What is the concept of green budgeting? In December 2017, the OECD initiated the Paris Collaborative on Green Budgeting. The aim is to adapt traditional budgeting tools to aid in the alignment of national expenditure and revenue processes with climate and other environmental objectives. This necessitates the establishment of clear links between public finance and environmental impacts.

Several elements of green budgeting have been defined by the OECD, which may be included in annual budget documentation or a separate "Green Budget Statement." These elements are as follows:

- Current spending and revenue programmes, as well as any new policies or proposals included in the budget, are expected to have an environmental impact. Direct spending, grants, loans, guarantees, and other contingent obligations are among these policies, as are taxes, resource royalties, other non-tax revenues, tax expenses, and the fiscal opportunity cost of interventions like not auctioning polluting rights.
- An examination of how the tax system is used to 'price' environmental externalities (such as carbon emissions).
- A cross-country comparison of selected environmental metrics, such as progress against biodiversity goals, the amount of money spent on environmental conservation, resource preservation, and fossil fuel tax subsidies, and estimates of the effective carbon price.

Periodic (less than annual) supplementary reports are also recommended by the OECD:

- A Fiscal Sustainability Report for the Green Budget, which includes estimated environmental effects and a long-term fiscal analysis;
- As an addition to the financial balance sheet, a Green Balance Sheet reports on the valuation of a country's environmental assets and liabilities.

In addition to these elements, the publication of:

- An annual Green Performance Budget Report that links as many programs/ outputs supported in ministry budgets as possible to high-level environmental outcome metrics and goals should be considered.
- The adequacy of support for environmental regulatory roles, the revenue capacity of cap and trade programmes, 'feebate' approaches to minimising environmental externalities, and the fiscal and distributional effects of greenhouse gas liabilities are all examples of relations between fiscal policies and environmental policy in terms of environmental outcomes.

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Notes

- An evaluation of environmental resilience, as well as short- to medium-term threats, if possible.
- A quarterly stocktake of the efficacy and effectiveness of government policies in achieving environmental goals, as well as the identification of research priorities by monitoring and evaluation (M&E). Sweden, for example, conducts an environmental M&E inventory every four years.

Technical work is ongoing to promote a deeper understanding of the environmental effects of fiscal policies, including the OECD's Cost-Benefit Analysis and the Climate 2018, as well as an IMF spreadsheet tool. This method takes into account domestic externalities from fuel usage to help countries assess policy trade-offs and progress toward their Paris Agreement climate change mitigation goals.

Some governments have begun to incorporate climate change and other aspects of environmental protection into their budgeting processes:

- An extensive section on Sustainable Development and Green Growth was included in Norway's 2016 Budget, which discussed the use of taxes to increase resource quality, the country's success on climate change, the condition of ecosystems, and the management of renewable resources.
- In its annual budget statements, France is implementing a detailed reporting mechanism for climate economic research, with plans to provide data on public and private spending consistent with environmental goals.
- Mexico has mapped a significant portion of government spending and related performance indicators to SDG targets.
- Ireland is specifying the amount of government funding committed to tackling climate change, prompted by the criteria for issuing Green Bonds, and plans to implement reviews of public spending's environmental impacts.
- In New Zealand's 2019 "Well-being Budget," a detailed collection of social and environmental metrics and goals is incorporated into budget decision-making.

There are several ways to capitalise on these innovations. International organisations like the World Bank, the IMF, and the OECD, as well as international multi-stakeholder networks like GIFT and the Open Government Partnership, are beginning to work on and facilitate the implementation and dissemination of common international green budgeting norms and commitments. As a multi-stakeholder network, GIFT is well-positioned to advocate for national CSOs to play a role in creating green budgets in their respective countries.

Check your Understanding

Answer the following Questions

1. Capital investment decisions often involve all of the following except _____.
   a) qualitative factors or considerations
   b) short periods of time
   c) large amounts of money
   d) risk

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Notes

2. The third step for making a capital investment decision is to establish baseline criteria for alternatives. Which of the following would not be an acceptable baseline criterion?

   a) payback method

   b) accounting rate of return

   c) internal rate of return

   d) inventory turnover

3. If you are saving the same amount each month in order to buy a new sports car when the new models are released, which of the following will help you determine the savings needed?

   a) future value of one dollar ($1)

   b) present value of one dollar ($1)

   c) future value of an ordinary annuity

   d) present value of an ordinary annuity

4. Using the information provided, what transaction represents the best application of the present value of an annuity due of $1?

   a) Falcon Products leases an office building for 8 years with annual lease payments of $100,000 to be made at the beginning of each year.

   b) Compass, Inc., signs a note of $32,000, which requires the company to pay back the principal plus interest in four years.

   c) Bahwat Company plans to deposit a lump sum of $100,000 for the construction of a solar farm in 4 years.

   d) NYC Industries leases a car for 4 yearly annual lease payments of $12,000, where payments are made at the end of each year.

5. The process that determines the present value of a single payment or stream of payments to be received is _____.

   a) compounding

   b) discounting

   c) annuity

   d) lump-sum

Summary

Capital budgeting is a most important aspect in management. Right option taken can lead the industry to great heights. However, a single improper decision can edge the business closer to shut down due to the collection of budget involved and the tenure of those tasks.

The process of reviewing and ranking potential projects to decide which ones are worthy of funding is known as capital budgeting. The end result should be a high return on investment. There are three general methods for determining the proposed projects should be prioritised over others, as follows (in decreasing order of preference):

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Notes

- **Analyze the throughput.** Determines the effect of a purchase on the overall system's throughput.
- **Analysis of discounted cash flows**. Determines the present value of all cash flows associated with a planned project using a discount rate. It has a tendency to make changes on a regional basis rather than for the whole system, and it can produce inaccurate results if cash flow predictions are off.
- **Analysis of the return on investment**. Calculates how quickly you can recoup your investment; it's more of a risk mitigation metric than a return on investment metric. Analysis of the return on investment. Calculates how quickly you can recoup your investment; it's more of a risk mitigation metric than a return on investment metric.

Activity

Gather best practices in **Capital Budgeting** and prepare a concept map.

Glossary

1. NPV- Net Present Value is the difference between the present value of cash inflows and the present value of cash outflows over a period of time.
2. IRR- Internal Rate of Return is a metric used in financial analysis to estimate the profitability of potential investments
3. PI- Profitability Index is a measure of a project's or investment's attractiveness.

Further Reading

1. Capital Budgeting Kindle Edition by Sandeep Goel (Author), Business Expert Press, 2015.
2. Padhukas Students Guide on Financial Management & Economics for Finance for CA Inter by CA B Saravana Prasath. Commercial Law Publications. 5th Edition, 2020.

Answers

1. b) 2. d) 3. c) 4. a) 5. b)

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Notes

Unit-2.2 Techniques of Capital budgeting

Learning Objectives

After the chapter you would be able to:

- Explain the difference between simple and compound interest.
- Explain the concept of time value of money.
- Compute the present value of a single sum and an annuity.
- Analyze investment projects using major capital budgeting techniques like net present value, internal rate of return, payback period and accounting rate of return.
- Explain the concept of after-tax cost, after-tax benefit and after-tax cash flow.
- Explain how income tax impacts the computation of net present value of a project.
- Explain the procedure of capital rationing.

Introduction

Capital Budgeting is one of the major functions in finance management. This uses quite a lot of tactics to assist control in selecting one undertaking over some other.

2.2.1. Techniques of Capital Budgeting-Payback Period

Capital budgeting is a method of determining the long-term viability of capital expenditures. It assists in identifying future investments and expenses that will result in a higher return on investment. Capital budgeting, also known as investment assessment, helps to increase a company's return on investment by selecting the most profitable project.

It examines and determines whether long-term investments such as the acquisition or replacement of equipment, new plants and goods, and research and development projects should be funded through the firm capitalization framework. It is a crucial mechanism that assists managers in determining the most successful capital projects.

- What is the meaning of payback length?
- Salient options of Payback duration way
- Illustrations
- What are the shortcomings of this system?

What is the meaning of payback length?

Payback duration is the time required to get better the preliminary value of a funding. It is the selection of years it could take to get back the initial funding made for a challenge. Therefore, as a technique of capital budgeting, the payback duration will be used to check initiatives and derive the collection of years it takes to get back the initial funding. The project with the least choice of years most often is selected.

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Notes

Salient features of Payback period approach

- Payback period is a straightforward calculation of time for the initial investment to return.
- It ignores the time value of money. All different ways of capital budgeting imagine the idea of time value. Time value of money means that a rupee nowadays is extra valuable than a rupee the next day. So different ways discount the long run inflows and arrive at discounted flows.
- It is utilized in mixture with other ways of capital budgeting. Owing to its simplicity the payback duration can't be the only method used for deciding the project to be decided on.

Total fixed outlay on a project is 20 crore which yields cash flows over 6 year as shown in the table below

Year	Annual cash inflow (INR in crore)	Cumulative cash in flows (INR in crore)
1st	2	2
2nd	4	6
3rd	6	12
4th	8	20
5th	7	27
6th	6	33

Solution: From table above, we can say that payback period is 4 yr in which cumulative cash inflows equates the total outlay of INR 20 crore.

Thus, the project will be accepted as the payback period is less than total years of investment.

What are the shortcomings of this technique?

This way does not include the time value of money and treats all flows at par. For example, Rs.1,00,000 invested once a year to make an investment of Rs.10,00,000 over a length of 10 years might seem profitable lately however the similar 1,00,000 is not going to hang the similar worth ten years later. Also, the process does no longer take note the cash flows post the return of funding. Some initiatives would possibly generate upper cash flows within the later life of the challenge. Despite its drawbacks, payback approach is the most straightforward way to analyse different venture/ investments. It is in line with the principle of liquidity. The project that gives a faster go back of investment is chosen. More liquidity approach extra availability of finances to invest in more initiatives. It is utilized by the control to get a handy guide a rough analysis of the venture. Payback approach is utilized by individuals additionally to investigate investment decisions. It is according to a very simple want to get back no less than how a lot has been spent. In reality, after we invest in shares, mutual price range our first query is at all times in regards to the time period within which we will be able to get back our invested cash. So, it is simple and really easy to grasp.

Notes

2.2.2. Accounting Rate of Return

Accounting Rate of Return (ARR) Definition:

The Accounting Rate of Return (ARR) is the amount of average accounting benefit gained from an investment relative to the average accounting value of the investment over time.

Accounting Rate of Return (AAR) and Return on Investment (ROI) are two similar words.

Formula

Accounting Rate of Return = (Average Profit / Average Book Value) %

Where:

Average Profit = Total accounting profit over the investment period ÷ Years of Investment

Average Book Value = (Initial investment + Scrap Value + Working Capital) ÷ 2

OR

Average Book Value = (N.B.V. (year 0) + N.B.V. (year 1) + N.B.V. (year 2) + …) ÷ (Years of Investment + 1)

Explanation

ARR is a metric for calculating investment profitability.

For example, an ARR of 10% indicates that the investment would produce an average annual accounting benefit of 10% over the investment period based on the average investment.

The annual return on investment (ARR) can be compared to the target return on investment. If the ARR reaches the target return, investments can be approved. Due to the shortcomings of ARR discussed below, it is better to test investments using potentially superior appraisal methods such as NPV and IRR.

Finding the average benefit and average book values over the investment period is needed to measure ARR. Although average profit is relatively easy to measure, the average book value of an investment can be calculated in a variety of ways.

What method should be used to determine the average book value?

Finding a simple average of: the value of assets at the start of investment (this will be equal to the sum of the initial investment) and the value of assets at the end of investment (this will be equal to the amount of the initial investment) is one of the easiest and fastest ways of estimating the average net book value of investment assets.

the non-depreciated portion of non-existing assets (i.e. salvage value) and any current assets (i.e. working capital) at the end of the investment period

The following formula can be used to summarise this:

(Initial investment + Scrap Value + Working Capital) 2 = Average Book Value

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Notes

The above formula does not account for subsequent investments made after the initial investment if they were made after the initial investment. Instead, the average book value is calculated by multiplying the net book value (N.B.V.) of investment assets at the end of each year by the following formula:

Average Book Value = (N.B.V. (year 0) + N.B.V. (year 1) + N.B.V. (year 2) + …) ÷ (Years of Investment + 1)

Year 0's Net Book Value would be the same as the initial investment.

You will see an overview of how to use the above formulas in the example below.

Let's study an Example

XYZ PLC intends to invest in a scheme that will last for five years.

The project's estimated expense would be $100 million, with $60 million in capital spending and $40 million in working capital needs.

The project's annual net cash flows are estimated to be as follows:

Year	Cash Flows $M
1	(10,000)
2	20,000
3	30,000
4	40,000
5	30,000

Additional information:

Year 5 cash inflows include $10 million for the approximate scrap value of land, plant, and equipment that will be recovered at the year's end.

Throughout the investment cycle, working capital must be retained at the same pace.

Straight-line depreciation is used to measure depreciation.

XYZ PLC's target return on investments is 15%.

Calculate the ARR for the proposed project.

Solution

Accounting Rate of Return:

= (Average Profit ÷ Average Book Value) %

= $12m (W1) ÷ $75m (W2)

= 16%

As the ARR exceeds the target return on investment, the project should be accepted.

W1: Average Profit:

= 60 (W3) ÷ 5 = $12m

Notes

W2:

Average Book Value:

= (100 (initial investment) + 10 (scrap value) + 40 (working capital)) ÷ 2

= $150 m ÷ 2

= $75m

or

Average Book Value:

= Sum of net book values ÷ (Years of investment +1)

= $450m (W4) ÷ (5+1)

=$75m*

Year	Cash Flows	Depreciation	Profits W3	Net Book Value at the year end W4
	$M	$M	$M	$M
0				100
1	(10)	(10)	(20)	90
2	20	(10)	10	80
3	30	(10)	20	70
4	40	(10)	30	60
5	30	(10)	20	50
	110	**(50)**	**60**	**450**

*Note:

We can check the accuracy of the $75 million annual book value measured above (and the formulas used to calculate it!) by finding the average of the mid-year net book values as follows:

Year	Net Book Value at the year end W4	Net Book Value at the mid-year	Working
	$M	$M	
0	100		
1	90	95	(100 + 90) ÷ 2
2	80	85	(90 + 80) ÷ 2
3	70	75	(80 + 70) ÷ 2
4	60	65	(70 + 60) ÷ 2
5	50	55	(60 + 50) ÷ 2
	110	**(50)**	**60**

Average Book Value:

= $375 m ÷ 5

= $75m

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Notes

Note that the value of investment assets at the end of 5th year (i.e. $50m) is the sum of scrap value ($10 m) and working capital ($40 m).

Advantages

ARR depicts the effect of a planned expenditure on accounting profitability, which is the primary metric used by stakeholders to measure an organization's success.

Limitations

For the following reasons, ARR is perceived to be technically inferior to other investment assessment approaches such as NPV and IRR:

The ARR is not calculated using cash flows.

Although most cash flows may be expressed in accounting profits, when using ARR, certain incomes and expenditures that are important to investment assessment may be excluded (e.g. opportunity costs and benefits).

In contrast, certain cash flows recognised in accounting earnings, such as sunk costs and committed costs, may not be applicable to investment valuation.

Calculating ARR based on incremental income is one way to partially solve this problem. If the primary source of income is cash flows, it would be more effective to use valuation methods that are already dependent on cash flows, such as IRR, rather than adjusting accounting profit in ARR.

Unlike other discounted cash flow investment assessment approaches such as NPV and IRR, ARR does not consider time value of capital.

ARR does not have a logically sound decision rule like NPV (accept investments with a positive NPV) or IRR (accept investments with an IRR greater than the Cost of Capital).

ARR	IRR
ARR compares an investment's estimated annual returns to its average net book value.	The IRR is a discount rate that reduces the gap between the current value of cash inflows and outflows to zero.
An investment's projected annual earnings are extracted from its incremental cash flows, which are annual cash flow growth minus annual depreciation cost. For e.g., if $9,000 van's cash inflows are projected to rise by $3,000 each year for the next four years, the van's annual depreciation cost will be $9,000/4 = $2,250. The van's annual incremental earnings would be $3,000 – $2,250 = $750 as a result.	It is the rate of return that an investment project will achieve over a given period. The IRR of viable ventures is greater than the cost of money, which is the amount of interest that must be paid on borrowed funds.
Divide the estimated annual benefit by the average net book value of the investment to get the ARR. ARR is simpler to calculate with this formula than IRR.	IRR does not have a set formula; rather, it is determined by trial and error.

Notes

ARR	IRR
ARR is a non-discounted cash flow method	IRR is a discounted cash flow method
The ARR assumes that the value of potential cash flows stays the same.	The internal rate of return (IRR) measures how the value of a project's cash flows has changed over time.
The management determines the ARR decision criteria.	The cost of capital is used as a decision criterion for IRR.
The management team chooses an individual project for ARR as long as it passes the team's defined limits.	When the IRR exceeds the cost of capital, management prefers a project; when the IRR is less than the cost of capital, management refuses it.

2.2.3. Net Present Value (NPV)

The difference between the current value of cash inflows and outflows of an investment over time is called net present value (NPV). Simply put, the net present value (NPV) is used to calculate how much money an investment can produce as opposed to the expense adjusted for time value of money (one dollar today is worth more than one dollar in the future).

In capital budgeting and investment planning, net present value is used to determine the feasibility of a project or investment. This is important because it considers the time value of capital, as well as interest and opportunity costs. When making significant investment decisions, savvy investors and company management will use present value or discounted cash flow calculation, such as NPV.

$$NPV = C \times \frac{1-(1+r)^{-n}}{r} - Initial\ Investment$$

Where

C = net cash inflow per period

r = rate of return (also known as the hurdle rate or discount rate)

n = number of periods

The net cash flows for each year are the same in this formula. If the payments are not equal, the calculation becomes a bit more complex since the present value of each individual net cash inflow must be calculated.

$$NPV = \sum_{t=1}^{T} \frac{Ct}{(1+r)^t}$$

Where

Ct = net cash inflow per period during a single period

r = rate of return

t = number of time periods

The formula to account for all potential cash flows and discount them by the interest rate (r) seems complex, but it can be simplified to the following to help you understand what is going on:

Notes

NPV = PV of Future Cash Flows – PV of Initial Investment Costs

So, in this simplistic net present value formula, the NPV is calculated by subtracting the PV of the initial investment from the PV of the investment's potential cash flows. Simply put, this discounts potential value over the investment's lifespan by subtracting the current dollars necessary to buy the investment, enabling investors to see the investment's true net return.

Example of Net Present Value

Henry Construction specialises in small commercial buildings, but the company's owner, Henry, wants to expand into larger structures by investing $100,000 in a larger crane. He expects that he will be able to raise at least $20,000 from the new purchase over the next ten years. The math appears to be right. For the next ten years, Henry spends $100k and earns $200,000.

The $200,000, on the other hand, has not been discounted to account for the time value of money. The discounted cash flow of the crane investment is $122,891.34 assuming a ten percent annual interest rate. Now we can calculate the investment's net present value (NPV):

***NPV* = $122,891.34 − $100,000= $22,891.34**

So, what exactly does this imply? In layman's terms, this means that when your account for the time value of capital, the crane investment is worth $22,891.34 instead of $100,000 ($200k-$100k).

It may still be a worthwhile investment for Henry, but he should compare this NPV to other investment options to see if there are any better ones available.

Limitations of Net Present Value

When comparing NPV to other investment appraisal approaches that do not discount potential cash flows, such as accounting rate of return and payback period, the net present value can be a better methodology because it takes into account the time value of assets.

Even as opposed to other discounted cash flow strategies such as the internal rate of return (IRR), the net present value (NPV) is strongly preferred because it offers a dollar value that can be used to make an investment decision. To provide additional detail, IRR is generally calculated as part of the capital budgeting process.

It's important to note, however, that the net present value is based on projections and assumptions. It isn't always entirely true. We have no way of knowing whether the interest rate will stay at 10% for the next ten years, or whether the crane will be able to produce $20,000 a year in our example.

Conclusion

As a consequence, NPV can only be used as a guideline rather than a true assessment of the investment.

The following points should be kept in mind when measuring net present value as a fast recap of what it is, why it's used, and how to use it:

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Notes

The net present value (NPV) of a project reflects the shift in a company's net worth/ equity.

In estimating the net present value, it's crucial to consider each duration of the project's estimated net after-tax cash flows, the initial investment outlay, and the required discount rate.

Even or unequal net cash flow may be considered.

There are some principles to follow when making decisions.

NPV has some advantages and disadvantages.

Illustration for NPV

Q. Cost of project 1,00,000

Cost of capital 10%

Net Cash flow

1st Year 55,000

2nd Year 80,000

3rd Year 15,000

Find out NPV?

PVIF at 10% for 3 years is as follows ⟶ .909, .826, .751

Solution

Year	Net cash flows	PVIF at 10%	DCF
1	55,000	.909	49995
2	80,000	.826	66080
3	15,000	.751	11265
Total			127340

NPV = PV of cash Inflow

PV of cost outflow

127340 -100000 =

+ve 27340

2.2.4. Internal Rate of Return (IRR) & Modified IRR

The Internal Rate of Return (IRR) is the discount rate used to make a project's net present value (NPV) zero. To put it another way, it's the estimated annual compound rate of return on a project or investment. An initial investment of $50 has a 22 percent IRR in the example below. This equates to a 22 percent annual compound growth rate.

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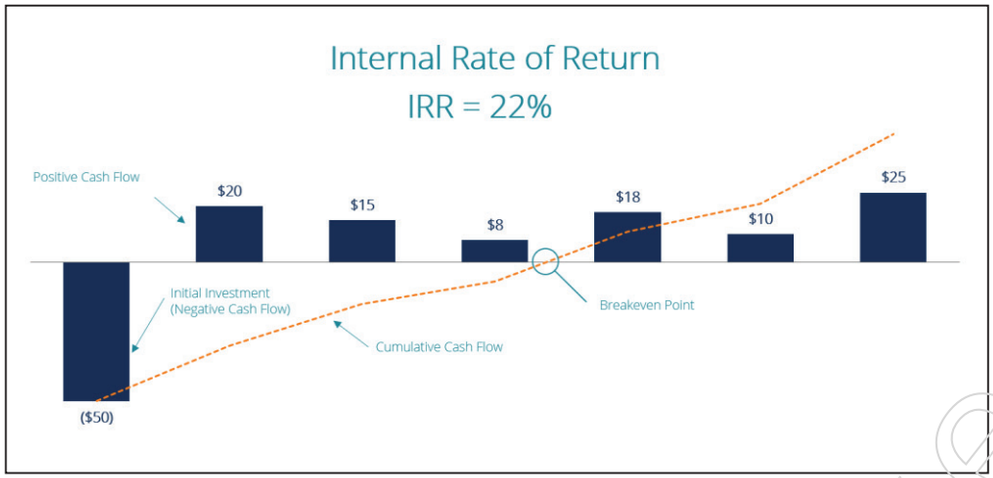
Notes



Expected cash flows for a project or expenditure are provided when calculating IRR, and the NPV is set to zero. In other words, the initial capital investment for the first year would be equal to the current value of the investment's potential cash flows. (Because the cost paid equals the present value of potential cash flows, the net present value is zero.)

The internal rate of return is usually compared to a company's hurdle rate or cost of capital after it has been calculated. The organisation will consider the project as a successful investment if the IRR is greater than or equal to the cost of capital. (Of course, this assumes that this is the sole basis for the decision.)

In practise, many other quantitative and qualitative considerations are taken into account when making an investment decision.) If the IRR is less than the hurdle rate, it will be rejected.

Formula and Calculation for IRR

The formula and calculation used to determine this figure is as follows.

$$0 = NPV = \sum_{t=1}^{T} \frac{C_t}{(1+IRR)^t} - C_0$$

Where

C_t = Net cash inflow during period t

C_0 - Total initial investment costs

IRR - The internal rate of return

t = The number of time periods

There are three methods for calculating the internal rate of return:

1. In Excel or other spreadsheet programmes, use the IRR or XIRR feature (see example below)
2. Using a financial calculator is a great way to keep track of your finances.

Notes

3. Using an iterative procedure in which the analyst seeks various discount rates until the net present value (NPV) equals zero (Goal Seek in Excel can be used to do this)

A Real-Life Example

An example of how to measure the Internal Rate of Return is shown below.

A organisation is debating whether or not to invest $500,000 in new equipment. The new asset's life expectancy is four years, and management expects it to produce an extra $160,000 in annual income. The company intends to sell the machinery for its salvage value of $50,000 in the fifth year.

Another similar investment option, on the other hand, can yield a 10% return. This is higher than the existing hurdle rate of 8% for the firm. The aim is to ensure that the organisation is getting the most out of its money.

The IRR for investing in new equipment is measured below to help you make a decision.

The IRR of 13 percent was calculated in Excel using the function =IRR (). The business should buy because the IRR is higher than both the hurdle rate and the IRR for the alternative investment from a financial perspective.

Year	Cash Flows	Year of Cash Flows
0	($500,000)	($500,000)
1	$160,000	$141,247
2	$160,000	$124,692
3	$160,000	$110,077
4	$160,000	$97,176
5	$50,000	$26,808

NPV=0

IRR=13%

IRR is used for:

Companies undertake a variety of programmes in order to raise sales or reduce costs. A great new business idea may necessitate investing in the production of a new product, for example.

Senior leaders want to know the expected return on such investments when it comes to capital budgeting. One method that helps them to compare and rank projects based on their expected yield is the internal rate of return. Typically, the investment with the highest internal rate of return is chosen.

Internal Rate of Return is commonly used in assessing private equity and venture capital transactions, which include several cash investments over the life of a company and a cash flow at the end through an IPO or sale of the business.

To choose the best investment, an analyst would look at both the net present value (NPV) and the internal rate of return, as well as other metrics like the payback period.

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Notes

Since a small investment may yield a high rate of return, investors and managers can opt for a lower percentage return but higher absolute dollar value opportunity.

It's also crucial to consider your own risk tolerance, a company's investment needs, risk aversion, and other available options.

2.2.5. Profitability Index

Definition:

The profitability index is a financial instrument that determines whether or not an investment should be approved. It is estimated using the time value of money concept and the formula below.

The decision to agree or deny is taken as follows:

Accept the investment if the PI is greater than one. If PI is less than 1, the investment should be rejected; if PI is equal to 1, the investment should be considered indifferent (may accept or reject the decision).

Description

The profitability index aids in the ranking of investments and the selection of the best investment. A positive PI means that the current value of potential cash inflows from the investment is greater than the initial investment, implying that it would benefit.

A PI of less than one means that the investment has lost money. There are no gains if PI is equal to one. As a result, the profitability index aids investors in deciding whether or not to make a specific investment.

Profitable index = $\frac{PV\ of\ future\ cash\ flows}{Initial\ Investment}$ or

Profitable index = $\frac{Net\ Present\ Value + Initial\ Investment}{Initial\ Investment}$

As a result, if the PI is greater than 1, the project adds value to the business, and it may be worth continuing.

If the PI is less than one, the project would lose value and the company should abandon it.

If the PI is equal to 1, the project is profitable, and the company is undecided on whether to continue or not.

The investment becomes more appealing as the profitability index rises.

Profitability Index Example

Two ventures are being considered by Company A:

Project A requires a $1,500,000 initial investment and is expected to generate annual cash flows of:

Notes

Project A (Discount Rate: 10%)	
Time	**Cash Flow**
Year 0	-$1,500,000
Year 1	$150,000
Year 2	$300,000
Year 3	$500,000
Year 4	$200,000
Year 5	$600,000
Year 6	$500,000
Year 7	$100,000

Project B needs a $3,000,000 initial investment and is expected to generate annual cash flows of:

Project B (Discount Rate: 13%)	
Time	**Cash Flow**
Year 0	($3,000,000)
Year 1	$100,000
Year 2	$500,000
Year 3	$1,000,000
Year 4	$1,500,000
Year 5	$200,000
Year 6	$500,000
Year 7	$1,000,000

Solution:

For this project, a discount rate of 13% is acceptable.

Company A can only take on one project at a time. What project should the organisation pursue based on the profitability index method?

Company A can complete Project A using the PI formula. Project A adds value – For every $1 invested in the project, $.0684 is added to the total value.

Discounting the Cash Flows of Project A:
$150,000 / (1.10) = $136363.64
$300,000 / (1.10)^2 = $247933.88
$500,000 / (1.10)^3 = $375,657.40
$200,000 / (1.10)^4 = $136,602.69
$600,000 / (1.10)^5 = $372,552.79
$500,000 / (1.10)^6 = $282,236.97
$100,000 / (1.10)^7 = $51,315.81

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Notes

Present value of future cash flows:

$136,363.64 + $247,933.88 + $375,657.40 + $136,602.69 + $372,552.79 + $282,236.97 + $51,315.81 = $1,602,663.18

Profitability index of Project A: $1,602,663.18 / $1,500,000 = $1.0684. Project A creates value.

Discounting the Cash Flows of Project B:
$100,000 / (1.13) = $88,495.58
$500,000 / (1.13)^2 = $391,573.34
$1,000,000 / (1.13)^3 = $693,050.16
$1,500,000 / (1.13)^4 = $919,978.09
$200,000 / (1.13)^5 = $108,551.99
$500,000 / (1.13)^6 = $240,159.26
$1,000,000 / (1.13)^7 = $425,060.64

Present value of future cash flows:

$88,495.58 + $391,573.34 + $693,050.16 + $919,978.09 + $108,551.99 + $240,159.26 + $425,060.64 = $2,866,869.07

Profitability index of Project B: $2,866,869.07 / $3,000,000 = $0.96. Project B destroys value.

The Profitability Index's Benefits

- The profitability index determines whether a given investment can add to or detract from a company's value.
- In the cost of capital, it considers the time value of money and the risk of potential cash flows.
- When capital is rationed, it is useful for rating and selecting ventures.

The Profitability Index's Drawbacks

- To calculate the profitability index, an estimation of the cost of capital is needed.
- It does not mean the correct decision in mutually exclusive ventures with different initial investments.

2.2.6. Discounted Payback Period

The discounted payback period is a forecast of how long it will take to get a full return on an investment with a discount rate attached.

Let's take a closer look at each component to get a better understanding of the definition. A regular payback period is an estimation of how long it would take for an investment to produce sufficient cash flow to pay back the entire amount invested. This is believing that the investment will pay back the money on a regular basis.

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Notes

To put it another way, imagine a business investing money in a profitable project. If the project requires annual payments, the payback period will indicate how long it will take to repay the money.

The ordinary payback period, on the other hand, ignores the time value of capital. This is what the reduced payback period does. As a result, the discounted payback period provides a more realistic image. What is the value of the money you're investing in a project if you put it in a savings account with a high interest rate?

Since the money in the project isn't paying interest, you look at the cash flow after subtracting the sum it would have received from interest.

The organisation should also have a target payback date in mind.

Formula for Discounted Payback Period

You must first determine the discounted cash flow for each duration of the investment before you can calculate the discounted payback period.

The discounted cash flow formula is as follows:

$$DCF = \frac{C}{(1+r)^n}$$

Where

C= actual cash flow

r = discount rate

n = period of the individual cash flow

The simplest way to do this is to make a small table that lists the investment for each cycle. Here's an example of a table:

Period	Cash Flow	DCF = C / (1 + r)^n	Discounted Cash Flow
0	($1,000)	—	($1,000)
1	$100	DCF = 100 / (1 + 0.1)^1	$110

Since duration 0 is the initial investment, it does not need to be discounted. We can now proceed to the next level using the results of this equation.

The discounted payback period is calculated using the following formula:

$$DPP = W + \frac{F}{B}$$

W = Last time in which the whole discounted cash flow is used to recover an investment.

B = The sum of the initial investment that needs to be recouped.

F = Total discounted cash flow for the entire duration

Take the total amount invested and deduct the cumulative total of each cycle up to and including variable W to get variable B, the investment's remaining balance.

Notes

These formulas account for the possibility of irregular payments. They are willing to work with both equal and unequal payments.

Conclusion

The discounted payback period is the amount of time it would take to get a full return on a discount rate investment.

Two formulas are required to calculate the discounted payback period: discounted cash flow and discounted payback period.

Actual cash flow, discount rate, and duration of the individual cash flow are the three variables needed for discounted cash flow.

The discounted payback period is determined by three variables: the last period, during which the entire discounted cash flow is allocated to recovery, the remaining balance, and the cumulative amount of discounted cash flow allocated to recovery in the final period.

2.2.7. Capital Rationing

What Is Capital Rationing?

Capital rationing is the act of placing restrictions on the amount of recent investments or projects undertaken via a company. This is completed by means of imposing a better cost of capital for funding consideration or by means of setting a ceiling on explicit parts of the cheap.

Companies might want to enforce capital rationing in scenarios the place past returns of an investment have been not up to expected.

KEY TAKEAWAYS

- Capital rationing is undertaken through a company in an effort to place limits or restrictions on the amount of money and other assets earmarked for a specific challenge or investment.
- The purpose of capital rationing is to make sure that cash is allotted to its absolute best use and to make sure that the undertaking won't run wanting cash.
- Hard rationing involves elevating new capital in response to restricted funds, whilst soft rationing seems to inner insurance policies for capping spending or allocating sources.

Understanding Capital Rationing

Rationing, in its broadest sense, is the method of restricting the distribution or use of a good or service in response to scarcity.

Capital rationing is a management strategy for allocating available funds through various investment opportunities in order to boost a firm's bottom line. The corporation would consider the project combination with the highest overall net present value (NPV). The primary aim of capital rationing is to prevent an organisation from

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Notes

overinvesting in properties. Without effective rationing, a company's returns on assets may begin to decline, and it may even face financial insolvency.

Two Types of Capital Rationing

In general, capital rationing can be divided into two categories:

1. "**Hard capital rationing**" refers to the first method of capital, rationing. When a corporation has difficulty raising additional capital, either by equity or debt, this happens. Rationing stems from a need to cut spending from outside sources, and it may result in a capital shortage to fund potential projects.

2. "**Soft capital rationing**," also known as internal rationing, is the second form of rationing. This form of rationing is caused by a company's internal policies. A fiscally conservative business, for example, can impose its own capital rationing by requiring a high necessary return on capital to approve a project.

Examples of Capital Rationing

For example, think ABC Corp. has a value of capital of 10% however that the company has undertaken too many tasks, a lot of which might be incomplete. This causes the corporate's exact return on funding to drop smartly beneath the 10% degree. As an end result, control comes to a decision to place a cap at the number of new projects by means of elevating the cost of capital for these new projects to 15%. Starting fewer new projects would give the corporate more time and assets to complete existing projects.

Capital rationing affects an organization's bottom line and dictates the quantity it can pay out in dividends and reward shareholders. Using a real-world example, Cummins, Inc., a publicly-traded corporate that gives herbal gas engines and related technologies, must be very cognizant of its capital rationing and the way it affects its percentage value. As of March 2016, the company's board of directors has made up our minds to allocate its capital in this sort of approach that it supplies buyers with a dividend yield near 4%.

The corporate has rationed its capital so that its existing investments allow it to pay out increasing dividends to its shareholders over the long-term. However, shareholders have come to expect increasing dividend payouts, and any reduction in dividends can hurt its percentage worth. Therefore, the corporate needs to ration its capital and invest in initiatives efficiently, so it increases its base line, allowing it to either increase its dividend yield or increase its actual dividend according to proportion.

2.2.8. Illustration/Numerical on Capital Budgeting-1

Numerical 1

Illustration for NPV

Q. Cost of project 1,00,000

Cost of capital 10%

Net Cash flow

Notes

1st Year 55,000

2nd Year 80,000

3rd Year 15,000

Find out NPV?

PVIF at 10% for 3 years is as follows ⟶ .909, .826, .751

Solution

Year	Net cash flows	PVIF at 10%	DCF
1	55,000	.909	49995
2	80,000	.826	66080
3	15,000	.751	11265
Total			**127340**

NPV = PV of cash Inflow

PV of cost outflow

127340 -100000 =

+ve 27340

2.2.9. Illustration/Numerical on Capital Budgeting 2

Numerical 2

Company 'A' is planning to undertake a project requiring investment (initial) of $105 million. The project is expected to generate $25 Million per year for 7 years. Calculate Pay back period.

$$PBP = \frac{Initial\ Investment}{Annual\ cash\ flow} = \frac{105}{25} = 4.2 \text{ Years}$$

Cost = 50 Lakh

Pay back =10 Lakh

Year	Cashflow	Cumulative Cash flow
1	8	8
2	10	18
3	12	30
4	**14**	**44**
5	15	59
6	18	77

$$PBP = 4 + \frac{(50 - 44)}{15} = 4.4 \text{ Years}$$

Uneven cashflow

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Notes

Check your Understanding

Answer the following questions

1. Which of the following capital budgeting techniques takes into account the incremental accounting income rather than cash flows:
   a) Net present value
   b) Internal rate of return
   c) Accounting/Simple rate of return
   d) Cash payback period
2. Which of the following techniques does not take into account the time value of money?
   a) Internal rate of return method
   b) Simple cash payback method
   c) Net present value method
   d) Discounted cash payback method
3. The current worth of a sum of money to be received at a future date is called:
   a) real value
   b) future value
   c) present value
   d) salvage value
4. The difference between the present value of cash inflows and the present value of cash outflows associated with a project is known as:
   a) net present value of the project
   b) net future value of the project
   c) net historical value of the project
   d) net salvage value of the project
5. If present value of total cash outflow is $15,000 and present value of total cash inflow is $14,000, what is the net present value of the project?
   a) $1,000
   b) -$1,000
   c) 0
   d) 2,000

Activity

Collect Capital Budgeting Process Walkthrough and Use-cases

Glossary

- NPV: Net Present Value

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Notes

- ROI: Return on Investment
- IRR: Internal Rate of Return
- MIRR: Modified Internal Rate of Return
- PI: Profitable Index
- Capital Equipment: Property not permanently attached to facilities or grounds with an acquisition cost of $5,000 or more and a life expectancy of more than one year.
- Depreciation: An accounting entry allocating the cost of a tangible asset over its useful life.
- Endowment: A fund held in the form of an income-generating investment, established to provide long-term support for mission-based activities and structured in a way that preserves the principal amount, based on donor intent.
- Equity: Non-gift cash contributions to a capital project, as opposed to gift funds or external financing.

Further Readings

1. Capital Budgeting Paperback – Import, 30 January 2015 by Sandeep Goel (Author), Business Expert Press (30 January 2015)
2. Capital Budgeting: Decision, Implementation and Evaluation Hardcover – 1 January 2004 by B. Tamilmani

Answers to Check your Understanding

1. c 2. b 3. c 4. a 5. b

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Notes

Module-3: Sources of Finance

Structure:

Unit-3.1 Sources of Finance

3.1.1 Sources of finance-Overview

3.1.2 Debt: Term Loans, Debentures

3.1.3 Equity: Ordinary Shares. Hybrid: Preference, Warrants, Convertible securities

3.1.4 ADR & GDR (American & Global Depositary Receipts)

3.1.5 Leasing

3.1.6 Hire purchase

3.1.7 Leverage Buyouts

3.1.8 Securitization

Unit-3.2 Sources of Short-Term Finance

3.2.1 Accruals, Trade credit, Working capital advance by commercial banks

3.2.2 Public Deposits, Inter-corporate deposits, Short term loan from financial institutions

3.2.3 Commercial Paper, Factoring & Forfaiting

3.2.4 securitization

3.2.5 Institutional sources of funds- banks, FII's, VCF's

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Unit: 3.1. Learning Objectives

Notes

Learning Objectives:

After studying this chapter, you should be able to:

- state the meaning, nature and importance of business finance;
- classify the various sources of business finance;
- evaluate merits and limitations of various sources of finance;
- identify the international sources of finance; and
- examine the factors that affect the choice of an appropriate source

Introduction

Equity, leverage, debentures, retained profits, term loans, working capital loans, letter of credit, euro question, investment funding, and other types of financing are available to businesses. These funds are used in a variety of cases. They are categorised by time span, ownership and power, and generation source. Until deciding on a source of money, it is best to assess it. The most explorable field is capital sources, particularly for entrepreneurs who are about to start a new company. It is, without a doubt, the most difficult aspect of all the efforts. There are various capital sources that we can categorise based on various criteria.

Knowing that there are several options for financing or money, a business should make an informed decision. Choosing the best finance source and combination is a major challenge for any finance manager. The method of determining the best source of funding necessitates a thorough examination of each and every source of funding. It is necessary to understand all of the characteristics of the financing sources in order to analyse and compare them. The classification of sources of finance is based on a variety of factors.

3.1.1. Sources of Finance-Overview

Sources are divided into three categories based on their duration: long-term, medium-term, and short-term. Sources of finance are divided into owned and borrowed capital based on ownership and control.

It is ideal to evaluate each source of capital prior to choosing it.

Sources of capital are essentially the most explorable house especially for the entrepreneurs who're about to start a new industry. It is perhaps the toughest a part of the entire efforts. There are various capital resources, we will classify at the basis of different parameters.

Having identified that there are many alternatives to finance or capital, a company can choose between. Choosing the precise supply and the correct mix of finance is a key challenge for every finance manager. The strategy of selecting the right source of

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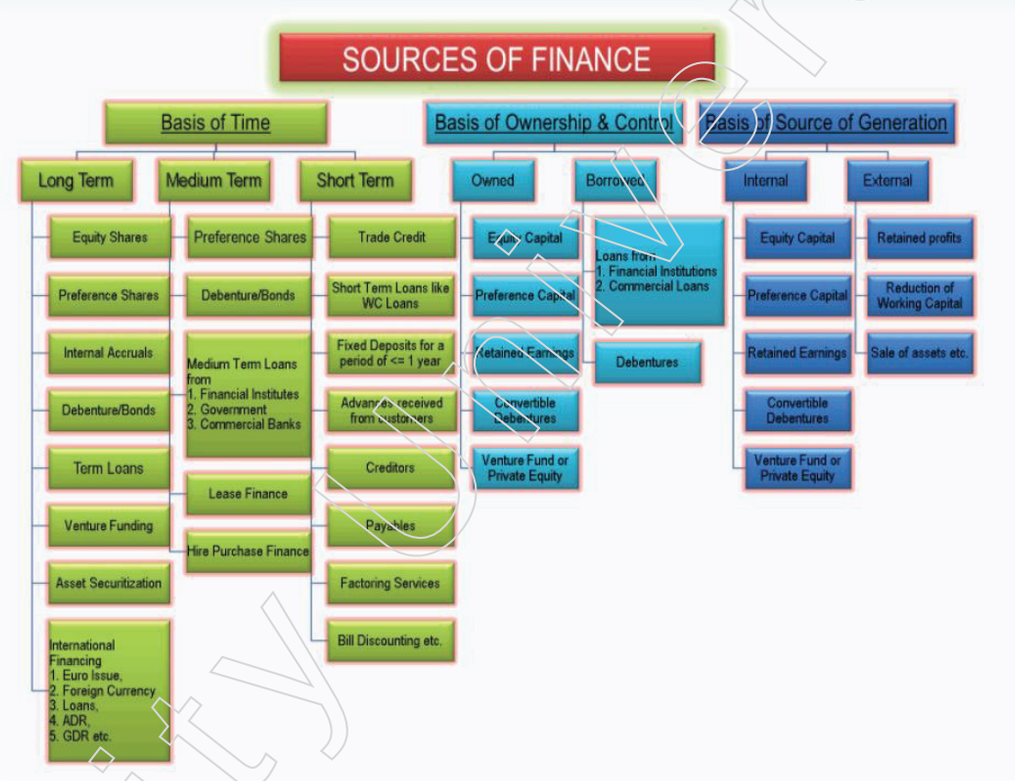
Notes

finance comes to in-depth analysis of each supply of fund. For analysing and comparing the sources, it needs the working out of all the traits of the financing assets. There are many traits at the foundation of which resources of finance are classified.

On the root of a period, resources are labelled as long-term, medium term, and short time period. Ownership and control classify resources of finance into owned and borrowed capital. Internal sources and exterior sources are the two assets of technology of capital. All the resources have other characteristics to suit different types of necessities. Let's perceive them in a detail.



According to Time Period Sources of financing an industry is classified in response to the time for which the money is needed. The period is commonly classified into the next three:

Long-Term Sources of Finance

Long-term financing mode capital demands for a length of more than 5 years to 10, 15, 20 years or possibly extra relying on different elements. Capital expenditures in fixed property like plant and equipment, land and development, and many others of business are funded the usage of long-term resources of finance. Part of working capital which completely remains with the trade could also be financed with long-term assets of price range. Long-term financing resources can be within the type of any of them:

- Share Capital or Equity Shares
- Preference Capital or Preference Shares

Notes

- Retained Earnings or Internal Accruals
- Debenture / Bonds
- Term Loans from Financial Institutes, Government, and Commercial Banks
- Venture Funding
- Asset Securitization
- International Financing by way of Euro Issue, Foreign Currency Loans, GDR, ADR, etc.

Medium Term Sources of Finance

Bank loans, employ acquisitions, and leases are examples of medium-term sources of financing that a business can repay in one to five years. Some governments, such as the United Kingdom's Enterprise Finance Guarantee scheme, provide special services that provide medium-term funding for businesses. The goal of this type of financing is to assist businesses in expanding or purchasing assets.

Companies who select loans for medium-term funding must pay interest and may also be required to demonstrate that they have sufficient assets to act as collateral for the loan.

A hire purchase is similar to a loan in that it involves a business purchasing a particular product and paying the seller in instalments; the interest rate is typically higher than that of a loan. Leasing is a choice for businesses who want to rent an asset and then buy it back later.

Medium time period financing sources are available as:

- Preference Capital or Preference Shares
- Debenture / Bonds
- Medium Term Loans from
- Financial Institutes
- Government, and
- Commercial Banks
- Lease Finance
- Hire Purchase Finance

Short Term Sources of Finance

You'll learn what you need to know about short-term financing options. Short-term lending is used to satisfy the need for new assets to pay off the organization's current liabilities.

To put it another way, it aids in the reduction of the difference between current assets and current liabilities. There are a variety of ways to collect money from the market for a short period of time. Financial assistance is provided to organisations by a variety of entities, including commercial banks, cooperative banks, financial institutions, and NABARD.

Short term funds are available in the form of:

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Notes

- Trade Credit
- Short Term Loans - Working Capital Loans from Commercial Banks
- Fixed Deposits for a duration of one yr or less
- Advances gained from consumers
- Creditors
- Payables
- Factoring Services
- Bill Discounting and so on.

According to Ownership and Control:

Sources of funds are categorized in keeping with ownership and control over the business. Shareholder ownership, on the other hand, does not mean power, as the company law stipulates that only a majority of the shareholders can exercise control. The argument here is that, in order to have a meaningful say in how the business is run, a majority vote of the shareholders is needed, in accordance with the democratic participation norms that regulate corporations.

As a result, it is clear that shareholders will have power over the company whenever and wherever they obtain the necessary majority of votes.

Owned Capital	Borrowed Capital
Equity	Financial institutions,
Preference	Commercial banks or
Retained Earnings	The general public in case of debentures.
Convertible Debenture	
Venture Fund or Private Equity	

Owned Capital

Owned capital also refers to equity. It is sourced from promoters of the company or from the general public by issuing new equity shares. Promoters start the business by bringing in the required money for a startup. Following are the sources of Owned Capital:

- Equity
- Preference
- Retained Earnings
- Convertible Debentures
- Venture Fund or Private Equity

Further, when the business grows and internal accruals like profits of the company are not enough to satisfy financing requirements, the promoters have a choice of selecting ownership capital or non-ownership capital. This decision is up to the promoters. Still, to discuss, certain advantages of equity capital are as follows:

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- It is a long-term capital which means it stays permanently with the business.
- There is no burden of paying interest or instalments like borrowed capital. So, the risk of bankruptcy also reduces. Businesses in infancy stages prefer equity for this reason.

Borrowed Capital

Borrowed or debt capital is the finance arranged from outside sources. These sources of debt financing include the following:

- Financial institutions,
- Commercial banks or
- The general public in case of debentures

In this type of capital, the borrower has a charge on the assets of the business which means the company will pay the borrower by selling the assets in case of liquidation. Another feature of the borrowed fund is a regular payment of fixed interest and repayment of capital. Certain advantages of borrowing are as follows:

- There is no dilution in ownership and control of the business.
- The cost of borrowed funds is low since it is a deductible expense for taxation purpose which ends up saving on taxes for the company.
- It gives the business the benefit of leverage.

ACCORDING TO SOURCE OF GENERATION:

Based on the source of generation, the following are the **internal and external sources of finance:**

Internal Sources	External Sources
Retained profits	Equity
Reduction or controlling of working capital	Debt or Debt from Banks
Sale of assets etc.	All others except mentioned in Internal Sources

Internal Sources

The internal source of capital is the only which is generated internally by the business. These are as follows:

- Retained earnings
- Reduction or controlling of working capital
- Sale of belongings and many others.

The term “internal finance” (also known as “internal sources of finance”) implies the existence of finance and money. Unlike loans, which are structured externally by banks or financial institutions, this is finance or capital that is provided internally by the company. Internal sources of finance include retained earnings, asset sales, and working capital reduction and management.

Notes

External Sources

External sources of funding are those that come from outside the company and are divided into three categories: long-term, which includes bonds, debentures, grants, and bank loans; short-term, which includes leasing and hire purchase; and short-term, which includes bank overdraft, debt factoring, and so on.

When a company requires a large sum of money and all of its internal financing options have been exhausted, the company looks to the outside world for help. There are two kinds of external sources of finance when we speak about them –

Long Term Finance

Short Term Finance

3.1.2. Debt: Term Loans, Debentures

Definition: When an organization borrows cash to be paid again at a future date with pastime it is known as debt financing. It might be in the type of a secured in addition to an unsecured mortgage. A company takes up a loan to both finance a running capital or an acquisition.

A debenture is a debt instrument used by businesses to collect funds over a short to long period of time at a fixed interest rate. It consists of a written contract that specifies the principal repayment as well as the fixed-rate interest payment. In most cases, a debenture is not protected by any collateral and is only supported by the issuer's credibility.

A debenture is a certificate-like document that states the company's indebtedness, includes the name of the owner of the certificate who has invested in it, and lists the terms and conditions, including the coupon rate (interest rate) and par value of each debenture.

Debenture Characteristics / Attributes:

It is important to comprehend the features of a debenture in order to fully comprehend it. Debentures have certain unique characteristics.

Trust Indenture: It is a contract that must be signed by the "Issuing Company" and the "Trust" that is responsible for safeguarding the interests of all investors. It is a requirement for issuing a debenture. A debenture trust deed usually appoints a bank or financial institution as the trustee.

Coupon Rate: It is the rate of interest that the corporation promises to pay to the holder of a debenture on a regular basis, which may vary from case to case. The interest rate can be fixed or variable.

Benefit from Taxes: The fact that the interest paid is a tax-deductible cost is a critical factor for the company. The corporation will effectively receive a tax advantage because the amount of interest charged will minimise the taxable income. As a result, the effective cost of borrowing decreases. Please keep in mind that the incentive is only available if the business is profitable and pays taxes.

Maturity Date: The issuing company is required to repay the debenture holders on the maturity date for all non-convertible and redeemable debentures. This date is often

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Notes

printed on the certificates, and it denotes the cumulative amount of time that the money is spent by the lenders, which is the time between the issue date and the maturity date.

Choices for Redemption: A debenture is essentially a loan that must be repaid by a corporation. There are three options available to a company when it comes to redeeming its debentures. One option is to pay on the maturity date, which is the simplest option and is known as redemption out of capital.

Term Loan

Term loan is also called as demand loan. A term loan is a funding from a bank for an amount that is to be repaid as per EMI (Equated Monthly Instalment) schedule. The interest rate can be either fixed or floating rate as per the choice of the borrower. Term loan can be extended for variety of purposes including setting up of business, working capital expense, purchase of equipment, overhaul of plant and machinery etc. The loan tenure can range between 1 - 3 years to 10 years. The tenure may be extended on a case to case basis up to 30 years. Also, shorter-term credits can be extended for companies which need funds but do not qualify for longer term credit. Term loans are extended for both green field and brown field projects.

Term Loans

Types of Term Loans

Term loans may also be categorized in line with the tenure for which they're borrowed. The classes typically are –

- **Short-term loan:**

The loans are for less than a year or up to 18 months. These companies can be ones that don't qualify for longer tenure of credit.

- **Intermediate term loan:**

The duration for such loans could range from 2 - 12 months – 5 years. These loans could be critical for corporate's money float. Typically, companies that are new and have established afresh may need such intermediate time period loans.

- **Long-term mortgage:**

Notes

These loans can run any place between 5 years – 10 years. The corporate's assets are introduced as collateral. The reimbursement may well be either per 30 days or quarterly as in step with the company's benefit or money flow popularity.

Short-term loans and intermediate loans are known as balloon loans as they arrive with balloon payments. The ultimate installment is higher than the previous mortgage installments. Since the installments enlarge towards the end of the mortgage tenure, it is known as balloon loans.

Features of Term Loan

The key features of term loans are as follows –

- Term loans are secured loans; the asset purchased will be collateral to the lender
- At instances time period loans may also be unsecured, by which the interest rate can be upper
- Regardless of the financial state of affairs of the corporate (borrower), the loan will have to be repaid over the fastened time period
- The proposal is evaluated for credit score risk, mortgage quantity and tenure for which the loan is taken and the interest rate at the mortgage will likely be adjudged
- Rate of interest can be negotiated between the lender and borrower on the time of loan distribution
- Term loans can have tenure of five – 10 years, reimbursement is made in installments
- Tenure can be re-scheduled in case the borrower is in financial misery
- Based on prerequisites, the time period mortgage will also be converted into equity hold
- Defaults are subjected to penalty levy through lender
- Loyalty fee is charged at the unutilized loan quantity
- Principal loan quantity is repaid after the preliminary grace duration of 1-2 years
- Towards the end of the tenure, the installment is more likely to have higher main amount and decrease interest amount

Pros and cons of availing Term Loan

There are advantages and drawbacks for a borrower who opts for term loan.

Pros

- Term loans are negotiable, the interest rate, tenure, reimbursement time table may also be negotiated
- Interest price is lower than that of personal loan or another form of industry mortgage
- Interest paid against term loan is subject to tax deduction on the borrower's finish

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Notes

- It is a secured mortgage, the place the asset bought is the collateral or any asset an identical to the mortgage value is pledged as security – it is not a high-risk mortgage for the lender
- Term loans do not dilute the fairness for promoters and shareholders
- Term loans can also be transformed to equity in keeping with prior agreement, thereby making it a phenomenal preposition to the lender

Cons

- On default, the collateral would be bought, and mortgage could be settled in complete
- Increases the leverage in the Balance Sheet substantially
- Payment of pastime in opposition to loan reduces the online benefit of the company
- The lender is prone to impose restrictive covenants corresponding to no longer expanding leverage, this potentially impacts the company's functioning
- Irrespective of the monetary health and standing of the corporate, the compensation must be as in line with time table
- Negotiated terms may not necessarily be in support of the lender
- In the occurrence of default, the lender may call for conversion of remarkable debt into equity, thus diluting the hold

Factors that determine the Term Loan eligibility

The elements that have an effect on the eligibility to avail term mortgage are -

- **Promoters background** – The background and reliability of the promoters is assessed. The upper the credit score of the promoters, the simpler are the possibilities for favorable negotiation.
- **Business plan** – The business plan will probably be evaluated for monetary viability and the capability for mortgage reimbursement. Based in this important analysis, the loan will be prolonged. The quantum of mortgage and interest rate is determined in accordance with this important factor.
- **Operational performance** – If the loan is sought through a present trade, their operational potency is evaluated. The operational benefit is evaluated sooner than sanction of mortgage.
- **Infrastructure** – The infrastructure of the industry is assessed to be sure that in case of default, the sale of infrastructure can close the loan in full. This factor is evaluated despite the fact that those loans have collateral similar to the mortgage extended. This is also important when the term loans are extended for business growth, wherein there is not any underlying asset. The loan is against present infrastructure.
- **Collateral safety** – This is likely one of the most important factors for eligibility of time period loan. Term loans are extended for numerous purposes comparable to acquire of kit, plant and machinery and many others. In such circumstances, the asset itself is the collateral. In instances the place the loan

Notes

is extended for trade growth, reaching economies of scale etc., the collateral should be evaluated accurately.

- **Credit repayment observe document** – The credit repayment observe file of the trade entity is traced. The higher the credibility, the terms might be more favorable.
- **Present and projected monetaryefficiency** – The existing financial performance is classed. The business plan also has monetary efficiency projected over the following three to 5 years. Prospects relating to financials are classed by means of the lender.

Floating rate and fixed rate of interest

The interest at the term loan can be both floating charge and fixed charge. Normally, the borrower has the discretion to make a choice from the two.

Floating rate of interest:

- The interest rate touching on the loan fluctuates with the market rate of interest and economic prerequisites of the market. This in turn reasons the installment amount to modify over the tenure. Typically, banks revise the velocity of return every few years or align themselves with marketplace matter to serious or drastic change thereof.

Fixed interest rate:

- The rate of interest pertaining to the mortgage, on this case, remains mounted over the tenure of the mortgage. The installment quantity stays constant over the tenure. The interest rate is determined upon at the time of loan sanction.
- The borrower can make a selection the kind of rate of interest based totally on the market cycle. Typically, when the interest rates are top, one chooses the floating rate of interest, within the anticipation that the rates might moderate over the following couple of years. When the charges are mendacity low, it is smart to lock-in with fastened rate of interest. Also, most often, fixed rate of interest is chosen for short-term loans and for long-term loans floating interest rate is most popular.
- Term loans are perfect for any asset purchase, industry growth or asset overhaul; the terms may also be negotiated favorably depending on the credit history of the industry.

Debentures

Debentures are a debt tool utilized by corporations and executive to factor the mortgage. The mortgage is issued to corporate in accordance with their status at a hard and fast rate of interest. Debentures are referred as a bond which serves as an IOU between issuers and purchaser. Companies use debentures when they want to borrow the cash at a fixed rate of interest for its expansion. Secured and Unsecured, Convertible and Non-Convertible, Registered and Bearer, First and Second are four types of Debentures. Let us be informed extra about Debentures familiarly.

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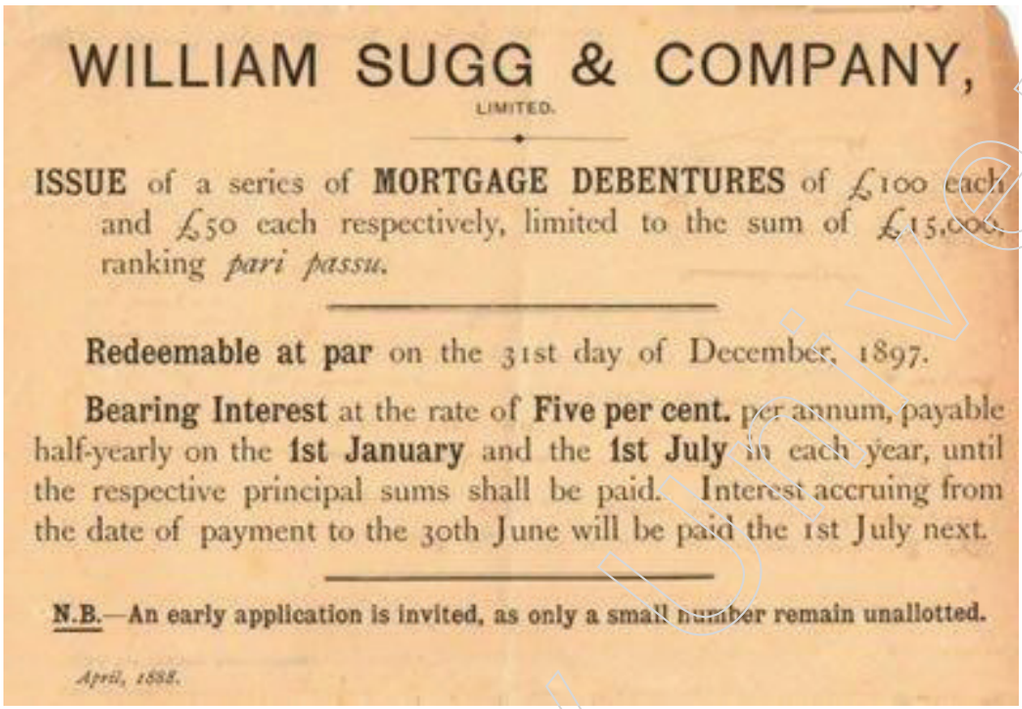
Notes

In layman's time period, a Debenture is the acknowledgment of the debt the organization has taken from the general public at huge. They are very the most important for elevating long-term debt capital. A Company can raise budget through the problem of debentures, which has a fixed rate of interest on it. The debenture issued via a company is an acknowledgment that the corporate has borrowed an amount of cash from the general public, which it guarantees to repay at a long term date. Debenture holders are, therefore, collectors of the company.



WILLIAM SUGG & COMPANY,

LIMITED.

ISSUE of a series of **MORTGAGE DEBENTURES** of £100 each and £50 each respectively, limited to the sum of £15,000, ranking *pari passu*.

Redeemable at par on the 31st day of December, 1897.

Bearing Interest at the rate of **Five per cent.** per annum, payable half-yearly on the **1st January** and the **1st July** in each year, until the respective principal sums shall be paid. Interest accruing from the date of payment to the 30th June will be paid the 1st July next.

N.B.—**An early application is invited, as only a small number remain unallotted.**

April, 1888.

Advantages and Disadvantages of Debentures

Advantages of Debentures

- Investors who need fastened income at lesser risk choose them.
- As a debenture does no longer raise voting rights, financing through them does not dilute control of equity shareholders on management.
- Financing thru them is more cost effective as compared to the price of preference or equity capital because the interest fee on debentures is tax deductible.
- The company does not involve its profits in a debenture.
- The issue of debentures is appropriate within the situation when the gross sales and profits are moderately strong.

Disadvantages of Debentures

- Each corporate has certain borrowing capability. With the issue of debentures, the capacity of an organization to additional borrow funds reduces.
- With redeemable debenture, the corporate has to make provisions for compensation at the specified date, even all through periods of monetary pressure at the company.

Notes

- Debenture put an enduring burden on the profits of a company. Therefore, there's a better chance when the profits of the corporate fluctuate.

Types of Debenture

1. Secured and Unsecured:

Secured debenture creates a rate on the property of the company, thereby mortgaging the belongings of the company. Unsecured debenture does not elevate any rate or security at the belongings of the corporate.

2. Registered and Bearer:

A registered debenture is recorded within the register of debenture holders of the corporate. A Typical device of transfer is needed for his or her switch. In contrast, the debenture which is transferable via mere delivery is known as bearer debenture.

3. Convertible and Non-Convertible:

Convertible debenture will also be converted into equity shares after the expiry of a specified length. On the opposite hand, a non-convertible debenture is the ones which cannot be transformed into equity shares.

4. First and Second:

A debenture which is repaid sooner than the other debenture is known as the primary debenture. The second debenture is that which is paid after the primary debenture has been paid again.

3.1.3 Equity: Ordinary Shares. Hybrid: Preference, Warrants, Convertible securities

What is Equity?

The amount of money invested or owned by a company's owner is referred to as equity. The difference between a company's liabilities and assets on its balance sheet is used to calculate equity. The current share price or a value set by valuation experts or investors determines the worthiness of equity. Payers, stockholders, and shareholders equity are all terms used to describe this account.

Formula for calculating equity:

The accounting equation is Assets – Liabilities = Equity

There are generally two forms of equity value:

1. Book value

2. Market value

#1 Book value of equity

In accounting, equity is measured using the financial statement record and the balance sheet equation and is listed in its book value. Equity = Assets – Liabilities is the formula used to calculate book value. The assets, on the other hand, are the sum of the company's non-existing and current assets. Fixed assets, cash, inventory, accounts

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receivable, property plant, intangible assets, and other information are included in the main account assets.

In the balance sheet, liabilities are the number of current and non-current liabilities. Short-term debt, credit, deferred income, accounts payable, long-term debt, fixed financial commitments, and capital leases are some of the other accounts.

#2 Market value of equity

In finance, equity is represented by market value, which may be slightly lower or higher than book value. The distinction is that an accounting statement looks back (at past expenditures), while a financial statement looks forward and forecasts what a company's financial situation will be.

The market value of a publicly traded company's stock is measured as Market Value= Share Price X Shares Outstanding. An investment banker, boutique valuation firm, or accounting firm is employed by a private corporation to analyse the market value.

The cumulative market value of a company's outstanding securities is its equity market value.

The outstanding stock/shares are the shares that are held by a company's owners, investors, and other stakeholders. After liabilities are paid, a company's assets are referred to as equity. Market capitalization is another name for it.

As a result, the market value of shares changes over time as the two inputs (outstanding stock and market value) change. The market value of equity differs from the book value of equity in a business because the book value does not consider the company's future potential growth.

The actual market price per stock is multiplied by the total number of outstanding stocks to calculate Market Value of Equity.

Introduction

Ordinary shares are issued by a corporation to collect money for the company. Ordinary shares, also known as common shares, are equity stock that provides stockholders with voting rights and dividends are distributed at the discretion of management based on benefit availability. These shares reflect stockholders' ownership in the corporation in relation to their shareholding.

Explanation

It gives investors proportional control of the company based on the amount of shares they own. It is a great way to raise money and there is no debt involved. Ordinary shareholders have some privileges as owners of the company, such as voting rights. Ordinary shareholders are entitled to attend annual general meetings and collect dividends in accordance with the management's policy year after year. Ordinary shareholders earn their share of the remaining net assets when the company is liquidated. Market forces and investor sentiments decide the market value of ordinary stock.

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Notes

Ordinary Shares Characteristics

- It goes hand in hand with voting rights, implying that any investor who buys ordinary shares in the company owns a proportionate share of the company.
- Ordinary shares entitle the holder to collect dividends declared by the company's management.
- Ordinary shares have a limited liability component, which means that each shareholder is only responsible to the corporation up to the amount of unpaid share capital owned by them at the time of liquidation.
- Ordinary shares do not have a set maturity date unless the company decides to buy them back or delist them.

For Example

Consider the following scenario: a company has sold 10,000 ordinary shares and 5,000 preference shares at a price of $2 per share for both the ordinary and preference shares.

The company's ordinary share capital will now be (10,000 x $20) = $200,000

And, assuming an individual owns 1,000 ordinary shares, the shareholder's ownership ratio is (100010,000 x100), or 10%.

Advantages:

- It includes the right to vote for investors, allowing shareholders to participate in the company's management.
- Ordinary shares are a great source of funding because they are debt-free.
- Ordinary shares listed on the exchange can be easily exchanged in both the main and secondary markets.
- It provides capital gains and dividends to investors.
- The businesses have a lot of leeway in terms of how many shares they want to carry on the market. A new issue, also known as a right issue, can be used to increase the number of shares available, whereas a buy-back option can be used to decrease the number of shares available.

Disadvantages

- Ordinary share prices are primarily determined by market forces, which are inherently unpredictable and can trigger significant fluctuations in the value of the shares.
- Shareholders can lose their entire investment if the business goes bankrupt.
- Dividends are never predetermined or set. Year after year, they are announced based on management decisions. There will be no dividends paid to ordinary shareholders if the corporation wishes to reinvest its profits.
- Despite the fact that ordinary shareholders have limited liability, ordinary shareholders are paid last in the event of a liquidation, i.e. if anything is left after all liabilities have been met.

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Notes

Conclusion

Ordinary shares are an important source of capital. A company's ability to raise funds is heavily reliant on ordinary shares, whether it is old or new. Ordinary shares also come with a number of advantages, including voting rights, ownership, limited liability, and dividend rights.

Hybrid Financing

Definition: Hybrid Financing is the monetary tool that participates some characteristics of debt and a few characteristics of equity. Simply, it's the monetary security that possesses the characteristics of both the debt and equity.

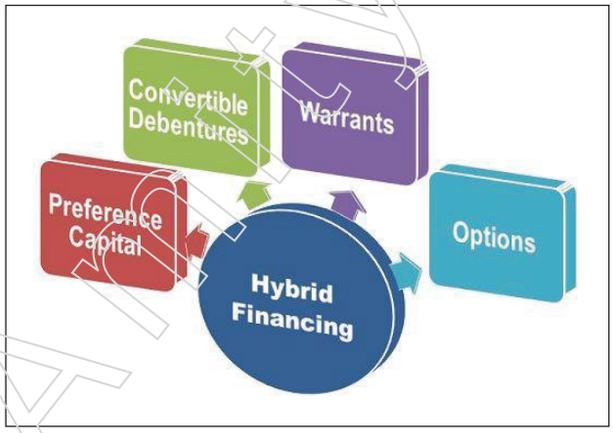
The debt and equity are the 2 excessive points and within the midpoint lies the hybrid financing that gives the investors the advantages of each the equity and debt. Equity gives the right to have a residual declare on the money flows and property of the company and feature regulate over the management. Whereas, the debt represents the fastened claim over the money flows and the property of the company, but in most cases, don't give the right to keep an eye on the control.

The important forms of Hybrid Financing are Preference Capital, Convertible Debentures, Warrants, options, cutting edge hybrids and so forth.

Types of Hybrid Financing

Preference Capital

Definition: The Preference Capital refers to the amount of money earned by the sale of preference shares. This is a hybrid type of financing that has some characteristics of equity and some characteristics of debentures.



Advantages

- The company is not required by law to pay a dividend to preference shareholders.
- The redemption of preference shares is not painful for a company because the shares are redeemed from earnings and replaced with new shares (preference shares and equity shares).

Notes

- Since preference capital is considered a part of net worth, the firm's creditworthiness improves.
- There is no dilution of power since preference owners do not have voting rights.

Disadvantages

- It is very costly as compared to debt capital because preference dividends are not tax deductible, unlike debt interest.
- Despite the fact that there is no legal duty to pay preference dividends, they are paid along with the arrears.
- In the event that dividends are paid or the company is wound up, the preference shareholder has the right to sue before the equity owners.
- If the company fails to pay or skips the preference dividend for an extended period of time, the preference shareholders will gain voting rights.

Convertible Debentures

Definition

Convertible Debentures are a form of loan that can be exchanged into company stock after a set period of time, at the holder's or issuer's discretion, in special circumstances. These are provided with the aim of raising funds to extend or continue business activities at a low interest rate.

Debentures are long-term debt instruments that require the company to pay interest to their investors. Debentures are often provided with a convertibility option, which allows the holder to convert his debentures into the company's stock, either completely or partially.

If the debentures are completely or partially converted into stock, the following provisions apply, according to the SEBI:

- The prospectus should state the conversion time as well as the conversion premium.
- If the debenture holder converts at or after 18 months but before 36 months, the debenture holder must have complete or partial control over the conversion.
- If the debentures provide for conversion after 36 months, the conversion will be made optional with a "put" or "call" option.
- A compulsory credit rating is required if the conversion period of completely convertible debentures extends 18 months.

It is evident from the foregoing provisions that convertible debentures can be of three types:

- Compulsory convertible debentures must be converted within 18 months of the date of issuance.
- Convertible debentures with an option to convert are available within 36 months of issuance.

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Notes

- If the conversion is longer than 36 months, the debtenture has a “call” or “put” option.

The investor benefits from convertible debentures because they have the potential to become the company’s owner and may exit if the company suffers a loss. However, convertible debentures are unsecured, which means that if the corporation goes bankrupt, the buyer can only receive his money after all secured creditors have been paid.

The issuer’s main drawback is that if the company makes significant income, the lender may choose to become a shareholder or owner, resulting in dilution of equity in the company.

Stock Warrant

Stock warrants are options that a company issues that trade on an exchange and offer investors the right (but not the obligation) to buy company stock at a certain price within a certain time span. When an investor exercises a warrant, the stock is purchased, and the proceeds are used to fund the company. A warrant, on the other hand, does not imply real stock ownership, but rather the right to buy company shares at a certain price in the future. Warrants are not widely used in the United States, although they are widely used in other countries like China.

There are two types of warrants: Call and Put Warrants

Call and Put Warrants are the two types of warrants.

A call warrant gives you the option to purchase a certain number of shares from a firm at a certain price in the future.

A put warrant gives you the option to sell a certain number of shares back to the issuing company at a certain price in the future.

When an investor is given a warrant, a warrant certificate is issued. The warrant’s words, such as its expiration date and the last day it can be exercised, are listed on the certificate.

Stock Option

Definition: The Stock Option is a security that provides the fitting to its holder, but no longer the duty to shop for or promote the outstanding shares at a specific value and a specific date. The inventory choices are traded on the securities trade like other stocks.

A stock option is a deal between two parties that gives the buyer the right to purchase or sell underlying stocks at a set price and within a set time frame.

An option writer is a person who sells stock options and is charged a premium from the contract bought by the buyer.

Types of Stock Options

Stock options are divided into two categories:

A stock call option gives the buyer the option to buy stock but not the duty to do so. When the underlying stock price increases, the value of a call option rises as well.

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Notes

A stock put option allows the buyer to sell a stock for a profit. When the price of the underlying stock falls, the value of a put option rises.

Investment bankers can buy one of these two types of options separately or in combination to use such trading strategies, such as the covered call.

Strike Price

The strike price of stock options is a pre-determined price. Even though the current market price of AAPL is $110, investors can buy call AAPL contracts at the strike price of $108, for example. Alternatively, they can buy a call option with a $113 strike price.

In the example above, an option strike price of $108 is considered in-the-money, while $113 is considered out-of-the-money. When in-the-money options are exercised, they result in a benefit, while out-of-the-money options result in a loss.

Dates of Settlement and Expiration

Each choice has its own expiration date and settlement rules. In the industry, there are two models to choose from.

- An choice in the American style that allows the holder to exercise the call/put option at any time before it expires.
- A European-style option that can only be exercised on the option's expiration date.

If an option holder exercised his right in the past, the sale was processed and the stock certificates were delivered to the holder. All settlements in the modern market are made in currency, based on the valuation of the underlying stock.

For Example

Mr. A buys AAPL call options with a strike price of $108 in November 2016. For one contract of 100 shares, the option contract premium is $223. At the time of acquisition, AAPL was trading at $109.10. Mr. A will receive 100 AAPL shares at $108 the next trading day if the option was exercised.

AAPL opened the next day at $109.20. Mr. A's benefit is ($109.20 – $108)*100 – $223 = -$103 if he sells the shares at market price. (Commission and transaction fees are not included in this calculation; each broker may have different fees and commission structures.)

3.1.4. ADR & GDR (American & Global Depositary Receipts)

ADR stands for American Depositary Receipt in its full form. ADR is a negotiable instrument issued by a depositary bank in the United States that often represents a percentage of a foreign company's stock by a set number of shares. The ADR trades on US stock exchanges just like any other domestic stock.

ADRs enable American investors to purchase shares of foreign companies that would otherwise be unavailable to them. ADRs enable international companies to attract American investors and resources without the hassles and costs of a stock exchange listing in the United States.

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Notes

One ADR or GDR does no longer all the time equal one proportion of underlying inventory. And with ICICI, the ADR in reality represents two India-listed shares of ICICI and is priced accordingly.

This is rather not unusual and is done so that the cost of the ADR is typical for the market where it trades. Very low-priced shares could have every depositary receipt sponsored by way of several shares

For very high-priced ones, each and every depositary receipt represents a fractional declares at the underlying shares. For example, each and every Nintendo ADR in the US is value one-eighth of a Nintendo share in Tokyo.

The price of the depositary receipt must be equal to the cost of the underlying stocks, adjusted for currencies. That's as a result of main institutional investors can arbitrage between the price of the underlying proportion and the price of the ADR/GDR if the relationship moves too, a way out of line.

However, in some special cases this will not be true – for instance, in circumstances where countries put, limits on the most quantity of an organization's shares that can be owned via foreign traders.

If that restrict has already been reached, the ADR may business at a continual premium to the price of the underlying stocks as it's the one way that international buyers can buy into that company. One persistent example of this is HDFC Bank, some other Indian bank with an ADR in New York.

The depositary banks that problems the ADR can charge a rate for the costs of conserving on to the shares that back the ADR and doing the entire forms. This is in most cases around US$0.01-0.03 in step with share in line with yr.

Where the company will pay dividends, this may increasingly most often be deducted from the dividend prior to this is paid on to the ADR holder. Where the corporate does no longer pay a dividend, the depositary bank will generally fee your broker who holds the ADRs for your behalf. The broker will then most often cross those fees onto you.

Sponsored versus unsponsored ADRs

The US lets in several types of ADR. It's important to understand the adaptation, since they've other degrees of backing and improve from the company you're making an investment in.

Unsponsored ADRs are issued with no formal agreement between the issuing financial institution and the international company – certainly, the company might not have any desire to peer its stocks indexed abroad at all. They trade at the over the counter marketplace.

Sponsored ADRs, fall into 3 categories. All are supported by means of the company, however with other levels of legislation.

Level I ADRs, trade in over the counter marketplace. Reporting requirements are very low – the corporate does now not wish to factor any reviews in the US or beneath US accounting standards. It will have to be indexed on a foreign inventory alternate and issue a report in English in that nation beneath native accounting regulations.

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Level II ADRs can business on a stock market akin to NYSE or Nasdaq. The corporate will have to check in with the Securities and Exchange Commission and issue annual reviews in America to US accounting requirements.

Level III ADRs are utilized by firms that don't merely want to waft their stocks out of the country, but also to lift capital in the US market. Consequently, they are regulated to a similar same old to US companies. They must factor an offering prospectus, whilst all subsequent new releases made of their home marketplace will have to also be issued in the United States to US standards.

However, take into account that simply because an organization officially complies with US laws, it does not imply that it, as strongly regulated or as clear as you might expect from a developed-market corporate. And the fact that a well-known accounting firm has signed off at the accounts is no make sure that they are accurate, as many scandals have demonstrated.

The distinction between unsponsored and backed depositary receipts exists for markets outside the US. For example, in Germany a foreign company's shares is also indexed at the Berlin-Bremen alternate without its consent. The classification of subsidized ADRs into 3 levels is specific to US regulatory machine.

How to buy ADRs and GDRs

You should be capable to buy major ADRs and GDRs listed on your local marketplace via your usual inventory dealer. There are inventory agents that won't deal in any; however that's ordinary this present day. However, especially with GDRs, now not all discount agents will offer less well-liked shares, so in some circumstances you could wish to name round to find a dealer that will carry out the business.

If you're taking a look to see what ADRs and GDRs are to be had worldwide, you might want to seek the listings for your local change or test the internet sites of any international companies that passion you.

But a more convenient useful resource is the depositary receipt directory maintained through BNY Mellon, one of the large global depositary banks. This lets you seek for depositary receipts by way of country, corporate and place of list.

However, no longer all ADRs and GDRs listed here are tradable by means of retail traders. In particular, there is an option in US securities legislation to factor shares which are intended only for certain investors and those are every so often used for ADRs.

Rule 144-A shares are specifically most effective to be traded by institutions. Regulation S stocks can't be traded by way of any US person and are intended for non-US citizens – in practice many are tradable by way of establishments' best as smartly. (One standard trick among stock scammers and boiler rooms is to sell unwary traders Regulation S shares that have no active retail market and shall be unattainable to promote at anything except for a knockdown worth.)

The result is that many ADRs and GDRs aren't indexed on any stock exchange, are extremely illiquid or are only traded in huge blocks via institutions. So the volume of depositary receipts which can be indexed, liquid and tradable by way of retail investors is significantly not up to the whole remarkable inventory of ADRs and GDRs.

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In addition, buyers must take nice care when making an investment in unsponsored depositary receipts or any kind of unauthorized secondary listing of a foreign corporate. The liquidity of these tools is often very poor and it has no reputable backing from the corporate.

What's extra, the ADR might be withdrawn at any time and you must be looking forward to some really extensive time earlier than the depositary sells the shares and sends you the proceeds. And you may be hit with an unreasonably huge administration charge in the procedure. While a subsidized ADR can be withdrawn, it will most often be carried out in a extra shareholder-friendly approach than with an unsponsored ADR.

Hence, even if an inventory can have an ADR or GDR it might not be imaginable or good to buy this. In basic, most effective backed depositary receipts indexed on a recognized stock change with moderately liquidity are a sensible investment. In different cases, it may be highest to investigate whether it's conceivable to purchase the shares without delay on its domestic exchange.

However, there are a vital choice of good quality firms to be had as ADRs and GDRs. They are an opportunity often overpassed by means of buyers, so it's always value checking whether this may be the simplest method to invest in a company or country, especially if you don't have any need to open brokerage accounts all over the world.

3.1.5. Leasing

Lease: Definition, Features, Advantages, Disadvantages, Types

A lease is a contract beneath which one party, the lessor (owner of the asset), gives another party (the lessee) the unique right to make use of the asset normally for a specified time in return for the fee of hire.

Ads by means of Value affect

Leasing is the process by which a firm can obtain the usage of sure fastened assets for which it should make a chain of periodic, contractual, tax-deductible

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payments. A rent is a contract that enables a lessee to secure the use of the tangible assets for a specified period via making bills to the owner.

Major Features of Lease

The primary features or parts of the leasing are the following:

1. **The Contract:** There are essentially two events to a contract of rent financing, specifically the landlord and the user.
2. **Assets:** The property or the properties to be leased are the subject matter rent financing contract.
3. **Lease Period:** The fundamental rent length all the way through which the hire is non-cancelable.
4. **Rental Payments:** The lessee will pay to the lessor for the lease transaction is the rent apartment.
5. **Maintain:** Provision for the cost of the costs of maintenance and taxes, service, insurance coverage, and different expenses appertaining to the asset leased.
6. **Term of Lease:** The time period of the rent is the length for which the settlement of lease stays in operation.
7. **Ownership:** During the hire period, ownership of the assets is being stored with the lessor, and its use is permitted to the lessee.
8. **Terminating:** At the end of the duration, the contract may be terminated.
9. **Renew or Purchase:** A solution to renew the lease or to buy the property on the end of the fundamental period.
10. **Default:** The lessee could also be chargeable for all long term payments at once, receiving title to the asset in alternate.

Advantages of Lease Financing

The benefits from the point of view of the lessee

1. **Saving of Capital:** Leasing covers the overall cost of the equipment used within the industry by means of providing 100% finance. The lessee isn't to supply or pay any margin money as there's no down cost. In this way, the saving in capital or financial resources can be utilized for different productive functions, e.g., purchase of inventories.
2. **Flexibility and Convenience:** The lease agreement may also be custom-made in recognize of rent duration and hire leases consistent with the ease and necessities of all lessees.
3. **Planning Cash Flows:** Leasing allows the lessee to plan its cash flows correctly. The leases can also be paid out of the money getting into the trade from using the same assets.
4. **Improvement in Liquidity:** Leasing enables the lessee to make stronger its liquidity position by means of adopting the sale and leaseback technique.
5. **Shifting of Risk of Obsolescence:** The lessee can shift the chance upon lessor by means of obtaining using belongings slightly than buying the asset.

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6. **Maintenance and Specialized Services:** In case of special roughly hire association, the lessee can avail specialized products and services of the lessor for repairs of asset leased. Although lesser fees higher leases for providing such services and products, rentals see total administrative and service prices are diminished on account of specialized products and services of the lessor.
7. **Off-the-Balance-Sheet-Financing:** Leasing provides "off-balance-sheet" financing for the lessee in that the rent is recorded neither as an asset nor as a legal responsibility.

The benefits from the point of view of the lessor

There are a number of inscribed benefits of obtaining capital assets on lease:

1. **Higher income:** The Lessor can get higher profits by means of leasing the asset.
2. **Tax Benefits:** The Lessor being the landlord of an asset can claim more than a few tax benefits similar to depreciation.
3. **Quick Returns:** By leasing the asset, the lessor can get quick returns than making an investment in different initiatives of the long gestation period.

Disadvantages of Lease Financing

The disadvantages from the viewpoint lessee

1. **Higher Cost:** The lease rental features a margin for the lessor as additionally the cost of possibility of obsolescence; it is, thus, regarded as a type of financing at a higher price.
2. **Risk:** Risk of being disadvantaged of using assets in case the leasing company finishes up.
3. **No Alteration in Asset:** Lessee cannot make changes in property as per his requirement.
4. **Penalties on Termination of Lease:** The lessee has to pay penalties in case he has to terminate the hire earlier than the expiry lease duration.

The disadvantages from the perspective lessor

1. **High Risk of Obsolescence:** The Lessor has to bear the chance of obsolescence as there are speedy technological changes.
2. **Price Level Changes:** In the case of inflation, the costs of an asset rise, but the lease rentals stay fastened.
3. **Long term Investment:** Leasing calls for the long term investment in the purchase of an asset, and takes a long time to hide the price of that asset

Types of the Lease

Leasing takes differing kinds which might be given beneath;

- **Based on Nature**
  1. Operating rent
  2. Financial lease

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- **Based at the Method of Lease**
  1. Direct lease
  2. Sale & Leaseback
  3. Leverage lease

1. **Operating Lease:** An operating lease is a cancelable contractual settlement wherein the lessee concurs to make periodic bills to the lessor, regularly for 5 or fewer years, to procure an asset set's products and services. According to the International Accounting Standards (IAS-17), an operating lease is one that isn't a finance hire.
2. **Financial Lease:** A financial (or capital) rent is a longer-term rent than an operating rent that is non-cancelable and obligates the lessee to make payments for the use of an asset over a predetermined time period. According to the International Accounting Standard (IAS-17), in a monetary hire, the lessor switch to the lessee substantially all the dangers and rewards just like the ownerships of the asset whether or no longer the identify is eventually transferred.
3. **Direct Lease:** Under direct leasing, a firm acquires the right to use an asset from the manufacture at once. The possession of the asset leased out stays with the manufacture itself.
4. **Sale & Leaseback**: Under the sale & leaseback association, the firm sells an asset that it owns after which leases to the similar asset back from the consumer. This manner, the lessee gets the belongings for use, and on the same time, it gets money.
5. **Leveraged Lease:** Leveraged lease is equal to the direct lease, aside from that a 3rd party, the lender, is concerned along with the lessee & lessor. The lender in part funds the purchase of the asset to be leased; the lessor turns to be a borrower.

So, from the above discussion, we will be able to say that hire is a contact where in one party the lessor (owner) of an asset is of the same opinion agreed to grant the usage of that asset to another, the lessee in change for periodic rental bills. The rent is a tax-deductible expense.

3.1.6. Hire purchase

Hire Purchase

Hire Purchase is one of the most repeatedly used modes of financing for acquiring quite a lot of property. It aids via spreading the large value of an asset over a longer period of time. Thus, it frees a lot of capital to be directed to different important purposes.

Definition of Hire Purchase

Hire Purchase is defined as a settlement during which the landlord of the belongings lets them on hire for normal installments paid via the hirer. The hirer has the option to purchase and own the asset as soon as all of the agreed payments were made. These periodic payments also include a pastime component paid in opposition to the use of the asset with the exception of the price of the asset. The time period 'Hire-Purchase' is a UK term and is synonymous to 'rent-to-own' or 'installment plan' in

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more than a few other nations. Owning items via hire and purchase, companies shall strengthen their income efficiency. Not simply recommended to the hirer, the program is also among the finest and safe form of credit gross sales for the present proprietor of the asset.

Hire purchase is a method of purchasing or financing capital items whereby the products are available to be used almost instantaneously however the cost is made in smaller portions over an agreed duration. The possession is transferred simplest after the paying all installments. Technically speaking, it's an agreement between the buyer (or consumer) of the asset and the financing company whereby the financing company purchases the asset on behalf of the buyer and the buyer applied it for industry function and will pay back to the financing company in small installments called rent fees.

In different phrases, hire purchase may also be defined as an option of financing or acquiring an asset for use wherein the financing corporate let the products on hire to the consumer against small installments called hire charges and the consumer will get the correct to make use of the asset with an choice to purchase the asset through paying all such installments unfold over a time period. Hire purchase was very prominent for vehicle financing whether or not that could be a private car, business car and so forth however now apparatus, machinery and so forth also are financed with hire purchase manner.

Features and Characteristics of Hire Purchase

Hire purchase is a normal transaction through which the belongings are allowed to be employed and the hirer is provided a way to later acquire the same property.

Following are the options of an ordinary rent purchase transaction:

Rental bills are paid in installments over the length of the settlement.

Each condominium cost is thought of as a fee for hiring the asset. This signifies that, if the hirer defaults on any cost, the vendor has the entire rights to take back the property.

All the required phrases and stipulations between both the parties involved are documented in a contract called Hire-Purchase settlement.

The frequency of the instaliments may be annual, half-yearly, quarterly, per month, and so forth consistent with the terms of the agreement.

Assets are in an instant delivered to the hirer as quickly as the settlement is signed.

If the hirer uses the choice to purchase, the assets are handed to him after the ultimate installment is paid.

If the hirer does now not need to personal the asset, he can return the belongings any time and isn't required to pay any installment that falls due after the return.

However, as soon as the hirer returns the assets, he cannot claim back any bills already paid as they're the fees towards the hire and use of the assets.

The hirer cannot pledge, promote or mortgage the belongings as he is not the owner of the assets till the ultimate cost is made.

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The hirer, generally, pays a certain quantity as a preliminary deposit / down fee whilst signing the agreement.

Generally, the hirer can terminate the hire purchase settlement any time sooner than the possession rights pass to him.

Advantages of Hire Purchase

Hire Purchase has the following advantages:

Immediate use of property without paying the entire amount.

Expensive property can be utilized because the payment is spread over a period of time.

Fixed rental payments make budgeting more uncomplicated as all the expenditures are known upfront.

Easy accessibility as this can be a secured financing.

No need to concern about the asset depreciating temporarily in price as there's no legal responsibility to shop for the asset.

Disadvantages of Hire Purchase

Hire Purchase suffers from the next disadvantages:

Total amount paid in opposition to the asset might be much upper than the price of the asset due to substantially high-interest charges

The length of the condominium payments

Ownership only controls till end of the agreement. The hirer cannot regulate the asset till then.

The addition of any covenant increases the fee.

If the employed asset is no longer wanted because of any alternate within the trade strategy, there could also be an ensuing penalty.

Hire Purchase is Best Suitable For

Small scale companies and entrepreneurs can have the benefit of Hire Purchase. Expensive and important assets may also be hired and later owned. This ensures that they are able to start the usage of the asset from first actual day and use the money earned to later purchase the same belongings.

Conclusion

Hire Purchase is an important supply of financing lately. It provides a handy solution to have enough money and acquire property that in a different way is financially unimaginable. Thus, rent acquire also is helping a country's financial system to develop further. However, prior to getting into a settlement, one must clearly perceive the prices involved and the disclosures equipped. There are more than a few different like term mortgage and instalment purchase which looks an identical but there may be the adaptation between hire purchase and time period mortgage and also there's the variation between rent purchase and instalment purchase.

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3.1.7 Leverage Buyouts

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What is a Leveraged Buyout (LBO)?

In company finance, a leveraged buyout (LBO) is a transaction where an organization is bought using debt as the primary supply of consideration. These transactions normally happen when a non-public equity (PE) firm borrows as much as they may be able to from numerous lenders (up to 70 or 80 % of the acquisition worth) and funds the balance with their own equity.

A leveraged buyout (LBO) is when a company buys another company with borrowed funds to match the purchase expense. The purchasing company's properties, as well as the purchased company's assets, are used as collateral for the loans. The goal of leveraged buyouts is to allow businesses to make major acquisitions without having to raise a lot of money.

Let us know how to analyse a leveraged buyout now that we've grasped the essence of leveraged buyout.

LBO Analysis

The leveraged buyout analysis aids in deciding the maximum price a buyer will pay for a target company. This research takes into account current market conditions as well as the expected returns from the target business.

The highest price is justified by the leveraged buyout study because of the following: The actual and forecast free cash flows of the target business.

Lenders need a specific lending arrangement, banking covenants, and interest rates. For equity investors, the appropriate hurdle rate.

Financing for leveraged buyouts

When completing a buyout, buyers often use borrowed funds to cover the entire purchase price.

The forms of funding that could be considered for a leveraged buyout are as follows:

Financing from the bank

Funds may be lent from a single bank or a syndicate of banks. Banks lend money to the buyer for operating capital and to pay off the target company's current ownership.

The leveraged buyout research, on the other hand, just decides an entity's floor valuation. The premium charged by the purchasing company for market synergies is not included.

Bonds vs. Private Placements: Which is Better?

For an LBO, private notes and bonds may be used as a source of funding.

Subordinated, Junior, or Mezzanine Debt

This type of financing is often used in conjunction with bank loans or bonds.

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Financing from the seller

The purchasing party loans money to the business being sold through this type of financing. The purchasing party then accepts a postponed bill, resulting in a debt-like obligation. As a result of this process, funding for the buyout becomes available.

Let's look at an example of a leveraged buyout after we've grasped the idea of a leveraged buyout.

Example

Gibson Greeting Card

The purchase of Gibson Cards by Wesray Capital in 1982 is the most prolific example of a leveraged buyout in history. The deal's purchase price was $80 million, with $1 million paid in cash and the rest lent via the issuance of junk bonds. When Gibson Cards was sold for $220 million a year later, Wesray Capital and its investors benefited from the leveraged buyout.

Conclusion

Private equity firms typically use leveraged buyouts to acquire and then sell a company, allowing them to maximise profits. To acquire rivals and gain access to new markets, companies use LBO as part of their mergers and acquisitions strategy.

3.1.8 Securitization

What is Securitization?

Securitization is a chance management tool used to reduce idiosyncratic possibility related to the default of particular person assets. Banks and different financial establishments use securitization to decrease their exposure to possibility and reduce the scale in their total balance sheet.

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Securitization is the method of turning debt (usually illiquid assets) into shares, which can then be bought and sold on capital markets. You'll note that the first line refers to debt as an asset. This is due to the fact that debt is a liability for the borrower but an advantage for the lender. Securities (created by securitization) may be traded in the same way that commodities, bonds, and futures contracts are traded.

Securitization, in simple terms, is the mechanism by which a financial firm consolidates several of its assets into a single financial instrument or security. The securities are then issued by financial firms to investors, who receive interest.

Asset-backed securities (ABS), collateralized debt obligations (CDO), and mortgage-backed securities are all terms used to describe these types of securities (MBS). ABS typically pools a variety of assets such as credit cards, auto loans, and other loans, while MBS only pools mortgages.

Process

As previously mentioned, banks and financial institutions mainly securitize illiquid assets. A liquid commodity, such as gold, can be easily converted into cash. Illiquid assets, on the other hand, are those that cannot be quickly transformed into cash. Real estate is an excellent example. It is not always simple to find a buyer for a house.

Mortgages, on the other hand, are precious investments that are largely illiquid. The majority of mortgages are secured by real estate.

Though mortgages provide a healthy return in the form of interest paid by the borrower, it may take several years (up to 30 years) to fully realise it. As a result, banks and financial institutions covert mortgages into liquid assets through securitization in order to realise the full potential of these illiquid assets.

The question of how a bank or other financial institution securitizes an asset has arisen recently.

Thousands of mortgages are first gathered into a "pool" by a bank or financial institution. The pool is then divided into smaller pieces and sold as securities. The homeowners' interest or mortgage premiums are paid to the buyers of these securities. Since these securities are backed by mortgages, they are also called "mortgage-backed securities."

How does Securitization Help?

Securitization aids in the increase of market liquidity. Furthermore, it aids financial institutions in raising funds. If a company's assets have been depleted by debt repayments but it still needs to make more loans, it may use securitization to raise additional funds. A business like this will pool its assets into a financial instrument and then sell it to investors. As a result, the process assists businesses in raising funds and providing more loans.

For investors, such instruments allow them to diversify their portfolio while also earning high returns. The borrower whose mortgage has been pooled is unaffected by such protection. At the time, all of the terms – decided upon by the lender and the borrower -- at the time of taking the loan remain intact.

The borrower may be asked to submit interest payments to a different address as a potential adjustment.

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Is it secure?

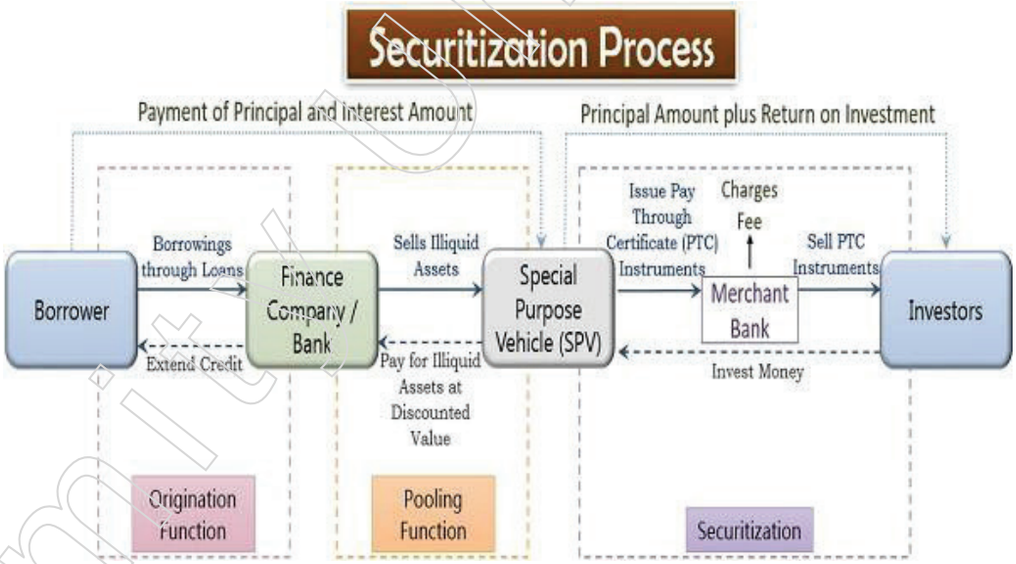
As long as the homeowners whose mortgages were pooled make their interest payments on time, such securities are a safe bet. This isn't always the case, however. The financial crisis of 2008 is a prime example.

One drawback to securitization is that it can allow lenders to lend to high-risk borrowers. This is because the lender has no capital at risk after the securitization because the risk is transferred to the investors.

During the housing bubble of 2008, something similar occurred. Due to irresponsible lending by banks and financial firms, a record number of homeowners have begun to default. Mortgage-backed securities have lost value as a result of this.

Following the recession, the Federal Reserve of the United States had to intervene to ensure financial market liquidity. The bank began purchasing such securities from investors through quantitative easing (QE) operations at the time.

Another drawback of such securities is that determining the risk of the security becomes difficult for the investor. ABS can be complicated because it includes a variety of debt instruments, such as mortgages, credit card debt, vehicle loans, and other types of debt.



Glossary

Term loan: A term loan is a funding from a bank for an amount that is to be repaid as per EMI schedule.

EMI: Equated Monthly Installment

Debentures: Debentures are a debt tool utilized by corporations and executive to factor the mortgage

Mortgage: Convey (a property) to a creditor as security on a loan.

ADR & GDR: American Depositary Receipts & Global Depositary Receipts

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EDR: European Depositary Receipt

Lease: A lease is a contract beneath which one party, the lessor (owner of the asset), gives another party (the lessee) the unique right to make use of the asset normally for a specified time in return for the fee of hire.

ROE: Return on Equity

LBO: leveraged buyout

PE: Public equity

Check your Understanding

1. Under the lease agreement, the lessee gets the right to
   a) Share profits earned by the lessor
   b) Participate in the management of the organization
   c) Use the asset for a specified period
   d) Sell the assets
2. Funds required for purchasing current assets is an example of
   a) Fixed capital requirement
   b) Ploughing back of profits
   c) Working capital requirement
   d) Lease financing
3. Public deposits are the deposits that are raised directly from
   a) The public
   b) The directors
   c) The auditors
   d) The owners
4. Equity shareholders are called
   a) Owners of the company
   b) Partners of the company
   c) Executives of the company
   d) Guardian of the company
5. ADRs are issued in
   a) Canada
   b) China
   c) India
   d) USA
6. Under the factoring arrangement, the factor

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a) Produces and distributes the goods or services

b) Makes the payment on behalf of the client

c) Collects the client's debt or account receivables

d) Transfer the goods from one place to another

7. The term 'redeemable' is used for

a) Preference shares

b) Commercial paper

c) Equity shares

d) Public deposits

8. Debentures represent

a) Fixed capital of the company

b) Permahent capital of the company

c) Fluctuating capital of the company

d) Loan capital of the company

9. The maturity period of a commercial paper usually ranges from

a) 20 to 40 days

b) 60 to 90 days

c) 120 to 365 days

d) 90 to 364 days

10. Internal sources of capital are those that are

a) Generated through outsiders such as suppliers

b) Generated through loans from commercial banks

c) Generated through issue of shares

d) Generated within the business

Summary

- Different resources are used to finance present belongings. It is basically the industry credit, which is a natural source of financing of the customer via the provider. Parts of the non-permanent monetary sources are various duties, which shape a source from their advent to the time in their cost.
- Securitization is not regarded as to be a very good investment alternative by means of many buyers for the reason that threat captivated about it is rather leading even after being subsidized by means of collateral safety.
- However, if the creditworthiness of the borrower and the present investment opportunity is analyzed proficiently; it will generate high returns for the investors.

Activity

1. Draw a line diagram and prepare a mind map of all sources of finance.

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2. Gather sources of finance under Debt vs. equity format

Notes

Glossary

- Term loan: A term loan is a funding from a bank for an amount that is to be repaid as per EMI schedule.
- EMI: Equated Monthly Installment
- Debentures: Debentures are a debt tool utilized by corporations and executive to factor the mortgage
- Mortgage: Convey (a property) to a creditor as security on a loan.
- ADR & GDR: American Depositary Receipts & Global Depositary Receipts
- EDR: European Depositary Receipt
- Lease: A lease is a contract beneath which one party, the lessor (owner of the asset), gives another party (the lessee) the unique right to make use of the asset normally for a specified time in return for the fee of hire.
- ROE: Return on Equity
- LBO: leveraged buyout

Further Readings

1. Financial Accounting Essentials You Always Wanted To Know: 4th Edition: 8 (Self Learning Management Series) by VIBRANT PUBLISHERS and Kalpesh Ashar
2. Financial Management, Theory and Practice, by Prasanna Chandra, 10th Edition, McGraw Hill Education, 2019.

Answer to Check your Understanding

1. c 2. c 3. a 4. a 5. d 6. c 7. a 8. d 9. d 10. d

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Unit-3.2. Sources of Short Time Period Finance

Learning Objectives:

You will be able to address the following by the end of this Chapter:

- Trade Credit
- Bank Overdraft
- Factoring and Invoice Discounting
- Bills of Exchange

Introduction

Short-term Financing is concerned with collecting funds for a shorter period of time, such as a few days to a year. However, there are no hard and fast rules when it comes to the word. And if it lasts more than a year, it is also referred to as short-term financing.

Almost all European banks consider short-term financing of up to a year as appropriate. As a result, we can infer that short-term financing can be for as little as one to three months or as long as a year.

All working capital is short-term capital, with the exception of that portion required to maintain a minimum cost of raw materials, shops, and finished products in an industry. It should be remembered that the business's daily or permanent working capital needs should be funded by medium and long-term financing sources.

Short-term finance is distinguished by the fact that it is earned and repaid in a shorter period of time.

The Most Common Sources of Short-Term Funding

Companies' short-term financial needs are usually fulfilled by the following sources:

1. Trade Credit.
2. Consumer Credit.
3. Installment Credit.
4. Account Receivable Financing.
5. Bank Credit.
6. Other Sources.

3.2.1. Accruals, Trade credit, Working capital advance by commercial banks

Definition

Adjustments that must be made before a company's financial statements are released are referred to as accruals of accounting and bookkeeping. Expenses, damages, and liabilities that have been incurred but not yet reported in the accounts,

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as well as sales and assets that have been gained but not yet recorded in the accounts, are all examples of accruals.

An Example of an Expense Accrual

A significant repair that occurs in the final month of the financial year but is not charged until the bill is collected in the first month of the next year is an example of an accrual of a cost and liability. For the financial statements for the current year to be accurate (under the accrual method of accounting) the following is necessary:

i. The repair charge must be reported on the income statement for the fiscal year, and the associated liability must be reported on the balance sheet as of the last day of the year.

ii. An modifying entry is made that debits the account to report this accrual. Expenses and credits for repairs Payable Accrued Expenses

An Accrual of Revenues Example

Your electric utility company is an example of an accrual of revenues. For example, to produce the energy used by its customers in December, the utility is likely to use natural gas and/or coal, as well as a large number of employees. The company, on the other hand, does not charge its customers for the energy until January, when the metres are read. As a result, the utility's financial statements will need an accrual adjustment so that:

i. The utility's income statement for December and the current year will include all of its sales, and

ii. its December 31 balance sheet will show a current asset for the amount it has a right to obtain from its customers (including the amount for the electricity it provided in December)

The accrual change would debit Accrued Receivables from the current asset account and credit Accrued Electricity Revenues from the income statement account.

What Is a Trade Credit?

Trade Credit is a business-to-business (B2B) settlement wherein a buyer should buy goods on account without paying cash up front, paying the supplier at a later scheduled date. Usually companies that operate with trade credits will give consumers 30, 60, or 90 days to pay, with the transaction recorded thru a bill. Trade credit will also be thought of as a kind of zero% financing, expanding an organization's property whilst deferring fee for a specified worth of goods or products and services to a couple time sooner or later and requiring no interest to be paid in the case of the compensation length.

Understanding Trade Credit

Trade credit is typically extended for 7, 30, 60, 90, or 120 days, but some companies, such as goldsmiths and jewellers, can extend credit for longer. The duration for which credit is given, as well as any cash discount and the type of credit instrument used, are all included in the terms of sale.

Notes

A client, for example, is given credit with terms of 4/10, net 30. This means that the buyer has 30 days to pay the vendor after receiving the invoice. In addition, if payment is made within 10 days of invoicing, the customer will receive a cash discount of 4% off the claimed purchase price.

If the terms of sale were net 7, the buyer will have 7 days to pay from the date of the invoice, with no discount available for early payment.

Trade credit given to a client is accounted for as accounts receivable, while trade credit given to a company by its suppliers is accounted for as accounts payable. Trade credit may also be thought of as a form of short-term debt with no interest attached.

Benefits & Trade-Offs

From the perspective of the borrower, credit will allow growth or development that would otherwise be impossible if the business had to pay for purchases right away. One significant disadvantage is that interest payments can quickly accumulate and overwhelm borrowers.

Credit helps the borrower to be more convenient (resulting in more purchase activity) while still providing the lender with recurring interest income. Providing credit to a borrower carries the possibility of default, since the borrower may be unable to meet his or her debt obligations.

Credit terms differ depending on the industry. A jewellery store, for example, would sell diamond engagement rings for 5/30, net 4 months. Net 7 may be used by a food wholesaler selling fresh fruits and vegetables. In general, when determining a credit duration, a company must consider three factors:

– The likelihood of the consumer failing to pay – If a company's consumers are in high-risk industries, it can be forced to give restrictive credit.

– The size of the account – A small account would have a shorter credit duration. Managing small accounts is more expensive.

– The perishability of the goods – If the collateral values of the goods are poor and cannot be maintained for long periods of time, credit will be restricted.

Lengthening the credit period ultimately lowers the customer's payment. This, in general, boosts profits. The following are cash flows as a result of trade credit being granted:

Credit Analysis

A company seeks to differentiate between customers who will pay and customers who will not pay while issuing credit. Creditworthiness can be determined using a variety of sources, including the following:

Financial statements – A company may request financial statements from a client. It is possible to use rules of thumb based on measured financial ratios.

Credit reviews from other companies about a customer's payment history – Many companies offer data on a company's creditworthiness.

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Notes

Banks – In most cases, banks can assist their business customers in obtaining information on the creditworthiness of other companies.

The firm's payment history with the client – The most obvious way to estimate a customer's likelihood of non-payment is to look at whether he or she has paid past bills with the creditor.

Credit's Five C's:

Character – A customer's ability to honour credit agreements.

Capacity – The ability of a customer to fulfil loan commitments using operating cash flows.

Capital-The customer's financial assets are referred to as capital.

Collateral-In the event of a default, collateral is a pledged asset.

Conditions – The state of the economy as a whole.

Trade Credit in the Real World

Trade credit is mostly used to assist companies that have had other lines of credit closed to them for various reasons. Traditional funding solutions, such as debt and equity financing, may be inaccessible to young businesses with no proven credit history.

The emergence of alternative funding methods such as crowdfinancing and peer-to-peer lending is proof of this. Outside of the United States, trade credit accounts for approximately 20% of all investments funded by foreign sources, with bank credit being used rather than trade credit.

Related Concepts and Other Considerations

Trade credit score has a significant have an effect on at the financing of businesses and is subsequently linked to other financing terms and concepts. Other important phrases that impact industry financing are credit standing, trade line, and buyer's credit.

A credit standing is a total evaluate of the creditworthiness of a borrower, whether or not a trade or person, in keeping with monetary history that comes with debt reimbursement timeliness and different factors. Without a good credit rating, industry credit score may not be offered to a business. If businesses do not pay trade credit score balances in step with agreed terms, penalties in the form of fees and interest are most often incurred. Sellers can also record delinquencies on business credit score which might impact a purchaser's credit rating. Delinquencies affecting a purchaser's credit rating too can impact their skill to obtain other forms of financing as well.

An industry line is a trade credit score account file supplied to a trade credit score reporting company. For large businesses and public corporations, trade lines may also be followed by means of score agencies similar to Standard & Poor's, Moody's, or Fitch.

Buyer's credit score is related to global business and is essentially a loan given to in particular finance the purchase of capital items and services and products. Buyer's credit involves other agencies across borders and in most cases has a minimal loan amount of several million greenbacks.

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Working Capital Financing by Commercial Banks

A commercial bank is a trade organization which deals in cash i.e. lending and borrowing of money. They perform all types of functions like accepting deposits, advancing loans, credit score creation and agency purposes. Besides these standard purposes, probably the most necessary functions of banks are to finance running capital requirement of corporations. Working capital advances forms primary part of advance portfolio of banks. In determining working capital requirements of a firm, the financial institution takes under consideration its sales and production plans and desirable degree of present property.

Cash Credit – Under this facility, the financial institution specifies a predetermined restrict and the borrower is permitted to withdraw price range from the bank up to that sanctioned credit score limit towards a bond or different safety. However, the borrower cannot borrow all of the sanctioned credit in lump sum; he can draw it periodically to the level of his requirements. Similarly, reimbursement can be made every time desired right through the duration. There is no dedication rate concerned and interest is payable at the quantity in fact utilized by the borrower and now not on the sanctioned prohibit.

Overdraft – Under this arrangement, the borrower is authorized to withdraw funds in excess of the particular credit steadiness in his current account up to a certain specified prohibit throughout a stipulated duration towards a safety. Within the stipulated limits any collection of withdrawals is authorized via the bank. Overdraft facility is normally available towards the securities of fixed deposits receipts, life insurance policies, Government securities, stocks and debentures, and so forth of the corporate sector. Interest is charged at the amount in reality withdrawn through the borrower, topic to some minimal (dedication) charges.

Loans – Under this system, the total amount of borrowing is credited to the current account of the borrower or launched to him in money. The borrower has to pay pastime on the overall quantity of mortgage, without reference to how much he draws. Loans are payable either on call for or in periodical installments. They can be renewed once in a while. As a type of financing, loans imply a financial discipline at the part of the debtors.

Bills Financing – This facility enables a borrower to obtain credit from a bank against its bills. The financial institution purchases or discounts the bills of change and promissory notes of the borrower and credit the quantity in his account after deducting discount. Under this facility, the volume supplied is covered through cash credit score and overdraft restrict. Before purchasing or discounting the bills, the bank satisfies itself in regards to the creditworthiness of the drawer and genuineness of the bill.

Letter of Credit – While the other sorts of credit are direct types of financing by which the banks provide price range in addition to bears the danger, letter of credit score is an oblique form of running capital financing in which banks assumes handiest the risk and the provider himself give you the budget.

Working Capital Loan – Sometimes a borrower would possibly require further credit score in way over sanctioned credit score limit to satisfy unforeseen contingencies. Banks supply such credit via a Working Capital Demand Loan (WCDL) account or a separate non–operable 'money credit score account.

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Net Period No Cash Discount: When credit is prolonged, the vendor specifies the time period allowed for cost. The phrases "net 30" indicate that the invoice or invoice will have to be paid within 30 days. If the vendor expenses on a per thirty days basis, it could require such phrases as "internet/15 EOM," because of this that each one goods shipped earlier than the tip of the month should be paid for through the fifteenth of the next month.

Net Period with Cash Discount In addition to extending credit score, the seller might be offering money cut price if the invoice is paid all the way through the early part of the net length. The terms "2/10, internet 30" indicate that the seller provides a 2 PC discount if the invoice is paid inside 10 days; differently, the patron will have to pay the entire quantity inside of 30 days. Usually, a cash bargain is obtainable as an incentive to the consumer to pay early.

Relationship: In a seasonal industry, sellers ceaselessly use relationship to encourage customers to put their orders prior to a heavy selling length. A producer of lawn house owners may give seasonal relationship specifying that any shipment to a broker within the iciness or spring does now not should be paid for till summer.

2. Bank Finance

Banks generally do not supply working capital finance without adequate security. The nature and extent of security offered play the most important function in influencing the verdict of the financial institution to advance working capital finance. The financial institution supplies credit on the basis of following modes of safety:

Hypothecation

Under this mode of security, the banks supply working capital finance to the borrower against the protection of movable property, in most cases inventories. It is a charge in opposition to property for the amount of debt the place neither ownership nor ownership is handed to the creditor. In the case of default the financial institution has the legal right to promote the property to understand the volume of debt.

Pledge

A pledge is bailment of products as security for the reimbursement of a debt or achievement of a promise. Under this mode, the possession of products introduced as safety passes into the arms of the financial institution. The bank can retain the ownership of goods pledged with it till the debt (main amount) at the side of interest and other bills are repaid. In case of non-payment of mortgage the financial institution would possibly either; Sue the borrower for the volume due; Sue for the sale of goods pledged; or After giving due understand, sell the products.

Lien

Lien mode of the lender to retain, assets belonging to the borrower till he repays the debt. It may also be of 2 sorts: (i) Particular lien and (ii) General lien.

Particular lien is a right to retain belongings until the claim related to the valuables is totaiiy paid. On the opposite hand, General lien is acceptable till all dues of the lender are paid. Banks usually enjoy general lien.

Notes

Mortgage

Mortgage is the transfer of a prison or equitable pastime in a specific immovable property for the payment of a debt. In case of loan, the ownership of the valuables may remain with the borrower, while the lender enjoys the total prison identify. The loan interest within the property is terminated as quickly as the debt is paid. Mortgages are taken as an additional security for working capital credit by means of banks.

Charge

Where immovable belongings of one particular person is made security for the charge of money to every other and the transaction does not quantity to mortgage, the latter individual is claimed to have a fee on the belongings and all of the provisions of straightforward loan will practice to this kind of fee. A charge may be created by the act of events or through the operation of regulation. It is simplest security for charge.

3. Commercial Paper

Commercial paper is a quite new instrument which was once originated in US. It helps personal companies with just right credit standing to lift cash directly from the market and buyers. They lift cash by means of issuing industrial papers in tight cash market conditions via resources rather than banks. CP is a moderately well-liked device and exists in most of the developed economies. Large corporate and personal corporations in finding CPs are inexpensive, more practical, and extra versatile because of their better credit rating.

3.2.2. Public Deposits, Inter-corporate Deposits, Short Term Loan from Financial Institutions

Public Deposits:

Public deposits consult with the unsecured deposits invited via firms from the general public principally to finance working capital wishes. An Organization wishing to invite public deposits makes an advertisement in the newspapers.

Any member of the public can fill up the prescribed shape and deposit the cash with the corporate. The company in return issues a deposit receipt. This receipt is an acknowledgement of debt via the corporate. The terms and conditions of the deposit are imprinted on the back of the receipt. The rate of interest on public deposits is determined by the period of deposit and reputation of the corporate.

A Company can invite public deposits for a length of six months to 3 years. Therefore, public deposits are basically a source of short-term finance. However, the deposits can be renewed from time-to-time. Renewal facility enables corporations to make use of public deposits as medium-term finance.

Public deposits of a company cannot exceed 25 in line with cent of its percentage capital and unfastened reserves. As these deposits are unsecured, the company having public deposits is required to put aside 10 in keeping with cent of deposits maturing via the top of the 12 months. The quantity so set aside can be utilized just for paying such deposits. Thus, public deposits seek advice from the deposits received by way of an organization from the public as unsecured debt. Companies want public deposits

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because these deposits are cheaper than bank loans. The public prefers to deposit money with well-established companies because the interest rate on public deposits is upper than on bank deposits. Now public sector firms also invite public deposits. Public deposits have become a popular supply of industrial finance in India.

Merits of Public Deposits:

1. Simplicity:

Public deposits are an excessively convenient supply of business finance. No awkward criminal formalities are involved. The corporate raising deposits have to simply give a commercial and factor a receipt to every depositor.

2. Economy:

Interest paid on public deposits is not up to that paid on debentures and financial institution loans. Moreover, brokerage, no underwriting fee, and so forth must be paid. Interest paid on public deposits is tax deductible which reduces tax liability. Therefore, public deposits are an inexpensive supply of finance.

3. No Charge on Assets:

Public deposits are unsecured and, due to this fact, don't create any rate or mortgage at the corporate's belongings. The company can carry loans in long run in opposition to the security of its belongings.

4. Flexibility:

Public deposits may also be raised during the season to purchase for raw materials in bulk and for different momentary needs. They will also be returned when the need is over. Therefore, public deposits introduce flexibility in the corporate's financial structure.

5. Trading on Equity:

Interest on public deposits is paid at a set price. This allows a company to claim upper rates of dividend to equity shareholders throughout classes of good income.

6. No Dilution of Control:

There isn't any dilution of shareholders' control on because the depositors have no voting rights.

7. Wide Contacts:

Public deposits allow an organization to increase contacts with a much wider public. These contacts turn out useful within the sale of shares and debentures in long term.

Demerits of Public Deposits:

1. Uncertainty:

Public deposits are an uncertain and unreliable source of finance. The depositors would possibly not reply when financial prerequisites are unsure. Moreover, they will

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withdraw their deposits each time they feel unstable in regards to the financial well being of the corporate.

Depositors are entitled to withdraw their deposits at any time after giving prior notice to the corporate. During times of monetary tightness or distress the depositors might get panicky and wish to withdraw their deposits.

Moreover, if numerous depositors simultaneously withdraw their deposits all the way through hunch, the corporate would possibly find it difficult to pay off an enormous sum directly. Therefore, public deposits are described as 'fair weather friends'.

2. Limited Funds:

A restricted amount of price range can also be raised via public deposits due to prison restrictions.

3. Temporary Finance:

The maturity duration of public deposits is short. The corporate cannot rely upon public deposits for assembly long-term monetary wishes.

4. Speculation:

As public deposits can also be raised easily and briefly, a company may be tempted to boost more price range than it will possibly profitably use. It would possibly keep idle money to meet long term contingencies. The management of the corporate may indulge in over-trading and hypothesis which exercise harmful effects at the industry.

5. Hindrance to Growth of Capital Market:

Public deposits hamper the expansion of a healthy capital marketplace within the country. Widespread use of public deposits creates a scarcity of business securities.

6. Limited Appeal:

Public deposits don't appeal as a method of investment to daring buyers who want capital gains. Conservative buyers may additionally not like these deposits within the absence of right kind safety.

7. Unsuitable for New Concerns:

New corporations lacking in sound credit score standing can't rely upon public deposits. Investors don't like to deposit money with such firms.

Inter-corporate deposits

What are Inter-corporate Deposits (ICDs)? What are their main function features?

Inter Corporate Deposits indicates unsecured quick term funding rose through one corporate from every other corporate. They are depending on personal contacts. An Inter-Corporate Deposit (ICD) is an unsecured borrowing by means of corporate and FIs from other company entities registered below the Companies Act 1956. The corporate having surplus budget would lend to some other corporate short of funds.

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This lending could be an uncollateralized foundation and therefore a higher rate of interest is demanded by means of the lender. The brief time period credit rating of the borrowing corporate would determine the rate at which it will be able to borrow funds. Further the credit score spreads demanded even for the top rated corporate would be upper than identical rated banks and the charges on ICDs would upper than those within the Certificate of Deposit (CD) market. The tenor of ICD may range from 1 day to at least one 12 months, but the most common tenor of borrowing is for 90 days.

Following are their major characteristics:

1) They are for an excessively brief period of time i.e. 3 months or 6 months.
2) They are unsecured supply for raising funds.
3) They aren't regulated through any regulation.
4) It is a relationship primarily based borrowing made via the corporate.
5) They contain top chance and prime returns
6) Useful in solving brief capital crisis.

Short term loan from financial institutions

Financial establishments offer non-permanent loans to colleges, firms, companies, and person borrowers, providing them with financing to be repaid over a quick period of time - typically lower than 12 months. However, there are momentary loans with terms of about 3 years depending at the loaned quantity and the contract signed through the lender and borrower.

Short-term loans are available a variety of varieties and feature a quick length of maturity. Colleges can be offering temporary loans to students so to lend a hand finance their studies. These loans have to be repaid in about 60 days or so depending on the phrases set by means of the respective institution. The maturity date will depend on many components similar to the amount of cash borrowed and the financial scenario of the scholar.

Payday loans are temporary instruments available at payday mortgage kiosks or over the Internet. These loans are unsecured and feature a substantial interest rate. Small quantities of money are most often loaned, e.g. between $30 and $100. However, some companies are offering loans in the amount of $1000 and more. Individuals normally follow for payday loans in case they fall in need of money ahead of the payday arrive. Usually, this type of mortgage has a adulthood of only one month. As long as the sum is paid earlier or on time, the borrower does no longer have to fret about paying prime interest.

Car title loans are a temporary loan device, also known as auto name loans or just title loans. Borrowers can download a mortgage in the amount of $100-$10,000, depending at the emblem and type of the automobile. Because this loan is secured via the car name, interest rates may also be significantly not up to that of payday loans. However, the interest rate continues to be somewhat top in comparison to other long-term loans. As the mortgage is secured, the lending establishment is not going to require a credit check. Applications are approved within a brief time period, making

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them alluring to people determined for cash. When payments aren't made in a well-timed means, the loan incurs high interest. Banks and credit unions additionally are offering short-term loans to their consumers. The maturity can be anyplace between 60 and 120 days after the loan has been licensed, but the time period could also be as long as 3 years. The latter depends upon the borrowed amount and at the specific rules of the lending financial institution. Loans can be secured or unsecured. If the mortgage is of the second one type, the appliance procedure might take longer, with the financial institution checking the borrower's credit history. When the client has an excellent file, obtaining a short-term loan is not difficult. However, people with adverse credit history would possibly want to supply collateral so as to get approval. Another option available for them is making use of for a secured credit card.

When searching for momentary loans, it is very important take a look at elements akin to interest rates, maturity, credit score limit, past due charges, and other fees that can practice. Before getting into a mortgage contract, make sure to have enough source of revenue to fulfill your financial obligations. Unless you wish to have money for cases of emergency (hospitalization and scientific bills), it's higher to look for other options of financing. In the longer term, discovering a better paid process or getting that promotion make extra sense that dwelling on credit.

3.2.3. Commercial Paper, Factoring & Forfeiting

What is Commercial Paper?

Commercial paper is a recurrently used form of unsecured, short-term debt tool issued by way of companies, generally used for the financing of payroll, accounts payable and inventories, and meeting different non-permanent liabilities. Maturities on business paper in most cases closing a number of days, and seldom vary longer than 270 days. Commercial paper is most often issued at a cut price from face price and reflects prevailing market interest rates.

Understanding Commercial Paper

Commercial paper was first presented over 150 years ago when New York traders began to promote their short-term tasks to dealers that acted as middlemen with the intention to release capital to cover near term tasks. These sellers would thus purchase the notes at a bargain from their par worth after which go them directly to banks or other buyers. The borrower would therefore repay the investor and quantity equal to the par worth of the note.

Commercial paper isn't normally subsidized by way of any type of collateral, making it a type of unsecured debt. It differs from asset-backed industrial paper (ABCP), a category of debt software sponsored by means of assets decided on through the issuer. In either case, business paper is only issued via firms with top of the range debt ratings. Only these kinds of firms will be capable of simply to find patrons with no need to offer a substantial bargain (upper cost) for the debt issue.

Because business paper is issued by means of massive institutions, the denominations of the economic paper offerings are considerable, normally $100,000 or more. Other firms, financial establishments, wealthy individuals, and money marketplace finances are in most cases patrons of commercial paper.

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Fact: Marcus Goldman of Goldman Sachs was once the primary broker within the money market to buy commercial paper, and his corporate became one of the crucial biggest industrial paper dealers in America following the Civil War.

Advantages of Commercial Paper

A significant good thing about industrial paper is that it does now not wish to be registered with the Securities and Exchange Commission (SEC) so long as it matures ahead of 9 months, or 270 days, making it an excessively cost-effective approach of financing. Although maturities can cross as long as 270 days ahead of coming under the purview of the SEC, maturities for commercial paper reasonable about 30 days, infrequently attaining that threshold. The proceeds from this sort of financing can best be used on current property, or inventories, and don't seem to be allowed for use on fastened belongings, similar to a brand new plant, without SEC involvement.

Commercial Paper during the Financial Crisis

The business paper marketplace performed a large function in the monetary crisis that started in 2007. As buyers began to doubt the financial wellbeing and liquidity of companies reminiscent of Lehman Brothers, the economic paper marketplace iced up, and corporations have been now not able to get admission to easy and reasonably priced funding. Another impact of the commercial paper marketplace freezing was some money market finances - really extensive investors in industrial paper - "breaking the dollar." This supposed that the affected budget had internet asset values under $1, reflecting the diminishing price of their remarkable industrial paper issued by corporations of suspect financial wellbeing.

The Commercial Paper Funding Facility (CPFF) was later formed by the Federal Reserve Bank of NY, USA on 27 Oct, 2008, as a result of the credit crunch faced by financial mediators in the commercial paper market. The Federal Reserve Bank of New York closed the CPFF in February 2010 after it no longer became necessary as the financial sector and broader economy recovered.

Example of Commercial Paper

An instance of commercial paper is whilst a retail firm is looking for short-term funding to finance some new inventory for an upcoming holiday season. The firm needs $20 million and it offers investors $20.1 million in face value of commercial paper in exchange for $20 million in cash, according to prevailing interest rates. In effect, there would be a $0.1 million interest payment upon maturity of the commercial paper in exchange for the $20 million in cash, equating to an interest rate of 1%. This interest rate can be adjusted for time, contingent on the number of days the commercial paper is outstanding.

What is Factoring?

Factoring is a common financial practice used in the trade financing industry that can be applied to both domestic and international sales. It is a transaction in which a company sells its accounts receivable at a discount to a 3rd party financial institution, or factor, for immediate payment instead of waiting monthly, bimonthly, or quarterly until payment is due from its customer.

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The relationship that a business has with the factor can be a very successful and long sustaining one. If the business needs, they are able to sell their accounts receivable to their factor every month for as long as they, and the factor, are both in trade.

When it comes to the contract between the trade and the factor, the events can negotiate if the contract will have recourse or now not. Recourse factoring means that if the factor isn't in a position to gather the total amount of the bill from your shopper, you are going to comply with chip in something monetary. Non-recourse factoring implies that if the issue isn't in a position to assemble the total quantity of the bill from your shopper, they soak up any and all losses.

What is Forfeiting?

Though the method of forfeiting is very similar to that of factoring, forfeiting is handiest used in international business. In this situation, a industry sells its proper to trade receivables to world industry finance firms (the forfeiters). For doing this, the trade receives a money payment instantly to keep their business running easily.

In factoring, as soon as a trade sells its accounts receivables to an element, they are selling 100% of the bill. In forfeiting, when a business provides up the right to business receivables to global trade finance firms, they're giving up 100% of their claim on it to the forfeiter.

Unlike factoring, a forfeiter will in most cases have to attend much longer than the traditional 30-day bill waiting period. A forfeiter will have to wait several months to make their reimbursement plus earnings, or they may even have to wait several years in some rare instances.

Where there may well be recourse or nonrecourse in factoring, forfeiting is conducted without recourse. Although forfeiters do love to have some form of promises in place from the buyer, they're nonetheless assuming all the risk if the buyer does now not pay. They additionally cannot come again to the industry, asking them to chip in any financial reimbursement.

Final Thoughts

When it comes to factoring and forfeiting, there are a few things to keep in mind. Factoring is most commonly utilized in domestic trade but can be used for international industry. Forfeiting is just used for global trade eventualities only.

If you think you are ready to take that next step and promote globally, Trade wind can be your one-stop solution for all your global industry finance needs. Combing financing, credit score protection, and collections right into a single industry finance facility, Trade wind, number one global industry finance corporate, provides streamlined, versatile, and best-in-class services and products.

Key Differences between Factoring and Forfeiting

The main distinction between the 2 is that factoring can be utilized in home and international business, whereas forfeiting most effective applies to world business financing.

Here are 8 further key variations between factoring and forfeiting:

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1. The Process

Factoring: A monetary association where industry homeowners sell their pending invoices (accounts receivables) to a 3rd party (factoring firms, lenders, or banks) in exchange for speedy money.

Forfeiting: Belongs underneath export financing wherein an exporter sells their rights of business receivables to a forfeiter to procure speedy cash payment.

2. Timing

Factoring: Deals with momentary accounts receivables, which most often falls due inside 90 days or much less.

Forfeiting: Deals with medium- to long-term accounts receivables.

3. Sale of Receivables

Factoring: The sales of receivables are in most cases on odd merchandise or services.

Forfeiting: The gross sales of receivables are on capital goods.

4. Percentage of Financing Received

Factoring: Business house owners in most cases get 80% to 90% financing.

Forfeiting: Funds exporters with 100% financing of the value of exported items.

5. Negotiable Instruments

Factoring: Deals with negotiable instruments, akin to promissory notes and expenses of exchanges.

Forfeiting: Does no longer handle negotiable instruments.

6. Recourse Vs. Non-Recourse

Factoring: It may also be recourse or non-recourse.

Forfeiting: Always non-recourse.

7. Secondary Markets

Factoring: No secondary marketplace.

Forfeiting: There is a secondary market that increases the liquidity in forfeiting.

8. Who Pays for The Cost

Factoring: The vendor or shopper pays for the factoring prices.

Forfeiting: The in another country buyer will pay for the forfeiting costs.

3.2.4. Securitization

Securitization, the practice of pooling in combination with various kinds of debt instruments (assets) akin to mortgages and other client loans, selling them as bonds

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to traders. A bond compiled in this manner is typically referred to as an asset-backed security (ABS) or collateralized debt legal responsibility (CDO). If the pool of debt tools consists basically of mortgages, the bond is known as a mortgage-backed safety (MBS). The holders of such securities are entitled to the receipt of most important and pastime bills on the debts underlying them.

Securitization supplies lenders with liquidity and is a good manner of diversifying their portfolios to reduce chance. The huge pool of debt instruments that are securitized are divided and offered in smaller chunks referred to as tranches, with every trench representing a claim to a portion of the receipts from the underlying debt instruments. Trenching gives smaller investors the opportunity to purchase such instruments and allows lenders to raise more money via promoting them to a broader market.

ABSs regularly include a relatively large and complex set of various debt instruments, comparable to mortgages, credit card debt, auto loans, and so on. For an investor who buys a bit of this kind of safety, the complexity of the mixture can make it tricky to evaluate the safety's riskiness.

Much of the expansion in subprime lending that occurred within the 1990s within the United States was once funded by the securitization of mortgages into MBSs. a Good Portion of the mortgages that were securitized right through this era consisted of subprime mortgages, that have been extended to families with horrible credit histories.

The monetary crisis of 2007–08 and the ensuing Great Recession dealt a serious blow to the mortgage-securitization market. As defaults on subprime mortgages surged, MBSs that have been sponsored by way of subprime mortgages unexpectedly become nugatory. To provide crucial liquidity to the monetary markets, the Federal Reserve, the central financial institution of the United States, began buying MBSs from investors via a chain of quantitative easing (QE) operations.

As monetary markets slowly recovered, banks and different monetary institutions began to use securitization again as a way of making a living from their increasing portfolios of new mortgages and refinances. Nevertheless, the Federal Reserve continued to shop for MBSs from the marketplace for a number of years after the restoration to ensure sufficient liquidity.

3.2.5 Institutional Sources of Funds- Banks, FII's, VCF's

The banking industry handles a country's finances, including cash and credit. Banks are institutions that accept deposits and extend credit to individuals and businesses, and they play an important role in a country's economic stability. Banks are subject to tight regulation in most countries due to their role in the economy. The Reserve Bank of India (RBI) is India's apex banking agency, in charge of the country's monetary policy.

Banks are divided into four types:

Commercial Banks

Small Finance Banks

Payments Banks

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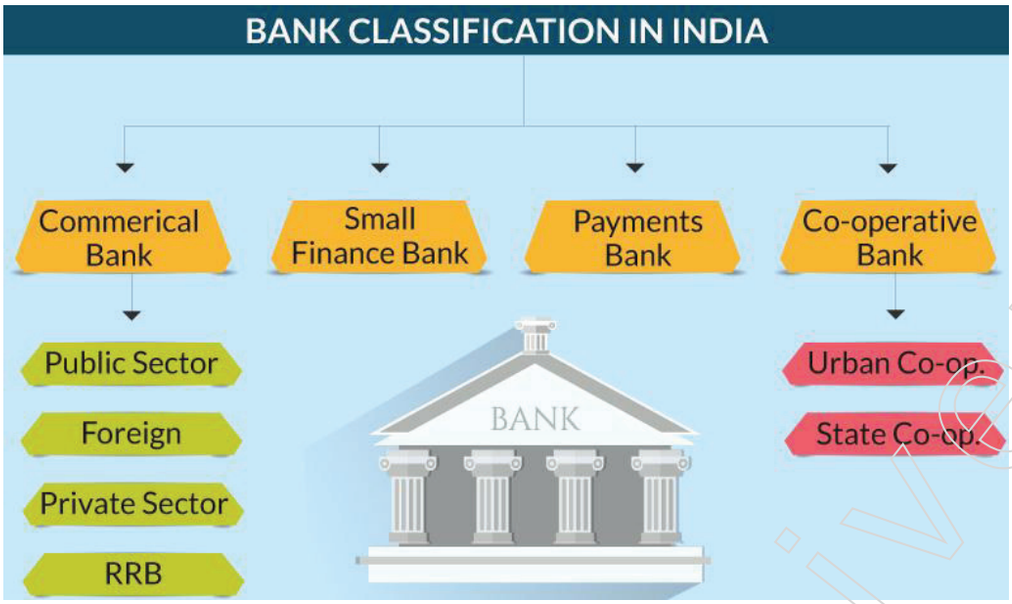
Co-operative Banks



Commercial Bank

Commercial Banks are regulated under the Banking Regulation Act, 1949 and their business model is designed to make profit. Their primary function is to accept deposits and grant loans to the general public, corporate and government. Commercial banks can be divided into-

- Public Sector Banks
- Private Sector Banks
- Foreign Banks
- Regional Rural Banks

Public Sector Banks

These are the nationalised banks, which account for more than 75% of the country's overall banking market. The government owns the majority of these banks' shares. SBI is India's largest public sector bank by number, and after merging with its five associate banks (as of April 1, 2017), it now ranks among the top 50 banks in the world.

In total, there are 12 nationalised banks in the country, as follows:

Bank of Baroda	Punjab & Sind Bank
Bank of India	Punjab National Bank
Bank of Maharashtra	Indian Bank
Canara Bank	State Bank of India
Central Bank of India	Union Bank of India
Indian Overseas Bank	UCO Bank

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Private Sector Banks

These include banks in which private shareholders own a majority of the stock or equity. All of the RBI's banking rules and regulations will be applied to private sector banks as well. The following is a list of India's private-sector banks:

Axis Bank	IndusInd Bank
Bandhan Bank	Jammu and Kashmir Bank
City Union Bank	Karnataka Bank
DCB Bank	Karur Vysya Bank
Dhanlaxmi Bank	Kotak Mahindra Bank
Federal Bank	Lakshmi Vilas Bank
HDFC Bank	Nainital Bank
ICICI Bank	RBL Bank
IDBI Bank	Tamilnad Mercantile Bank
IDFC Bank	South Indian Bank
YES Bank	

Foreign Banks

A foreign bank is one that has its headquarters outside of India but operates as a private company in India. These banks are required to obey the laws of both their home country and the country in which they operate. The following is a list of foreign banks that operate in India. –

CTBC Bank Co., Ltd.	Krung Thai Bank Public Co. Ltd.	Abu Dhabi Commercial Bank Ltd.
Bank of Nova Scotia	Industrial & Commercial Bank of China Ltd.	BNP Paribas
American Express Banking Corporation	Bank of America	Citibank
Sumitomo Mitsui Banking Corporation	MUFG Bank, Ltd.	Cooperatieve Rabobank U.A.
Industrial Bank of Korea	Bank of Ceylon	Credit Suisse A.G
Credit Agricole Corporate & Investment Bank	Societe Generale	Deutsche Bank
Mashreq Bank PSC	First Abu Dhabi Bank PJSC	Emirates Bank NBD
Sberbank	United Overseas Bank Ltd	FirstRand Bank Ltd
Doha Bank Q.P.S.C	Qatar National Bank (Q.P.S.C.)	JSC VTB Bank
Shinhan Bank	Woori Bank	KEB Hana Bank

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HSBC Bank	PT Bank Maybank Indonesia TBK	Mizuho Bank Ltd.
J.P. Morgan Chase Bank N.A	Kookmin Bank	SBM Bank (India) Limited
Bank of Bahrain & Kuwait BSC	AB Bank Ltd.	Sonali Bank Ltd.
Barclays Bank Plc.	Standard Chartered Bank	The Royal Bank of Scotland plc
Australia and New Zealand Banking Group Ltd.	National Australia Bank	Westpac Banking Corporation
DBS Bank India Limited		

Regional Rural Banks

These are also scheduled commercial banks, but their primary goal is to provide credit to the poorest members of society, such as agricultural labourers, marginal farmers, and small businesses. They typically operate at a regional level in various Indian states and may also have branches in specific urban areas. RRBs also perform essential functions such as providing banking and financial services to rural and semi-urban areas.

Government activities such as the payment of MGNREGA employees' salaries, the allocation of pensions, and so on.

Debit cards, credit cards, and locker facilities are examples of non-banking services.

Small Finance Banks

This is a niche banking segment in the world, with the aim of bringing financial inclusion to people who aren't served by other banks. Micro enterprises, small and marginal farmers, unorganised sector companies, and small business units are among the key customers of small finance banks. These are regulated by the provisions of the RBI Act, 1934, and FEMA, and are authorised under Section 22 of the Banking Regulation Act, 1949.

Au Small Finance Bank Ltd.	Ujjivan Small Finance Bank Ltd.
Capital Small Finance Bank Ltd.	Suryoday Small Finance Bank Ltd.
ESAF Small Finance Bank Ltd.	Fincare Small Finance Bank Ltd.
Jana Small Finance Bank Ltd.	Equitas Small Finance Bank Ltd.
North East Small Finance Bank Ltd.	Utkarsh Small Finance Bank Ltd.

Payments Bank

In the Indian banking industry, this is a relatively new bank model. It was created by the Reserve Bank of India and is permitted to accept restricted deposits. The maximum

Notes

sum per customer is currently Rs. 1 lakh. They also have ATM cards, debit cards, online banking, and mobile banking services.

Cooperative Banks

Cooperative banks are governed by an elected management committee and are governed by the Cooperative Societies Act of 1912. They primarily represent entrepreneurs, small enterprises, industries, and self-employment in urban areas and operate on a no-profit, no-loss basis. They primarily fund agriculture-related activities in rural areas, such as forestry, livestock, and hatcheries.

Urban Co-operative Banks

State Co-operative Banks

Scheduled banks

The Reserve Bank of India Act, 1934, has a 2nd Schedule that covers scheduled banks. To be considered a scheduled bank, a bank must meet the following requirements:

A bank that has at least Rs. 5 lakh in paid-up capital qualifies for the schedule bank. a classification

A bank must demonstrate to the central bank that its operations do not jeopardise depositors' interests.

Instead of being a sole proprietorship or a partnership, a bank should be a company.

Non Scheduled Banks

Local area banks that are not listed in the Reserve Bank of India's Second Schedule are referred to as non-scheduled banks. Non-Scheduled Banks must also maintain the necessary cash reserve, but not with the RBI, but with them.

FII

A foreign institutional investor (FII) is an individual or company that invests in a country other than the one where it is listed or has its headquarters. The word "international institutional investor" is most widely used in India to describe foreign entities that invest in the country's financial markets. Hedge funds, insurance companies, pension funds, investment banks, and mutual funds are examples of FIIs. FIIs can be important sources of capital in developing economies, but many developing countries, including India, have set limits on the total value of assets and the number of equity shares a FII can buy, particularly in a single company.

In order to behave as a banker to the FIIs, the RBI has designated banks which are authorized to care for them. The biggest source by which FIIs invest is the issuance of Participatory Notes (P-Notes), which might be sometimes called Offshore Derivatives.

Can FIIs put money into Indian corporations?

Yes, FIIs can spend money on the shares and debentures of the Indian companies. In order to invest in the main and secondary capital markets in India, they've to project

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during the portfolio funding scheme (PIS). According to RBI rules, the ceiling for overall funding for FIIs is 24% of the paid up capital of the Indian company. The limit is 20% of the paid up capital relating to public sector banks. However, if the board and the general frame approve and pass a unique resolution, then the ceiling of 24% for FII funding can be raised up to sectoral cap for that individual segment. In reality, lately Sebi allowed FIIs to spend money on unlisted exchanges as well; this means that both BSE and NSE (the unlisted bourses) can now allot stocks to FIIs additionally.

Who all can get registered as FIIs?

There is a protracted list of entities that are eligible to get registered as FIIs corresponding to pension finances, mutual budget, insurance coverage firms, investment trusts, banks, university budget, endowments, foundations, sovereign wealth finances, hedge funds and charitable trusts. In fact, asset control corporations, funding managers, advisors or institutional portfolio managers arrange and/or owned via NRIs also are eligible to be registered as FIIs. The nodal point for FII registrations is Sebi and hence all FIIs should check in themselves with Sebi and must also agree to the alternate regulate laws of the central financial institution. Apart from being allowed to spend money on securities in number one and secondary markets, FIIs too can put money into mutual price range, dated executive securities, derivatives traded on recognised inventory alternate and industrial papers.

Why are FIIs vital for Indian markets?

FIIs are among the primary assets of liquidity for the Indian markets. If FIIs are investing massive quantities within the Indian stock exchanges, then it reflects their prime self-assurance and a wholesome investor sentiment for our markets. But with the present global financial turmoil and a liquidity and credit score freeze within the international markets, FIIs have turn into net sellers (on a day after day foundation). The entry of FIIs in Indian inventory exchanges then it reflects their top self-assurance and a healthy investor sentiment for our markets. But with the current global financial turmoil and a liquidity and credit score freeze in the global markets, FIIs have develop into internet dealers (on a day after day basis). The entry of FIIs in India has brought combined penalties for our markets, on one hand they have got advanced the breadth and intensity of Indian markets and on the other hand they have also turn out to be the major assets of hypothesis in testing occasions like these.

Venture Capital Funds (VCFs)?

Start-ups are occupying the high imagination of the sector now. Providing monetary toughens to begin United States of America and other new business ventures in several fields is a dangerous industry. At the same time, it provides high growth opportunities for the investors who supply cash for the start-ups.

The threat of start up financing is that bringing a brand new business entity into an aggressive level is a time taking process. Similarly, the potential of failure is also really extensive. Despite these difficulties, many seed financiers or start up financing firms like Sequoia and Softbank have earned large money from their reasonably small preliminary investment in Whatsapp and Alibaba respectively.

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Now there are other verities of traders who are specialized in financing start up ventures together with the preferred group- angel buyers.

But a very powerful one is institutions devoted for financing new ventures. These institutions are called Venture Capital Funds (VCFs).

VCF is an investment fund that manages cash from other investors seeking to supply capital in start-up and small- and medium-size enterprises that have strong enlargement attainable.

According to SEBI, VCF is a fund established in the type of company/corporate including a body company and registered with SEBI. The VCF can have dedicated pool of capital, raised in the specified means and invested via following regulations of SEBI.

The purpose of the venture capital financing is to spend money on high-risk tasks with the anticipation of high returns. Following are the main options of VCFs:

- They finance new and temporarily growing industry ventures or entities
- VCFs take upper dangers with the expectancy of upper rewards whilst making funding
- The VCFs steadily purchase equity securities of the entities they invest money
- VCFs lend a hand the development of latest merchandise or products and services and obtain applied sciences
- The VCFs take energetic participation in the firms they invest and thus are helping the expansion
- The VCF funding is long term in nature within the making an investment entity.
- The cash provided through VCFs is termed as venture capital. In India, the VCFs are regulated by the SEBI.
- For the VCFs, they get cash from a lot of assets, together with non-public and public pension budget, corporations and wealthy people, each domestic and foreign and so on.
- Small cash investing individuals known as angel buyers also are neatly engaged in startup financing. Recent regulation by SEBI in India places angel investors as a subcategory of VCFs.

Check your Understanding

1. In finance, “working capital” means the same thing as
   a) total assets.
   b) fixed assets.
   c) current assets.
   d) current assets minus current liabilities.
2. Which of the following would be consistent with a more aggressive approach to financing working capital?
   a) Financing short-term needs with short-term funds.
   b) Financing permanent inventory buildup with long-term debt.

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c) Financing seasonal needs with short-term funds.

d) Financing some long-term needs with short-term funds.

3. Which asset-liability combination would most likely result in the firm's having the greatest risk of technical insolvency?

a) Increasing current assets while lowering current liabilities.

b) Increasing current assets while incurring more current liabilities.

c) Reducing current assets, increasing current liabilities, and reducing long-term debt.

d) Replacing short-term debt with equity.

4. Which of the following illustrates the use of a hedging (or matching) approach to financing?

a) Short-term assets financed with long-term liabilities.

b) Permanent working capital financed with long-term liabilities.

c) Short-term assets financed with equity.

d) All assets financed with a 50 percent equity, 50 percent long-term debt mixture.

5. In deciding the appropriate level of current assets for the firm, management is confronted with

a) a trade-off between profitability and risk.

b) a trade-off between liquidity and marketability.

c) a trade-off between equity and debt.

d) a trade-off between short-term versus long-term borrowing.

Summary

Short term loans are very useful now not only for businesses but also for individuals. For trade, this resolves the issue of surprising money flow and in the same line, it resolves the problem of an emergency fund for the person. The penalties of nonpayment of the installment of quick time period loans will also be very dangerous as not only it's going to have an effect on the credit score but will building up the monetary burden and hurdle in day after day trade operation. It is advisable to correctly pass in the course of the projected trade and cash waft prior to choosing finance.

Activity

i. Create A financing proposal contains the details on how you intend to achieve your business plan outlining:

- Amount of money needed
- How that money will be used?
- Expected returns
- Security

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Notes

Glossary

- ATM: Automated Teller Machine
- FII: Foreign Institutional Investor
- ROE: Return on Equity
- LBO: leveraged buyout
- PE: Public equity
- VCFs: Venture Capital Funds
- SEBI: Securities and Exchange Board of India

Further Readings

1. Strategic Corporate Finance: Applications in Valuation & Capital Structure by Jitendra Kushwaha and Pallavi k. Kindle Edition.
2. Financial Management: Text, Problems and Cases by M. Y. Khan, P. K. Jain, 8th Edition, McGraw Hill Education. 2018.

Answers to Check your Understandings

1. d 2. d 3. c 4. b 5.

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Module-4: Working Capital Management

Notes

Structure:

Unit-4.1 Working Capital Management

4.1.1 Working Capital Management-Overview

4.1.2 Factors influencing working capital requirement

4.1.3 Estimation working capital requirement with illustration

4.1.4 Operating cycle analysis with Illustration

4.1.5 Negative Working Capital

Unit-4.2 Inventory, Receivables & Cash Management

4.2.1 Inventory Management- Overview

4.2.2 Objectives of Inventory management

4.2.3 EOQ Model with Illustration

4.2.4 Receivables Management-Introduction

4.2.5 Management of Cash- Introduction

4.2.6 Cash Planning, Managing the cash flows

4.2.7 Determining Optimum Cash Level (Baumol Model with numerical)

4.2.8 Financing of Working Capital

4.2.9 Investing surplus cash

4.2.10 Calculation of Maximum Permissible Bank Finance(MPBF)

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Notes

Unit-4.1: Working Capital Management

Objectives:

At the end of this unit, you will be able to get an insight on

- Working Capital Management-Overview
- Factors influencing working capital requirement
- Estimation working capital requirement with illustration
- Operating cycle analysis with Illustration
- Negative Working Capital

Introduction

Every business concern requires working capital for holding current assets like stock of materials and finished goods, bills receivable, accounts receivable and cash for meeting its current expenses like salaries, wages, taxes, rent.

The term working capital is used in two senses namely gross working capital and net working capital.

Working capital is essential for the smooth running of the business. As no business concern can effectively work without proper management of working capital.

4.1.1 Working Capital Management – Overview

Working capital management is described as having enough short-term assets such as cash, inventories, receivables to cover the short-term liabilities such as payable overdrafts as they come due. Working capital management is also a corporate practice for ensuring that an organisation performs efficiently by controlling and maximising the use of its existing assets and liabilities.

According to Kesimli and Gunay (2011) working capital management is defined “as a process of managing short term assets and short term liabilities which are expected to mature or be paid within a period of one year or operating cycle whichever is shorter.”

Since it measures a business’s liquidity and profitability balance, effective working capital management determines whether it succeeds or fails in the short or long term. The ability of financial managers, in this case the entrepreneurs, to efficiently manage working capital components such as cash, debtors, creditors, and inventories is essential to the success of any company. It’s important for a company to strike a balance between profitability and liquidity as it continues its daily operations.

The term working capital is used in two senses namely

- Net working capital
- Gross working capital

Net Working Capital: The net working capital can be determined by taking into account major elements of the working capital cycle, such as inventories, receivables, cash, and payables, all of which are primarily defined by time and money. The

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difference between current assets and current liabilities is known as net working capital. The term "net working capital" refers to the soundness of a company's current financial condition. It's a qualitative term that indicates a company's capacity to cover its operating costs and current liabilities. If new shares are issued for cash, the net working capital will increase because there is an increase in current assets (cash) but no corresponding increase in current liabilities (e.g., if new shares are issued for cash, the net working capital will increase because there is an increase in current assets (cash) but no corresponding increase in current liabilities.

Generally, the current ratio of 2:1 is considered as a good sign of soundness of financial structure.

Gross Working Capital: It represents the total value of current assets. It is a quantitative concept pointing out the total amount available for financing the current assets. It cannot reveal the true financial position of the company as every increase in borrowing will increase the gross working capital, whereas the net working capital will remain the same because there is a corresponding increase in the amount of both current assets and current liabilities converted into cash again and again.

Significance of Working Capital

Working capital is essential for the smooth operations of any business concern. Lack of adequate working capital may endanger the survival of business. Even a sound business concern may have to go into liquidation if it doesn't have the necessary cash to purchase current assets and meet current liabilities. If a company does not possess adequate working capital, it shall not be able to make prompt payment to its creditors. This will reduce the reputation of the concern. Inadequacy of working capital will also prevent taking the advantage of any favourable opportunity either to purchase raw materials or to execute a special order.

Thus, in a nutshell, working capital management involves tracking the current, collection, and inventory ratios to ensure that a company operates efficiently thereby helping to maximize a company's profitability. The primary goal is to ensure that the corporation has enough cash flow to cover its short-term operating expenses and debt obligations. Working capital management aids in the smooth running of the net operating cycle, also known as the cash conversion cycle (CCC)—the time it takes to turn net current assets and liabilities into cash in the shortest possible time.

4.1.2 Factors Influencing Working Capital Requirement

Main factors affecting the working capital are as follows:

(1) Nature of Business:

The amount of working capital required is determined by the type of company. Manufacturing and trading businesses are the two most common forms of businesses. Converting raw materials into finished products takes a long time in the manufacturing industry. As a result, capital remains invested for a long time in raw materials, semi-finished products, and finished goods stocking.

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As a result, more working capital is required. Similarly, in case of a trading company, products are sold directly after acquiring it and in some cases, sales are made even before the purchase is made. As a result, only a small amount of working capital is needed. Furthermore, since there is no inventory in service industries, working capital is almost zero.

(2) Scale of Operations:

There is a direct linkage between working capital and the scale of operations. Contrary, more working capital is required in case of large scale organisations while less working capital is needed in case of small-scale organisations.

(3) Business Cycle:

Various stages of business cycle affect the requirement of Working capital. It is witnessed that during boom in the market both the demand as well as the sales of a particular increase due to which the requirement of working capital is increases. On the other hand, during depression, the demand declines which affects both the production and sales of good and eventually results in less requirement of Working capital.

(4) Seasonal Factors:

Some products are in high demand all year, while others are only in high demand during certain seasons. The manufacture and selling of goods that have consistent demand across the year are continuous. As a result, such businesses need little working capital.

On the other hand, some products have a seasonal demand, they are manufactured almost continuously throughout the year, ensuring that supplies are readily available when needed. Such companies must hold large inventories of raw materials and finished goods, necessitating a large amount of working capital. Woollen mills are an excellent example.

(5) Production Cycle:

The time it takes to turn raw materials into finished goods is referred to as the production cycle. The longer this cycle lasts, the longer the capital will be locked up in raw materials and semi-manufactured goods.

As a result, additional working capital will be needed. On the other hand, where the production cycle is short, less working capital is needed.

(6) Credit Allowed:

Those enterprises which sell goods on cash payment basis need little working capital but those who provide credit facilities to the customers need more working capital.

(7) Credit Availed:

If raw material and other inputs are easily available on credit, less working capital is needed. On the contrary, if these things are not available on credit then to make cash payment quickly large amount of working capital will be needed.

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(8) Operating Efficiency:

Operating efficiency means efficiently completing the various business operations. Operating efficiency of every organisation happens to be different.

Some such examples are: (i) converting raw material into finished goods at the earliest, (ii) selling the finished goods quickly, and (iii) quickly getting payments from the debtors. A company which has a better operating efficiency has to invest less in stock and the debtors.

Therefore, it requires less working capital, while the case is different in respect of companies with less operating efficiency.

(9) Availability of Raw Material:

Availability of raw material also influences the amount of working capital. If the enterprise makes use of such raw material which is available easily throughout the year, then less working capital will be required, because there will be no need to stock it in large quantity.

On the contrary, if the enterprise makes use of such raw material which is available only in some particular months of the year whereas for continuous production it is needed all the year round, then large quantity of it will be stocked. Under the circumstances, more working capital will be required.

(10) Growth Prospects:

Growth means the development of the scale of business operations (production, sales, etc.). The organisations which have sufficient possibilities of growth require more working capital, while the case is different in respect of companies with less growth prospects.

(11) Level of Competition:

High level of competition increases the need for more working capital. In order to face competition, more stock is required for quick delivery and credit facility for a long period has to be made available.

(12) Inflation

Inflation means rise in prices. In such a situation more capital is required than before in order to maintain the previous scale of production and sales. Therefore, with the increasing rate of inflation, there is a corresponding increase in the working capital.

4.1.3 Estimation Working Capital Requirement with Illustration

There are broadly three methods of estimating or analysing the requirement of working capital of a company viz. percentage of revenue or sales, regression analysis, and operating cycle method. Estimating working capital means calculating future working capital. It should be as accurate as possible because the planning of working capital would be based on these estimates and bank and other financial institutes finance the working capital needs to be based on such estimates only.

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Methods of Estimating / Analysing Working Capital are as follows:

- Percentage of Sales Method:
- Regression Analysis Method:
- Operating Cycle Method:

Percentage of Sales Method:

It is the easiest of the methods for calculating the working capital requirement of a company. This method is based on the principle of 'history repeats itself'. For estimating, a relationship of sales and working capital is worked out for say last 5 years. If it is constantly coming near say 40% i.e. working capital level is 40% of sales, the next year estimation is done based on this estimate. If the expected sales are 500 million dollars, 200 million dollars would be required as working capital.

The advantage of this method is that it is very simple to understand and calculate also. Disadvantage includes its assumption which is difficult to be true for many organizations. So, where there is no linear relationship between the revenue and working capital, this method is not useful. In new start-up projects also, this method is not applicable because there is no past.

Regression Analysis Method:

For the past few years, an average relationship between revenue and working capital (current assets) and its different components has been developed using this approach.

- Regression analysis may be performed using either schematic representations (scatter diagrams) or mathematical formulas.
- There are three main types of regression analysis simple linear regressions, simple curvilinear regressions, and multiple regression situations.
- Even in complex situations, this regression analysis method can forecast working capital.
- It is especially well suited to long-term forecasting.

This statistical estimation tool is utilized by mass for various types of estimation. It tries to establish trend relationship. We will use it for working capital estimation. This method expresses the relationship between revenue & working capital in the form of an equation (Working Capital = Intercept + Slope * Revenue). The slope is the rate of change of working capital with one-Unit-change in revenue. Intercept is the point where regression line and working capital axis. Other calculations:

- $\Sigma y = na + b\Sigma x$
- $\Sigma xy = a\Sigma x + b\Sigma^2$

  Where x = revenue, y = working capital, n = years

Illustration:

By using following table, calculate the data using regression analysis method, targeted revenue = Rs.500 Lakhs

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(in rs. lakhs)

Year	Revenue (X)	Working capital (Y)
2010	70	50
2011	85	55
2012	100	65
2013	115	70
2014	130	80
2015	140	90

Solution:

Year (n)	Revenue (X)	Working capital (Y)	X*Y	X2
2010	70	50	3500	4900
2011	85	55	4675	7225
2012	100	65	6500	10000
2013	115	70	8050	13225
2014	130	80	10400	16900
2015	140	90	12600	19600
Σn = 6	Σx = 640	ΣY = 410	ΣX*Y=45725	Σ X^2=71850

Now calculate

- Σy = na + bΣx => 410= 6a+640b
- Σxy = aΣx + bΣx2=> 45725 = 640a + 71850b

By solving the above two equations, we get => b = 0.55 and a = 9.05

At the end of the statistical exercise with past revenue and working capital data, we will get an equation like below:

Working Capital = Intercept + Slope * Revenue => 9.05+0.55(revenue)

To calculate working capital, just put the targeted revenue figure in the above equation, i.e., 500

Working Capital = 9.05+0.55(500) = 284.05

Therefore, we need Rs.284.05 lakhs of working capital to achieve revenue of Rs.500 lakhs.

Operating Cycle Method:

This is probably the best of the methods because it takes into account the actual business or industry situation into consideration while giving an estimate of working capital. A general rule can be stated in this method. Longer the working capital operating cycle, higher would be the requirement of working capital and vice versa. We would agree to the point also. The following formula can be used to estimate or calculate the working capital

Notes

Working Capital = Cost of Goods Sold (Estimated) * (No. of Days of Operating Cycle / 365 Days) + Bank and Cash Balance.

If the cost of goods sold (estimated) is $35 million and operating cycle is 75 days and bank balance required is 1.25 million. Therefore, Working Capital = 35 * 75/365 + 1.25 = $8.44 Million.

In this method, each component can also be calculated. It means bifurcation of $8.44 million can be done in inventory, cash, accounts receivable, accounts payable etc. also, this method is not applicable because there is no past.

4.1.4 Operating Cycle Analysis with Illustration

The number of days it takes a company to convert its inventories to cash is referred to as the operating cycle. The operating cycle length of a firm is a measure of its liquidity and asset utilisation. Companies with longer operating cycles, on average, would demand a higher return on sales to offset the higher opportunity cost of funds held in inventories and receivables. The process of producing/purchasing inventories, selling them, recovering cash from consumers, using that cash to buy raw materials to produce more inventories, and so on is called the operating cycle because it is repeated as long as the business is in operation. The net operating cycle, also known as the currency conversion cycle, is a related notion. The net operating cycle is calculated by subtracting the days it takes a company to pay its vendors from the sum of days inventories and sales outstanding.

When the current ratio and quick ratio varies significantly, it is indeed wise to look into the operating cycle and cash conversion cycle to see if the company's funds are less lucrative assets.

Operating Cycle Formula

Complete operating cycle analysis calculations simply with the following formula:

Operating cycle = DIO + DSO – DPO

Where:

DIO represents days' inventory outstanding

DSO represents day sales outstanding

DPO represents days payable outstanding

Operating Cycle Calculation

Calculating operating cycle may seem daunting but results in extremely valuable information.

DIO = (Average inventories / cost of sales) * 365 DSO = (Average accounts receivables / net sales) * 365

DPO = (Average accounts payables / cost sales) * 365

For example, what is the operating cycle of a business? A company has 90 days in days' inventory outstanding, 60 days in days' sales outstanding and 70 in days payable outstanding. See the following calculation to see how to work it out:

Operating cycle = 90 + 60 – 70 = 80

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Finally, it takes an average of 80 days for a business to convert buying inventories into cash sales. Operating cycles are critical in accounting for retaining the cash levels required to survive. As a result, keeping a positive net operating cycle ratio is a matter of life and death.

Another Example

Flipkart is all about inventories. Calculate its operating cycle assuming all sales are (a) cash sales and (b) credit sales. You can use cost of revenue as approximate figure for purchases (i.e. no need to adjust it for changes in inventories).

	USD in million
Revenue	5,00,000
Cost of revenue	3,50,000
Inventories as at 31 January 2019	40,000
Inventories as at 31 January 2018	38,000
Average inventories	39,000
Accounts receivable as at 31 January 2019	6,000
Accounts receivable as at 31 January 2018	5,000
Average accounts receivable	5,500

Solution

Part (a)

Days taken in converting inventories to accounts receivable =

$$365 \div 3,50,000 \times 39,000 = 40.67$$

Since there are no credit sales, time taken in recovering cash from accounts receivable is zero. Customers pay cash right away.

Operating cycle is 40.67 days, and this represents the time taken solely in selling inventories.

Part (b)

There is no change in days taken in converting inventories to accounts receivable.

Days taken in converting receivables to cash = $365 \div 3,00,000 \times 5,500 = 4.02$

Operating cycle

= days taken in selling (DIO) + days taken in recovering cash (DSO)

= 40.67 + 4.02 = 44.69

This should be compared with operating cycle of the Competitors of Flipkart, like Walmart, Amazon, Target etc.

4.1.5 Negative Working Capital

When a company's current liabilities surpass its current assets, it has negative working capital. To put it another way, there is more short-term debt than short-term

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assets. This means that the liabilities that must be paid within a year outnumber the existing assets that can be monetized in the same time frame. Negative working capital in a target is generally seen as a negative by buyers because it indicates that more money will be needed to run the company after it closes. A working capital ratio of 1 to 1.5 times is preferred by buyers, which means there are at least one dollar of current assets for every dollar of current liabilities. This ensures the buyer that the company will be able to cover its supplier and payroll liabilities in the short term. Negative working capital is easy to associate with catastrophe. After all, if your company doesn't have enough assets to pay its bills, you may need to seek bankruptcy protection from your creditors, who will begin chasing you. Negative working capital, on the other hand, can be used to enlarge a company by exploiting other people's money when done correctly.

In a situation where current liabilities exceed current assets, negative working capital develops. To put it another way, there is more short-term debt than short-term assets. In general, anything negative is bad, but in the case of working capital, it can be beneficial because a business with negative working capital successfully borrows from its vendors to fund its sales growth. Despite the foregoing, some investors may believe that negative working capital is a bad thing because it indicates that a company is unable to pay its outstanding bills and creditors. Negative working capital, when properly managed, can be a way to use other people's money to fund your sales growth.

How working capital becomes negative

Negative working capital occurs when a company produces cash so quickly that it is able to sell its goods to customers before paying its supplier's bill. In the meantime, it is theoretically growing with the money of the supplier. Though having negative working capital is advantageous, it is not for everyone. Cash-only businesses, on the whole, have a high turnover rate and negative working capital. Such businesses do not offer credit and consistently increase their profits. Negative working capital is expected in online retailers, discount retailers, grocery stores, restaurants, and telecom companies.

Is negative working capital good or bad?

Negative working capital isn't always a bad thing. Apart from the industries mentioned above, it is by design that some established brands have negative working capital because they can negotiate very well with their suppliers. The main benefit is the absence of bank financing; it saves money on interest by having current assets funded by vendors. Negative working capital, on the other hand, is likely to be a problem in the long run. Liquidity ratios may not be profitable if a company's current liabilities are always greater than its current assets. To summarise, working capital would not provide a long-term image by itself. Apart from working capital, an investor must examine a company's financial statements over a period of several years and consider a variety of other indicators. The Positive Side of Negative Working Capital

Negative working capital occurs most frequently when a company produces cash quickly by selling products to customers before paying bills to suppliers for the original goods or raw materials. The company is successfully using the vendor's money to expand in this manner. Walmart's CEO, Sam Walton, was well-known for doing the same. He was able to generate such high inventory turnover that his return on equity skyrocketed (to understand how this works, study the DuPont Model return on equity breakdown). Walton was a master of merchandising, ordering large amounts

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of merchandise and then holding a blowout sale to quickly sell the items and use the profits to extend his empire.

Industries that Typically Have Negative Working Capital Firms

- When dealing with cash-only companies that enjoy healthy sales and high inventory turnover, you're much more likely to come across a company with negative working capital on its balance sheet. These companies don't usually finance customer purchases and have a high volume of customer sales all of the time. These may include the following: Grocery stores
- Discount retailers
- Restaurants
- Online retailers

Check your Understanding

1. _____occurs when a company produces cash so quickly that it is able to sell its goods to customers before paying its supplier's bill
2. _____is described as having enough short-term assets such as cash, inventories, receivables to cover the short-term liabilities such as payable overdrafts as they come due
3. _____means rise in prices. In such a situation more capital is required than before in order to maintain the previous scale of production and sales. Therefore, with the increasing rate of inflation, there is a corresponding increase in the working capital.
4. The difference between current assets and current liabilities is known as_____.

Summary

Good management of working capital shall ensure that a business has the cash and resources available to have successful and healthy business operations and meet its current liabilities, without which a company shall always be under the risk of having a working capital deficit thereby hampering its business operations. In the short term this can damage the profitability of the business, and affect its operations. In the long term, poor working capital management can compromise a company's eligibility for business loans and damage its ability to attract potential investors. In recent times, there have been greater bankruptcies on account of working capital deficits and unmanaged cash flows such that companies have not been able to repay their debt obligations. The right systems and policies in place to manage business operations as well as the right mix of financial products and facilities from banks and financial institutions to ensure cost effective liquidity shall enable companies to manage such risks of working capital deficits and establish a healthy business cycle.

Activity

1. **Enumerate the various points on which working capital management is important for smooth running of the business. And list out various companies who have a strong working capital**

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Questions and Exercising

1. Define working capital and explain the various Factors influencing working capital requirement
2. Differentiate between net and gross working capital

Glossary

- **Gross working capital:** is the sum total of all the current assets of a company, whereas net working capital is the difference between the current assets and the current liabilities of a company. Gross working capital is not an indicator of a company's liquidity position as it takes into consideration those assets which can be converted into cash within a year
- Gross working capital = Total current assets of the company
- **Net working capital:** gives the true picture of a company's operating liquidity, as it also takes into consideration the financial obligations of the business. Net working capital = Total current assets - Total current liabilities.
- **Negative working capital:** When a company's current liabilities surpass its current assets, it has negative working capital. To put it another way, there is more short-term debt than short-term assets. This means that the liabilities that must be paid within a year outnumber the existing assets that can be monetized in the same time duration

Further Readings and Referencing

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https://xplaind.com/357698/operating-cycle

Check your Understanding- Answers

1. Negative working capital

2. Working capital management

3. Inflation

4. net working capital

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Unit-4.2: Inventory, Receivables and Cash Management

Notes

Objectives

At the end of this unit, you will be able to understand

- Inventory Management- Overview
- Objectives of Inventory management
- EOQ Model with Illustration
- Receivables Management-Introduction
- Management of Cash- Introduction
- Cash Planning, Managing the cash flows
- Determining Optimum Cash Level (Baumol Model with numerical)
- Financing of Working Capital
- Investing surplus cash
- Calculation of Maximum Permissible Bank Finance (MPBF)

Introduction

Inventory management is a method for acquiring, storing, and selling inventory, including both raw materials and finished goods (products). Inventory management in business terms refers to having the right stock, at the right levels, in the correct position, at the correct time, and at the right cost and price. The procedure of ordering, handling, storing, and using inventory is referred as inventory management.

4.2.1 Inventory Management- Overview

Inventory management is a method for acquiring, storing, and selling inventory, including both raw materials and finished goods (products). Inventory management in business terms refers to having the right stock, at the right levels, in the right place, at the right time, and at the right cost and price. An inventory management system is a collection of hardware and software, as well as processes and procedures, that oversees the monitoring and maintenance of a company's stocked goods. These products may be business assets, raw materials, or finished goods ready to be shipped to suppliers or end users. Most inventory management systems can now be integrated with other systems like accounting and purchasing, and some have even become part of ERP software. Companies can manage their inventory across various warehouses in different locations with the help of good inventory management systems.

Inventory management is a method of keeping track of inventory flow. It begins with the purchase of goods and their storage and continues with the outflow of raw materials or stock to the manufacturing units or the market, as appropriate. The procedure can be done manually or with the help of an automated system. When the goods arrive on the premises, inventory management ensures that these items, such as stock, raw materials, components, tools, and so on, are efficiently received, counted, sorted,

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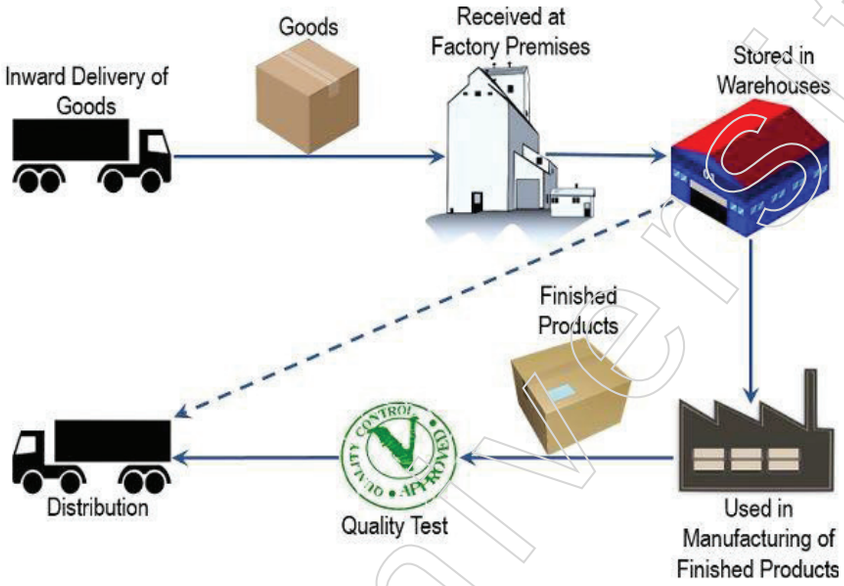
arranged, stored, and maintained. To understand how this whole system works, we must first comprehend an organization's inventory flow. The same has been depicted in the diagram below:



The goods in the warehouse can be used in one of two ways:

- direct distribution to wholesalers, dealers, retailers, or customers in the market; or
- sent to production units for finished goods manufacturing. Organizations have a variety of inventory management methods to choose from. EOQ (economic order quantity), ABC analysis, just-in-time management, EQR model, VED analysis, LIFO (last in last out), and FIFO are some of the most common (first in first out).

Importance of Inventory Management

The need for a robust inventory management system has been accelerated by emerging technology and changing consumer preferences. The following are some of the most important reasons why it is beneficial to every business entity:

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Enables Enterprise Resource Planning (ERP)

The ERP software integrates and connects the various business processes. Inventory procurement, warehousing, production, human resource, finance, marketing, and sales to one another are all examples of these functions. Inventory management plays a role in this process by providing the necessary data. Proper **Warehouse Management**

To optimise warehousing functions, the barcode system, LIFO, and FIFO methods provide a clear picture of the past and current inventory available with the business. Efficient **Inventory Valuation**

It allows for accurate assessment of various types of inventory, such as stock on hand, opening and closing stocks, raw materials, finished products, and so on. The cost sheet is also prepared using this information.

Supports Supply Chain Management

It is responsible for streamlining all warehousing operations and the flow of raw material or stock as part of supply chain management.

Manages Sales Operations

As we all know, sales are a never-ending process that is dependent on the production of goods or services. If an organization's inventory management is inefficient, there's a possibility that raw materials for manufacturing will be unavailable.

Challenges Faced in Inventory Management

Inventory management has become an unavoidable part of major corporations. In addition, many small businesses have adopted the idea in order to keep track of their inventory and raw materials.

However, businesses must deal with the following restrictions when putting it into practise:

- **Lack of Knowledge**: The receiving and warehousing departments' staff may lack the necessary expertise and knowledge to separate the regular and seasonal goods from the entire stock. Expanding **Product Portfolios** Customers' demands and requirements for a diverse range of products

Notes

have greatly increased inventory size, making manual management difficult. Supply **Chain Complexity**: During the supply chain process, the company may fail to track stock or commodities. Furthermore, maintaining an inventory management system by the business partners is not required, posing a barrier.

4.2.2 Inventory Management Objectives

Inventory management is carried out to make operational tasks easier. The following are some of the main goals for which it is carried out:

- **Preventing Dead Stock or Perishability**: The chances of wastage in the form of goods wastage or dead stock are reduced when inventory levels are optimum. Optimizing **Storage Cost** Even if the specifications are pre-determined, it reduces the chances of retaining surplus stock, resulting in lower warehousing costs. Maintaining **Sufficient Stock:** Because of the continuous supply of raw materials and goods, the production department no longer needs to be concerned about shortages. Enhancing **Cash Flow**: Inventory has a huge effect on a company's cash flow. The organisation can improve its operational efficiency by ensuring adequate liquid cash through efficient inventory management. Reducing **the Inventories' Cost Value**: When purchasing products or stock on a regular basis, an organisation may ask for discounts and other benefits to lower the purchase price.

4.2.3 EOQ Model with Illustration

The optimal order quantity for a company to buy to reduce inventory costs such as holding costs, shortage costs, and order costs is the economic order quantity (EOQ). Ford W. Harris created this production-scheduling model in 1913, and it has been refined over time. 1 Demand, ordering, and holding costs are all assumed to be constant in the formula. Economic The level of inventory that minimises total inventory holding costs and ordering costs is known as Economic Order Quantity. It's one of the most well-known traditional production scheduling models. The number (quantity)

Notes

ordered in a single purchase to keep the total ordering and carrying costs to a minimum is referred to as the economic order quantity. In other words, the quantity ordered at one time should be such that the total cost is minimised. Costs of placing orders and receiving goods, as well as costs of storage and interest on capital invested.

Formula and Calculation of Economic Order Quantity

The formula for EOQ is:

Formula

$$EOQ = \sqrt{\frac{2 * RY * OC}{UC * CC\%}}$$

EOQ = Economic Order Quantity,

RU = Annual Required Units,

OC = Ordering Cost for one Unit

UC = Inventory Unit-Cost,

CC = Carrying Cost as %age of Unit-Cost

Example 1: Type equation here.

Demand for the Child Cycle at Best Buy is 500 units per month. Best Buy incurs a fixed order placement, transportation, and receiving cost of Rs. 4,000 each time an order is placed. Each cycle costs Rs. 500 and the retailer has a holding cost of 20 percent. Evaluate the number of computers that the store manager should order in each replenishment lot?

$$EOQ = \sqrt{\frac{2 * RY * OC}{UC * CC\%}}$$

$$EOQ = \sqrt{\frac{2 * 600 * 4000}{500 * 20\%}}$$

EOQ= 693 Units

Example 2:

Sahil Ltd.uses EOQ logic to determine the order quantity for its various components and is planning its orders. The Annual consumption is 80,000 units, Cost to place one order is Rs. 1,200, Cost per Unit-is Rs. 50 and carrying cost is 6% of Unit-cost. Calculate 1. EOQ,2.

No. of order per year, 3. Ordering Cost 4. Carrying Cost and 5. Total Cost of Inventory.

Solution:

1. Economic Order Quantity

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$$EOQ = \sqrt{\frac{2 * RU * OC}{UC * UC\%}}$$

$$EOQ = \sqrt{\frac{2 * 80000 * 1200}{50 * 6\%}}$$

EOQ = 8000 Units

2. Number of Order Per Year

No. of order per year = annual Requirements ÷ EOQ

No of order per year = 80,000 ÷ 8000

No of order per year = 10 Orders per year

3. Ordering Cost

Ordering Cost = Fixed Ordering Cost (F) ×

Number of Order per year (N)

Ordering Cost = 1200 × 10 = 12,000 *Rs*

4. Carrying Cost

Carrying Cost = *Carrying Cost* (*C*) × *EOQ* ÷ 2

Carrying Cost = 50 × 0.06 × 8000 ÷ 2

= 12,000 Rs

5. Total Inventory Cost

Total Inventory Cost = Ordering cost + *Carrying Cost*

Total Inventory Cost= 12000 +12000=24,000 Rs

Benefits of calculating EOQ.

Minimize inventory costs

Excess inventory can easily drive up storage costs. Inventory costs will also rise as a result of how you order, what gets destroyed, and what never sells. If you're constantly reordering low-volume products, EOQ will help you figure out how much to order in a given time **frame.**

Minimize stock outs

EOQ will help you figure out how much and how often you need to reorder. You can avoid stock outs by estimating how much you need based on how much you sell in a given period of time. This way, you don't have too much inventory on hand for too long. You might be surprised to learn that ordering in smaller quantities is more cost-effective for your company, or that the opposite is true — calculating EOQ can be beneficial.

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Improve overall efficiency

Overall, calculating EOQ will assist you in making better inventory storage and management decisions. The truth is that many ecommerce businesses place orders based on their “gut feelings” about how much to order rather than ordering the exact amount of product required. Using EOQ to better quantify how much you need based on key cost variables is a smart move.

3 factors you’ll need to calculate EOQ

Three factors make up the EOQ formula: holding costs, demand, and order cost. Each variable is broken down in the table below.

1. Holding costs (H)

The total cost of keeping inventory (also known as carrying costs) is referred to as holding cost. Inventory cost reduction is a crucial supply chain management approach. How much do you spend per unit, per year, on inventory holding and storage? You must first determine your holding cost in order to correctly calculate EOQ. You can use the simple formula below to do so: **(Storage Costs + Employee Salaries + Opportunity Costs + Depreciation Costs) / Total Value of Annual Inventory = Inventory Carrying/Holding Cost**

2. Annual demand (D)

How much demand for a product do you get each year? You can figure out how much product you sell year over year by looking at historical order data.

3. Order cost (S)

How much is an order cost per buy, also known as "setup cost"? This is done per-order and covers both shipping and handling fees.

4.2.4 Receivables Management

- Current assets include receivables, also known as trade credit or debtors. Account receivables are issued when a company sells a product on credit.
- Account receivables are funds due at a later date for the credit sale of goods and services currently. These days, most business transactions are in credit. Most companies when they face competition, use credit sales as an important tool for sales promotion. As a sales promotion tool, credit sale enhances firm's sales revenue and ultimately pushes up the profitability. But after the credit sale has been made, the actual collection of cash may be delayed for months. Late payments can cause a significant drop in a company's profit margin if they are spread out over time.
- Because credit extension entails both costs and benefits, the firm's manager must be able to quantify both in order to determine the final impact of credit sales. such that the benefit of extending credit outweighs the cost of maintaining an account receivables investment.

Significance and Purpose of Receivable Management

The primary goal of receivables management is to establish an efficient credit policy that improves the effectiveness of the credit and collection department while

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also contributing to the firm's value maximisation. The following are the unique goals of receivable management:

1. To assess a customer's creditworthiness before issuing or extending credit.
2. To reduce the cost of receivables investment.
3. To reduce the risk of bad debt losses.
4. To structure credit terms in such a manner that sales revenue is maximised while receivables investment is kept to a bare minimum.
5. To keep the credit and collection department's operating costs as low as possible.
6. Maintain a balance between the costs and benefits of credit policy.

4.2.5 Management of Cash- Introduction

Cash management is the process of collecting, handling, controlling, and investing an organization's cash and cash equivalents in order to maximise the firm's liquid resources. Because money is the lifeblood of a company, it's critical to keep its cash flow in good shape.

Cash management, as the name implies, is the most efficient use of cash to ensure maximum liquidity and profit. It refers to the collection, disbursement, and investment of funds in a proper manner.

The proper use of cash guarantees the viability of a small business. As a result, cash management is an important business function that oversees the collection and use of cash. Importance of cash management

A ‘no cash situation' in our daily lives can be a nightmare, but it can be fatal for a business. It can lead to a point of no return, especially for small businesses. It tarnishes the company's reputation and may result in its closure. As a result, managing cash is the most important task for business owners. Management must ensure that there is enough cash on hand to satisfy reporting obligations while also ensuring that no funds are idle. This is critical because companies rely on receivables recovery. A bad debt (irrecoverable debt) will put a company's cash flow in jeopardy. As a result, cash management entails being careful and making adequate provisions for unforeseen events such as bad debts, economic slowdown, and so on.

Objectives of Cash Management

Why is it necessary to manage cash flow in the company? What purpose does cash management serve in a business?

The following cash management goals will answer the above questions:

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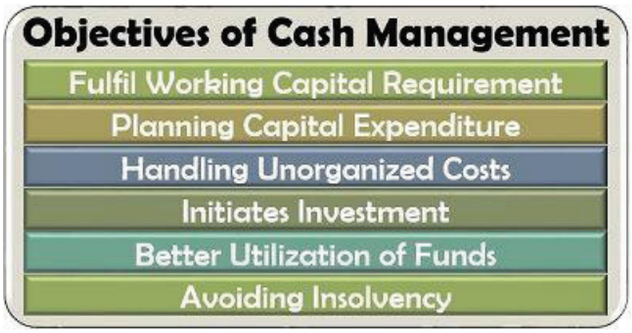
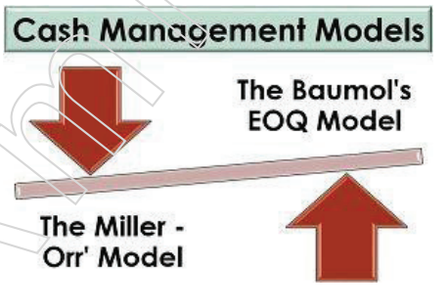


- **Fulfil Working Capital Requirement**: The company needs to keep enough liquid cash on hand to cover its regular costs, which can only be done with good cash management. Planning **Capital Expenditure**: It aids in capital expenditure planning and assessing the debt-to-equity ratio required to obtain financing for this purpose.
- **Handling Unorganized Costs**: There are occasions when the company is confronted with unforeseen conditions, such as a machine breakdown. There are unexpected costs to contend with, and having a cash reserve is a lifesaver in those circumstances. Initiates **Investment**: Another goal of cash management is to invest unused funds in the right opportunity at the right time in the right proportion. Better **Utilization of Funds**: It ensures the most efficient use of available funds by striking the right balance between cash and investment. Avoiding **Insolvency**: Insolvency is a possibility if the company does not plan for effective cash management. It's either due to a lack of liquid currency or a failure to make a profit with the cash on hand.

Cash Management Models

To calculate the amount of cash required by the organization to meet its daily expenses, cash management requires a realistic approach and a solid foundation. Some models were created for this purpose to calculate the level of money based on various parameters. The two most important models are discussed in detail below:



Let's take a closer look at each of these models:

The Baumol's EOQ Model

Based on the Economic Order Quantity (EOQ), William J. Baumol developed the Baumol's EOQ model in 1952, which has an impact on the company's cash management.

This model focuses on keeping the best cash balance throughout the year in order to satisfy business costs on the one hand while also taking advantage of

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Notes

lucrative investment opportunities on the other. The Baumol's EOQ Model formula for determining the level of cash to be held by the organisation is as follows: $C = \sqrt{\frac{2FT}{i}}$

Where,

'C' is the optimum cash balance;

'F' is the fixed transaction cost;

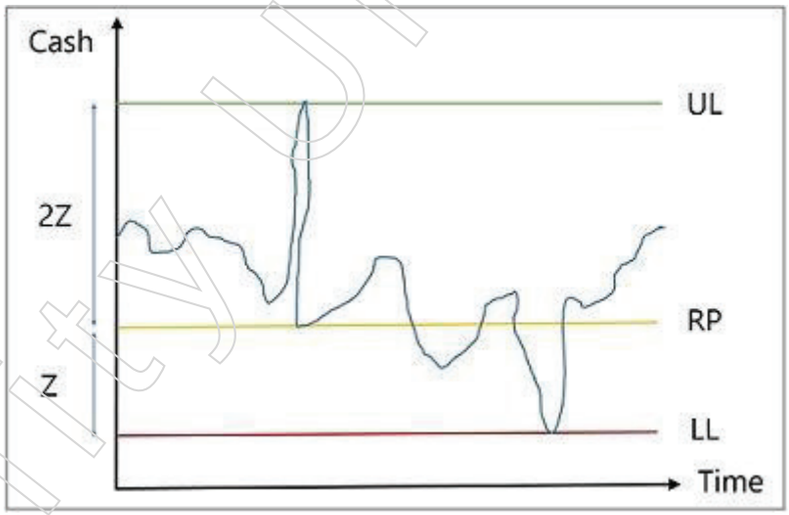
'T' is the total cash requirement for that period;

'i' is the rate of interest during the period

The Miller – Orr' Model

According to Merton H. Miller and Daniel Orr, Baumol's "model only determines the cash withdrawal; however, cash is the most uncertain element of the business."

There may be occasions when the organisation has excess cash, which necessitates making investments rather than withdrawals. As a result, rather than deciding the withdrawal amount, the company must determine the return point or the level of money to be retained. This model emphasises only withdrawing cash if the available funds are less than the money's return point, and investing any excess funds above this level. Given below is the **graphical representation** of this model:



Where,

'Z' is the spread of cash;

'UL' is the upper limit or maximum level

'LL' is the lower limit or the minimum level

'RP' is the Return Point of cash

We can see from the graph above that there is a lower limit, which is the amount of cash a company needs to operate. The return point, or average cash requirement, is calculated by adding the cash spread (Z) to the lower limit. To ensure maximum return on investment, the company should not invest the money until it reaches the upper limit. This upper limit is calculated by multiplying the lower limit by the three spread times (Z). The movement of cash is most commonly seen between the lower and upper limits. Let

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us now look at the Miller – Orr' model formula for determining the cash return point and the spread between the minimum and maximum levels:

$$Z = \sqrt[3]{\frac{3TV}{4i}}$$ *Where*,

'Return Point' is the point at which money is to be invested or withdrawn;

'Minimum Level' is the minimum cash required for business sustainability;

'Z' is the spread across the minimum level and the maximum level;

'T' is the transaction cost per transfer;

'V' is the variance of daily cash flow per annum;

'i' is the daily interest rate

Functions of Cash Management

All types of businesses, regardless of their size, type, or location, need cash management. The following are the various cash management managerial functions:

- **Investing Idle Cash:** To make use of surplus funds, the company needs to look into a variety of short-term investment options.
- **Controlling Cash Flows:** Cash flow management is a critical business function that involves limiting cash outflows and increasing cash inflows.

Planning of Cash: Cash management is all about planning and making decisions in order to keep enough cash on hand and make wise investments. Managing **Cash Flows**: To achieve a positive cash flow, the organisation must maintain a proper flow of cash through cost-cutting and profit generation from investments. Optimizing **Cash Level**: The organisation should work to maintain the necessary level of liquidity and cash for business operations on a continuous basis.

- **Cash Management Strategies**

Every step of the cash management process necessitates a decision. It is a strategic approach to financial issues rather than a quick fix. The following are some cash management strategies:

Notes

Business Line of Credit: To satisfy immediate cash needs and unforeseen costs, the company should take out a business line of credit at the outset.

Money Market Fund: Surplus funds should be invested in money market funds when running a business. These are easily convertible into cash when needed and produce a significant profit over time.

Lockbox Account: Companies may have their payments mailed to their post office box using this service offered by banks. The banks are in charge of this lockbox in order to avoid having to manually deposit cash on a regular basis.

Sweep Account: Sweep accounts, which are a combination of savings and fixed deposit accounts, can be used by companies. As a result, the savings account's minimum balance is automatically maintained, and any excess funds are transferred to the fixed deposit account.

Cash Deposits (CDs): If a company has a strong financial position and can forecast costs accurately over a long period of time, it can invest excess cash in cash deposits. These CDs pay a decent rate of interest, but early withdrawals are subject to fees.

Cash Flow Management Techniques

Managing cash flow is a thoughtful process that necessitates a great deal of analytical thinking. The following are the different methods or tools used by managers to practise cash flow management:

- **Accelerating Collection of Accounts Receivable: :** Collecting debts and dues from debtors quickly is one of the best ways to improve cash inflow and increase

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liquid cash. Stretching **of Accounts Payable**: On the other hand, the company may attempt to extend the payment of dues by negotiating with creditors for a longer credit period.

- **Cost Cutting:** To maintain a good cash flow in the business and increase profitability, the company must look for ways to reduce its operating costs. Regular
- **Cash Flow Monitoring:** The organization's financial position is sound when cash inflow and outflow are monitored, costs are prioritised, and debts to be recovered are reduced. Wisely **Using Banking Services:** A company line of credit, cash deposits, a lockbox account, and a sweep account should all be used wisely and effectively. Upgrading **with Technology:** Organizations can now easily manage financial databases and spreadsheets that can be accessed from anywhere, at any time, thanks to digitalization. Limitations **of Cash Management**

Cash management is an unavoidable part of any company. However, it has a few flaws that make it unsuitable for small businesses, including the following:

Cash management is a time-consuming and skilled activity that must be done on a regular basis.

Because it necessitates financial expertise, the company may need to pay administrative and consulting fees to hire consultants or other experts to complete the task. **S**mall **businesses that are solely managed, face issues such as a lack of skills, expertise, time, and risk-taking ability when it comes to cash management.**

Functions of cash management

An optimal situation would be for an organization's cash inflows to match its cash outflows. Account receivables make up the majority of cash inflows, and account payables make up the majority of cash outflows. In practise, while cash outflows such as payments to vendors, operational costs, and payments to regulators are relatively predictable, cash inflows are more difficult to predict.

Following are the functions of cash management:

Inventory management

Stock on hand is higher, which means trapped sales and less liquidity. As a result, an organisation must strive for faster stock out in order to maintain cash flow. Receivables

For its sales, a company generates invoices. The credit period for collecting the money in these cases will range from 30 to 90 days. The sales have been documented, but the organisation has not yet received payment for the transactions. To avoid a cash

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crunch, the cash management function would ensure quicker receivables recovery. The organisation would have enough cash on hand to make its payments if the average time for recovery is shorter. Payments made on time save the organisation money in the form of interest and fines. Receivables management also requires a robust follow-up mechanism. This would guarantee a quicker recovery and will also help the company anticipate bad debts and unexpected events. Payables

While receivables management is one of the most important aspects of cash management, payables management is equally important. Payables are created when an organisation makes purchases on credit and must pay for them within a certain time frame. Banks and financial institutions may provide short-term credit to businesses. However, because these credit facilities come at a cost, an organisation must ensure that it maintains a strong liquidity position, which will aid in timely debt repayment.

Forecasting

Managers must exercise extreme caution when planning investments because they must account for future contingencies as well as ensure profitability. They would do so by employing effective forecasting and management tools. The firm's liquidity is improved when cash inflows and outflows are efficiently managed. Short**-term investments**

Cash management's main goals are to avoid cash shortages, avoid insolvency, and maintain financial stability. However, it is equally important to carefully invest the surplus cash on hand. Idle currency, despite being a liquid asset, generates no returns. An organisation must ensure liquidity and optimal returns when investing in short-term investments. As a result, this decision must be made with caution. The amount of investment must be calculated and decided carefully in this case. Because an organisation cannot spend all of its available funds, caution is required. Businesses must also set aside funds for contingencies (cash on hand).

Other functions

Monitoring bank accounts, managing electronic banking, pooling, and netting assets, and so on are all part of cash management. As a result, treasury cash management should be a core function. Although large corporations use software to handle this function, small businesses must manually monitor it and ensure liquidity at all times. Furthermore, large companies have access to credit at competitive rates. This access is not accessible to small businesses. As a result, cash management is crucial for them. Even large companies, too, must monitor their systems on a regular basis to avoid bankruptcy.

4.2.6 Cash Planning, Managing the Cash Flows

What is Cash Flow Management?

The process by which an organisation retains control over the inflow and outflow of funds is referred to as cash flow management. The primary aim of cash flow management is to ensure that the inflow of funds is always higher than the outflow, resulting in a surplus for the company. Cash flow management also has the side benefit of ensuring that surplus funds are wisely invested or held in order to maximise

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the return on capital invested. Money, also known as currency, is the lifeblood of any company. When money stops flowing, all vital operations will come to a halt.

It's important to note, however, that cash flow is not the same as profits. Even if a company has positive cash flow, it will still be losing money. Cash flow management can be viewed as a bridge between payments to suppliers or banks and customer receipts. It aims to integrate payments and receipts in such a way that payment to sellers is possible according to their credit terms after taking into account the payment cycle of customers.

Importance of Cash Flow Management

According to a study, poor cash flow management causes 82 percent of companies to fail. This statement alone is sufficient to emphasise the significance of effective cash flow management. Let's take a closer look at how a good cash flow management system contributes to operational success.

Solvency and Credit Worthiness

Banks and financial institutions appreciate positive cash flows. A positive cash flow indicates that the company's cash flows are consistent and predictable. Banks prefer to lend to these types of borrowers. The next instalment will be paid on time and in full. Not to mention, the health of a company's cash flow has an impact on its credit score. Companies with a strong credit rating would have an easier time raising funds on the open market or attracting foreign investment. It's remarkable how simple cash management at the operational level can yield such significant results.

Enabling Capex and Investment

Maintaining positive cash flows over time is the crux of good cash management. The theory proposes that inflows should always surpass outflows in order to maintain a surplus. Instead of sitting idle, these funds could be invested to generate income. This is an excellent example of "letting your money make money for you." Furthermore, a company that spends and sets aside money on a regular basis may be able to make a capex purchase. And it's all thanks to good cash management! As a result, a strong cash flow management system relieves the pressure on funds flows from operating activities to capital expenditure purchases.

Boosts Vendor and Employee Relations

A good cash flow management system ensures that funds are always available to the manager. A company will still be able to honour vendor commitments on time if the receivables and payables are perfectly timed. When a company pays on time, it establishes a trusting relationship with the vendor. With a happy vendor, it would also be possible to negotiate better credit terms.

Additionally, effective cash flow management ensures that regular expenditures such as wages are paid on time. Employee morale is maintained by regular pay, and they are less likely to leave for better opportunities elsewhere. Petty theft and embezzlement are also kept under control with better control over cash movement.

Notes

4.2.7 Determining Optimum Cash Level (Baumol Model with numerical)

The following points highlight the two models of cash management, i.e.,

1. William J. Baumol's Model

2. Miller and Orr Model

Cash Management Model

1. Baumol's EOQ Model of Cash Management:

Cash, according to William J. Baumol (1952), can be handled in the same manner as any other inventory, and the inventory model can fairly represent both cost-volume relationships and cash flows. In this way, the inventory management model of economic order quantity (EOQ) could be applied to cash management. It gives the cash management problem a helpful hand in conceptual foundation.

In the model, the fixed cost of converting marketable securities to cash, or vice versa, is balanced against the carrying cost of holding cash, which is the interest foregone on marketable securities. The Baumol model achieves the optimal balance by integrating holding and transaction costs to reduce the total cost of holding currency. The optimum level of cash balance is found to be:

$$C = \frac{\sqrt{2AT}}{I}$$

Where,

C = Optimum level of cash balance

A = Annual cash payments estimated

T = Cost per transaction of purchase or sale of marketable securities

I = Interest on marketable securities p.a. (i.e., carrying cost per rupee of cash)

According to the model, the optimal cash level is the one with the lowest carrying costs and transaction costs. The cost of holding funds, i.e. interest on marketable securities, is referred to as carrying costs. The cost of converting marketable securities into cash and vice versa is referred to as the transaction cost. Assumptions**:**

The Baumol's model holds good if the following assumptions are fulfilled:

(a) The rate of cash usage is predictable and constant. In times of uncertainty, and for businesses with irregular or bumpy cash flows, the model has limited utility.

(b) The excess cash is invested in marketable securities, which are then sold to convert the cash back into cash. Certain costs, such as clerical, brokerage, registration, and other fees, are associated with such buying and sale transactions. The cost of each of these transactions is believed to be constant or fixed. In general or totality calculating the precise transaction cost would be difficult.

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(c) The company would incur the opportunity cost of interest foregone by not investing in marketable securities if it kept its cash balance. The annual holding expense is believed to be constant.

(d) Short-term marketable securities are readily available for purchase and sale. The Baumol model requires the existence of a free market for marketable securities. Limitations**:**

Some major/ important limitations in Baumol's model are as follows:

(i) Only when the payments position can be fairly assessed can the model be used.

(ii) The degree of uncertainty in forecasting cash flow transactions is high.

(iii) The model only recommends the best balance based on a set of assumptions. However, ingeneral , this may not be the case. Nonetheless, it provides a conceptual framework and can be used as a benchmark with caution.

Illustration 1:

The outgoings of Trivedi Ltd. are estimated to be Rs. 20,00,000 per annum, spread evenly throughout the year. The money on deposit earns 10% p.a. more than money in a current account. The switching costs per transaction is Rs. 300. Calculate the optimum amount to be transferred.

Solution:

According to Baumol, the optimum amount to be transferred each time is ascertained as follows:

$$C = \frac{\sqrt{2AT}}{I}$$

Where,

C = Optimum transaction size

A = Estimate cash outgoings per annum Le. Rs. 20,00,000

T = Cost per transaction Le. Rs. 300

I = Interest rate on fixed deposit Le. 10% p.a.

$$C = \frac{\sqrt{2 \times 300 \times 20,00,000}}{0.10} = 109544.51 \text{ or } 109500$$

Number of transactions p.a. = Rs 20,00,000 /109500 = 18 transactions (here it has to be noted that all the calculations are rounded off)

Average balance in the short notice account = Rs. 109500/2 = 54750

Aggregate of fixed cost = 18 transactions × 300 = 5400

Illustration 2:

Amazon Ltd. has estimated that use of Rs. 20 lakhs of cash during the next budgeted year. It intends to hold cash in a commercial bank which pay interest @ 15%

Notes

p.a. For each withdrawal, the organisation incurs expenditure of Rs. 150 . Find out the optimal size for each withdrawal?

Solution:

$$C = \frac{\sqrt{2AT}}{I}$$

Where

C = Optimum transaction size

A = Estimate cash outgoings per annum ie = 20 Lakh

T = Cost per transaction ie = 150

I = 15%

By putting all values into the provided formulae $C = \frac{\sqrt{2 \times 150 \times 20{,}00{,}000}}{0.15}$

=63245

Each time the firm will withdraw Rs. 63245 from the bank deposit. After spending all the amount of Rs. 63245 again the company will withdraw a similar amount and the process will keep on continuing so on.

Illustration 3:

Wilson Ltd. has an estimated cash payment of Rs. 15,00,000 for a one-month period and the payments are expected to steady over the period. The fixed cost per transaction is Rs. 250and the interest rate on marketable securities is 10% p.a. Calculate the optimum transaction size.

Solution:

The optimum transaction size will be calculated as under:

Where,

A = Estimated monthly cash payments i.e. Rs. 15,00,000

T = Cost per transaction i.e. Rs. 250

I = Interest per annum i.e. 10% p.a.

$$C = \frac{\sqrt{2AT}}{I}$$

$C = \frac{\sqrt{2 \times 250 \times 15{,}00{,}000}}{0.1}$ = 86,602.54 OR 86,600

Optimum transaction size = Rs. 86,600

Average cash balance = 86,600/ 2 = 43,300

Number of transactions = Rs.15,00,000/86600 = 17 transactions

Notes

2. Miller-Orr Cash Management Model:

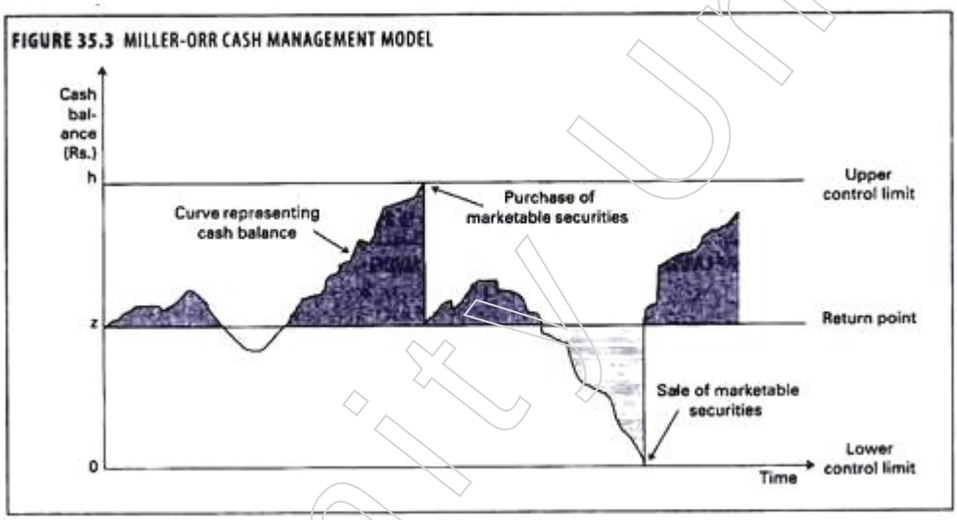
The Miller and Orr model (1966) assumes that the firm's cashflow is stochastic, meaning that different amounts of cash payments are made at different times. The movements in the cash balance are believed to be random. Miller and Orr proposed a model with control limits, in which time and size of transfers between an Investment Account and a Cash Account are controlled. When the actual balance goes beyond a lower or upper limit, the model claims that transferring money into or out of the account will return the balance to a predetermined "normal point. “The lower limit would be set by management, while the upper limit and return points would be calculated using formulae that assume random cash inflows and outflows, with their dispersion normally repeating a pattern seen in the past. The model specifies the following two control limits:

h = Upper control limit, beyond the cash balance should not be carried.

0 = Lower control limit, sets the lower limit of cash balance, i.e. the firm should maintain cash resources at least to the extent of lower limit.

z = Return point for cash balance

This is represented in figure 4:



The Miller-Orr model, will work as follows:

(i) When cash balance touched the upper control limit (h), securities are bought to the extent of Rs. (h-z).

(ii) Then the new cash balance is z.

(iii) When cash balance touches lower control limit (o), marketable securities to the extent of Rs. (z-o) will be sold.

(iv) Then the new cash balance again return to point z.

Assumptions:

The basic assumptions of the model are:

(a) The main assumption in this model is that the cash balance has no underlying trend over time.

Notes

(b) The optimal values of 'h' and 'z' are determined not only by opportunity costs, but also by the degree to which cash balances are likely to fluctuate. In times of uncertainty and random cash flows, the model can be used. It is based on the idea that control limits should be set, and when they are achieved, a transaction is triggered. The control limits are determined by the day-to-day variability of cash flows as well as the fixed costs of purchasing and selling government securities. Spread **Between the Control Limits:**

$$=3\left(\frac{\frac{3}{4}*Transaction\ Cost*Variance\ of\ cash\ flows}{Interest\ Rate}\right)^{1/3}$$

Return Point = Lower Limit + $\frac{Spread}{3}$

The greater and higher the control limits are, the more variable the cash flows and transaction costs are. The higher the interest rate, on the other hand, the lower and closer they will become. The cash balance fluctuates irregularly within the control boundaries. When it reaches an upper or lower limit, action is taken to restore the balance to its normal level within the control points by purchasing or selling securities. When using the model, the lower limit for the cash balance must be set. This may be zero or a minimum safety margin that is greater than zero.

Illustration 5:

Lower control limit set = Rs 1,000

Interest rate per day = 0.025%

Standard deviation of daily cash flows (variance of Rs 2,50,000) = 500

Switching costs per transaction = 20

Solution:

$$=3\left(\frac{\frac{3}{4}*Transaction\ Cost*Variance\ of\ cash\ flows}{Interest\ Rate}\right)^{1/3}$$

$$=3\left(\frac{\frac{3}{4}*20*2,50,000}{0.00025}\right)^{1/3}$$

= Rs 7,400

Upper Limit = Spread + Lower Limit

= 7,400+1,000 = Rs. 8,400

Return Point = Lower Limit + (1/3 x Spread)

= 1,000 + (1/3 x 7,400) = 1,000 + 2,467 = Rs. 3,467

Illustration 6:

Interest rate per day/annum = 0.3%/10.95%

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Transaction cost per sale = Rs.20

Variance of cash flows per day/annum = Rs. 3,000/Rs. 90,00,000

Cash balance lower limit = Rs. 20,000

$$=3\left(\frac{\frac{3}{4}*20*90{,}000}{0.0003}\right)^{1/3}$$

=Rs 22,990 or say 23,000

Hence , the upper limit is equal to the lower limit of Rs. 20,000 plus the spread of a Rs. 23,000 i.e., Rs. 43,000.

The return point is equal to the lower limit of Rs. 20,000 plus the spread of Rs. 23,000/3 i.e., Rs. 20,000 + Rs. 23,000/3 = Rs. 27,667.

Therefore, the firm's cash management policy should be based on lower and upper control limits of Rs. 20,000 and Rs. 43,000 respectively and the need to initiate action to keep will arise if it moves outside this band.

4.2.8 Financing of Working Capital

What is Working Capital Financing?

Working capital finance is used to fund your company's investment in short-term assets like accounts receivable and inventory, as well as to provide liquidity for day-to-day operations like payroll, overhead, and other costs. Working capital finance comes in a variety of forms. Your company's best fit will be determined by its industry, business model, stage of growth, and current assets on the balance sheet.

Types of Working Capital Finance

Loans, sales, assignments, guarantees, and favourable terms from consumers and sellers are all examples of working capital finance. The various types of working capital finance have been divided into categories, as shown below.

Working Capital Revolver

A working capital revolver is a line of credit whose maximum borrowing limit is determined by the amount of accounts receivable and inventory on the balance sheet. Because money can be borrowed, repaid, and reborrowed repeatedly, this secured credit line is referred to as a revolver. Asset-based lending includes working capital loans secured by accounts receivable and/or inventory (ABL).

Working capital revolvers are also known as (i) working capital lines of credit, (ii) working capital credit facilities, (iii) working capital facilities, (iv) revolving credit facilities, and (v) revolving loan facilities.

Unsecured lines of credit, also known as business lines of credit, are offered by some lenders. These unsecured lines are usually aimed at small or very large businesses (with the owner providing a personal guarantee) (with strong credit histories).

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Accounts Receivable Factoring

Factoring accounts receivables is the sale of receivables to a third party at a discount in order to accelerate cash receipt. The fee charged by the third-party buyer (or factor) for its service is known as the discount. In assessing the amount of the discount, the factor mainly considers the creditworthiness of the company's customers. In most cases, the customer is notified of the sale, and the factor is in charge of collection. Receivables can be sold with recourse or without recourse. Spot factoring is the sale of a single invoice rather than the entire receivables of a business. Factoring of accounts receivables is also known as invoice factoring.

Invoice Discounting

The assignment of accounts receivable to a third party as collateral for a loan is known as invoice discounting. The customer is normally unaware of the assignment, and the company is in charge of collection. The company gets a loan in the same way that a revolving line of credit would.

Purchase Order Financing

Purchase order financing, or PO financing, is a loan provided by a lender to your supplier for products needed to meet a customer order. Following that, the customer pays the lender directly. The lender sends the remaining funds to your company after deducting the loan amount and fees. PO funding allows you to fund large orders that you would not otherwise be able to fund.

Trade Finance

Trade finance promotes foreign trade by transferring the risk of an exporter not receiving payment or an importer not receiving goods to a third party. Letters of credit, bank guarantees, asset-based loans, accounts receivable factoring, and purchase order financing are all examples of trade finance.

Customer Advances

Customer advances are cash payments made to a firm before it provides products or services to a customer. These advances serve as a valuable source of “no-cost” working capital. Of course, the company incurs a future obligation to deliver the products or services to the customer, which is typically recorded on the balance sheet as a deferred revenue liability.

Vendor Credit

Vendor credit allows you to defer payment for goods or services supplied by a supplier or vendor for a set period of time. Payment terms may include a discount for early payment or a penalty for late payment. Some vendors offer extended terms to a select group of customers, allowing them to pay for their purchases over a longer period of time than usual.

MRR Line of Credit

An MRR line of credit is a type of loan in which the amount that can be borrowed is determined by the borrower's monthly recurring revenue. Because

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consumers pay up front, software-as-a-service (SaaS) businesses have low accounts receivable and no inventory because they sell a service rather than a product. However, SaaS businesses generate recurring income, which lenders consider an asset that can be used as collateral for a loan.

Merchant Cash Advances

MCAs (merchant cash advances) are payments made in advance in exchange for a percentage of future credit/debit card receipts. An MCA is a sale of future earnings rather than a loan. This is a costly finance option, but it may be the best option for a company with a limited or poor credit history that processes a lot of credit card transactions.

The Pros and Cons of Working Capital Financing

Working capital financing has the following benefits (advantages):

- To equity investors, non-dilutive or minimally dilutive.
- The amount of money available for borrowing increases as the company expands.
- Flattens out cash flow fluctuations caused by seasonality or a large, slow-paying customer.

The cons (disadvantages) of working capital financing include:

- Accounts receivable factoring and merchant cash advances, in particular, can be costly, and Accounts receivable factoring and merchant cash advances, in particular, can be costly.
- pre-revenue businesses should avoid them. Accounts receivable, inventory, or predictable future revenue are the most common sources of funding.

4.2.9 Investing surplus cash

Top 5 Methods of Investment of Surplus Funds | Working Capital

The following points highlight the top five methods of investment of surplus funds.

Investment of Surplus Funds Method # 1. Treasury Bills:

The Reserve Bank of India (RBI) issues Treasury Bills on behalf of the Central Government. They used to be issued on the basis of regularly floated tenders, but now they're available on a tap system, meaning they're based on rates announced by the RBI every week. These bills are only available in bearer format. The purchaser's name is not printed on the bills, and they can easily be transferred from one investor to another.

The bills do not pay interest, but the distinction between the purchase price and the face (par) value of the bill is returned. These are risk-free securities because they are backed by the government. These bills have a thriving secondary market, making them extremely liquid. Even though the yield on Treasury bills is low, they are one of the most popular marketable securities.

Investment of Surplus Funds Method # *2. Negotiable Certificates of Deposit (CD's):*

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Notes

The bills do not pay interest, but the distinction between the purchase price and the face (par) value of the bill is returned. These are risk-free securities because they are backed by the government. These bills have a thriving secondary market, making them extremely liquid. Even though the yield on Treasury bills is low, they are one of the most popular marketable securities.

The amount deposited as well as the interest earned are paid out at maturity. CDs are not the same as treasury bills, which are issued at a discount. In this approach, short-term surplus funds may be used to receive interest. The investment is safe unless the bank goes bankrupt, which is unlikely.

Investment of Surplus Funds Method # 3. Unit-1964 Scheme:

The Unit-1964 scheme of the Unit-Trust of India is a famous short-term investment option. It's an open-ended investment vehicle that allows investors to withdraw funds on a regular basis. The units have a Rs10 face value. The purchase and sale value of units is determined administratively in such a way that it rises significantly over time, rather than being based on net assets value.

Investment of Surplus Funds Method # 4. Ready Forwards:

A commercial bank or another organisation may enter into a ready forward agreement with a company that is willing to invest funds for a limited time. The bank sells and repurchases the same security (that is, the company buys and sells securities in turn) at predetermined prices under this system.

Investment of Surplus Funds Method # 5. Badla Financing:

When a stock exchange broker wishes to carry forward his transactions from one settlement period to the next, he uses Badla finance. Badla finance is done through stock exchange operators. It is the financing of a broker's transactions so that they can be carried forward to a later settlement period. On the day of settlement, the badla rates are determined. The Badla transaction is backed by the security of buying shares with a future settlement date. This financing facility may be extended for a specific share only at times. For example, a company would give a broker X 10 crores in badla finance to buy ACC shares in the forward market. Badla rates fluctuate according to the demand and supply of funds.

4.2.10 Calculation of Maximum Permissible Bank Finance (MPBF)

In the Indian banking sector, MPBF stands for Maximum Permissible Banking Finance.

MPBF is primarily used to assess working capital.

According to the Tandon Committee's recommendations, businesses should avoid stockpiling too many current assets and instead focus on keeping inventories and receivables at a minimum. MPBF enters the picture at this point.

MPBF under three alternatives are ascertained as follows:

1. First Method:

MPBF = 75% of (Current assets – Current liabilities other than bank borrowings)

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The borrowing firm should provide the remaining 25% from long-term sources.

The minimum current ratio under this method works out to 1: 1.

2. Second Method:

MPBF = (75% of Current assets) – (Current liabilities other than bank borrowings)

The borrowing firm should raise finance to the extent of 25% of current assets from long-term sources.

The minimum current ratio under this method works out to 1.33: 1.

3. Third Method:

MPBF = [75% of (Current assets – Core current assets)] – Current liabilities other than bank borrowings

The borrower should contribute 100% core current assets and 25% of balance current assets from long-term sources.

A minimum current ratio under this method works out to above 1.5: 1.

The current ratio will strengthen and reliance on bank finance reduces under these three methods successively.

Approaches to Bank Financing:

All MPBF instructions were withdrawn on April 15, 1997, in order to give borrowers more flexibility in determining their working capital requirements. Banks were advised to develop their own method of evaluating working capital requirements, such as the turnover method, the cash budget system, the MPBF system with required adjustments, or any other method.

Each bank, however, is required to establish a loan policy for each broad category of industry, with the approval of the respective Board.

The following approaches are generally followed by the banks in financing working capital needs of the business firms:

i. Maximum Permissible Bank Finance (MPBF):

The banks would set a firm's working capital finance limits at either 75% of current assets or the difference between 75% of current assets and non-bank current liabilities under the MPBF strategy. The approach's fundamental premise is that limited credit must be rationed.

The minimum acceptable current ratio was defined using this approach, which fixed the corporate's minimum contribution to funding the working capital gap. At the same time, a set of inventories and receivables norms were established to set the maximum current asset levels.

ii. Current Ratio Financing:

If a company's liquidity is adequate, that means it can satisfy its commitments in the short term. The ratio of current assets to current liabilities is a measure of liquidity. As a result, bankers use the current ratio to estimate and finance a company's working

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Notes

capital needs. As a result, the appropriate current ratio is the ratio of bank funds to own funds. Negotiation between the corporation and the banker determines this ratio.

iii. Cash Flow Financing:

Working capital is required primarily due to the uneven and unpredictable nature of cash flows. This is due to the fact that cash outflows to cover production costs do not occur at the same time as cash proceeds from sales. They're risky because sales and costs aren't known ahead of time. The cash budget allows the company to calculate its cash needs and plan their funding accordingly by forecasting future cash receipts and disbursements. Bank financing is based on the submission of periodic cash flow statements, such as quarterly, that fit seamlessly into a company's cash cycle. To calculate the amount of bank financing, banks must assess cash-flow risks, which forces them to become more involved in the borrower's day-to-day activities. Ad hoc requests for additional funding will not be accepted until the bank has appraised the cash budget. This will necessitate careful resource planning, accounts receivable management, purchase planning, and inventory management.

Check your Understanding

1. An _____is a collection of hardware and software, as well as processes and procedures, that oversees the monitoring and maintenance of a company's stocked goods
2. _____are payments made in advance in exchange for a percentage of future credit/debit card receipts
3. _____ is a loan provided by a lender to your supplier for products needed to meet a customer order
4. _____receivables is the sale of receivables to a third party at a discount in order to accelerate cash receipt.
5. The total cost of keeping inventory (also known as carrying costs) is referred to as _____

Summary

Inventory management is a difficult task. If you have too much inventory, you won't be able to invest in other areas of the business and you'll end up with dead stock; if you have too little inventory, you'll miss out on potential sales, experience enormous delays, and customer satisfaction will suffer. Inventory control necessitates operations input and output that are in sync with demand, promotions, and finances.

Activity

1. Explain EOQ models with help of an example.

Questions and Exercising

1. Write a short note on MPBF
2. Wite short notes on:
   - Cash management
   - Receivables management

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- Managing of cash flows

Notes

Glossary

- **A working capital revolver**: is a line of credit whose maximum borrowing limit is determined by the amount of accounts receivable and inventory on the balance sheet. Because money can be borrowed, repaid, and reborrowed repeatedly, this secured credit line is referred to as a revolver
- **Trade finance:** promotes foreign trade by transferring the risk of an exporter not receiving payment or an importer not receiving goods to a third party. Letters of credit, bank guarantees, asset-based loans, accounts receivable factoring, and purchase order financing are all examples of trade finance
- **MPBF**: stands for Maximum Permissible Banking Finance in Indian Banking Sector. MPBF is mainly a method of working capital assessment. As per the recommendations of Tandon Committee, the corporate are discouraged from accumulating too much of stocks of current assets and are recommended to move towards very lean inventories and receivable levels. This is where MPBF comes into picture.

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Check your Understanding- Answers

1. inventory management system
2. MCAs (merchant cash advances)
3. Purchase order financing
4. Factoring accounts
5. holding cost.

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Notes

Module-5: Cost of Capital and Leverage Analysis

Structure:

Unit-5.1 Cost of Capital

5.1.1 Cost of Capital-Concept, significance & assumptions

5.1.2 Factor Affecting Cost of Capital

Unit-5.2 Computation of cost of capital

5.2.1 Cost of Debt with Illustration

5.2.2 Cost of Equity with Illustration

5.2.3 Cost of Preferred Stock with Illustration

5.2.4 Cost of Reserve & Surplus

5.2.5 Weighted Average Cost of Capital

5.2.6 Weighted Average Cost of Capital- Illustration

5.2.7 WACC-Book Value Weights v/s Market Value Weights

5.2.8 EBIT-EPS Analysis

5.2.9 EBIT-EPS Analysis- Illustration

Unit-5.3 Leverage

5.3.1 Leverage Analysis-Overview

5.3.2 Operating Leverage with Illustration

5.3.3 Financial Leverage with Illustration

5.3.4 Combined Leverage with Illustration

5.3.5 Leverage Analysis- Case Numerical

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Unit-5.1 Cost of Capital

Notes

Learning Objectives:

At the end of this Unit-you will be able to understand

- Cost of Capital-Concept, significance & assumptions
- Factor affecting cost of capital

Introduction

Cost of capital is the minimum rate of return expected by investor, the suppliers of capital. In other words, it is a price for obtaining capital. It is a compensation for time and risk. Investors are of different categories and their risks are different. A decision to invest in a particular project depends upon the cost of capital of the firm or the cut off rate which in the minimum rate of return expected by the invertors.

5.1 Concept of Cost of Capital

Cost of capital is an important concept in financial decision-making process. It is useful in both the investment as well as the financing decisions. It denotes minimum expected rate of return that an investment proposal should earn.

In economic terms, from an investor's point of view, the cost of capital is the measurement of the sacrifice made by him in order to invest to get a fair return in future on his investments as a reward for the postponement of present needs. With reference to the firm using the capital, it is the price rewarded to the investor for providing capital.

In technical terms, it is the rate of return, the firm wants from investment to drive higher valuation of the firm in the market place. For example, if a firm borrows Rs.20 lakhs at an interest rate of 12%, then the cost of capital is 12%. Here it becomes necessary for the firm to earn at least Rs.2,40,000 *i.e.* ROR at 12%. If the return is less than this, then the rate of dividend the shareholders are getting will go down with a resultant fall in its market value. Hence, cost of capital is truly called the cut off rate for capital expenditures. Cost of capital is rightly defined as the minimum required rate of return or cut-off rate for capital expenditures.

Prominent features of Cost of Capital are as follows:

- The cost of capital is not always incurred cost. It denotes the least expected rate of return which is necessary to maintain the market value of equity shares. Therefore, it is also called the ***hurdle rate***.
- It consists of the following three components:
  a) Risk free rate = *rf*
  b) Premium for engaging risky proposals or business risk = *B*
  c) Premium for employing financial leverage or financial risk = *F*

  This is the equation showing the relationship between these components,

$$K_o = rf + B + F$$

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Notes

5.1.1 Different Concepts of Cost of Capital

The different cost concepts are classified below:

Future Cost and Historical Cost: Future Cost is an expected cost of funds which may be incurred for raising funds in future. They are relevant costs for financial decision making. On the other hand, Historical Costs are expired costs which are already incurred for financing an investment proposal Though they are not relevant costs, they help in projecting future costs with an appraisal of past performance.

Specific Cost and Combined Cost: The cost of each source of capital is called specific cost of capital like cost of debt, cost of preferred stock, cost of equity etc. whereas the combined cost is the weighted average cost of capital of the firm's various sources of long-term funding.

Explicit Cost and Implicit Cost: The explicit cost of capital is the internal rate of return which a company pays for obtaining the finances. When a company takes out an interest-free loan, its explicit cost is zero percent as there are no cash outflows from the interest rate. As a result, the discount rate equalises the present value of cash inflows with outflows Implicit cost, on the other hand, is the rate of return associated with the firm's best investment opportunity which would be forfeited if the current investment proposal is approved. Hence, it is an opportunity cost.

Average Cost and Marginal Cost: The weighted average costs of each part of funds used by the company is the average cost of capital. The weights are proportional to the proportion of each component of capital in the overall capital structure. Marginal cost of capital, on the other hand, is the weighted average cost of new funds raised by the company. The marginal cost of capital is the most important factor to consider while considering capital budgeting and financial decisions.

Significance of Concept of Cost of Capital

The primary function of every finance manager is to arrange adequate capital for the firm from various sources of funds at the lowest possible cost and maintaining the market value as well. Therefore, the decision of cost of capital is relevant in the following areas:

1. **Designing the capital structure**: The goal of maximizing the firm's value and minimizing the cost of capital should be considered by the management while designing the capital structure of the firm. By comparing the various specific costs of different sources of capital, the finance manager can choose the best source of finance and design a sound and balanced capital structure.
2. **Capital Budgeting Decisions**: The cost of capital defines whether an investment proposal is approved or rejected. A proposal will not be approved unless the rate of return exceeds the cost of capital.
3. **Comparative study of sources of financing**: Cost of capital is a significant factor in determining a financing source. Out of various sources available, which source has to be used is decided by comparing the costs of various sources of financing.
4. **Evaluation of top management's financial performance**: Cost of capital is used to evaluate the top management's performance by contrasting the actual

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Notes

profitability of the project with the actual cost of capital of funds raised to finance the project. The performance is deemed satisfactory when the project's actual profitability is higher than the actual cost of capital.

5. **Financing and Dividend decisions**: Other important financial decisions can also be taken with the help of cost of capital such as regarding dividend policy, capitalization of profits and selecting different sources of capital.

Assumptions

The major sources of finance are debt, preference shares, equity shares and retained earnings. Hence, the cost of specific sources would be the cost of debt, cost of preferred stock, cost of equity and cost of retained earnings.

While computing the cost of capital, the following assumptions are made while

- The cost can be either explicit or implicit.
- Investing in new investment proposals have no impact on business or financial risks.
- The firm's capital structure remains unchanged.
- The cost of each source of capital is calculated on an after-tax basis.
- Costs of previously obtained capital are irrelevant for calculating the cost of capital to be raised from a specific source.

The explicit cost of a source of finance would be calculated by discounting the cash flows at a discount rate that will equate the present value of cash outflows with present value of cash inflows. There exist some approximate methods to calculate the various sources of finance.

5.1.2 Factors Affecting Cost of Capital

The important factors which affect the cost of capital of a firm are enumerated below:

1. **Nature of Business**: Firms that require heavy investments in fixed assets bear a high cost of funds in comparison to firm which require low investments in fixed assets.
2. **Requirements of the firm**: Firms requiring large amount of funds consequently bear higher cost compared too firms requiring less amount of funds because large fund requirements lead to heavy external borrowings.
3. **Attitude of management**: If the management of the company is aggressive, it will have less liquid funds thereby decreasing its total cost whereas, a conservative management will keep large amount of funds leading to increase in total cost.
4. **Financing Mix decision**: The firm's overall cost of capital is determined on basis of proportion of different sources of funds. The high proportion of high cost funds will increase the total cost and low proportion of high cost funds will decrease the total cost.
5. **Business Risk and Financial Risk**: If the business risk of a firm is high, its cost of capital increases and as the financial risk increases bankruptcy risk also

Notes

increases for a given firm. Higher the risk of bankruptcy, higher is the cost of capital.

Check your Understanding

1. _____is the minimum rate of return expected by investor, the suppliers of capital
2. _____ is an expected cost of funds which may be incurred for raising funds in future. They are relevant costs for financial decision making.
3. Firms requiring _____consequently bear higher cost compared too firms requiring less amount of funds because large fund requirements lead to heavy external borrowings.
4. Higher the_____ of bankruptcy, higher is the cost of capital.

Summary

- One of the most crucial elements in deciding on an investment is determining the cost of capital. It aids you in weighing the costs, benefits, and risks of various investment projects. Capital budgeting and payback time are two other key factors to be taken into consideration. The payback period is simply the time it takes to recover the amount invested.

Activity

1. Find out various list of securities and its cost associated with the security

Questions and Exercises

1. Explain the -Concept, significance & assumptions of Cost of Capital
2. List out various factors affecting cost of capital

Glossary

- **Cost of capital** : it is the rate of return that the suppliers of capital require as compensation for their contribution of capital.
- A **rate of return** (RoR): is the net gain or loss of an investment over a specified time period, expressed as a **percentage** of the investment's initial **cost**. When calculating the **rate of return**, you are determining the **percentage** change from the beginning of the period until the end
- **Explicit costs:** are out-of-pocket **costs**, that is, payments that are actually made. Wages that a firm pays its employees or rent that a firm pays for its office are **explicit costs**.
- **Implicit costs:** are more subtle, but just as important. They represent the opportunity **cost** of using resources already owned by the firm.

Further readings and References

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Notes

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Check your Understanding- Answers

1. Cost of capital
2. Future Cost and Historical Cost:
3. large amount of funds
4. risk

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Notes

Unit-5.2 Computation of Cost of Capital

Objectives

At the end of this Unit-you will be able to understand

- Cost of Debt with Illustration
- Cost of Equity with Illustration
- Cost of Preferred Stock with Illustration
- Cost of Reserve & Surplus
- Weighted average cost of capital
- Weighted average cost of capital- Illustration
- WACC-Book value weights v/s market value weights
- EBIT-EPS analysis
- EBIT-EPS analysis- Illustration

Introduction

The requested return to make a capital budgeting project, including constructing a new factory, worthwhile is known as the cost of capital. When analysts and investors talk about the cost of capital, they usually mean the weighted average of a company's debt and equity costs combined.

Internally, enterprises use the cost of capital metric to assess if a capital project is worth the investment of resources, and investors use it to decide if an investment is worth the risk compared to the return. The cost of capital is determined by the method of funding. It can refer to the cost of equity if the company is entirely funded by equity, or it can refer to the cost of debt if the company is entirely funded by debt, it is said to be in debt.

Many firms use a combination of debt and equity to fund their operations, and the overall cost of capital for those enterprises is calculated using the weighted average cost of all capital sources, also widely acknowledged as the weighted average cost of capital (WACC).

5.2.1 Cost of Debt Capital

Debt may be in the form of debentures, bonds, term loans from financial institutions and banks etc. It can be raised at par, at a discount or at a premium. The desired rate of return by the lenders is the cost of debt. It is the interest rate that is specified at the time the bond is issued. The debt may also be redeemable or perpetual debt. Therefore, the cost of debt can be defined in the terms of the desired rate of return that the debt financed investment must yield to prevent damage to the shareholders position. Since the interest charges are allowed for tax purposes, the effective cost of capital would always be the after-tax cost of debt.

However, net proceeds from the issuance of debentures can be used to determine the real cost of debt. The net proceeds are equal to the issue price of the debentures

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or amount of loan minus all floatation costs. The floatation costs are the cost of issuing debentures or obtaining loans. These are generally expressed as percentage of face value. In nutshell, the net proceeds in different situations can be calculated as under –

At Par = Par Value – Floatation Costs

At Premium = Par Value + Premium – Floatation Costs

At Discount = Par Value – Discount – Floatation Costs

Further the cost of debt capital will be calculated on an average capital basis. The average capital is computed by dividing the total of net amount received at the time of issue and amount payable on maturity by two.

Cost of Redeemable Debentures:

When debentures are repayable after a specified period of time at par, or at discount or at premium, the formula that can be used is:

$$Kd = R + \frac{\{MV - NP\}/n}{\{MV + NP\}/2} * 100$$

Where,

Kd = Cost of debt

MV = Maturity Value of debt

NP = Net Proceeds

n = Number of years to maturity

R = Annual interest payment

When debentures are issued at discount, the net amount realized at the time of issue will be less than the amount to be paid on maturity. Therefore, the annual average of the difference between these two amounts *(MV – NP)* will be deducted from the interest payable per year and the cost of capital will be calculated on average capital.

Illustration: Shri Ram company issues 12% debentures of Rs 5,00,000 repayable after 10 years at a discount of 4% and incurs Rs 10,000 for underwriting, brokerage etc. corporate tax rate being 30% then, the cost of debt capital will be –

Solution:

$$Kd = \frac{60{,}000 + (5{,}00{,}000 - 4{,}70{,}000)/10}{(5{,}00{,}000 - 4{,}70{,}000)} \times 100$$

$$= \frac{60{,}000 - 3{,}000}{4{,}85{,}000} \times 100 = 13\% \ (approx)$$

$$Kd\ (after\ tax)\ = Kd\ (before\ tax) \times (1 - t) = 13\% \times (1 - 0.3) = 9.1\%$$

When debentures are issued at par, and there is no floatation cost, the cost of debt capital as calculated by the above formula will be equal to the contractual rate of interest as verified below

Notes

If debentures are redeemable at premium, the amount payable at maturity will be calculated by adding premium to be paid on maturity in face value (whether issued at any price).

Example: Using the figures of the above example, the cost of debt capital when issued at par and redeemed at 5% premium will be,

$$Kd = \frac{45{,}000 + (5{,}25{,}000 - 4{,}90{,}000)/10}{(5{,}25{,}000 + 4{,}90{,}000)/2}$$

$$= \frac{45{,}000 - 3{,}500}{5{,}07{,}500} \times 100 = 8.17\% \ (approx)$$

Kd (after tax) can be calculated as shown in illustration above.

Cost of Perpetual Debt

Debentures which cannot be redeemed during the life time of the company shall be ascertained by dividing the amount of interest by the net proceeds:

$$Kd = \frac{Interest}{NP \ or \ MP}(1 - t)$$

Where,

Kd = Cost pf debt

NP = Net Proceeds

MP = Market Price

t = tax rate

From the above equation, the market price of debenture may be calculated as:

$$MP = \frac{Interest}{Kd}$$

Illustration: A company issues 9% irredeemable debentures of Rs 100 each for Rs 5 lakhs. The company's tax rate is 40%. Calculate the cost of debt (both before and after taxes) if the debentures are issued at (a) par, (b) 5% discount, (c) 10% premium.

Solution:

$$Kd \ (after \ tax) = \frac{Interest}{Net \ Proceeds} \times 100$$

$$Kd \ (after \ tax) \ = \ Kd \ (before \ tax) \ \times \ (1 - t)$$

Issued at par

$$Kd \ (before \ tax) = \frac{45{,}000}{5{,}00{,}000} \times 100 = 9\%$$

$$Kd \ (after \ tax) = 9\% \ (1 - 0.4) = 5.4\%$$

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Notes

Issued at 5% discount:

$$Kd\ (before\ tax) = \frac{45{,}000}{4{,}75{,}000} \times 100 = 9.47\%$$

$$Kd\ (after\ tax)\ =\ 9.47\%\ (1 - 0.4)\ =\ 5.68\%$$

$$Net\ Proceeds\ =\ Rs\ 5,00{,}000 - 25{,}000$$

$$Discount\ @\ 5\%\ on\ Rs.5{,}00{,}000\ =\ Rs.4{,}75{,}000$$

Issued at 10% premium:

$$Kd\,(before\,tax) = \frac{45000}{550000} \times 100 = 8.18\%$$

$$Kd\ (before\ tax) = \frac{45{,}000}{5{,}50{,}000} \times 100 = 8.18\%$$

$$Kd\ (after\ tax)\ \ =\ 8.18\%\ (1 - 0.4) - 4.91\%$$

Illustration: A company issues 12% debentures of Rs 5 lakhs at par and incurs Rs 10000 as issue expenses, the cost of debt capital will be:

$$Kd = \frac{60{,}000}{4{,}90{,}000} \times 100 = 12.24\%$$

$$Interest\ =\ 5{,}00{,}000\ \times\ 12\%\ =\ Rs.60{,}000$$

$$NP\ =\ Rs.5{,}00{,}000 - 10{,}000\ =\ Rs.4{,}90{,}000$$

5.2.2 Cost of Equity Share Capital

Equity shareholders are the owners of the company. There is no contractual obligation on the company's part to pay dividends to the shareholders. Therefore, calculating the cost of equity share capital becomes difficult as the dividend rate is not predetermined. As a result, some financial experts believe that equity share capital holds no cost. However, this is not true. The shareholders commit their funds expecting high dividends and appreciation of value of shares. It becomes imperative on the part of company to pay dividend and maintain its growth. Thus, cost of equity capital can be defined as the minimum rate of return that a company must receive on the equity financed part of an investment in order to leave the unchanged market price of its shares. The following methods can be used to calculate by the cost of equity capital:

Dividend Yield Model

This model is also known as "Dividend/Price Ratio" or "D/P Ratio" method. Under this method, the investors estimate the market value of an equity share by capitalizing the set of dividend payments. The cost of capital will be the expected rate of dividends, which will retain the current value of equity shares. As per this method, the discount rate that equates the present value of all expected future dividends per share with the

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net proceeds of the sale or the present market price of a share is defined as the cost of capital.

Moreover, this approach does not seem very logical as it fails to consider the growth factor in dividend payment and also ignores the relevance of retained earnings.

Symbolically,

Cost of Equity Capital (*Ke*) = [*DPS / NP or MP*] x 100

Where,

DPS = Dividend per share

NP = Net Proceeds

MP = Market Price

Therefore, Market Price may be calculated as:

MP = DPS / Ke

For example, if a company issues 4, 00, 000 equity shares of Rs 10 each and the current market price of these shares is Rs 15 per share. If the company has paid dividend at the rate of Rs 1.20 per share, the cost of equity share capital would be:

$$Ke = \frac{1.20}{15} \times 100 = 8\%$$

Illustration: A company issues equity shares of Rs 10 each at a premium of 50%. The company incurs 2% of the issue price as expenses. If the rate of dividend expected by the equity shareholders is 20%, calculate the cost of equity capital.

Solution:

Ke = [*DPS* / *NP*] *x* 100

DPS = Rs 2 per share [20% of Rs 10]

NP = Rs 10 + Rs 5 [50% premium] – 0.30 [*2% of issue expenses on Rs 15 per share*]

Ke = [2 / 14.70] x 100 = 13.61%

Earnings Yield Method

The earnings per share is used in this model to determine the market price of the share. Equity shareholders have full right in the income whether they get only part of it as dividend. Therefore, calculating cost of capital solely on the basis of dividend is not justified. Hence, under this method, the future expected earnings are related to the market price of the shares.

It is also called 'Earnings Price Ratio' or 'E/P ratio' method. Symbolically,

$$Ke = \frac{EPS}{MP} \times 100$$

Where,

EPS = Earnings per share

MP = Market Price per share.

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Illustration: A firm is currently earning Rs 2, 00, 000 and its share is trading at a present market price of Rs 200. The company has 10, 000 shares outstanding and has no debt. It decides to raise Rs 5, 00, 000 as extra funds. If the floatation costs are Rs 10 per share and the company can sell the share for Rs 180, what is the cost of equity? Assume that the earnings are stable.

Solution: Cost can be calculated using the Earning per share basis.

$$Earnings\ per\ share\ =\ [2,00,000\ /\ 10,000]\ =\ Rs\ 20$$

$$Market\ price\ =\ Rs\ 180 - 10\ =\ Rs\ 170$$

$$Ke = \frac{20}{170} \times 100 = 11.76\%$$

Illustration: A company issues 5, 00, 000 equity shares of Rs 10 each and has earned a profit of Rs 6, 00, 000 after tax. If the market price of these shares is Rs 16 per share, the cost of capital will be,

$$Ke\ =\ \frac{1.20}{16}\ \times\ 100\ =\ 7.5\%$$

$$EPS = \frac{6,00,000}{5,00,000} = 1.20$$

The method of computing cost of capital has the following limitations:

- Earnings per share cannot be assumed to be constant in the longer period of time.
- Market price per share does not remain stable because increase in retained earnings results in an increase in share price.

Illustration: A ltd has issued fully 2, 000 fully paid equity shares of Rs 100 each. The company has earned a profit of Rs 20, 000 after tax. The market price of these shares is Rs 160 per share. On these shares, dividend has been paid at the rate of Rs 8 per share.

Find out the cost of equity capital using:

a) Dividend Yield Method

b) Earnings Yield Method

Solution:

a) Dividend Yield Method:

$$Ke = \frac{DPS}{MP} \times 100 = \frac{Rs.8}{Rs.160} \times 100 = 5\%$$

b) Earning Yield Method:

$$Ke = \frac{Rs.10}{Rs.160} \times 100 = 6.25\%$$

Notes

Dividend yield plus growth in dividend yield method:

Although it is assumed that the current rate of dividend remains constant in future also, the management estimates that the company's present dividend will increase continuously for the years to come, then an allowance for future growth in dividend is added to the current dividend yield. The dividend growth rate is presumed to be equal to the earnings per share growth rate. Symbolically,

$$Ke = \frac{DPS}{MP} \times 100 + g$$

Where,

DPS = Dividend per share

MP = Market Price per share

G = Growth rate in dividend i.e. expected annual percentage rate of increase in future dividend

Example: The current market price per share is Rs 110 and the current dividend per share is Rs.5.50, assuming that the dividends grow at the rate of 5%, calculate the cost of equity capital.

Solution:

$$Ke = \frac{5.50}{110} \times 100 + 0.05 = 10\%$$

This method of ascertaining cost of capital is considered as the best method, as it considers the practical aspects of the problem. It is claimed that it will give an accurate estimate of return. But it is true, only if the dividends and earnings grow at the same rate. The main difficulty is to determine the rate of growth expected by a shareholder due to uncertainty of future.

Illustration: Sun Ltd. has its share of Rs 10 each quoted on the stock exchange; the current price per share is Rs 34. The gross dividend per share over the last four years has been Rs 1.20, Rs 1.32, Rs 1.45 and Rs 1.60. Calculate the cost of equity capital.

Solution:

$$Ke = \frac{DPS}{MP} \times 100 + g$$

Expected current year's dividend = D (1 + *g*)

= *Rs*. 1.60 (1 + .10)

= 1.60 × 1.11 = *Rs* 1.76

The dividends are growing @ 10% and are expected to continue to grow at this rate.

$$Ke = \frac{1.76}{24} \times 100 + 0.00 = 17\%$$

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Notes

Capital Asset Pricing Model (CAPM)

The CAPM divides the cost of equity into two components – the risk-free return available on investing in government securities and as additional premium for investing in a particular share or investment. This model recognizes that an investor's required rate of return is the compensation for time value of money and risk. As investors are generally risk averse, they require a premium for taking risk. Hence, the cost of equity share capital can be calculated as –

$$Ke = Rf + Bi\ [\ Rm - Rf\ ]$$

Where,

Ke = Cost of equity capital

Rf = Risk free rate of return

Bi = Beta of investment i.e. sensitivity of returns of a security i to changes in market risk.

Rm = Average return on Market portfolio

The risk-free rate of return is obtained by a risk-free asset, such as, government securities in India. The difference between the expected market return and risk-free rate of interest is the market risk premium.

If the share has a risk different from the market risk, we need to adjust its premium to reflect this difference. The adjustment factor is represented by Bi (beta) of a security.

For example: if rf is 12% and Bi is 2 and return on market portfolio is 15%, the cost of equity capital as per CAPM will be,

$$Ke = Rf + Bi\ [\ Rm - Rf\ ]$$

$$Ke = 12 + 2\ [\ 15 - 12\ ] = 18\%$$

Illustration: The beta co-efficient of ABC Ltd is 1.40. The risk-free rate of return on Government securities is 7%. The expected rate of return on company's equity shares is 15%. Calculate the cost of equity capital based on CAPM.

Solution:

$$Ke = Rf + Bi\ [\ Rm - Rf\ ]$$

$$Ke = 7 + 1.40\ [\ 15 - 7\ ] = 18.2\%$$

5.2.2 Cost of Preference Share Capital

Preference shareholders enjoy preference rights as regards payment of dividends and return share capital. There are different types of preference, redeemable and irredeemable preference shares as well as cumulative and non-cumulative shares. However, there are no contractual obligations to pay preference dividend. As the cost of preference capital is calculated based on the preference dividend and dividend is not allowed for tax purpose, the effective cost of preference share capital would be the cost before tax.

Notes

The cost of Perpetual Preference Share Capital: Thedividend expected by preference shareholders is the cost involved and it should be computed, in case of irredeemable preference shares, by establishing the relationship between annual dividend income and net proceeds of their issue. The following formula is used:

$$Kp = \frac{DPS}{NP} \times 100$$

Where,

DPS = Dividend per share

NP = Net Proceeds

Illustration: A company issued 10% preference shares of Rs 100 each for Rs 5, 00, 000.

Calculate the cost of preference capital when they are issued at (a) par, (b) 5% premium, (c) 5% discount.

Solution:

a) when preference shares are issued at par:

$$Kp = \frac{DPS}{NP} \times 100$$

$$= \frac{50{,}000}{5{,}00{,}000} \times 100 = 10\%$$

b) When preference shares are issued at discount:

$$Kp = \frac{50{,}000}{4{,}75{,}000} \times 100 = 10.53\%$$

c) when issued at premium:

$$Kp = \frac{50{,}000}{5{,}25{,}000} \times 100 = 9.52\%$$

Cost of Redeemable Preference share capital: As per Companies (amendment) Act, 1996, issue of irredeemable preference shares has been abolished**.** Therefore, in practice only redeemable preference shares are issued. Such shares are redeemed at maturity date either at par or premium. Therefore, the cost of capital is computed in the same way as in case of redeemable debentures. Only the word D – Dividend is used in place of Interest (R) in the formula.

$$Kp = \frac{D + (MV - NP)/10}{(MV + NP)/2}$$

Where,

Kp = Cost of redeemable preference shares

MV = Maturity Value of debt

Notes

NP = Net Proceeds

n = Number of years to maturity

D = Annual dividend payment

Illustration: Shyam Ltd issues 50, 000 10% preference shares of Rs 100 each redeemable after 10 years at a premium of 5%. The cost of issue is Rs 2 per share. Calculate the cost of preference share capital. Assume 30% corporate tax rate.

$$Kp = \frac{10 + (105 - 98)/10}{(105 + 98)/2} \times 100 = 10.54\%$$

$$Kp\ (after\ tax) = Kp\ (before\ tax) \times \frac{1}{(1 - t)}$$

$$= 10.54\% \times \frac{1}{(1 - 0.3)} = \frac{10.54}{0.7} = 15.06\%$$

5.2.4 Cost of Reserves and Surplus

The retained earnings are the funds accumulated by a company over a period by keeping part of profits without distribution. It is a major source of finance mostly used for expansion and diversification programs. The cost of retained earnings is an opportunity cost to be measured in terms of income foregone by the shareholders that they could have gained if the dividends foregone had been invested in some alternative investments. Hence, the cost of retained earnings is equal to cost of equity. To the extent of personal tax rate and floatation costs, the costs of retained earnings will be cheaper. Thus, as per "Opportunity Cost Approach", Kr is calculated by any of the following formulae,

$$Kr = Ke\ [1 - f][1 - T]$$

Or

$$Kr = \frac{D[1 - f][1 - T]}{MP} \times 100$$

Or

$$Kr = \frac{D}{MP} \times 100 + g \times [1 - f][1 - T]$$

Where,

f = floatation costs

T = Personal Tax rate

g = growth rate in dividend

MP = Market Price

Illustration: Narendra Mart is currently earning a net profit of Rs 60, 000 p.a. the shareholder's required rate of return [Ke] is 15%. If earnings are distributed among

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Notes

the shareholders they can invest in similar securities that pay a 15% annual return. However, the shareholder's would incur 2% brokerage fee for making new investments. They are also in the 30% tax bracket. Compute the cost of retained earnings to the company.

Solution:

$$Kr = Ke\,[1 - f]\,[1 - T]$$

$$= 15\%\,[1 - 0.02]\,[1 - 0.30]$$

$$= 10.29\%$$

Verification:

Suppose the company's pay-out Ratio is 100%.

Dividends payable to the shareholders	= Rs 60,000
Less: Personal Income Tax	18,000
After Tax Dividends	42,000
Less: Brokerage @ 2% on Rs 42, 000	840
Net Amount available for investment	41,160

Shareholders can earn at 15% on Rs 41,160 – Rs 6,174. This is the opportunity income foregone by shareholders if the company retains Rs 60,000. Hence, the required rate of return for Rs 60, 000 is Rs 6,174 and the rate of return is 10.29%. Hence, the required rate of return expected by the company's shareholders is 10.29%, which is the cost of retained earnings.

Illustration: Find out the cost of retained earnings from the following data:

Dividend per share	Rs. 15
Personal income tax Rate	30%
Market price per share	Rs. 110
Brokerage on investment of dividend	1%

Solution:

$$Kr = \frac{D[1 - f][1 - T]}{MP} \times 100$$

$$= \frac{15 \times [1 - 0.01][1 - 0.30]}{110} \times 100$$

$$= \frac{15 \times 0.99 \times 0.70}{110} \times 100 = 9.45\%$$

5.5.5 Weighted Average Cost of Capital

Weighted Average Cost of Capital (WACC) is the weighted average of the cost of different sources of finance, with weight indicating the proportion of each source to the total pool of capital structure. It is often referred to as the composite cost of capital.

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It may be simple average or weighted average. Simple average is calculated by assigning equal weights to all sources of funds whereas weighted average is computed by assigning different weights to different sources of funds. The capital raised from various sources is invested in a variety of projects. The profitability of these projects is evaluated by comparing the expected rate of return with composite cost of capital i.e. WACC. Thus, Weighted Average Cost of Capital, is an average of the costs of particular sources of capital used in a company, correctly weighted by the percentage they held in the firm's capital structure.

Calculating WACC –

Its computation involves the following steps:

1. **Assignment of Weights**: To calculate the weighted Average Cost of Capital, weights must first be allocated to each source of capital. Weights can be either "book value weights" or "market value weights".
   a) **Book value weights** – The relative proportion of different sources of capital to the firm's capital structure which can be computed by using data from the company's balance sheet.
   b) **Market Value Weights** – It is the market value of various sources of capital. It can be computed by knowing the present market price of each security in each category. However, the market value weights are more appealing as they are better indicators of firm's cost of capital.
2. **Computation of specific cost of each source**: Now, we need to calculate the specific costs of each source of capital. In financing decisions, all costs used are "after tax" costs.
3. **Computation of WACC**: The calculated weighted costs of all sources of funds are added to achieve an overall weighted average cost of capital.

The formula for computation of WACC is –

$$Ko = WdKd + WpKp + weKe + WrKr$$

Where,

Ko = weighted average cost of capital

Wd, Wp, We and Wr = Weights assigned to debt, preference share capital, equity capital and retained earnings

Kd, Kp, Ke and Kr = Cost of debt, preference share capital, equity capital and retained earnings

5.2.6 WACC Illustration

Shantanu Ltd has the following capital structure:

Particulars	Market Value	Book Value	Cost
Equity Capital	80	120	18
Preference Capital	30	20	15
Secured Dept	40	40	14

Notes

Cost of individual sources of capital is net of tax. Compute the company's weighted average cost of capital.

Solution:

WACC based on Market Value:

WACC of the company-based market value = 16.33% **WACC based on Book Value:**

Capital Source	Market value [Rs in lakhs] [a]	Weight % [b]	Cost [net of tax] % [c]	Weighted cost of capital [b] x [c]
Equity Capital	120	6/9 = 66.67	18	12.00
Preference Capital	20	1/9 = 11.11	15	1.67
Secured Debt	40	2/9 = 22.22	14	3.11
Total	180	1 = 100		16.78

WACC of the company-based market values = 16.78%

Illustration: Calculate the weighted average cost of capital from the following information:

a. Capital Structure of Y Ltd: (Rs)

Equity capital: Shares of Rs 10 each fully paid 1,00,000

Reserves (General) 50,000

Long Term Debt 1, 00, 000

b. Market price per share of AB Ltd is Rs 60 and earnings per share is Rs 6. The expected growth rate earnings are 5% p.a.

c. Cost of debt (before tax) = 12% p.a.

d. Applicable corporate tax = 40%

e. Use market values as weights and show your workings.

Solution:

a) Cost of equity (using Earnings Growth method)

$$Ke = \frac{E + g}{P} = \frac{Rs6 + 0.05}{Rs60} = 0.1 + 0.05 = 0.15 \; or \; 15\%$$

b) Cost of Reserves (using external yield criterion)

$$Kr = Ke = 15\%$$

c) Cost of Long term debt

$$Kd = r(1 - t) = 0.12 \; (1 - 0.4) = 0.072 \text{ or } 7.2\ \%$$

Weights: Market value of Equity and General Reserve = 60 x 10, 000 = 6, 00, 000

Notes

Divided in the ratio 2:1, we get,

$$Market\ Value\ of\ Equity = 6{,}00{,}000 \times \frac{2}{3} = Rs.\ 4{,}00{,}000$$

$$Market\ Value\ of\ Reserves = 6{,}00{,}000 \times \frac{1}{3} = Rs.\ 2{,}00{,}000$$

Statement of WACC

Capital Source	Market value [Rs in lakhs] [a]	Weight % [b]	Cost [net of tax] % [c]	Weighted cost of capital [b] x [c]
Equity Capital	4, 00, 000	0.57	15	8.55
Reserves	2, 00, 000	0.29	15	4.35
Long Term Loan	1, 00, 000	0.14	7.2	1.01
Total	7, 00, 000	1.00		13.91

Merits of WACC

This method is commonly used to calculate the necessary return on a company's investments. It has a variety of benefits, including the following:

- It uses a straightforward and reasonable methodology that is simple to calculate and comprehend. As a result, it is a simple and rational approach.
- It is adaptable to changing circumstances, as small changes in the capital structure will be reflected in the firm's overall cost of capital.
- During periods of normal profits, it is proved more accurate as a cut-off rate in selecting capital budgeting proposals.
- It has proved as an ideal criterion for selecting capital expenditure proposals by providing a cut-off rate that determines the lower limit for obtaining an investment proposal.

Limitations of WACC

This approach has some weaknesses. Some of them are:

- Inclusion of short-term loans in the cost of capital calculation will result in low weighted average cost. Hence, unsuitable in case of low-cost debt.
- If a company is encountering low profits, weighted average cost will be faulty and of limited value.
- The main difficulty is to assign weights to various components of capital structure.
- Choosing a capital structure to use in calculating the weighted average cost of capital is a difficult task.

5.2.7 WACC-Book Value Weights V/S Market Value Weights

Book Value WACC is calculated using book value weights whereas the Market Value WACC is calculated using the market value of the sources of capital.

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Notes

For all kinds of businesses, book value weights are easily available from the balance sheet and are very easy to calculate. For Market Value weights, on the other hand, market values must be determined, and obtaining accurate data for the same, especially the value of equity when the entity is not listed, is a difficult task. Analysts believe Market Value WACC is sufficient because an investor will demand a market needed rate of return on the market value of the capital rather than the book value.

Illustration: Assume a company issued capital at Rs.10 per equity share 5 years ago. The share's current market value is Rs.30, its book value is Rs.18 and market required rate of return is 20%. The investors (existing and new) of the company will expect a return on Rs.30 and not Rs.18. Let us take a look on how a rational investor will act.

New Investor: He can buy the share of the company at Rs.30 from the market. If the company returns 20% of its book value i.e. Rs.3.60. The new investor will calculate his percentage of gain 12% (3.60/30) which is significantly less than 20%. Why Rs.30? Because he has invested Rs.30 rather than Rs.10 or Rs.18.

Existing Investor: Since the market required rate of return is 20% and the return on investment at current prices is only 12%, existing investors would be better off selling their securities at Rs.30 and investing in other securities that yield more than 12%. The current investor will sell the stock because it is overpriced and replace it with securities that are under-priced or appropriately priced in the market.

In comparison to book value weights, market value weights are more appropriate. Out of the three choices – marginal weights, historical book value weights, and historical market value weights – historical market value weights should be used to calculate WACC.

5.2.8 EBIT-EPS Analysis

The financing decisions have two components. First, to decide as to how much total funds are needed, and second, to decide the sources or their combinations to raise such funds. The total quantity of funds needed, however, depends upon the investment decisions of the firm. Even though the firm is having estimation of required capital funds, then the problem then remains one of determining the best mix of different sources to be used in raising the required funds. The process that leads to the final choice of the capital structure is known as the capital structure planning. A firm may use several techniques available to quantify the risk return characteristics of the alternative capital structures. One of the widely used technique is EBIT-EPS Analysis.

It is a method that is used for analysing the effect of leverage on the returns available to the shareholders. The EBIT-EPS analysis is one of the important tools in the financial manager's arsenal for gaining insight into the company's capital structure. He will explore the effect of possible EBIT fluctuations on EPS under various financial scenarios. If the likelihood of earning a rate of return on firm's assets is greater than the cost of debt, a significant amount of debt can be used by the firm in its capital structure to boost the EPS. The market value per share may benefit as a result of this. On the other hand, if the chance of receiving a rate of return on firm's assets is less than the cost of debt, the firm should avoid employing debt.

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Thus, the higher the level of EBIT and the lower the probability of downward fluctuations, the more advantageous it is to use debt in the capital structure of a company.

Limitations of EBIT and EPS Analysis

If maximization of the EPS is the only criterion for selecting the particular debt-equity mix, then that capital structure which is expected to result in the highest EPS will always be selected by all the firms.

However, achieving the highest EPS cannot be the only goal of any firm. The main limitations of the EBIT-EPS analysis are as follows:

i. The EPS Criterion ignore the Risk Aspect: The EBIT-EPS analysis ignores as to what is the effect of leverage on the overall risk of the firm. With every increase in financial leverage, the risk of firm and risk for the investors increases. . The variability of EPS and the risk-reward trade-off are ignored in this analysis.

ii. EPS is Useful for Measuring Performance: The EPS basically, depends upon the operating profit which in turn, depends upon the operating efficiency of the firm. It is a resultant figure and it is more a measure of performance rather than a measure of decision making.

5.2.9 EBIT-EPS Analysis- Illustration

Illustration 1

ABC Company is a long-term financing company of Rs.100,00,000 of common stock equity. Company wishes to raise its capital by Rs.50,00,000. It has three possible financing plans to raise its capital. The company may gain additional financing with a new issue of:

1. all common stock
2. all debt at 12 percent interest or
3. all preferred stock with an 11 percent dividend

Present annual earnings before interest and taxes (EBIT) are Rs.15,00,000, but with expansion are expected to rise to Rs.27,00,000. The income tax rate is 40%, and there are currently 200,000 shares of common stock outstanding. The first finance option allows common stock to be sold at Rs.50 per share, resulting in 100,000 additional shares of stock.

To determine the EBIT-EPS break-even, or indifference, points among the various financing alternative, we begin by calculating earnings per share, (EPS), for some hypothetical level of EBIT using the following formula:

$$EPS = \frac{EBIT - I - t - PD}{NS}$$

Where,

I = annual interest paid

PD = annual preferred dividend paid

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t = corporate tax rate

NS = number of shares of common stock outstanding

Suppose we wish to know what earnings per share would be under the three alternative additional financing plans if EBIT were Rs.27,00,000. The calculations are shown in Table below. Note that interest on debt is deducted before taxes, while preferred stock dividends are deducted after taxes. As a result, despite the fact that the interest rate on debt is higher than the preferred stock dividend rate, earnings available to common shareholders (EACS) are higher under the debt alternative than they are under the preferred stock alternative.

Calculation of EPS under three additional financing alternatives:

	Common Stock	Debt	Preferred Stock
Earnings before interest and taxes (EBIT)	27,00,000	27,00,000	27,00,000
Interest (I)	-	6,00,000	-
Earnings before Taxes (EBT)	27,00,000	21,00,000	27,00,000
Income tax (EBT x t)	10,80,000	8,40,000	10,80,000
Earnings after Tax (EAT)	16,20,000	12,60,000	16,20,000
Preferred Stock Dividends (PD)	-	-	5,50,000
Earnings available to common shareholders (EACS)	16,20,000	12,60,000	10,70,000
Number of shares of common shareholders (NS)	3,00,000	2,00,000	2,00,000
Earnings per share (EPS)	5.40	6.30	5.35

Illustration 2

Tushar Limited has a paid-up share capital of Rs. 10,00,000 divided into equity shares of Rs. 10 each. It requires further funds amounting to Rs 5,00,000 to finance its expansion programme. Following are the alternatives under consideration:

i. Issue of 10% debentures of Rs. 5,00,000

ii. Issue of 50,000 13% preference shares of Rs. 10 each

iii. Issue of 50,000 equity shares of Rs. 10 each

The company's earnings before interest and tax (EBIT) are Rs. 4,00,000 per annum. You are required to calculate the effect of each of the above alternatives on EPS presuming:

a) EBIT continues to be same after expansion.

b) EBIT increases by Rs.1,00,000.

c) Income tax rate at 50%

Notes

Solution:

a) When EBIT is Rs. 4,00,000 p.a.

Particulars	Present Capital Structure	Proposed Capital Structure		
	(All Equity)	(Equity + Debt)	(Equity + Preference)	(All Equity)
	Rs.	Rs.	Rs.	Rs.
EBIT	4,00,000	4,00,000	4,00,000	4,00,000
Less: Interest	-	50,000	-	-
Profit Before Tax (PBT)	4,00,000	3,50,000	4,00,000	4,00,000
Less: Tax	2,00,000	1,75,000	2,00,000	2,00,000
Profit After Tax (PAT)	2,00,000	1,75,000	2,00,000	2,00,000
Less: Preference dividend	-	-	65,000	-
Profit available for equity Shareholders	2,00,000	1,75,000	1,35,000	2,00,000
No. of equity shares	1,00,000	1,00,000	1,00,000	1,50,000
EPS (Rs)	2.00	1.75	1.35	1.33
Dilution against initial EPS of Rs	-	-0.25	-0.65	-0.67

Interpretation: It is clear from the above table that minimum decrease in EPS is under proposed capital structure option 1, i.e., when complete additional amount is raised through debt. Therefore, it is advisable to raise additional funds through issue of debentures.

b) When EBIT is Rs. 5,00,000 p.a.

Particulars	Present Capital Structure	Proposed Capital Structure		
	(All Equity)	(Equity + Debt)	(Equity + Preference)	(All Equity)
	Rs.	Rs.	Rs.	Rs.
EBIT	4,00,000	5,00,000	5,00,000	5,00,000
Less: Interest	-	50,000	-	-
Profit Before Tax (PBT)	4,00,000	4,50,000	5,00,000	5,00,000
Less: Tax	2,00,000	2,25,000	2,50,000	2,50,000
Profit After Tax (PAT)	2,00,000	2,25,000	2,50,000	2,50,000
Less: Preference dividend	-	-	65,000	-

Notes

Particulars	Present Capital Structure	Proposed Capital Structure		
Profit available for equity Shareholders	2,00,000	2,25,000	1,85,000	2,00,000
No. of equity shares	1,00,000	1,00,000	1,00,000	2,50,000
EPS (Rs)	2.00	2.25	1.85	1.67
Dilution against initial EPS of Rs	-	+0.25	-0.15	-0.33

Interpretation: It is clear that EPS registered an increase over the present capital structure when complete additional funds are raised through issue of debt. Hence, proposed alternative 1 is preferable.

Check your Understanding

1. _____ of different sources of finance, with weight indicating the proportion of each source to the total pool of capital structure
2. The _____divides the cost of equity into two components – the risk-free return available on investing in government securities and as additional premium for investing in a particular share or investment
3. The _____are the funds accumulated by a company over a period by keeping part of profits without distribution
4. The _____is used in this model to determine the market price of the share.

Summary

The average rate of return required by the investors who provide long-term funds is known as a company's cost of capital. Strictly speaking the cost of capital of a firm is an appropriate discount rate for a project that is a carbon copy of the firm's existing business. However, in practice, the cost of capital serves as a baseline hurdle rate that is adjusted for differences in risk and financing patterns. There are different types of cost of capital namely (1) Future and Historical Costs, (2) Specific and Combined Costs, (3) Explicit and Implicit Costs, (4) Average and Marginal Costs. The Concept of Cost of Capital assists company management in designing the optimal capital structure for the firm, taking Capital Budgeting Decisions, conducting a comparative study of various sources of financing, evaluating top management's financial performance, and taking financing and dividend decisions.

The cost of a particular source of finance is used to calculate a rate of discount that equates the current value of the anticipated post-tax payments to that source of finance with the net funds obtained from that source of finance. Since there are no fixed contractual payments on equity stock. As there are no other securities, it is not easy to estimate the cost of equity. Several methods have been suggested to figure out the return expected by equity shareholders: (1) Dividend Yield Method, (2) Earnings – Price Ratio Method, (3) Dividend yield plus growth in dividend yield method, (4) Capital Asset Pricing Model. As none of these methods is perfect, you may have to use more than

Notes

one method to get a reasonable handle on the cost of equity. To calculate the Weighted Average Cost of Capital, you have to multiply the cost of each source of finance with its respective weights. The weights may be based on (1) Book Value, (2) Market Values. We recommend the use of market value weights unless market values are not available or highly unreliable or distorted.

EBIT-EPS break-even, or indifference, analysis is used to study the effect of financing alternatives on earnings per share. The EBIT level at which EPS is the same for two (or more) alternatives is known as the break-even point. The higher the expected level of EBIT, assuming that it is more than the point of indifference, the greater the case that can be made for debt financing, all other things being equal.

Activity

1. Write short notes on

- WACC
- EBIT and EPS
- CAPM model

Questions and Exercises

1. If the risk free rate of return is 10% the firms Beta is 1.75 and return on market portfolio is 15% Calculate this by using CAPM method

Answers for this question is (18.75%)

2. The capital structure of the firm is given as under :

Equity capital	= 5,00,000
Reserves	= 2,00,000
Debts	= 3,00,000

The component cost before tax are :

Equity capital 18% and Debt 10% . The tax rate is 35% .

Calculate WACC

Answer for this question is (14.5%)

Glossary

- **The weighted average cost of capital** (**WACC**) : is a calculation of a firm's cost of capital in which each category of capital is proportionately weighted. All sources of capital, including common stock, preferred stock, bonds, and any other long-term debt, are included in a **WACC** calculation
- The **Capital Asset Pricing Model** (**CAPM**) : describes the relationship between systematic risk and expected return for assets, particularly stocks. **CAPM** is widely used throughout finance for pricing risky securities and generating expected returns for assets given the risk of those assets and cost of capital

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- **Earnings before interest and taxes** (**EBIT**): is an indicator of a company's profitability. **EBIT** can be calculated as revenue minus expenses excluding tax and interest. **EBIT** is also referred to as operating earnings, operating profit, and profit before interest and taxes
- **Earnings per share** (**EPS**): is a company's net profit divided by the number of common shares it has outstanding. **EPS** indicates how much money a company makes for each share of its stock, and is a widely used metric to estimate corporate value.

Further readings and References

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Check your Understanding- Answers

1. Weighted Average Cost of Capital (WACC)
2. CAPM
3. retained earnings
4. earnings per share

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Unit-5.3 Leverage

Notes

Learning Objectives:

At the end of this Unit-you will be able to understand

- Leverage Analysis-Overview
- Operating Leverage with Illustration
- Financial Leverage with Illustration
- Combined Leverage with Illustration
- Leverage Analysis- Case numerical

Introduction

When a company invests to expand its asset base and generate returns on risk capital, it uses borrowed capital as a funding source. Leverage is an investment strategy that involves using borrowed money—specifically, various financial instruments or borrowed capital—to boost an investment's potential return. Leverage should also apply to the amount of debt a company uses to finance its operations.

5.3.1 Leverage Analysis - Overview

It is pretty evident fundamental that an organization can look for fund-raising required for investment by boosting either the claims of the owner or the claims of the creditor or a combination of both. The claim of the owners grows when the company raises funds by issuing equity shares or reinvests its earnings. The claims of the creditors rise when the funds are raised through borrowing. The different methods used for raising the funds represent the company's financial or the capital structure. The financing or capital structure decision is extremely important for the management, as it influences the debt-equity blend of the firm, which eventually influence shareholders return and risk. If the borrowed funds are greater than the funds of the owner, it will increase in shareholders earnings, but their risk will increase as well. This is because the cost of borrowed funds is lower than that of the shareholders' funds on the basis of the fact that cost of borrowed funds are acceptable as a deduction for income-tax purposes. However, the borrowed funds are subject to current interest, which has to be paid whether the company makes a profits or not. As a result, the risk of the shareholders rises in the event that there is a high proportion of borrowed funds in the total capital structure of the firm. In a situation where the fraction of the shareholders' funds exceeds the percentage of the borrowed funds, the return as well as the risk of the shareholders will be significantly reduced.

Meaning of Leverage

According to the dictionary definition the term leverage refers to "an increased means of accomplishing some purpose." For example, leverage allows us to lift heavy objects, which may be otherwise impossible to lift. However, in the world of finance, the term leverage has a distinct meaning. It refers to a company's ability to increase the return to its owners by utilizing fixed-cost assets or funds.

Notes

James Van Horne has defined leverage as "the employment of an asset or funds for which the firm pays a fixed cost or fixed return." Thus, according to him, leverage arises as a result of the firm utilizing an asset or source of funds, which has a fixed charge (or return). The former may be termed as "fixed operating cost", while the latter may be termed as "fixed financial cost". It is worth-noting that fixed cost or return is the pivot of leverage. If it is not obligatory for a company to pay fixed cost or fixed return, there will be no leverage. Since fixed costs and returns must be paid or incurred regardless of output or sales, the size of such costs and returns has a significant impact on the amount of profit available to shareholders. When the level of sales changes, leverage aids in quantifying such impacts. It may therefore be characterized as relative change in profits as a result of change in sales. A high degree of leverage means that there will be a large change in profits will result in relatively small change in sales and vice-versa. Thus, higher is the leverage, greater is the risk and greater is the expected return.

Types of Leverage

Leverages are of three types:

(i) Operating leverage,

(ii) Financial leverage and

(iii) Composite leverage.

5.3.2 Operating Leverage

The tendency of operating profit to vary disproportionately with sales is known as operating leverage. It is presumed to exist when a company is required to pay a fixed cost regardless of output or sales volume. If a company has a large number of fixed costs and a small number of variable costs, it is said to have a high degree of operating leverage. On the other hand, when a company has a higher proportion of variable costs and a lower proportion of fixed costs, it has a low operating leverage. Thus, the degree of operating leverage is determined by the number of fixed elements in the cost structure. Three factors influence the operating leverage of the firm:

a) The amount of fixed costs.

b) The contribution margins.

c) The volume of sales.

Of course, if there are no fixed operating costs, there would be no operating leverage.

Calculation of Operating Leverage: The following formula can be used to compute the operating leverage:

$$Operating\ Leverage = \frac{Contribution\ [C]}{Operating\ Profit\ [OP]}$$

Operating profit here means "Earning Before Interest and Tax" (EBIT).

Operating leverage may be advantageous or disadvantageous. There is favourable operating leverage when the contribution (i.e., sales less variable cost) is more than

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Notes

the fixed cost. In the opposite situation, the operating leverage would be considered unfavourable.

Degree of operating leverage. The degree of operating leverage may be defined as percentage change in the profits caused by a percentage change in the sales. It may be put in the form of following formula:

$$Degree\ of\ Operating\ Leverage = \frac{Percentage\ change\ in\ operating\ profits}{Percentage\ change\ in\ sales}$$

Usefulness: The operating leverage shows how the changes in sales affect the operating income. If a company has a high degree of operating leverage, small changes in sales will have a great impact on operating income. In other words, the operating profits [EBIT] of such a company will grow at a faster rate than the sales growth. Similarly, the operating profits of such a company will suffer a significant loss as compared to reduction in its sales. In general, the companies do not like to operate under conditions of a high degree of operating leverage. The following illustration will assist you to understand the concept of operating leverage:

Illustration: The installed capacity of a factory is 600 units.

Actual capacity used is 400 units. Selling price per Unit-is Rs.10 and variable cost is Rs. 6 per unit.

Calculate the operating leverage in each of the three situations given below:

1) When fixed costs are Rs. 400.

2) When fixed costs are RS. l,000.

3) When fixed costs are Rs. l,200.

Solution: Statement showing operating leverage

		Situation 1 (Rs.)	Situation 2 (Rs.)	Situation 3 (Rs.)
(i)	Sales	Rs.4000	4000	4000
(ii)	Variable cost	2400	2400	2400
(iii)	Contribution (i-ii)	1600	1600	1600
(iv)	Fixed cost	400	1000	1200
(v)	Operating profit (iii-iv)	1200	600	400
(vi)	Operating Leverage[C/OP]	1600/1200	1600/600	1600/400
	=	**1.33**	**2.67**	**4**

The above illustration shows that the degree of operating leverage increases as the share of fixed cost in the total cost structure of the company increases. For instance, it shows in 'Situation 3' that if sales increase by rupee one, the profit would increase by Rs.4. This can be confirmed by looking at 'Situation 3' where sales increase to Rs.8000 and the profit in such a situation will be as follows:

Sales 8,000

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Variable cost	4,800
Contribution	3,200
Fixed cost	1,200
Profit	2,000

Thus, the sales have gone up from Rs.4000 to Rs.8000, i.e. a hundred percent increase. In turn, the operating profits have also increased from Rs.400 to Rs.2000, i.e. by Rs.1600 (rising the profits by 400 percent).

The operating leverage is 4 in case of 'Situation 3', which shows that the profit will increase four times with every increase of one rupee. This has been confirmed by the above illustration where a hundred percent increase in sales has resulted in 400 percent increase in profits. Therefore, degree of operating leverage may be put as follows:

$$Degree\ of\ Operating\ Leverage = \frac{Percentage\ Change\ in\ Operating\ Income}{Percentage\ Change\ in\ Sales}$$

$$= 400/100$$

$$=4$$

As a matter of fact, operating leverage exists only when the quotient in the above equation exceeds one.

5.3.3 Financial Leverage

Financial leverage is regarded as the use of fixed interest/dividend bearing securities such as debt and preference capital in addition to the owners' equity in the total capital structure of the firm.

Favourable and unfavourable financial leverage: Financial leverage may be favourable or unfavourable depending on whether or not the earnings that are generated by the use of fixed interest or dividend bearing securities is more than the explicit fixed cost, and whether or not the firm has to pay for the employment of such funds. The leverage will be considered to be favourable or positive if the company earns more on assets acquired with the funds than the fixed costs associated with their use. Unfavourable or negative leverage takes place when the company does not make enough money to cover the cost of funding.

Trading on equity and financial leverage: Financial leverage is also sometimes referred to as "trading on equity". However, most of the scholars, on financial management believe that the phrase trading on equity should only be utilized for the term financial leverage when the financial leverage is favourable or positive. The company resorts to trading on equity with the objective of giving the equity shareholders a high rate of return than the general rate of earning on capital employed in the company, to compensate them for the risk that they have to swallow. For example, if a company borrows RS.1000 at 9% interest per annum, and earns a return of 14% the balance of RS.5 per annum after payment of interest will belong to the shareholders and thus they can be paid a higher rate of return that than general rate of earning of the company. But in case the company could earn a return of only 7% on Rs. 1000

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employed by it, the equity shareholder's loss would be RS.2 per annum. Thus, the financial leverage is a double-edged blade. It has the potentiality of increasing the return to equity shareholders, but at the same time creates additional risk for them.

Computation of Financial Leverage: The computation of financial leverage can be done according to the following methods:

i. *Where capital structure consists of equity shares and debt*: In such a case, financial leverage can be calculated according to the following formula:

Financial leverage = OP / PBT

Where,

OP = Operating profit or earnings before interest and tax (EBIT)

PBT = Profit before tax but after interest

Illustration: A company has any choice of the following three financial plans. You are required to calculate the financial leverage in each case and interpret it.

	X	Y	Z
Equity Capital	2000	1000	3000
Debt	2000	3000	1000
Operating Profit (EBIT)	400	400	400

Interest 10% on debt in all cases and tax rate 50% only.

Solution: The financial leverage will be computed as follows in case of each of these financial plans:

	X	Y	Z
Operating Profit (OP)	400	400	400
Interest (10% on debt)	200	300	100
Profit before tax (PBT)	200	100	300
Financial leverage	400/200	400/100	400/300
=	2	4	1.33

Financial leverage, as explained earlier, indicates the change that will take place in the taxable income as a result of change in the operating income. For example, taking Financial Plan X as the basis, if the operating profit decreases to Rs.200, its impact on taxable income will be as follows:

Operating Profit (OP or EBIT)	Rs.200
Less: Interest	Rs.200
Profit before tax (PBT)	NIL

Financial leverage in case of plan X is 2. It means every 1% change in operating profit will result in 2% change in the taxable profit. In the above case operating profit has decreased from Rs.400 to RS.200 (i.e. 50% decrease), as a result the taxable profit has decreased from RS.200 to zero (100% decrease).

Notes

Degree of Financial leverage. Degree of financial leverage may be defined as the percentage change in taxable profit as a result of percentage change in operating profit.

This may be put in the form of following equation:

$$Degree\ of\ Financial\ Leverage\ (DFL) = \frac{Percentage\ change\ in\ Taxable\ Income}{Percentage\ Change\ in\ Operating\ Income}$$

For example, in the above case the degree of financial leverage will be "2" calculated as follows:

100/50 = 2

It should be noted that financial leverage exists only when the quotient as per the above equation is more than one.

ii. *Where the capital structure consists of preference shares and equity shares.* The above formula for computation of financial leverage can also be applied to a financial plan having preference share. Of course, the amount of preference dividends will have to be grossed up (as per the tax rate applicable to the company) and then deducted from the earnings before interest and tax.

Illustration: The capital structure of a company consists of the following securities:

10% Preference share capital - Rs.1,00,000

Equity share capital (Rs. 10/- per share) Rs.1,00,000

The amount of operating profit is Rs.60,000

The company is in 50% tax bracket. You are required to calculate the financial leverage of the company. What would be new financial leverage if the operating profit increases to RS.90000 and read between the lines your results.

Solution: Computation of the present financial leverage

Operating profit (OP or EBIT) = Rs.60,000

Less: Preference Dividend (after grossing up) = Rs.20,000

PBT = Rs.40,000

Present Financial Leverage = OP/PBT = 60000/40000=1.5

Computation of new financial leverage

New operating Profit = Rs.90,000

Less: Preference Dividend (after grossing up) = Rs.20,000

PBT = Rs.70,000

Present Financial Leverage = OP/PBT = 90,000/ 1,70,000 = 1.286

The existing financial leverage is 1.5. It means 1% change in operating profit (OP or EBIT) will cause in taxable profit (PBT) in the same direction. For example, in the present case operating profit has increased by 50% (i.e. from Rs.60,000 to Rs.90,000). This has resulted in 75% increase in the taxable profit (i.e. from Rs.40,000

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to Rs.70,000).

iii. *Where the capital structure consists of equity shares, preferences, shares and debt*. In such a case the financial leverage is calculated for deducting from operating profit both interest and preference dividend on a before tax basis.

Illustration*:* A company has the following capital structure: Equity share capital Rs. 1,00,000, 10% Preference share capital Rs. 1,00,000, 8% Debentures Rs. 1,25,000 The present EBIT is Rs. 50,000. Calculate the financial leverage assuming that company is in 50% tax bracket.

Solution

Operating Profit	= Rs.50,000
Less: Interest on debenture	= Rs.10,000
Less: Pref. dividend (pre-tax basis)	= Rs.20,000
Profit before tax	= Rs.20,000
Financial leverage	= OP/ PBT = 50,000/ 20,000 = 2.5

Alternative definition of financial leverage: One of the objectives of planning an appropriate capital structure is to maximize the return on equity shareholder's funds or maximize the earning per share (EPS). Some scholars have used the terms "financial leverage" in the context that it defines the relationship between EBIT and EPS. According to Gitman, financial leverage is "the ability of a firm to use fixed financial charges to blow up the effects of changes in EBIT on the firm's earning per share". The financial leverage therefore indicates the percentage change in earning per share m relation to a percentage change in EBIT.

The degree of financial leverage as per the above definition can be calculated according to the following equation:

$$Degree\ of\ Financial\ Leverage = \frac{Percentage\ change\ in\ EPS}{Percentage\ change\ in\ EBIT}$$

Of course, there will be no financial leverage according to the above equation if the quotient does not exceed one.

Illustration: A company has the following capital structure;

10,000 Equity shares of Rs. 10 each	Rs. 1,00,000
2,000 10% Pref. shares of Rs. 100 each	Rs. 2,00,000
2,000 10% Debentures of Rs. 100 each	Rs. 2,00,000

Calculate the EPS for each of the following levels of EBIT:

i. Rs. 1,00,000

ii. Rs. 60,000

iii. Rs. 1,40,000.

The company is in 50% tax bracket. Calculate also the financial leverage using EBIT level under (i) as base

Notes

Solution: Computation of earnings per share

	(i)	(ii)	(iii)
EBIT	Rs. 1,00,000	60,000	1,40,000
Less; Interest on debenture	20,000	20,000	20,000
PBT	80,000	40,000	1,20,000
Less: Income Tax	40,000	20,000	60.000
PAT	40,000	20,000	60,000
Less: Preference dividend Earnings available for equity	20,000	20,000	20,000
Shareholders (EAS)	20,000	Nil	40,000
Earnings per share (EPS)	2	Nil	4

The above table shows that (a) in case (ii) the EBIT has decreased by 40% (i.e. from Rs. 1,00,000 to Rs. 60,000 while the earning per share has decreased by 100% (from Rs. 2 per share to nil); (b) in case (iii) the EBIT has increased by 40% (from Rs. 1,00,000 to Rs. 1,40,000 as compared to case (i), while the earning per share has increased by 100% (from Rs. 2 to Rs. 4).

The degree of financial leverage can therefore be computed as follows:

$$DFL = \frac{Percentage\ change\ in\ EPS}{Percentage\ change\ in\ EBIT}$$

Financial Leverage in between (i) and (ii) =100/40=2.5

Financial Leverage in between (i) and (iii) =100/40=2.5 The same result can be obtained by using the equation OP/PBT as shown below.

Computation of financial leverage

	(i)	(ii)	(iii)
OP Less; Interest 20,000 preference	Rs. 1.00,000	60,000	1,40,000
Dividend 40,000 (Grossed up)	60,000	60,000	60,000
PBT	40,000	-	80,000

Financial leverage = OP/PBT= 2.5

This means that with every 1% change in operating profit (OP), profit before tax (PBT) will change (in the same direction) by 2.5%. For example, in situation (ii) OP has decreased by 40%. This has resulted in decrease of PBT by 100% (i.e., 40 x 2.5). In situation (iii) OP has increased by 40%. This has resulted of PBT by 100% (i.e., 40 x 2.5).

Usefulness: Financial leverage helps considerably the financial manager while devising the capital structure of the company. A high financial leverage means high

Notes

fixed financial costs and high financial risk. A financial manager must plan the capital composition in a way that the firm is in a position to meet its fixed financial costs. Increase in fixed financial costs requires indispensable increase in EBIT level. In the event of collapse to do so, the company may be in principle forced into insolvency.

5.3.4 Composite Leverage

As discussed in the foregoing sections, operating leverage measures percentage change in operating profit due to percentage change in sales. It explains the degree of operating risk. Financial leverage measures percentage change in taxable profit (or EPS) on account of percentage change in operating profit (i.e., EBIT). Thus, it explains the degree of financial risk. Both these leverages are closely related with the firm's capacity to meet its fixed costs (both operating and financial). In case both the leverage are combined, the result obtained will unveil the effect of change in sales over change in taxable profit (or EPS).

Composite leverage thus expresses the relationship between revenue on account of sales (i.e. contribution or sales less variable cost) and the taxable income. It helps in finding out the resulting percentage change in taxable income on account of percentage change in sales. This can be computed as follows:

$$\textit{Composite leverage} = \textit{Operating leverage} \times \textit{Financial leverage}$$

$$= C/OP \times OP/PBT = C/PBT$$

Where

C = Contribution (i.e. sales - variable cost)

OP = Operation Profit or Earnings before Interest and Tax

PBT = Profit before Tax but after Interest

The computation of the composite leverage can be explained with the help of the following illustration:

Illustration: A company has sales of Rs. 1,00,000. The variable costs are 40% of the sales while the fixed operating costs amounts to Rs. 30,000. The amount of interest on long-term debt is Rs. 10,000. You are required to calculate the composite leverage and illustrate its impact if sales increase by 5%.

Solution: Statement showing computation of composite leverage

Sales	1,00,000
Less: Variable costs (40% of sales)	40,000
Contribution (C)	60,000
Less: Fixed operating cost	30,000
Earnings before interest and tax (EBIT) or Operating profit (OP)	30,000
Less: Interest	10,000
Taxable Income (PBT)	20,000
Composite leverage = C/PBT	= 60000/20000 = 3.

The composite leverage of '3' indicates that with each increase of Re. 1 in sales, the taxable income will increase by Rs. 3 (i.e. 1 x 3).

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This can be verified by the following computations when the sales increase by 5%.

Sales	1,05,000
Less: Variable costs	42,000
Contribution (C)	63,000
Less: Fixed operating costs	30,000
Earnings before interest and tax (EBIT) or Operating profit (OP)	33,000
Less: Interest	10,000
Taxable Income (PBT)	23,000

It is clear from the above computation that on account of increase in sales by 5% the profit before tax has increased by 15%. This can be verified as follows:

Increase in percentage profits = [*Increase in profit/Base Profit*] *X* 100

= [3,000/20,000] × 100

= 15%

Significance of Financial and Operative Leverage

The operating leverage and the financial leverage are the two quantitative tools used by the financial experts to measure the return to the owners (viz., earning per share) and the market price of the equity shares. The financial leverage is considered to be superior of these two tools, since it focuses the attention on the market price of the shares, which the management always tries to increase by increasing the net worth of the firm. The management for this purpose resorts to trading on equity because when there is increase in EBIT then there is corresponding increase in the price of the equity shares. However, a firm cannot go indefinitely in raising the debt content in the total capital structure of the company. If a firm goes on employing greater proportion of debt capital, the marginal cost of debt will also go on increasing because the subsequent lenders will demand higher rate of interest. The company's inability to offer sufficient assets and security will also stand in the way of further employment of debt capital. Moreover, a firm with widely fluctuating income cannot afford to employ a high degree of financial leverage.

A company should try to have a balance of the two leverages because they have got remarkable acceleration or deceleration effect on EBIT and EPS. It may be noted that a right combination of these leverages is a very big challenge for the management. A proper combination of both operating and financial leverages is a blessing for the firm's growth while an Improper combination may prove to be a curse.

A high degree of operating leverage together with a high degree of financial leverage makes the position of the firm very risky. This is because on the one hand it is employing excessively assets for which it has to pay fixed costs and at the same time it is also using a large amount of debt capital. The fixed costs towards using assets and fixed interest charges bring a greater risk to the firm. **In** case, the earnings fall, the firm may not be in a position to meet its fixed costs. Moreover, greater fluctuations in earnings are likely to occur on account of the existence of a high degree of operating

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Notes

leverage. Earnings to the equity shareholders will also fluctuate widely on account of existence of a high degree of financial leverage. The existence of a high degree of operating leverage will result in a more than proportionate change in operating profits even on account of a small change is sales. The presence of a high degree of financial leverage causes a more than proportionate change in EPS even on account of a small change in EBIT. Thus, a firm having a high degree of financial leverage and a high degree of operating leverage has to face the problems of inadequate liquidity or insolvency in one or the other year. It does not, however, mean that a firm should opt for low degree of operating and financial leverages. Of course, such lower leverages indicate the cautious policy of the management, but the firm. will be losing many profit earning opportunities. A firm should, therefore, make all possible efforts to combine the operating and financial leverage in a way that suits the risk bearing capacity of the firm. It may be observed that a firm with high operating leverage should not have a high financial leverage. Infact, it should have a low financial leverage. Similarly, a firm having a low operating leverage will stand to gain by having a high financial leverage provided it has enough profitable opportunities for the employment of borrowed funds. However, low operating leverage and a high financial leverage is well thought-out to be an ideal situation for the maximization of the profits with bare minimum of risk.

Comments: On account of increase in sales from 1,00,000 units to 1,20,000 units at the rate of Rs. 10 per unit, EPS rises by 80% while the operating leverage comes down from 2 to 1.71 and financial leverage declines from 2 to 1.55. There is, therefore, a significant decrease in both the business risk and the financial risk of the company on account of reduction in both the leverages. This is generally the result when there is increase in sales without any increase in fixed operating or financial costs.

Summary

The operating leverage and the financial leverage have a great utility for the financial manager. Since they disclose the extent of both operating and financial risk assumed by a company under a particular situation, both the leverages should neither be too high nor too low. A high degree of this leverage will indicate that the company is working under a very high risky situation while a too low leverage will indicate that the company is observing extra conservatism at the cost of equity shareholders. A financial manager would try to keep the financial leverage high and the operating leverage low to maximize the earnings per share. In case, the financial leverage is high, he should try to bring down the financial leverage gradually. Combined leverage expresses the relationship between the revenue in the account of sales and the taxable income. Analysis of leverages is thus very crucial in financial decision-making.

5.3.5 Leverage Analysis - Case Numerical

The capital structure of the Delhi Progressive Corporation consists of an ordinary share capital of Rs. 10,00,000 (shares of Rs. 10 per value) and Rs. 10,00,000 of 10% debentures. Sales increased by 20% from 1,00,000 units to 1,20,000 units, the selling price is Rs. 10 per unit: variable cost amounts to Rs. 6 per Unit-and fixed expenses amount to Rs. 2,00,000. The income tax rate is assumed to be 50 per cent. You are required to calculate the following:

Notes

i. the percentage increase in earnings per share:

ii. the degree of financial leverage at 1,00,000 units and 1,20,000 units.

Comment on the behaviour of operating and financial leverages in relation to increase in production from 1,00,000 units to 1,20,000.

Solution:

Delhi Progressive Corporation statement showing EPS and operation and financial leverages at two level of operation

	1,00,000 Units	1,20,000 Units
Sales (@ Rs. 10 per unit)	Rs. 10,00,00	Rs. 12,00,000
Less: Variable costs	6,00,000	7,20,000
Contribution (C)	4,00,000	4,80,000
Less: Fixed expenses	2,00,000	2,00,000
Operating Profit (EBIT or OP)	2,00,000	2,80,000
Less: Interest	1,00,000	1,00,000
Profit before tax (PBT)	1,00,000	1,80,000
Less: Tax 50%	50,000	90,000
Profit after tax on Net Profit	50,000	90,000

i. EPS : Profit after tax Number of ordinary shares

= Rs. 50,000/10,000 Rs. 90,000/10,000

= Rs.5. Rs.9.

Percentage increase in EPS 80%

ii. Operating leverage

C/OP 4,00,000/2,00,000 = 2 4, 80,000/2,80,000 = 1.71

iii. Financial Leverage

OP/PBT 2,00,000/1,00,000 = 2 2, 80,000/1,80,000 = 1.5

Check your Understanding

1. The _____and _____are the two quantitative tools used by the financial experts to measure the return to the owners
2. The _____therefore indicates the percentage change in earning per share m relation to a percentage change in EBIT.
3. Leverages are of three types _____,_____, and_____
4. James Van Horne has defined _____as “the employment of an asset or funds for which the firm pays a fixed cost or fixed return.”

Notes

Summary

- The use of debt (borrowed funds) to increase the return on an investment or project is referred to as leverage.
- Leverage is used by investors to increase their market purchasing power.
- Corporations use leverage to finance their assets—rather than issuing stock to raise capital, organizations can use debt to invest in business activities in order to maximize value for shareholders.

Activity

1. Define Leverage and various types of leverages

Questions and Exercises

1. A company has the following Balance Sheet as on March 31, 2016

Liability	Amount	Asset	Amount
Equity share **1 crore shares of Rs10 each**	10	Fixed Assets	25
Reserves and surplus	2	Current Asset	15
15%Debentures	20		
Current Liability	8		
Total	40		40

Fixed cost per annum(excluding interest)= 8 Crore

Variable Operating cost ratio= 65%

Total Asset Turnover ratio= 2.5

Income tax rate = 40%

Calculate :

(i) Operating Leverage

(ii) EPS

(iii) Financial leverage

(iv) Combined Leverage

Glossary

Leverage:

- Leverage refers to the use of debt (borrowed funds) to maximise returns from an investment .
- Investors use leverage to increase their purchasing power in the market.
- Organisations use leverage to finance their assets—instead of issuing stock to raise capital, business firms can use debt to invest in business operations in an attempt to maximise shareholder wealth.

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Notes

- is the use of debt (borrowed capital) in order to undertake an investment or project. The result is to multiply the potential returns from a project. At the same time, leverage will also multiply the potential downside risk in case the investment does not pan out. When one refers to a company, property, or investment as "highly leveraged," it means that item has more debt than equity.
- **Operating leverage:** is an indication of how a company's costs are structured and is used to determine the break-even point for a company. Operating leverage can help companies determine their break-even point for profitability.
- **Financial leverage:** refers to the amount of debt used to finance the operations of a company.

Further readings and References

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Check your Understanding- Answers

1. operating leverage and the financial leverage
2. financial leverage
3. Operating leverage, Financial leverage and Composite leverage
4. leverage

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