Advanced Financial Management

COURSE CODE: M21CM03DE

Master of Commerce

Discipline Specific Elective Course

Self Learning Material

SREENARAYANAGURU OPEN UNIVERSITY

The State University for Education, Training and Research in Blended Format, Kerala

SREENARAYANAGURU OPEN UNIVERSITY

Vision

To increase access of potential learners of all categories to higher education, research and training, and ensure equity through delivery of high quality processes and outcomes fostering inclusive educational empowerment for social advancement.

Mission

To be benchmarked as a model for conservation and dissemination of knowledge and skill on blended and virtual mode in education, training and research for normal, continuing, and adult learners.

Pathway

Access and Quality define Equity.

Advanced Financial Management

Course Code: M21CM03DE

Semester - IV

Discipline Specific Elective Course
Master of Commerce
Self Learning Material

(With Model Question Paper Sets)

SREENARAYANAGURU
OPEN UNIVERSITY

SREENARAYANAGURU OPEN UNIVERSITY

The State University for Education, Training and Research in Blended Format, Kerala

SREENARAYANAGURU
OPEN UNIVERSITY

ADVANCED FINANCIAL MANAGEMENT

Course Code: M21CM13DE
Semester- IV
Discipline Specific Elective Course
Master of Commerce

Scan this QR Code for reading the SLM on a digital device.

Edition
September 2025

ISBN 978-81-991429-0-9

www.sgou.ac.in

Visit and Subscribe our Social Media Platforms

MESSAGE FROM VICE CHANCELLOR

Dear learner,

I extend my heartfelt greetings and profound enthusiasm as I warmly welcome you to Sreenarayanaguru Open University. Established in September 2020 as a state-led endeavour to promote higher education through open and distance learning modes, our institution was shaped by the guiding principle that access and quality are the cornerstones of equity. We have firmly resolved to uphold the highest standards of education, setting the benchmark and charting the course.

The courses offered by the Sreenarayanaguru Open University aim to strike a quality balance, ensuring students are equipped for both personal growth and professional excellence. The University embraces the widely acclaimed "blended format," a practical framework that harmoniously integrates Self-Learning Materials, Classroom Counseling, and Virtual modes, fostering a dynamic and enriching experience for both learners and instructors.

The University aims to provide learners with an engaging and intellectually stimulating educational experience. This Self-Learning Material, designed for various MCom courses, builds upon the foundational knowledge acquired at the undergraduate level. It deepens the understanding of business and management concepts while integrating theoretical perspectives with practical applications. Each course has been carefully structured to combine academic insights with real-world relevance through the use of case studies, illustrations, and examples. These materials foster critical thinking, analytical skills, and informed decision-making essential skills for success in the dynamic world of commerce and management. The Self-Learning Material has been meticulously crafted, incorporating relevant examples to facilitate better comprehension.

Rest assured, the university's student support services will be at your disposal throughout your academic journey, readily available to address any concerns or grievances you may encounter. We encourage you to reach out to us freely regarding any matter about your academic programme. It is our sincere wish that you achieve the utmost success.

Warm regards.
Dr. Jagathy Raj V.P.

01-09-2025

Contents

01 BLOCK

Financial Management

Block Content

Unit 1

INTRODUCTION TO FINANCE

Learning Outcomes

After completing this unit learners will be able to:

- Get an overview of financial management
- Comprehend the concept of shareholder value creation
- Identify the objectives of wealth maximization and profit maximization
- Gain insights into financial planning and control

Background

Have you ever wondered how top companies decide where to invest their money, how they increase shareholder wealth, or how they stay financially strong even in tough times? The answers lie in financial management, the heart of every successful business. In this unit, you'll begin your journey into the world of financial decision-making. You'll explore how businesses aim to create value for their shareholders and the difference between simply earning profits and truly maximising wealth. You'll also dive into the essentials of financial planning and control, learning how companies plan for the future and keep their finances on track. Whether you dream of becoming a CFO, managing your enterprise, or simply understanding how money works in the corporate world, this unit will give you the tools to think financially and act strategically. Let's explore how smart financial decisions shape the success stories of today's leading businesses!

Keywords

Finance, Shareholders value, Profit maximisation, wealth maximisation, financial planning, financial control

Discussion

Imagine you want to buy a car, but you don't have enough money right now. You either save up, borrow from a friend, take a loan from a bank, or ask your parents for help. From that idea, finance simply means arranging money when you need it, whether for buying a bicycle, running a shop, or building a big company. In today's world, finance is like the blood in our body. Just as blood keeps us alive, finance keeps a business running. Without money at the right time, even the best ideas or businesses cannot survive.

Finance

Finance is regarded as the life blood of a business enterprise. This is because in the modern money-oriented economy, finance is one of the basic foundations of all kinds of economic activities. Long considered a part of economics, corporation finance emerged as a separate field of study in the early part of 20th century. At first it dealt with only the instruments, institutions, and procedural aspects of capital markets. Accounting data and financial records were not the kind we use today, nor were regulations making it necessary to disclose financial data. But interest infinancial innovations, promotions, consolidations, and mergers has always been increasing.

- Base for all economic activity

In a modern company's development, the financial manager plays a dynamic role. Besides records, reports, the firm's cash position, and obtaining funds, the financial manager is concerned with (1) investing funds in short-term as well as in long-term assets and (2) obtaining the best mix of financing and dividends in relation to the overall solution of the firm. All of this demands a broad outlook and an alert creativity that will influence almost all facts of the enterprise and its external environment.

Every business, whether it's a small tea stall, a clothing store, or a big firm like Tata or Infosys, needs money:

- To start
- To buy goods
- To pay workers
- To grow and expand

Without proper finance, it's like trying to drive a car without petrol; no matter how excellent the car is, it just won't move.

Finance, as a subject, has traditionally been divided into two broad categories:

(i) Public Finance and (ii) Private Finance.

This basic division helps us understand who manages the money and for what purpose. Public finance deals with money management by the government for development and public welfare. It focuses on how the government, whether it's the central government, a state, or a local body, collects money (through taxes, fees, and fines) and spends it for the benefit of society. The government doesn't just collect money to store it; it uses it to create better living conditions for its people.

- Public welfare

Private finance represents a shift from government control to individual management by people like you and me. When you plan your monthly budget or save for a vacation, or a company decides to expand its business, all of that falls under private finance. Private finance focuses on how individuals, businesses, and non-profit organisations manage their own money: how they earn, spend, save, invest, and even borrow. In private finance, the management of finances by business enterprises is referred to as business finance or corporate finance.

- Individual management

The increasing significance of business finance has led to the emergence of a distinct academic and professional discipline known as financial management. Financial management is concerned with the planning, acquisition, allocation, and control of financial resources within an organisation. It plays a pivotal role in determining the financial requirements of a business, both in the short term and long term, and ensures that sufficient funds are mobilised from appropriate sources. Moreover, it involves the procurement of funds and its effective utilisation. The finance function has become so important that it has given birth to financial management as a separate subject.

Meaning And Nature Of Financial Management

Finance is the lifeblood of a business firm. The health of every business concern mainly depends on the efficient handling of finance functions. In simple term, Financial Management may be defined as the management of the finance or funds of a business unit in order to realize the objective of the firm in an efficient manner. It is broadly concerned with the mobilization and use of funds by a business firm. Financial management is that managerial activity which is concerned with the planning and controlling of the firm's financial resources. In other words, it is concerned with acquiring, financing and managing assets to accomplish the overall goal of a business enterprise (mainly to maximise the shareholder's wealth).

- Management of finance to realize organizational objectives

"Financial management is concerned with the efficient use of an important economic resource, namely capital funds". Solomon Ezra & J. John Pringle.

"Financial management is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient business operations" J.L. Massie.

- Acqusition & utilization of finance

"Financial Management is concerned with managerial decisions that result in the acquisition and financing of long-term and short-term credits of the firm. As such it deals with the situations that require selection of specific assets (or combination of assets), the selection of specific liability (or combination of liabilities) as well as the problem of size and growth of an enterprise. The analysis of these decisions is based on the expected inflows and outflows of funds and their effects upon managerial objectives". Phillippatus.

In the words of Weston and Brigham, "Financial management is an area of financial decision-making, harmonizing individual motives and enterprise goals."

J.F. Bradley defines financial management as, "The area of the business management devoted to a judicious use of capital and a careful selection of sources of capital in order to enable a spending unit to move in the direction of reaching its goals."

- Part of management

Thus Financial management refers to that part of the management activity that is concerned with planning and controlling a firm's financial resources. It deals with identifying and evaluating various sources of funding for the firm. The sources must be suitable and economical for the business's needs. The most appropriate use of such funds also forms a part of financial management. This draws heavily on economics for its theoretical concepts.

- Management of financial resources.

The term 'nature' as applied to financial management refers to its relationship with closely related fields of economics and accounting, its scope, functions and objectives. Traditionally, 'finance' was not considered a separate input until finance theory became well developed. Finance function as an area of management is of recent origin. Financial management has gained considerable importance over the years. It is concerned with overall managerial decision making, in general, and with the management of economic resources in particular. The term financial management can be defined as the management of flow of funds in a firm and therefore it deals with the financial decision making of the firm. Since rising of funds and their best utilization is the key to success of any business organizations', the financial management as a functional area has got a place of prime relevance. All business activities have financial implications and hence financial management is inevitably related to almost every sphere of business operations.

1.1.1 Evolution of financial management

Financial management became a separate, recognised field of study in the twentieth century. However, even before that, some financial aspects were studied in economics. Over time, the importance of finance in business led to the development of financial management as a discipline. We can divide the evolution of financial management into three main phases

1.1.1.1 Traditional Phase

- Sources of fund

This phase began in the early 20th century, especially when businesses started growing larger through mergers and consolidations. During this time, the main focus was on understanding how businesses could raise funds, mainly the different sources and forms of finance. It became more difficult for businesses to borrow money from banks and other institutions following the Great Depression in the 1930s. As a result, firms focused more on financial planning, cost control, and ensuring they had sufficient cash (liquidity). Businesses also started assessing their creditworthiness more seriously during this time.

1.1.1.2 Transitional Phase

- liquidity

After World War II, industries needed restructuring. In the 1950s, financial management began to shift its focus from just raising funds to managing daily financial activities. There was also a growing focus on liquidity, making sure firms had enough cash for operations and not just profitability. During this period, capital budgeting techniques were introduced, which helped businesses make better long-term investment decisions. Financial management started to include decision-making processes within the firm, expanding its scope.

1.1.1.3 Modern Phase

- scientific analysis

The modern phase began around the mid-1950s. From this point forward, financial management became more scientific, using analytical tools and quantitative techniques. The 1960s saw new ideas in investment decision-making like portfolio theory, introduced by economists such as Markowitz, Sharpe, and Lintner. In the 1970s, the Capital Asset Pricing Model (CAPM) was developed, which showed how risks could be reduced by investing in a variety of assets (diversified portfolio). The Option Pricing Theory, including the Black-Scholes model, was also developed to better understand the value of financial options. In the 1980s, the impact of taxation on personal and business finance became a key topic. New ways to raise money through financial instruments such as PCDs (Partly Convertible Debentures), FCDs (Fully Convertible Debentures), and others became

common. With globalisation, a new area, called financial engineering, emerged. This involved creating innovative financial tools and solutions using advanced techniques like mathematical modelling and simulations. Today, financial management is a specialised, dynamic, and essential part of every business.

Relation Of Finance Function With Other Disciplines

Finance function is not a totally independent area of Business. Being an integral part of the over-all management, it draws heavily on related disciplines and fields of study, namely, economics, accounting, marketing, production and operations research. These areas are both inter- related and different as well. Now, we discuss the relationship among finance function and the various related disciplines.

Finance And Economics

Traditionally, finance was not considered a separate input. In the traditional theory, finance was supposed to take the form of either circulating capital or fixed capital, and the concept of finance as distinct from capital was not well conceived and developed. In modern theory finance is different from capital. The field of finance is closely allied to the field of economics. Finance management is a form of applied economics, which draws heavily on economic theory. Economics deals with supply and demand, costs and profits, production, consumption and so on. Finance is closely related to economics, for it is seriously concerned with supply and demand in the financial markets, including the stock exchange, the money market, foreign exchange market, etc. It is equally concerned with the policies of the Reserve Bank of India as they are reflected in commercial banks and financial institutions in general. When money- market is tight, financial environment is hard-hit. In a period of economic depression, business activity recedes and the financial market is adversely affected. The importance of economics in the development of finance function and economic theory is more evident in two areas of economics-macroeconomics and micro-economics.

- related to the field of economics

Macro economics is concerned with the structure of banking system, financial intermediaries, the public finance system and economic policies of the Government. Since the business firm has to operate in the macroeconomic environment, the finance manager has to be aware of the institutional framework it contains. He must be alert to the consequences of the varying levels of economic activities and changes in economic policies. In the absence of an understanding of the broad economic environment, the finance manager will not be able to achieve financial success.

Micro economics is concerned with the determination of optimal operating strategies for firms as individuals, with the ef-

ficient operations and with defining an action that will make it possible for a firm to achieve financial success. The concepts involved in supply and demand relationships and profit maximizing strategies are drawn for the micro economic theory. The theories related to the management of utility preference, risk and determination of value are rooted in micro economic theory. The rationale of depreciating assets is taken from this area of economics. Although the finance manager does not directly apply the theories of micro economics, he must act in conformity with the general principles established by these theories. Thus, knowledge of both micro and macroeconomics is necessary for a finance manager so as to understand the financial environment. Stated simply, economics is closely intertwined with finance.

Finance and Accounting:

Much of modern business management has only been possible by accounting information. Management is a process of converting information into action; and accounting is a source of most of the information that is used for this purpose. Accounting has been described by Richard M. Lynch and Robert W. Williamson as "the measurement and communication of financial and economic data". It is a discipline which provides information essential to the efficient conduct and evaluation of the activities of any organization. The end- product of accounting is financial statements such as the balance sheet, the income statement and the statement of changes in financial position (sources and uses of funds statement). The information contained in these statements and reports assists the financial managers in assessing the past performance and future directions of the firm and in meeting certain legal obligations, such as payment of taxes and so on. Thus, accounting and finance are functionally closely related. However, there are key differences in viewpoint between finance and accounting. The first difference relates to the treatment of funds while the second relates to decision-making.

- Provide information

As far as the viewpoint of accounting relating to the treatment of funds is concerned, the measurement of funds in it is based on the accrual system. For example, revenue is recognized at the point of sale and not when collected. Similarly, expenses are recognized when they are incurred rather than when actually paid. The accounting data based on accrual system do not reflect fully the financial circumstances of the firm. On the other, the viewpoint of finance relating to the treatment of funds is based on cash flows. The revenues are recognized only when actually received in cash and expenses are recognized on actual payment (i.e. cash outflow). This is on account of the fact that the finance manager is concerned with maintain solvency of the firm by pro-

viding the cash flows necessary to satisfy its obligations and acquiring and financing the assets needed to achieve the goals of the firm.

Regarding the difference in accounting and finance with respect to their purpose, it needs to be noted that the purpose of accounting is collection and presentation of financial data. The financial manager uses these data for financial decision-making. But, from this one should not conclude that accountants never make decisions or financial managers never collect data. The fact is that the primary focus of the functions of accountants is on collection and presentation of data while the finance manager's major responsibility is concerned to financial planning, controlling and decision- making.

- Functions of accountants is collection and persentation of data

There exists an inseparable relationship between the finance functions on the one hand and production, marketing and other functions on the other. Almost all kinds of business activities, directly or indirectly, involve the acquisition and use of money. For instance, recruitment and promotion of employees in production is clearly a responsibility of the production department. But it requires payment of wages and salaries and other benefits, and thus, involves finance. Similarly, buying a machine or replacing an old machine for the purpose of increasing productive capacity affects the flow of funds. Sales promotion policies require outlays of cash, and therefore, affect financial resources. How, then, we can separate production and marketing functions and the finance function of making money available to meet the costs of production and marketing operations ? We can't give precise answer to this question. In fact, finance policies are devised to fit production marketing and personnel decisions of a firm in practice.

- Finance and other concerned disciplines

1.1.2 Significance of financial management

People often refer to finance as a "lubricant", that maintains the smooth operation of a machine. It ensures the business remains active and avoids stagnation. Even if a business is already running well, it still needs money to improve or expand. That's why managing money wisely, called financial management, is critical. Today, most big businesses are companies, where the owners and managers are different people. The managers must make sure the company grows and earns profit for its owners. Such success is only possible when money is managed properly. Some big changes in modern business make financial management more important than ever:

- Growth and development

1. Increase in the size and number of businesses.
2. An increase in investment leads to widespread owner-

ship.

3. Separation of ownership and management.

Good financial management helps make clear plans, raise money at a low cost, use money wisely, earn more profit, and keep investors happy. It also stops misuse or fake reporting of money matters. It is useful for every kind of business, whether it is a small shop, a factory, a big company, or even a service provider. Wherever money is used, financial management is helpful.

Financial Management Helps To:

- Plan and start a business
- Collect money when needed.
- Use money in the best way.
- Make smart money decisions
- Earn more profit
- Grow the value of the business and its owners
- Save and use money wisely.

- Business success and growth

In short, without good financial management, no business can survive or grow. It is a must-have skill for anyone involved in running or understanding a business.it important to give due care while taking financial decision.

1.1.3 Financial Decisions

Financial decisions relate to the procurement and utilisation of funds in business. For example, we decide which asset to buy, whether to invest in a project, from which source to acquire capital, and how much profit to distribute as a dividend.

We can classify these divisions into three major groups:

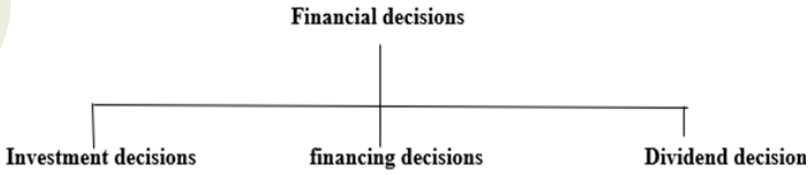


Figure 1.1.1 Financial decisions

1. Investment decisions

- Allocation of limited funds for long-term and short-term business needs.

Investment decisions focus on the quantitative aspects of decision-making in a business. They involve determining how much money is needed and where it should be invested. These decisions help a firm decide the total amount of assets it should hold and how those assets should be allocated. Investment decisions are crucial because funds are available in limited quantities and come with a cost. Making the right choices ensures the efficient use of resources. Broadly, investment decisions are classified into two types: long-term investments, such as purchasing fixed assets or expanding operations, which are expected to provide benefits over many years. On the other hand, short decisions relate to working capital management. This means the allocation of cash and cash equivalents for the day-to-day operations of the business.

2. Financing decisions

- Determining the source of funds.

Financing decisions focus on qualitative aspects of decision-making. Once the firm has made the investment decision and committed itself to new investment, it must decide the best means of financing these commitments. Firms regularly need funds for new investments, so it is a continuous process. Financing decisions involve not just finding money for new assets but also choosing the right combination of funding sources.

1. Dividend Decisions

- decision regarding distribution of profits

The third key financial decision is about how much profit to give back to shareholders. Dividends are portions of profit shared with shareholders as rewards for their investments. The company must decide whether to distribute all profits, keep all profits in the business, or share part and retain part. Paying higher dividends can increase share prices and benefit shareholders. The firm also needs to think about maintaining steady dividends, offering bonus shares, or paying in cash.

These topics are explained in detail in the unit 2.

1.1.3.1 Objectives of Financial Management

The main goal of financial decision-making is to help a business use its money in the best possible way. It focuses on arranging enough funds when needed, using them wisely, earning profits, and increasing the value of the business. All financial decisions whether about investments, financing or dividend decisions work toward these basic goals.

The Process of decision making by a finance manager must be goal oriented one. He must have a specific goal in mind as he plans future course of action. It is generally agreed in theory

that the financial goal of the firm should be the maximisation of owners' economic welfare. Owners' economic welfare could be maximised by maximising the shareholders' wealth as reflected in the market value of shares. In this section, we shall discuss that the shareholder's wealth maximisation is theoretically logical and operationally feasible normative goal for guiding the financial decision making. This part also throws some light on 'profit maximisation goal'.

Profit Maximisation Goal

- Acheive highest possible profit

A business firm is profit-seeking organization. Hence, profit maximisation is well considered to be an important means for achieving the objective of maximising the owners' economic welfare. According to financial experts too, one approach to determine the decision criterion for financial management is the profit maximisation goal. Under this approach, actions that increase profits should be undertaken and those that decrease profits are to be avoided. In specific operational terms, as applicable to financial management, the profit maximisation criterion implies that the investment, financing and dividend policy decisions of a firm should be oriented to the maximisation of profits.

Firms in market economy are expected to produce goods and services desired by society as efficiently as possible. Price system is the most important organ of a market economy indicating what goods and services society wants. Goods and services in great demand can be sold at higher prices. This results in higher profits for firms. Thus price system provides signals to managers to direct their efforts towards areas of high profit potential. The buyer's behaviour and extent of competition determine the prices, and thus, affect the allocation of resources for producing various kinds of goods and services.

The economists are of the opinion that under the conditions of free competition, businessmen pursuing their own self-interests also serve the interest of society. It is also assumed that when individual firms pursue the interest of maximising profits, society's resources are efficiently utilized. Thus, profit is a test of economic efficiency. It provides the yardstick by which economic performance can be judged. Moreover, it leads to efficient allocation of resources as resources tend to be directed to uses which in terms of profitability are the most desirable. Also, it ensures maximum social welfare.

Arguments in favour of profit maximisation are as follows.

1. **Basic Business Goal:**
   Every business is established to earn profits. Profit is

the driving force behind all business activities. Without profit, a business cannot survive, grow, or attract investors. Since making a profit is the foundation of all economic activities in a business, it is natural for for-profit maximization to be seen as the primary financial objective. When a firm focuses on maximizing its profits, it ensures that it is fulfilling its basic reason for existence.

2. **Measure of Efficiency:**
   Profitability is a direct reflection of a firm's efficiency and performance. A company that earns high profits is generally using its resources like manpower, machinery, and money effectively. It shows that the business is managing costs well, utilizing assets properly, and generating sufficient revenue. In this way, profit acts as a "barometer" for measuring how well a business is doing in financial terms.

3. **Protection Against Risks:**
   Business environments are uncertain and constantly changing. Factors such as economic downturns, price fluctuations, inflation, changes in consumer preferences, and competition can negatively impact a firm. If a business has earned and saved enough profits during good times, it can use those reserves to face and survive difficult periods. Profits act as a financial cushion to absorb unexpected losses or risks.

4. **Source of Growth:**
   Profits are the most reliable and cost-effective source of finance for a business. Unlike loans or external funding, retained profits come without any repayment obligation or interest burden. A company can use its profits to invest in new projects, modernize its equipment, expand into new markets, or increase production capacity. In this way, profit maximization supports long-term growth and development.

5. **Support for Social Goals:**
   While profit is a private gain for the business, it also helps fulfil broader social responsibilities. A profitable company pays taxes to the government, which are used for public welfare. It can also create jobs, improve employee wages, support charitable causes, and invest in sustainable practices. Therefore, by maximizing profits, a business not only benefits itself but also contributes to society at large.

Arguments Against Profit Maximisation :

The profit maximisation objective has, however, been criticised in recent years. It is argued that profit maximisation is a consequence of perfect competition, and in the face of imperfect modern markets, it cannot be a legitimate objective of the firm. It is also argued that profit maximisation, as a business objective, was developed in the early of 19th century, when the characteristic features of the business structure were self-financing, private property and single entrepreneurship. The only aim of sole proprietor then was to enhance his individual wealth and personal power, which could easily be satisfied by the profit maximisation objective. The modern business environment has the features of limited liability and a divorce between management and ownership. In this changed business structure, the owner manager of the 19th century has been replaced by professional manager who has to reconcile the conflicting objectives of all the parties connected with the business firm. So, now-a-days profit maximisation is regarded as unrealistic, difficult, unfair and immoral.

- Individual wealth

Besides the aforesaid objections, profit maximisation fails to serve as an operational criterion for maximising the owners' economic welfare. It suffers from the following limitations:

i. It is vague: It does not clarify what exactly it means. For example, which profits are to be maximised, short-term or long-run, rate of profit or the amount of profit?

ii. It ignores timings: The concept of profit maximisation does not help in making a choice between projects giving different benefits spread over a period of time. The fact that a rupee received today is more valuable than a rupee received later is ignored.

iii. It ignores risk: The streams of benefits may possess different degree of certainty. Two firms may have same total expected earnings, but if the earnings of one firm fluctuate considerably as compared to other, it will be more risky. Possibly owners of the firm would prefer smaller but certain profits to a potentially large but less certain stream of benefits.

Wealth Maximisation

On account of the reasons cited above, these days profit maximisation is not considered to be an ideal criterion for making investment and financing decisions. Ezra Soloman has suggested the adoption of wealth maximisation as the best criterion for the financial decision making. This objective is generally expressed in terms of maximisation of the value of a share of a firm.

- Maximising market value of share

Wealth maximisation means maximising the 'net present value' (or wealth) of a course of action. The net present value of a course of action is the difference between the present value of its benefits and the present value of its costs. A financial action which has a positive net present value creates wealth and, and therefore, is desirable. On the other hand, a financial action resulting in negative net present value should be rejected. Between a numbers of desirable mutually exclusive projects the one with the highest net present value should be adopted. The wealth of the firm will be maximised if this criteria is followed in making financial decisions (Soloman, Ezra,1969).

Shareholder current wealth in a firm = Number of shares owned× current market price of a share

he wealth maximisation criterion is based on the concept of cash flows generated by the decision rather than accounting profit which is the basis of the measurement of benefits in case of the profit maximisation criterion. Measuring benefits in terms of cash flows avoids the ambiguity associated with accounting profits. This is the first operational feature of the net present wealth maximisation criterion. Another important feature of the wealth maximisation criterion is that it considers both the quantity and quality dimensions of benefits. At the same time, it also incorporates the time value of money. The quality of benefits has reference to the certainty with which benefits are expected to be received in future. The more certain the expected returns (cash inflows), the better the quality of benefits and the higher the value. Similarly, money has time value. For the above reasons, the Net Present Value maximisation is superior to the profit maximisation as an operational objective.

- Increasing value

The wealth maximization goal benefits shareholders by increasing the value of their investments and also provides security to lenders. Employees may try to gain a share in the company's success through negotiations. Their productivity and efficiency play a key role in increasing the company's wealth. If the management serves all groups well, it can stay in power longer. Since management is chosen by shareholders, they are likely to keep it if it increases their wealth. Efficient use of company resources is important for growing its wealth. When resources are used effectively, it also benefits the economy and society. The following arguments are advanced in favour of wealth maximisation as the goal of financial management:

i. It serves the interests of owners, (shareholders) as well as other stakeholders in the firm; i.e., suppliers of loaned capital, employees, creditors and society.

ii. It is consistent with the objective of the owner's econom-

ic welfare.

iii. The objective of wealth maximisation implies the long-run survival and growth of the firm.

iv. It takes into consideration the risk factor and the time value of money as the current present value of any particular course of action is measured.

v. The effect of dividend policy on the market price of shares is also considered as the decisions are taken to increase the market value of the shares.

vi. The goal of wealth maximisation leads towards maximising stockholder's utility or value maximisation of equity shareholders through the increase in stock price per share.

The wealth maximisation objective has been criticized by certain financial theorists. The limitations of wealth maximisation in their opinion as follows:

i. It is a theoretical or ideal idea; not always what companies follow in real life.

ii. Wealth maximisation may not always benefit society, so it's not always socially desirable.

iii. There's confusion about whether to focus only on shareholders' wealth or include others like debenture holders and preference shareholders.

iv. In large companies, where owners and managers are different, problems can arise:

a. Managers might work for their benefit instead of increasing the shareholders' wealth.

b. This creates a conflict of interest between owners and managers.

- Most appropriate goal

Despite all the criticism, wealth maximisation is the most appropriate objective of a firm, because it concentrates on wealth creation. So, finding whether the investment decision contributes to the wealth of the shareholder or not is crucial to financial management. For this, there are two approaches. That is, Economic value added (Eva) and Market value added. (MVA)

It can, thus, be seen that in the wealth maximisation decision-criterion the time value ofmoney and handling of the risk as measured by the uncertainty of the expected benefits is anintegral part of the exercise. It is, moreover, a precise and unambiguous concept. It is, therefore,an appropriate and operationally

feasible decision criterion for financial management decisions.

1.1.6 Measuring of shareholders Value creation

There are two measures to determine whether an investment positively contributes to the shareholder's wealth or value:

i. Economic value added (EVA) and

ii. Market value added. (MVA)

A. Economic value added. (EVA)

Economic value added is a measure of performance evaluation that was originally employed by Stern Stewart & Co. It is a very popular measure today which is used to measure the surplus value created by an investment or a portfolio of investments. It is also being used to determine whether an investment positively contributes to the shareholder's wealth. The economic value added of an investment is simply an excess of operating profit over the cost of the fund. According to this approach, an investment can be accepted only if the surplus (EVA) is positive. It is only the positive EVA that will add value and enhance the shareholder's wealth. However, to calculate the economic value added we need to estimate the net operating profit after tax and cost of funds invested. For example, in a case where operating profit after tax is 20 lakh and the cost of funds is 16 lakhs; EVA is 4 lakhs. Accept the project because it positively contributes to shareholders' wealth. In another case, if the operating profit after tax is 25 lakhs and the cost of funds is 30 lakhs; EVA is – 5 lakhs. Reject the project because it does not contribute to shareholders' value

- Excess of operating profit over cost of capital.

EVA = Net Operating profit after tax – (Cost of capital × Capital invested)

Positive EVA → Positive value creation
Negative EVA → Negative value creation

B. Market value added.

The market value added is the total of all future EVAs' present values. MVA can also be defined as excess real or market value over book value. The MVA is the difference between the firm's current market value and the book value of capital it employs. This was developed by Stern Stewart and Company to measure how much wealth a firm creates at a particular moment. Firm value means the market values of the firm's outstanding debt and equity securities. Invested capital is the total amount of funds invested in a firm. For example, Dhruvin company has invested

- excess of market value over book value

capital of Rs.50lakhs, and by 2025 May the market value of Dhruvin company's all outstanding securities market value in total is Rs.80 lakhs. That means Dhruvin company's MVA is Rs.30 lakhs(80-50). The positive figure means it's positively contributing to stockholders' wealth.

Market value > Book value ➡ Positive MVA

Market Value < Book value ➡ Negative MVA

Over time, the focus of financial management shifted from profit maximization to shareholders' value creation, which emphasizes increasing the market value of a company for the benefit of its owners. This approach highlights the importance of long-term growth, risk management, and sustainable returns. However, achieving consistent value creation requires more than strategic decisions alone; it calls for a well-organized approach to managing financial resources. This is where financial planning comes into play. Financial planning serves as a critical tool that aligns business objectives with resource allocation, helping firms not only enhance shareholder value but also ensure financial stability and future growth.

The Other objectives of financial decision-making are:

1. **Getting enough funds :**

A business needs money to run its activities. The first step is to understand how much money is needed and choose the right sources to get it. For example, if money is needed for the long term, the business can use share capital, loans, or debentures. Companies with slow returns should prefer owners' funds over borrowed money to avoid high-interest costs.

2. **Using funds Properly :**

It is not enough to just arrange money the real benefit comes from using it well. Funds should be invested in areas that give more returns than they cost. Money should not be kept idle, and it should be spent only on useful projects that support business growth.

3. **Increasing Profits :**

Smart planning and control of money can increase the profits of a business. To earn more, the business must invest enough money, but not more than necessary. Spending should be controlled to avoid waste. Also, funds should be raised in a way that keeps costs low because if raising money is too expensive, profits will decrease.

4. Maximising Business Value :

Another goal is to increase the overall value of the business. While profits do help, other things matter too like the cost of funds, the type of funds used, market conditions, and demand for the company's products. All these factors together affect the value of the firm in the long run.

The key objectives of financial decision-making such as arranging adequate funds, ensuring their proper use, improving profitability, and enhancing the firm's overall value ultimately led to two major financial goals such as: profit maximization and wealth maximization. These goals provide direction to all financial activities, helping the business grow sustainably while meeting the expectations of its investors and stakeholders.

- Scope of financial management

The functions of financial management involve organising, planning, controlling and directing an organisation's financial activities. It includes applying different management principles to financial assets. These efforts focus on allocating capital, monitoring foreign currency, raising capital, budgeting and following product lifecycles.

An organisation's finance manager oversees these activities. Efficient management of a company's finances allows a business to comply with regulations and succeed in its industry. The management process requires meticulous planning and execution. Some common functions of financial management are:

1. Estimation of the capital required

- Capital estimation

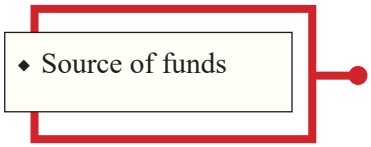
The primary function of managing business finances is estimating the amount of capital required. Estimating the capital is essential to determine how much capital a firm requires to purchase fixed assets, modernise and expand the business and meet the working capital requirement. A financial manager estimates funds required for long-term and short-term purposes during this process. Accurately estimating the capital required can help in increasing the company's revenue capacity.

2. Determination of the capital structure

- debt equity mix

After estimating the capital required, financial managers decide on the capital composition and structure. This might involve short-term and long-term debt-equity analysis. Through this analysis, they determine the accurate proportion of debt and equity. Determination of capital structure helps maximise shareholders' wealth and minimise capital costs.

3. Choice of the source of funds

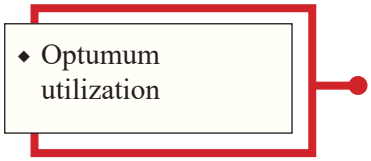


The next step is to choose the source of funds. Apart from using equity capital, a financial manager can choose other funding options like preferred shareholders, banks and financial institutions, debentures, public deposits and other third-party sources. Usually, financial managers consider the advantages and disadvantages of each source and period of financing.

4. Procurement of financial resources

The acquisition of funds by financial managers is not solely dependent on the cost of raising funds but also on other factors, such as the choice of investors, market conditions and government policy. After choosing a funding option, managers take various steps to procure it. Procurement of funds might require some additional steps, such as issuing a prospectus and negotiating terms with creditors and financial institutions.

5. Utilisation of funds



Upon procuring the funds, financial managers invest in various tangible and intangible assets to maximise return on investment. These managers can allocate funds into various ventures to ensure safety on investment. They invest capital in a way that is profitable. When taking such allocation and investment decisions, the manager focuses on three principles, including liquidity, safety and profitability.

6. Disposal of surplus funds or profits

The next step of financial planning is deciding how much funds a company retains and how much they distribute as dividends to shareholders from its overall profit. These managers decide the proportion of profits that a company ploughs back into the business. Often, companies distribute surplus funds as a performance bonus to the employees performing well.

7. Management of cash

A company requires cash to maintain enough stock, purchase raw materials and pay current liabilities. After distributing the surplus funds, a finance manager decides on cash management. It involves forecasting cash inflows or outflows to ensure the company never faces a shortage or surplus of funds. They also ensure that the company has adequate cash for different purposes like paying salaries, utility bills and creditors.

8. Financial control

The last function of financial management is ensuring financial control of the company's finances. Usually, the return on

- Control

investment (ROI) provides a holistic overview of a company's financial performance. Using techniques like financial forecasting, budgetary control, ratio analysis, cost and profit control and internal audits, managers determine the financial performance. Also, the financial control tells how much money a company has, what is the source of that money and what expenses the company incurred during a financial year or specific accounting period.

1.1.7 Financial planning

Finance is a key function in every business. When we apply planning to this area, it is called financial planning. It mainly deals with how to get funds and use them properly. Planning includes setting goals, making policies, and creating procedures related to finance. These policies help in getting, managing, and spending money wisely. This is an important responsibility of the financial manager. Financial planning is always necessary whether the business is large or small, new or already running.

A good financial plan ensures not only enough funds are raised, but also that they are used effectively. At the time of starting a company, the promoter handles this function. Later, it becomes the duty of the financial manager.

- ensures efficient raising and use of funds for current and future business needs.

Financial planning looks at both present and future needs. It must also consider funds required for business growth or diversification. Decisions about what kind of securities to issue, how much capital to raise, what type of loans to take, and the cost of funds from different sources are all part of financial planning.

According to Cohen and Robbins, financial planning should :

1. Determine the financial resources required to meet the company's operating Programme;
2. Forecast the extent to which these requirements will be met by internal generation of funds and the extent to which they will be met from external sources;
3. Develop the best plans to obtain the required external funds;
4. Establish and maintain a system of financial control governing the allocation and use of funds;
5. Formulate programmes to provide the most effective profit-volume-cost relationships;
6. Analyse the financial results of operations;
7. Report facts to the top management and make recommendations on future operations of the firm.

A financial plan should be formulated in light of present as well as future developments. The requirements for purchasing fixed assets and working capital needs should first be estimated. Financial planning involves forecasting the financial needs of the business, deciding the sources of funds, and outlining the strategies for their effective utilisation. It sets the direction for the financial activities of the enterprise by defining clear objectives, policies, and procedures related to finance. However, planning alone is not sufficient unless it is accompanied by a mechanism to monitor and evaluate the implementation of the plan. This is where financial control comes into play. Financial control ensures that the actual financial performance aligns with the planned objectives. It involves continuous monitoring of financial activities, comparison of actual results with the planned figures, identification of variances, and taking corrective actions whenever necessary. Therefore, while financial planning is proactive and focuses on setting the course, financial control is reactive and corrective, ensuring the plan is executed efficiently. Together, they form a complete system that helps the business achieve its financial goals, maintain discipline in financial operations, and make informed strategic decisions. A well-prepared financial plan, when supported by effective financial control, leads to better resource allocation, cost efficiency, and improved financial performance.

- Financial planning sets the path, and financial control ensures the business stays on it.

1.1.8 Financial control

Financial Control is one of the essential components of financial management. It refers to the process by which a firm ensures that its financial resources are being acquired, allocated, and utilized efficiently and effectively by the pre-established financial plans, policies, and objectives. In simpler terms, financial control helps ensure that the company's actual financial performance is in line with the expected or planned performance.

According to Khan & Jain, financial control is the process of evaluating and guiding financial activities to ensure the optimal use of financial resources. It is a feedback mechanism that enables the management to make timely adjustments and corrections in operations. The following are the objectives of financial control :

1. To ensure efficient utilisation of financial resources.
2. To compare actual financial performance with the planned targets.
3. To identify deviations and take corrective actions.
4. To improve cost-efficiency and profitability.

5. To ensure accountability and transparency in financial operations.

Financial control is not just a tool for monitoring financial activities; it is a strategic function that supports the financial stability, efficiency, and growth of the business. It aligns day-to-day financial operations with the long-term financial objectives of the enterprise. For financial control to be effective, it must be continuous, comprehensive, and supported by accurate data and timely reporting.

Summarised Overview

An in-depth understanding of financial management is fundamental to the success of any business. It starts with the concept of shareholder value creation, which emphasizes the importance of making financial decisions that foster long-term growth and maximize the returns for shareholders. The objectives of wealth maximization and profit maximization are critical drivers in this process while profit maximization focuses on short-term profitability, wealth maximization is centered around increasing the overall value of the company over time. To achieve these goals effectively, businesses must engage in financial planning, which provides a structured approach to forecasting financial needs and outlining strategies for resource allocation. Financial control complements this by ensuring that financial activities remain aligned with the plan, allowing for adjustments whenever necessary. Together, financial planning and control form a cohesive system that not only promotes financial discipline but also facilitates informed decision-making, ultimately ensuring that businesses can achieve both short-term success and long-term sustainability in an ever-evolving marketplace.

Self-Assessment Question

1. What is the primary role of financial management in a business?
2. How does shareholder value creation influence financial decision-making?
3. Explain the difference between wealth maximization and profit maximization.
4. Why is financial planning essential for business growth and sustainability?
5. In what ways do financial planning and financial control work together to achieve business success?

Assignments

1. In a growing business, the management has to decide between focusing on profit maximization or wealth maximization. Given the long-term goals of the company, which approach would you recommend and why?
2. A retail business has been struggling with managing its finances and is considering applying financial planning and control practices. What steps should the business take to improve its financial management practices and enhance profitability?
3. Analyse the Market value added of a famous company and comment your opinion on its value creation for stockholders.

Suggested Reading

1. Brigham, E. F., & Ehrhardt, M. C. (2021). *Financial management: Theory and practice* (15th ed.). Cengage Learning.
2. Jaggi, B., & Kaur, P. (2016). *Financial management: Theory and practice* (1st ed.). Tata McGraw-Hill Education.
3. Pandy, I. M. (2014). *Financial management* (11th ed.). Vikas Publishing.
4. Singh, J. K. (2017). *Financial management: Principles and practice* (1st ed.). Himalaya Publishing House.

Reference

1. Chandra, P. (2019). *Financial Management: Theory and Practice* (Xth ed.). McGraw-Hill Education.
2. Gupta, S. K. (2018r). *Financial Management: Theory and practice*. Kalyani publishers.
3. Khan, M. Y. (2012). *Financial Management: Text, Problems, and Cases* (Xth ed.). Tata McGraw-Hill Education.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 2

Scope of Financial Management

Learning Outcomes

After completing this unit learners will be able to:

- get an overview of the scope of financial management
- gain knowledge about various financial decisions
- able to differentiate short-term and long-term finance decisions

Background

Imagine you're planning to open a coffee shop in your city. Before you start making coffee, you need to make some important decisions. First, you ask yourself: What do I need to run this café? You might need things like tables, chairs, a coffee machine, cups, a grinder, an oven, and a billing machine. This step is called deciding what assets you need. Next, you add up the cost of all these items. Let's say it comes to around ₹5 lakh. But that's not the full story. You also need money to run your café every day. You'll need to buy coffee beans, milk, and sugar, pay your staff, electricity bills, rent, and other daily costs. This is called working capital, and let's say it adds up to ₹2 lakh. Now comes an important question: Where will I get this money from? Will you take a loan from the bank? Will you use your savings? Or will you ask someone to invest in your café? This is called the financing decision. These simple yet important decisions choosing what to buy, calculating costs, planning for daily needs, and finding money are not only for new businesses. These are the same types of decisions that financial managers make every day in all kinds of businesses whether it's a small café or a big car company. So, financial management is not just about maths or numbers. It's about making smart choices that help a business run smoothly, earn profits, and grow over time.

Keywords

Investment decisions, financing decisions, dividend decisions, liquidity decisions

Discussion

1.2.1 Scope of Financial Management

- Four Key decisions

Financial management plays a crucial role in every business, even though it is closely linked with other areas like production and marketing. Despite these interconnections, the core financial functions are distinct and vital to organizational success. The scope of financial management primarily includes four key decisions: financing, investment, dividend, and liquidity decisions. The financing decision involves determining how to raise capital for business needs, whether through loans, issuing shares, or other financial instruments. The objective is to secure funds at the lowest possible cost with minimal risk. The investment decision focuses on how the raised funds are utilised, such as investing in fixed assets like machinery or expanding into new projects. This decision aims to generate the highest possible return on investment. The dividend decision pertains to distributing the company's profits to its shareholders while balancing the need to retain earnings for future growth. It requires a careful analysis of the firm's profitability and long-term strategy. Lastly, the liquidity decision deals with managing the company's cash flow to ensure that it can meet short-term obligations and maintain smooth daily operations. This includes effective management of working capital components like inventory, receivables, and payables. Together, these four decisions form the foundation of financial management, ensuring that a business operates efficiently, maintains financial health, and supports sustainable growth. these four decisions include the scope of financial management.

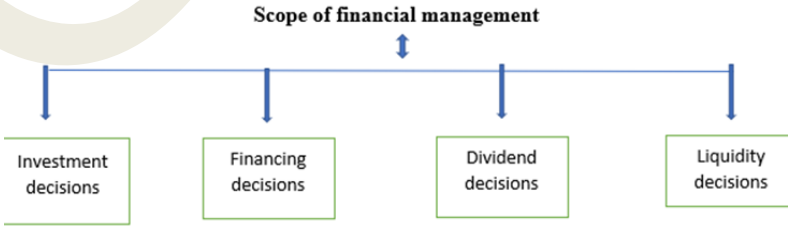


Figure 1.2.1 Scope of financial management

A finance manager's function involves these four decisions.so these four decisions included in the scope of financial management. Let us discuss each decision in detail.

1.2.1.1 Investment decisions

The investment decision, also known as capital budgeting, refers to the process of allocating financial resources to long-term assets that are expected to generate economic benefits in the fu-

- capital expenditure

ture. These decisions are critical for a business because they involve substantial capital outlay and have a long-term impact on the firm's financial health and strategic direction. Examples of such investments include purchasing new machinery, investing in advanced technology, acquiring land or buildings, or entering new markets. Investment decisions are important because they are irreversible and involve huge outlays of funds, and their impact can last for many years.

There are two key components to any investment decision:

- Evaluating proposed investment is likely to be profitable;
- Comparing the expected return against a predetermined cut-off rate,

The cut-off rate is the minimum required rate of return or the opportunity cost of capital. This rate serves as a benchmark to determine whether the investment will add value to the business. However, predicting the future expected return is inherently uncertain, and this introduces risk to capital budgeting. The future cash flows from an investment are based on assumptions about market conditions, consumer demand, operational efficiency, and economic trends factors that are often beyond the control of the firm. Consequently, businesses must evaluate both the expected return and the associated risk before committing to any long-term investment. To manage these uncertainties, firms use capital budgeting techniques such as Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index (PI), and Payback Period to assess the desirability of investment projects. These methods help in quantifying the returns and comparing alternatives objectively. (These techniques are explained in detail in block 2).

- risk and uncertainty

In addition to assessing new projects, the investment decision also involves the review and evaluation of existing assets. If an asset, such as an ageing machine, is no longer contributing efficiently to production or incurs high maintenance costs, the firm must consider whether to retain, upgrade, or replace it. This evaluation is part of replacement investment decisions, which are equally vital for sustaining operational efficiency. Despite the availability of various financial tools, determining the appropriate cut-off rate remains a challenge in real-world scenarios. This is largely because the opportunity cost of capital is often based on estimates rather than precise data. As such, financial managers must exercise judgment and consider both quantitative analysis and strategic fit when making investment decisions.

- evaluating existing investments

1.2.1.2 financing decisions

- sources of fund

The financing decision is one of the most important roles of a financial manager. Once a company decides where to invest (through the investment decision), it must also decide how to arrange the money needed for that investment. This is where financing decisions come in. The manager must carefully plan when funds are needed, how much is required, and from where the funds should be raised.

- Optimum capital structure

The key question in financing is deciding the right balance between equity (money raised from shareholders) and debt (money borrowed through loans, debentures, etc.). This combination is called the capital structure of the company. The goal is to choose the best capital structure called the optimum capital structure which helps maximize the market value of the company's shares and minimize the cost of capital. Maximising share's market value and minimizing cost of capital. Cost of capital is the return expected by the providers of funds, which means equity and debenture holders etc.

- A combination of debt and equity

Using more debt can increase returns for equity shareholders because interest paid on loans is usually less than profits earned from investments. However, it also brings higher financial risk because loans must be repaid with interest, even if profits are low. On the other hand, using more equity reduces risk, but also reduces potential returns for shareholders. So, the financial manager must find a balance between risk and return. An ideal or optimum capital structure is one where shareholders get the highest possible return with the least possible risk. This, in turn, helps the company maintain a strong image in the market and increases the value of its shares. Theories are contributing to capital structure that we study later in block 3.

In the real world, financing decisions are not based on return and risk alone. Companies also consider factors like control over ownership (issuing too much equity may dilute control), flexibility (the ability to change financing plans easily), loan conditions, interest rates, and legal rules before choosing the final source of funds. Therefore, the financing decision is not just about raising money it's about raising it in a smart, balanced, and strategic way that supports the company's long-term growth.

1.2.1.3 Dividend decision

The dividend decision is the third major financial decision a financial manager has to make after the investment and financing decisions. It refers to deciding what portion of the firm's profit should be distributed to shareholders as dividends, and what portion should be retained in the business for future use.

There are three main options in a dividend decision:

1. Distribute all profits as dividends to shareholders.
2. Retain all profits for reinvestment in the business.
3. Distribute a part of the profits and retain the rest.

- distribution of dividend

The choice among these depends on what is best for the shareholders' wealth. Just like financing decisions, the dividend policy should aim to maximize the market value of the company's shares. In other words, the financial manager must adopt a dividend policy that helps increase shareholders' value in the long run.

- dividend payout ratio

A key concept in this area is the dividend payout ratio, which refers to the percentage of net profits paid out to shareholders in the form of dividends. The remaining portion is called retained earnings, which are used for future investments or to strengthen the company's financial position. If shareholders prefer regular income, then the company should consider a higher payout ratio. However, if the company has good investment opportunities, retaining earnings might lead to higher future growth and possibly a higher share price.

- stock dividend

In real-world practice, most profitable and stable companies pay regular cash dividends to shareholders. These are direct payments made in cash, usually on a quarterly or annual basis. Additionally, companies sometimes issue bonus shares, also known as stock dividends. Bonus shares are additional shares given to existing shareholders without any extra cost, usually in proportion to the shares they already own. These do not involve cash outflow but are a way to reward shareholders using the company's reserves.

- Dividend stability

Apart from deciding how much of the profit should be paid as dividends, financial managers must also consider several other important factors before finalizing the dividend policy. One of the most important among these is dividend stability. This refers to maintaining a steady and predictable dividend payment over time. Even if a company's profits go up or down in a particular year, many companies prefer to keep their dividend rate stable. This gives confidence to shareholders, especially those who depend on regular income, and it also builds a positive image of the company in the financial market.

- legal restrictions

Another key factor is legal restrictions. A company cannot simply decide to pay dividends anytime it wishes. According to the law, dividends can only be paid out of current profits or accumulated past profits that are not already committed for other uses. Companies are also required to maintain a certain portion

of profits in reserves before distributing the rest as dividends. Therefore, financial managers must ensure that all legal conditions are met before declaring dividends.

- liquidity positions

The liquidity position of the company is another crucial consideration. Even if a company earns high profits, it may not have enough cash in hand to pay dividends. For example, if most of the profits are locked in credit sales or long-term projects, the company might face a shortage of liquid funds. In such cases, the company may decide to delay or reduce dividend payments to avoid financial strain.

- tax

Lastly, tax implications also influence dividend decisions. Tax laws vary from country to country, but both the company and the shareholders may have to pay taxes on dividends. If the tax burden is high, companies might prefer to retain earnings rather than distribute them. Shareholders may also prefer capital gains (an increase in share value) over dividends if capital gains are taxed at a lower rate.

In summary, the dividend decision is not just about paying money to shareholders. It is a strategic decision that must consider the firm's financial position, plans, shareholder expectations, and the goal of maximizing the company's value in the market.

1.2.1.4 Liquidity decisions

- short term

Managing current assets is a crucial part of a firm's financial strategy, as it directly influences the firm's liquidity, profitability, and risk profile. Liquidity refers to the ability of a firm to meet its short-term obligations as they come due. If a company does not maintain adequate investment in current assets such as cash, accounts receivable, and inventories it may face liquidity problems, which could lead to financial distress or insolvency. On the other hand, holding excessive current assets means locking up funds in low-return investments, which reduces the firm's profitability. Therefore, financial managers must strike a proper balance between liquidity and profitability. This balancing act is known as the liquidity decision.

- working capital

The main objective of current asset management is to ensure that neither too little nor too much is invested in short-term assets. Financial managers must estimate the firm's requirement for current assets accurately and plan to make the necessary funds available when needed. Efficient management of current assets safeguards the firm against liquidity crises without compromising the return on investment. Techniques such as cash budgeting, working capital analysis, and inventory control help in making informed liquidity decisions.

Financial management does not function in isolation. It plays an active role in supporting other business functions like production, marketing, and expansion by making decisions related to the acquisition or disposal of assets. These financial decisions often require committing or recommitting funds, and their impact is felt throughout the organization. According to Ezra Solomon[1], the role of financial management is not just to raise funds, but also to review and control how funds are allocated to new or ongoing activities. This means that decisions related to financial resource allocation influence the firm's size, growth, risk exposure, and ultimately, its market value.

- Current asset management

In summary, liquidity decisions and the management of current assets are fundamental to a firm's financial health and overall success. A well-structured approach to current asset management helps maintain operational stability while ensuring profitability, supporting all other key business functions in the process.

Financial decisions refer to the choices made by a firm concerning the procurement, allocation, and management of financial resources. These decisions are crucial for ensuring the smooth functioning, profitability, and long-term sustainability of the business. However, not all financial decisions operate on the same timeline or serve the same purpose. To better understand and manage them, financial decisions are typically classified into two broad categories:

- long-term financial decisions and
- short-term financial decisions.

This classification is based on the time, nature of the decision, and its impact on the business. While long-term financial decisions focus on strategic investments and capital structure that shape the future of the organization, short-term decisions deal with the day-to-day financial operations required to maintain liquidity and efficiency. A clear understanding of this classification enables more effective financial planning and control.

1.2.2 Short-term and long-term finance decisions

Financial decisions are fundamental to every business organisation. They dictate how funds are raised, allocated, and managed to meet business objectives. These decisions can be broadly categorised into two types: short-term financial decisions and long-term financial decisions. Each serves a distinct purpose and time frame, but together they enhance an enterprise's overall financial health and performance.

Citation 1. Solomon, Ezra, The Theory of financial management, Columbia University Press,1969,p.

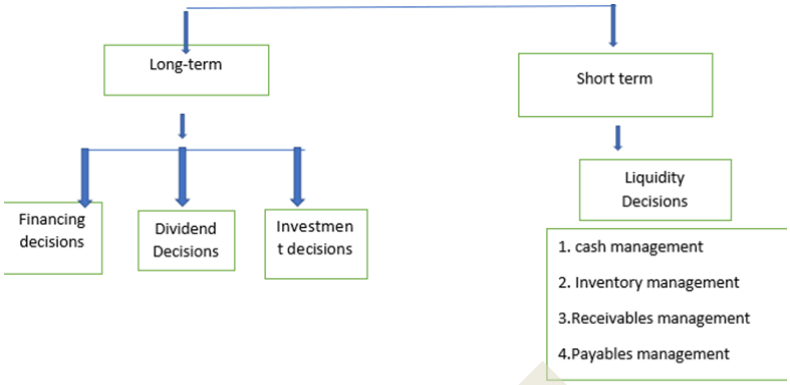


Figure 1.2.2 Long-term short-term finance decisions

1.2.2.1 Long-term Financial Decisions

Long-term financial decisions, also known as strategic or capital decisions, involve the acquisition and use of funds for investments that extend beyond one year. These decisions shape the future of the business and include major areas such as capital budgeting, capital structure, and dividend policies.

a. **Capital Budgeting Decisions/Investment decisions**

Capital budgeting refers to the process of evaluating and selecting long-term investment opportunities. These could include purchasing new machinery, setting up a new plant, or launching a new product line. The goal is to choose projects that provide the highest returns relative to their cost and associated risks. Tools such as Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period help in making these decisions.

b. **Capital Structure Decisions/ Financing decisions**

This involves determining the most appropriate mix of debt and equity to finance the firm's long-term investments. A business must strike a balance between the risk and return associated with different sources of capital. Too much debt may increase financial risk, while too much equity may dilute ownership.

c. **Dividend Policy Decisions**

Long-term finance decisions also involve deciding how much profit should be distributed as dividends to shareholders and how much should be retained in the business for future growth. A good dividend policy balances the expectations of shareholders with the firm's own reinvestment needs.

The main goal of long-term finance decisions is to increase the value of the company for its owners, support steady growth, and keep the business financially healthy over time. This means

- Maximise value

using money wisely for big projects that give returns in the future. For example, imagine a company spending ₹50 crore to build a new factory. This factory is expected to earn ₹10 crore every year for the next 10 years. After calculating the value of these future earnings (considering factors like interest rates), the total benefit today is around ₹88.55 crore (Present value of future earnings). Since the cost was ₹50 crore, the profit in today's terms is ₹38.55 crore. This shows it's a good investment. Making such smart financial decisions helps the company grow and stay strong in the long run.

1.2.2.2 Short-term Financial Decisions

- working capital management

Short-term financial decisions are operational and focus on managing current assets and current liabilities. These are typically concerned with ensuring the firm can meet its day-to-day expenses and short-term obligations. Collectively, this area is called working capital management or Liquidity decisions

a. **Cash Management**

Maintaining the right amount of cash is crucial. Too little cash can lead to missed payments or penalties, while too much idle cash can reduce returns. Effective cash management involves forecasting cash needs, maintaining liquidity, and investing surplus funds wisely.

b. **Inventory Management**

Businesses must keep enough inventory to meet customer demands and ensure uninterrupted production. However, excessive inventory increases storage costs and the risk of obsolescence. Short-term decisions include determining the optimal order quantity and timing.

c. **Receivables Management**

This refers to managing the firm's credit policies and ensuring timely collection from customers. Efficient receivables management improves liquidity and reduces the chances of bad debts.

d. **Payables Management**

Managing how and when the firm pays its suppliers is equally important. Delaying payments may harm supplier relationships, while early payments may cause cash shortages. Businesses aim to negotiate favourable terms while preserving cash flow.

The primary objective of short-term finance decisions is to ensure that a business maintains adequate liquidity to meet its day-to-day operational needs. These decisions aim to sup-

- liquidity

port smooth functioning by ensuring the timely availability of funds for working capital requirements such as inventory, wages, and utility payments. Additionally, managing short-term finances effectively helps a company maintain its creditworthiness by meeting financial obligations promptly, thereby preserving trust with creditors and suppliers. For example, if a company has monthly expenses of ₹4,00,000 but expects to receive ₹5,00,000 from customers only after 30 days, it may arrange a short-term loan of ₹4,00,000 to bridge the gap. This ensures timely payments, avoids disruption in operations, and maintains trust with employees, vendors, and lenders.

Summarised Overview

This unit provides a clear understanding of the scope of financial management in business operations. The scope of financial management includes key types of financial decisions investment, financing, dividend d and liquidity decisions that help businesses allocate resources wisely and achieve financial goals. The unit also highlights the difference between short-term and long-term financial decisions, explaining how short-term decisions focus on day-to-day liquidity and operational needs, while long-term decisions deal with strategic planning and future growth. Overall, the unit builds a strong foundation for making informed and effective financial decisions.

Self-Assessment Question

1. Explain the scope of financial management.
2. Differentiate short-term and long-term finance decisions
3. Why is liquidity important in short-term financial management?
4. How do financing and investment decisions contribute to the growth of a business?
5. Short note on four key decisions in the scope of financial management.
6. Classify the following as short-term or long-term financial decisions: purchasing raw materials, expanding a factory, paying monthly salaries, and launching a new product line.

Assignments

1. visit your nearby firm to analyse the liquidity decision they have taken in one day.
2. Prepare a report on investment decisions and financial decisions you may take to start a Tea shop.
3. Analyse an established firm and evaluate its dividend decision pattern.
4. Imagine a company has surplus cash. What financial decisions could it consider, and how might each impact the business in the short and long term?

Suggested Reading

1. Brigham, E. F., & Ehrhardt, M. C. (2021). *Financial management: Theory and practice* (15th ed.). Cengage Learning.
2. Jaggi, B., & Kaur, P. (2016). *Financial management: Theory and practice* (1st ed.). Tata McGraw-Hill Education.
3. Pandy, I. M. (2014). *Financial management* (11th ed.). Vikas Publishing.
4. Singh, J. K. (2017). *Financial management: Principles and practice* (1st ed.). Himalaya Publishing House.

Reference

1. Chandra, P. (2019). *Financial Management: Theory and Practice* (Xth ed.). Mc-Graw-Hill Education.
2. Gupta, S. K. (2018r). *Financial Management: Theory and practice*. Kalyani publishers.
3. Khan, M. Y. (2012). *Financial Management: Text, Problems, and Cases* (Xth ed.). Tata McGraw-Hill Education.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

02 BLOCK

Capital Budgeting Decisions

Block Content

Unit 1

INVESTMENT DECISION

Learning Outcomes

After completing this unit, the learner will be able to:

- gain an idea on investment decision and how it is important in financial planning.
- learn how to evaluate the cost and benefits of an investment proposal before making a decision.
- get familiar with basic evaluation methods used for investment decisions.
- identify the difference between profit and cash flow and understand their roles in evaluating investments.

Background

Investment decisions are very important for the success and growth of any business. Every business wants to invest its money in the best possible way to earn more profits and grow in the future. But before making any investment, it is important to study whether the project will be beneficial or not. For this, the costs and expected benefits of the proposal must be carefully estimated.

Two important things to consider while evaluating any investment are profit and cash flow. Profit shows how much the business earns after expenses, while cash flow tells us about the actual money coming in and going out of the business. Both are necessary to understand the true value of an investment.

There are different methods used to evaluate investment proposals. Some of the basic and commonly used methods are called non-discounting techniques. These include the Payback Period method, the Accounting Rate of Return (ARR), and analysis of the Post Payback Period. These methods help in checking how quickly an investment can be recovered and how profitable it will be.

This unit focuses on helping learners understand these simple yet important evaluation methods. By learning them, one can make smarter and more informed investment decisions.

Keywords

Investment Decision, Cost-Benefit Analysis, Cash Flow, Payback Period, Accounting Rate of Return (ARR), Non-discounting Techniques

Discussion

Making the right investment decisions is one of the most important tasks for any business or individual. A good investment can lead to growth, profits, and long-term success, while a poor investment can result in losses. That is why it is important to study and evaluate each investment proposal carefully before taking action.

One of the first step in making an investment decision is to estimate the cost involved and the expected benefits. This includes understanding the profit that the project may generate and the cash flows it will produce over time. These financial figures help in checking whether the investment is worth the money and effort.

To evaluate investments, different methods are used. In this unit, the focus is on non-discounting techniques such as the Payback Period, the Accounting Rate of Return (ARR), and the Post Payback Period. These methods are easy to use and help decision-makers understand how fast an investment can be recovered and how profitable it will be in the future.

This introduction sets the stage for learning how to use simple tools to make better investment decisions, especially in situations where quick and clear analysis is needed.

2.1.1 Investment decision

- Capital Budgeting

- Long term plan

Investment decisions are about using money in the best way to increase the value of a business and benefit its shareholders. These decisions are very important for a business to reach its goals, earn income, and stay active in the long run. Even non-profit organizations need to make investment decisions, not to earn profits, but to achieve their mission.

Every rupee a business earns comes with a cost, known as the cost of capital. So, it's important to use this money wisely. To do this, the organization needs to plan carefully, which is done through budgeting. When budgeting is used to plan how money will be spent on long-term investments, it is called capital budgeting.

In simple terms, capital budgeting includes:

Finding investment opportunities that match the company's goals;

Calculating and studying the future cash flows after tax for each investment option;

Choosing the option that gives the best return to the investors.

Purpose of Capital Budgeting

Capital budgeting decisions are very important for a business because of the following reasons:

i. Huge Investment Needed:

Investment decisions are usually made to achieve long-term goals and ensure the business continues in the future. These decisions often require a lot of money. Based on how much money is needed and when it is needed, the business chooses suitable sources of finance. Involvement of huge funds require proper planning and evaluation before investing.

ii. Long-Term Impact:

Capital budgeting decisions affect the business for many years. These decisions not only influence future profits and costs but also shape how fast and in what direction the business grows.

iii. Hard to Reverse:

Once an investment decision is made and put into action, it's very difficult to take it back. This is because once the company purchased fixed assets like plant and machinery there may be limited markets for second hand plant and equipments and their conversion to alternative purposes may not be financially viable. So, the decision must be taken carefully.

iv. Complicated Process:

These decisions involve guessing future events, which is not easy. Also, it's hard to measure all the possible benefits and costs in exact numbers. That's why capital investment decisions are complex and need expert judgment.

2.1.1.1 Estimation of Cost and Benefits of a Proposal

In financial management, before accepting any investment or project, it is very important to estimate the costs involved and the benefits expected from it. This helps in making smart and profitable decisions.

i. Estimating the Cost of a Proposal

Costs include all the expenses that a business will have to bear to start and run the project. These can be:

- Initial Costs: Like the cost of land, buildings, machines, equipment, and installation.
- Operating Costs: Expenses required to run the project daily such as raw materials, salaries, maintenance, electricity, and other utilities.
- Hidden or Indirect Costs: Costs that may not be directly visible like training staff, environmental impact, or future upgrades.

All these costs must be calculated carefully to know how much money is needed in total.

ii. Estimating the Benefits of a Proposal

Benefits are the returns or earnings expected from the investment. These may include:

- Cash Inflows: Revenue generated by selling goods or services.
- Savings: If the new project helps reduce existing costs (e.g., using new technology that saves energy).
- Non-Monetary Benefits: Improved brand image, better customer service, or long-term market advantage.

Future benefits are usually estimated over several years and are adjusted for factors like inflation, taxes, and risks.

iii. Purpose of Estimating Costs and Benefits

- To compare whether the benefits are greater than the costs.
- To help in decision-making – whether to accept, reject, or modify the project.
- To calculate important values like Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period.

2.1.2 Capital budgeting techniques

In order to maximise the return to the shareholders of a company, it is important that the best or most profitable investment projects are selected. Results of making a bad long-term investment decision can be devastating in both financial and strategic terms. Proper care is required for investment project selection and evaluation.

There are number of techniques available for the appraisal of investment proposals and can be classified as presented below:

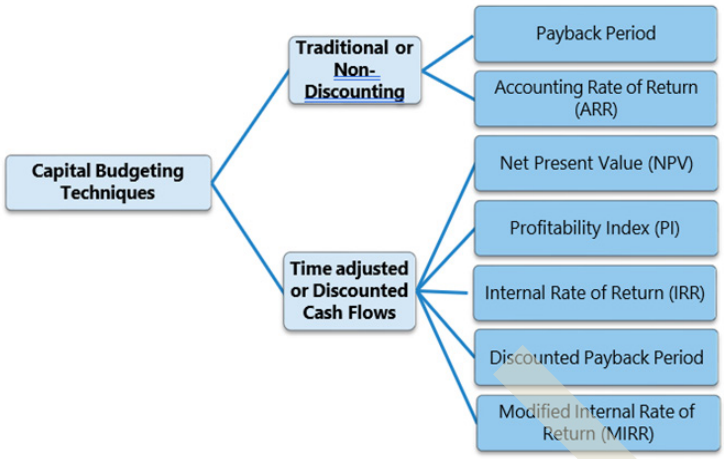


Fig.2.1.1 Capital budgeting techniques

Non discounting techniques

i. Payback Period

- Time to recover the cost

The payback period is the time it takes to recover the money you spent on an investment. In other words, it's how long it takes for the total cash earned from the project to match the amount of money that was invested at the beginning. At the end of the payback period, the investor has gotten back all the money they put into the project.

Steps to Calculate Payback Period:

a. First, find out the total amount of money spent at the beginning of the project (this is called the initial investment or cash outflow).

b. Next, estimate how much cash the project is expected to bring in every year after tax during its life (cash inflow).

The payback period can be calculated in two different situations as follows :

1. When annual cash inflows are the same (uniform):

When cash inflows or benefits generated by a project are same or constant (i.e. even cash inflows), the payback period is computed by dividing the initial investment or cash outlay by the net annual cash inflows.

You can calculate the payback period using a simple formula:

$$\text{Payback period} = \frac{\text{Total initial capital investment}}{\text{Annual expected after- tax net cashflow}}$$

This will give you the number of years it takes to recover your money.

Example: A project involves a cash outlay of Rs. 5,00,000 and generates cash inflows of Rs. 1,00,000 annually for 7 years. Payback period is calculated as follows :

Payback = 5,00,000 / 1,00,000 = 5 years.

The whole cost of the original investment, i.e. Rs. 5,00,000 is recovered with 5 years.

2. When annual cash inflows are unequal

When cash inflows in different years are unequal (uneven), the computation of payback period is not so easy as in the case of even cash inflows. In such a case, payback period is calculated by cumulating the cash inflows until the original investment is recovered. It is ascertained by cumulating cash inflows till the time when the cumulative cash inflows become equal to initial investment.

Payback Period = E + B /C

E = Year preceding the year of full recovery of investment as per cumulative cash inflows

B = Balance to be recovered (unrecovered amount)

C = Actual cash inflows in the year of final recovery

Example: The cost of the project is Rs. 1,00,000/- and the cash inflows are : 1st year Rs.10,000/-, 2nd year Rs.15,000/- , 3rd year Rs.25,000/- , 4th year Rs.30,000/- and 5th year Rs.30,000/-.

Here Cash inflows are unequal and hence payback period is calculated as follows:

Year	Cash Inflows	Cumulative Cash Inflows
1	10,000	10,000
2	15,000	25,000
3	25,000	50,000
4	30,000	80,000
5	30,000	1,10,000

Payback period = E + B / C

= 4 + 20,000 / 30,000

= 4 + 0.66 = 4. 6 year

4 years and 6 months

Advantages of Payback Period

- It is easy to calculate and does not need complex formulas.
- It is simple to understand and gives a quick idea of how long it will take to get back the money invested.
- A shorter payback period is usually seen as less risky, especially in industries where things change fast, like the software industry. It is also useful when a company has less cash and wants faster returns.

Limitations of Payback Period

- It does not consider the time value of money, meaning it treats ₹1 today as the same as ₹1 received after a few years, which is not realistic.
- It only looks at the period until the investment is recovered and ignores any money the project may earn after that.
- It focuses too much on short-term gains, and may lead to ignoring good long-term projects that take longer to recover the investment but are more profitable in the long run.

Illustration 1

Satwika Ltd. invested Rs.1,00,000 to open a small store. The store generates a consistent after-tax cash inflow of Rs. 25,000 every year. Calculate payback period.

Solution

Step 1: Initial Investment = Rs. 1,00,000

Step 2: Annual Cash Flow = Rs. 25,000

$$\text{Payback period} = \frac{Initial\ Investment}{Annual\ cashfolow}$$

$$= \frac{100000}{25000}$$

=4 years

So, in this case, it will take 4 years for you to recover the ₹1,00,000 you invested.

Illustration 2

A project costs Rs. 15,00,000 and generates an annual profit of Rs. 2,50,000 after depreciation at 10% (straight-line method), but before tax at 40%. Calculate the payback period.

Solution

The first step would be to calculate the cash inflow from this project. The cash inflow is calculated as follows:

Particulars	Rs
Profit before tax	2,50,000
Less: Tax @ 40%	1,00,000
Profit after tax	1,50,000
Add: Depreciation written off	1,50,000
Total cash inflow	**3,00,000**

When calculating cash inflow, depreciation is added back to profit after tax since it does not result in an actual cash outflow. The cash generated from a project is therefore equal to profit after tax plus depreciation. The payback period of the project is:

Payback period = $\frac{1500000}{300000}$ = 5 Years

Illustration 3

Suppose ABC Ltd. is analyzing a project requiring an initial cash outlay of Rs.2,90,000 and is expected to generate cash inflows as follows:

Year	Annual Cash Inflows
1	1,20,000
2	90,000
3	70,000
4	20,000

Solution:

- After 3 years, cumulative inflow = Rs.2,80,000
- Remaining amount to be recovered = Rs 2,90,000 – Rs.2,80,000 = Rs.10,000
- Cash inflow in Year 4 = Rs.20,000

So, the fraction of Year 4 needed:

Fraction of Year 4= $10000 \div 20000$ =0.5 year

The payback period is 3.5 years or 3 years and 6 months.

ii. Accounting (Book) Rate of Return (ARR) or Average Rate of Return (ARR)

- Assess the profitability

The Accounting Rate of Return (ARR), also known as the Average Rate of Return, is a financial metric used in capital budgeting to assess the profitability of an investment. It calculates the expected annual accounting profit from an investment as a percentage of the average investment over its useful life.

The Accounting Rate of Return (ARR) shows how much profit a project makes every year, on average, compared to how much was invested in it.

Accounting Rate of Return (ARR) = $\frac{Average\ Annual\ net\ income}{Investment}$

The top part of the formula (numerator) is the average yearly profit the project earns during its life.

The bottom part (denominator) can be either the total amount invested at the start (including installation costs) or the average investment during the project's life.

"Average investment" means the average amount of money that stays tied up in the project over the years.

Advantages of ARR

a. **Easy to Calculate and Understand**: ARR is straightforward to compute using standard accounting data like net profit and investment cost. This simplicity makes it accessible even to those without a financial background.

b. **Utilizes Existing Financial Data**: Since ARR relies on information already available in financial statements, there's no need for additional data collection or complex calculations.

c. **Consistent Evaluation Method**: ARR aligns with how companies often assess both investment decisions and managerial performance, promoting consistency in evaluation.

d. **Considers the Entire Project Lifespan**: Unlike some methods that focus only on initial returns, ARR takes into account the average profit over the entire life of the project, providing a comprehensive view of its profitability.

Limitations of ARR

a. **Ignores Time Value of Money**: ARR treats all profits equally, regardless of when they occur. It doesn't account for the fact that money received today is more valuable than the same money received in the future.

b. **Affected by Accounting Policies**: ARR is based on accounting profits, which can vary depending on the changes in accounting methods used (e.g., different depreciation techniques), potentially leading to inconsistent evaluations.

c. **Does Not Consider Cash Flows**: While ARR focuses on net income, it overlooks actual cash inflows and outflows, which are crucial for assessing an investment's liquidity and real-world performance.

d. **Overlooks Additional Investments**: ARR typically considers only the initial investment and may ignore other necessary expenditures like working capital, leading to an incomplete assessment of the project's total financial commitment.

Illustration - 4

Arya ltd. is planning to invest in a project with an initial investment of ₹4,00,000, and the project has a life span of 3 years. The salvage value of the machine at the end of 3 years is ₹1,20,000. The profit before depreciation for each year is ₹1,80,000.

The profit after depreciation and the value of investment at the beginning and end of each year are as follows:

Year	Profit Before Depreciation	Depreciation	Profit after Depreciation	Investment at Beginning	Investment at End
1	1,80,000	93,333	86,667	4,00,000	3,06,667
2	1,80,000	93,333	86,667	3,06,667	2,13,334
3	1,80,000	93,333	86,667	2,13,334	1,20,000

Calculate ARR

a. Annual basis

b. Total investment basis

c. Average investment basis

Solution

ARR can be calculated by the following methods:

a. Version 1: Annual Basis

ARR = (Profit after Depreciation / Investment at Beginning of Year) × 100

Year 1: 86,667 / 4,00,000 × 100 = 21.67%

Year 2: 86,667 / 3,06,667 × 100 = 28.26%

Year 3: 86,667 / 2,13,334 × 100 = 40.63%

Average ARR = (21.67% + 28.26% + 40.63%) / 3 = 30.19%

b. Version 2: Total Investment Basis

ARR = (Average Annual Profit / Initial Investment) × 100

= (86,667+86,667+86,667)/3÷4,00,000×100

= 86,667 / 4,00,000 × 100 = 21.67%

c. Version 3: Average Investment Basis

Average Investment = (Initial Investment + Salvage Value) / 2 or

= (4,00,000 + 1,20,000) / 2 = 2,60,000

Or

Average investment = (initial Investment – Salvage value) / 2 + Salvage value

ARR = (Average Annual Profit / Average Investment) × 100

= 86,667 / 2,60,000 × 100 = 33.33%

Now, suppose the project also needs additional working capital of Rs.50,000 during its life. Then, the formula for Average Investment is modified as:

Average Investment = ½ (Initial Investment – Salvage Value) + Salvage Value + Additional Working Capital

= ½ (4,00,000 – 1,20,000) + 1,20,000 + 50,000 = ½ (2,80,000) + 1,20,000 + 50,000 = 1,40,000 + 1,20,000 +50,000

= 3,10,000

Now, ARR = 86,667 / 3,10,000 × 100 = 27.96%

Illustration 5

A company plans to invest Rs. 12,00,000 in a project. The project will generate the following profit after tax and depreciation over 5 years:

Year	Profit after Tax and Depreciation (₹)
1	70,000
2	90,000
3	1,40,000
4	1,50,000
5	1,00,000
Total	5,50,000

At the end of 5 years, the plant and machinery will have a salvage value (resale value) of Rs.1,20,000.

Calculate ARR.

Solution

(A) When Initial Investment is used as the base

Step 1: Calculate Average Annual Profit

$$\text{AverageAnnual Profit} = \frac{\text{Total Profit}}{\text{Number of Years}} = \frac{₹5,50,000}{5} = \text{Rs.1,10,000}$$

Step 2: Use the formula

$$\text{ARR} = \frac{(₹1,10,000)}{₹12,00,000} \times 100 = 9.17\%$$

So, the ARR using initial investment is 9.17%

(B) When Average Investment is used as the base

Step 1: Calculate Average Investment

$$\text{Average Investment} = \frac{1}{2}(\text{Initial Investment} - \text{Salvage Value}) + \text{Salvage Value}$$

$$= \frac{1}{2}(12,00,000 - 1,20,000) + 1,20,000$$

$$= \frac{10,80,000}{2} + 1,20,000$$

$$= 5,40,000 + 1,20,000 = 6,60,000$$

Step 2: Use the formula

$$\text{ARR} = \frac{(1,10,000)}{6,60,000} \times 100 = 16.67\%$$

So, the ARR using average investment is 16.67%

iii. Post payback period

This method represents the period in which the total investment in permanent assets is paid back with the additional earnings generated from the investments. This method is otherwise termed as surplus life over payback period. According to this method, project having longer pay back period is given preference.

Post payback period = Life of the project – Payback period.

The firm prefers making investment in that proposal where the capital invested is recovered as early as possible.

Summarised Overview

This study explains how to make wise investment decisions by understanding the costs and benefits of a proposal. It highlights the importance of profit and cash flow in evaluating whether an investment is suitable. The focus is on simple evaluation methods known as non-discounting techniques, which include the Payback Period, Account-

ing Rate of Return (ARR), and Post Payback Period. These methods help investors and business owners to check how quickly they can recover their money and whether the investment will be profitable in the long run. The study aims to make these basic tools easy to understand and apply in real-life financial planning

Self-Assessment Question

1. What is Payback Period, and how it is useful in investment decisions?
2. Mention two advantages and two limitations of using the Payback Period method.
3. What is meant by the Accounting Rate of Return (ARR)?
4. State the difference between using initial investment and average investment in ARR calculation?
5. Why does the ARR method not give an accurate picture of long-term profitability?
6. If a project recovers its initial investment of Rs.3,00,000 in 2.5 years with equal cash inflows each year, what is the annual cash inflow?
7. A machine costs Rs.8,00,000 and has a salvage value of Rs.1,00,000 after 5 years. It earns a profit after tax and depreciation of Rs.1,20,000 every year. Find the ARR using average investment.
8. Write the shortnote on post payback period?

Assignments

1. Why is long-term investment decision also known as capital budgeting?
2. A machine worth Rs.5,00,000 has a life of 4 years with annual cash inflows of Rs.1,50,000. What is the payback period?
3. A project costs Rs.6,00,000 and generates a profit before depreciation of Rs.2,00,000 each year for 3 years. If depreciation is Rs.80,000 per year, calculate the ARR using initial investment.
4. A project with an investment of Rs. 10,00,000 yields profits after depreciation as follows:

   Year 1: 1,00,000
   Year 2: 1,20,000

Year 3: 1,30,000
Year 4: 1,00,000
Year 5: 90,000
Find the average annual profit and ARR (initial investment basis).

5. A project has total net profit after depreciation of Rs.5,50,000 over 5 years. If the initial investment is Rs.12,00,000 and salvage value is Rs.1,20,000, calculate the ARR using both methods (initial and average investment).

6. A project requires an investment of Rs.6,00,000 and generates Rs.2,00,000 per year in profit before depreciation. Depreciation is ₹80,000 annually. Find ARR using initial investment.

Suggested Reading

1. I.M. Pandey, *Financial management* (12th ed.), Pearson
2. M Y Jain, P.K. Jain, *Financial Management Text, Problems and Cases* (8th ed.),, McGraw Hill
3. Brigham, E. F., & Houston, J. F. (2022). *Fundamentals of financial management* (17th ed.). Cengage Learning
4. Smith, K. V., & Begley, J. P. (2000). *Working capital management* (3rd ed.). Thomson Learning. (Note: This is an older but still relevant text for core concepts).

Reference

1. Ross, S. A., Westerfield, R. W., & Jaffe, J. F. (2022). *Corporate finance* (13th ed.). McGraw Hill.
2. Van Horne, J. C., & Wachowicz, J. M., Jr. (2021). *Fundamentals of financial management* (14th ed.). Pearson Education
3. Berk, J., & DeMarzo, P. (2020). *Corporate finance* (5th ed.). Pearson Education.
4. Hull, J. C. (2018). *Options, futures, and other derivatives* (10th ed.). Pearson Education.
5. Brealey, R. A., Myers, S. C., & Allen, F. (2020). *Principles of corporate finance* (13th ed.). McGraw Hil

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 2

Discounting Techniques

Learning Outcomes

After completing this unit, the learner will be able to:

- understand Net present value (N P V)& Profitability index (PI)
- differentiate between IRR and MIRR and evaluate their relevance
- analyze investment projects using advanced methods such as Terminal Value and Discounted Payback Period
- discuss Capital rationing

Background

Capital budgeting techniques can be classified into two, discounting techniques and non-discounting techniques. In the previous unit we discussed the non-discounting techniques of capital budgeting. This unit focuses on discounting techniques, which are important tools used in financial decision-making. These techniques help us to understand the value of money over time. In simple terms, a rupee today is worth more than a rupee in the future because of inflation, risk, and the opportunity to earn interest. That's why discounting techniques are used to compare today's investment with the money we expect to receive in the future.

By using discounting techniques like Net Present Value (NPV), Profitability Index (PI), Internal Rate of Return (IRR), Modified IRR (MIRR), Terminal Value (TV), and Discounted Payback Period, we can compare various investment proposals. These tools help businesses choose the best projects, especially when they have limited funds or when project returns are spread unevenly over different time periods.

Studying these techniques is important because they improve the quality of investment decisions. They help in minimizing risk, maximizing returns, and ensuring the best use of resources. This unit will guide learners to understand each discounting method with examples, so they can apply them confidently in real business situations.

Keywords

Net Present Value (NPV), Profitability Index (PI), Internal Rate of Return (IRR), Modified Internal Rate of Return (MIRR), Time Value of Money, Investment Decisions, Cash Flows, Discount Rate

Discussion

In business and finance, making the right investment decision is very important. Companies often need to decide whether to start a new project, buy a machine, or expand their business. To make these decisions, they must compare the money they will spend now with the money they expect to earn in the future. There comes the relevance of discounting techniques.

Discounting techniques help us understand the value of future money in today's terms. Since money has a time value (₹1 today is worth more than ₹1 tomorrow), these methods help businesses to measure whether a project is profitable over time.

This unit discuss various discounting methods like Net Present Value (NPV), Internal Rate of Return (IRR), Modified Internal Rate of Return (MIRR), Profitability Index (PI), Terminal Value (TV), and Discounted Payback Period. It also explains important concepts such as capital rationing, inflation, and how to compare projects with different time periods (unequal lives).

2.2.1 Discounting techniques

Discounting techniques take into account the time value of money by converting future cash flows into their present value. That's why they are also called Present Value techniques. Main discounting methods include Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index (PI), and Discounted Payback Period. Before we discuss these methods, let's first understand how to decide the discount rate to be used.

- Considering time value of money
- Best alternative option

In theory, the discount rate or the expected rate of return is the return the company could have earned by investing in the best alternative option with similar risk. However, finding the perfect alternative in real life is not easy. So, instead of using the exact opportunity cost, companies usually use a different approach to set this rate.

Many companies fix a minimum rate of return that every project must earn. This rate might be based on what is common in

- WACC

the industry or what the company earns from other investments. A common method used is the Weighted Average Cost of Capital (WACC), which is the average cost a company pays to raise money for investments.

i. Net Present Value Techniques (NPV)

The net present value technique is a discounted cash flow method that considers the time value of money in evaluating capital investments. An investment has cash flows throughout its life, and it is assumed that an amount of cash flow in the early years of an investment is worth more than an amount of cash flow in a later year.

- Comparing the project

The net present value method uses a specified discount rate to bring all subsequent cash inflows after the initial investment to their present values (the time of the initial investment is year 0).

The net present value of a project is the amount, in current value of amount, the investment earns after paying cost of capital in each period.

Net present value = Present value of net cash inflow - Total net initial investment

Since it might be possible that some additional investment may also be required during the life time of the project, then appropriate formula shall be:

Net present value = Present value of cash inflows - Present value of cash outflows

It can be expressed as below:

$$NPV = \{\frac{C_1}{(1+k)} + \frac{C_2}{(1+k)^2} + \frac{C_3}{(1+k)^3} + \cdots \frac{C_n}{(1+k)^n} - 1\}$$

$$NPV = \sum_{t=1}^{n} \frac{C_t}{(1+k)^t} - I$$

Where,

C = Cash flow of various years

k = Discount rate

N = Life of the project

I = Investment

The steps for calculating net present value are:

a. Determine the net cash inflow in each year of the investment.

b. Select the desired rate of return or discounting rate or Weighted Average Cost of Capital.

c. Find the discount factor for each year based on the desired rate of return selected.

d. Determine the present values of the net cash flows by multiplying the cash flows by respective discount factors of respective period called Present Value (PV) of Cash flows

e. Total the amounts of all PVs of Cash Flows.

Decision Rule:

If NPV ≥ 0	Accept the Proposal
If NPV < 0	Reject the Proposal

The NPV method can be used to select between mutually exclusive projects; the one with the higher NPV should be selected.

Illustration 1

Compute the net present value for a project with a net investment of 1,20,000 and net cash flows of 45,000 in year one, 70,000 in year two, and 25,000 in year three. The company's cost of capital is 10%.

[PVIF @ 10% for three years are: Year 1 – 0.909, Year 2 – 0.826, Year 3 – 0.751]

Solution

Year	Net Cash Flows	PVIF @ 10%	Discounted Cash Flows
0	(1,20,000)	1.000	(1,20,000)
1	45,000	0.909	40,905
2	70,000	0.826	57,820
3	25,000	0.751	18,775

Net Present Value = 40,905 + 57,820 + 18,775 – 1,20,000 = ` -2,500

Since the net present value of the project is negative, the company should reject the project.

Illustration 2

ABC Ltd. is a small company that is currently analyzing capital expenditure proposals for the purchase of equipment; the company uses the net present value technique to evaluate projects. The capital budget is limited to ₹5,00,000 which ABC Ltd. believes is the maximum capital it can raise. The initial investment and projected net cash flows for each project are shown below. The cost of capital of ABC Ltd is 12%. You are required to compute the NPV of the different projects.

	Project A	Project B	Project C	Project D
Initial Investment	200,000	190,000	250,000	210,000
Project Cash Inflows:				
Year1	50,000	40,000	75,000	75,000
2	50,000	50,000	75,000	75,000
3	50,000	70,000	60,000	60,000
4	50,000	75,000	80,000	40,000
5	50,000	75,000	100,000	20,000

Solution

Calculation of net present value

Period	PV factor	Project A	Project B	Project C	Project D
0	1.000	(2,00,000)	(1,90,000)	(2,50,000)	(2,10,000)
1	0.893	44,650	35,720	66,975	66,975
2	0.797	39,850	39,850	59,775	59,775
3	0.712	35,600	49,840	42,720	42,720
4	0.636	31,800	47,700	50,880	25,440
5	0.567	28,350	42,525	56,700	11,340
Net Present Value		(19,750)	25,635	27,050	(3,750)

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

For first year $= \frac{1}{(1+0.12)^1}$

$= \frac{1}{1.12}$

$= 0.8928 = 0.893$

Advantages of NPV

- The NPV considers time value of money, which means it understands that money today is worth more than the same amount in the future.
- It considers the cash flows throughout the life of the project.
- A positive NPV means the project adds value to the business and increases the wealth of the shareholders.
- Since NPV uses discounted cash flows (future cash flows shown in today's value), it helps to compare different projects easily and evaluate each project on its own.

Limitations of NPV

- It needs complex calculations.
- To use this method, we need to estimate future cash flows and the discount rate, which may not always be accurate.
- NPV gives results in absolute terms, so it may not clearly show which project is better when comparing projects with different initial investments.

ii. Profitability Index

- Comparing Multiple Proposals

Learners might have noticed that using the net present value method, we can compare two different investment options. But sometimes, we need to compare more than two proposals, and each of them may have different initial investment. In such cases, one useful method to compare these projects is by using something called the "profitability Index", also known as the "Benefit Cost Ratio" or the "Present Value Index Method.

The Profitability Index helps us understand how much return a project gives for each rupee invested. It is calculated using the following formula:

$$\text{Profitability index} = \frac{\text{Sum of discounted cash inflow}}{\text{Initial cash outlay or total discounted cash outflow}}$$

Decision Rule:

If PI ≥ 1	Accept the Proposal
If PI < 1	Reject the Proposal

In case of mutually exclusive projects, project with higher PI should be selected.

Advantages of Profitability Index (PI)

- The PI method uses the time value of money, meaning it

understands that money today is worth more than the same amount in the future.

- It gives a relative measure of how profitable a project is by comparing the present value of cash inflows to the present value of cash outflows. This helps us understand how much return we get for every rupee invested.
- It helps to compare projects with different initial investments.

Limitations of Profitability Index (PI)

- The PI method doesn't work well when there are limited funds and we can't divide the projects into smaller parts (indivisible projects).
- Sometimes, a single big project with high NPV might be chosen, and this could stop us from selecting several smaller projects that together could have given a higher total NPV.
- There may be situations where picking a project with a lower PI allows us to choose another project later, giving a better combined return than just picking the one with the highest PI.

So, the PI method is useful but should not be used blindly. It's important to look at all possible project combinations before making a final decision.

Illustration 3

Suppose we have three projects with discounted cash outflows of 4,00,000, 60,000, and 85,00,000 respectively. Also, assume that the present value of discounted cash inflows for these projects are 4,80,000, 75,000, and 85,50,000 respectively.

Calculate the desirability factors (Profitability Index) for the three projects.

Solution

The desirability factors (Profitability Index) are calculated as:

$$\text{Profitability Index (PI)} = \frac{\textit{Present Value of Cash Inflows}}{\textit{Discounted Cash Outflows}}$$

$$\text{Project 1: PI} = \frac{₹4,80,000}{₹4,00,000} = 1.20$$

$$\text{Project 2: PI} = \frac{₹75,000}{₹60,000} = 1.25$$

$$\text{Project 3: PI} = \frac{₹85,50,000}{₹85,00,000} = 1.006$$

Even though Project 3 has the highest cash inflows in absolute terms, its Profitability Index is the lowest because its investment is also very high. The Profitability Index helps us compare proj-

ects by showing how much return we get for every rupee invested, making it easier to rank and choose the best option.

iii. Internal Rate of Return Method (IRR)

IRR is the rate of return at which the present value of expected future cash inflows equals the initial investment.

The Internal Rate of Return (IRR) method takes into account three things:

- Time value of money
- Initial investment, and
- All future cash inflows from the project.

- Accept the proposal When the IRR is higher and vice versa

But unlike the Net Present Value (NPV) method, which uses a fixed rate of return set by the company, the IRR method finds out what the rate of return would be on its own — the rate at which the present value of future cash inflows becomes equal to the original investment. This special rate is called the Internal Rate of Return (IRR). Once the IRR is calculated, it is compared with the company's desired or required rate of return. If the IRR is higher, the project is usually accepted.

Scenario 1: For an investment with uniform cash flows over its life, the following equation is used:

Step 1: Total initial investment = Annual cash inflow × Annuity discount factor of the discount rate for the number of periods of the investment's useful life

If A is the annuity discount factor, then:

$$A = \frac{\text{Total initial cash disbursements and commitments for the investment}}{\text{Annual (equal)cash inflows from the investment}}$$

Step 2: Once A is calculated, the interest rate corresponding to project's life, the value of A is searched in Present Value Annuity Factor (PVAF) table. If exact value of 'A' is found the respective interest rate shall be IRR. However, it rarely happens therefore we follow the steps discussed below:

Step 1: Compute approximate payback period also called fake payback period.

Step 2: Locate this value in PVAF table corresponding to period of life of the project. The value may be falling between two discounting rates.

Step 3: Discount cash flows using these two discounting rates.

Step 4: Use following Interpolation Formula:

$$LR + \frac{NPV\ at\ LR}{NPV\ at\ LR - NPV\ at\ HR}\ X\ (HR - LR)$$

Where,

LR = Lower Rate

HR = Higher Rate

CI = Capital Investment

Illustration 4

Titan Intech Solutions Pvt. Ltd. is considering investing in a renewable energy project that requires an initial investment of ₹10,00,000. The project is expected to generate annual cash inflows of ₹2,50,000 for the next 6 years. Assuming that the project has no salvage value at the end, calculate the Internal Rate of Return (IRR) for the project.

Solution

First of all, we shall find an approximation of the payback period:

$$\frac{1000000}{250000} = 4$$

Now,we shall search this figure in thePVAF table corresponding to 6-yearrow. The value 4 lies between values 4.111 and 3.998, correspondingly discounting rates are 12% and 13% respectively.

NPV@12% and 13%is:

NPV at 12%=4.111×2,50,000– 10,00,000 =27,750

NPV at 13%=3.998×2,50,000– 10,00,000 =-500

Internal rate of return is the rate at which present value of cash inflows is equal to present value of cash outflows, ie; the rate at which NPV = 0. The internal rate of return is, thus, more than 12% but less than 13%. The exact rate can be obtained by interpolation:

$$\text{LR} + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} \text{ X (HR} - \text{LR)}$$

$$12 + \frac{27750}{27750-(-500)} X\ (13\% - 12\%)$$

$$=12 + \frac{27750}{28250} = 12.98$$

= 12.978%

Scenario 2: When the cash inflows are not uniform over the life of the investment, the determination of the discount rate can involve trial and error and interpolation between discounting rates as mentioned above. However, IRR can also be found out by using following procedure:

Step 1: Discount the cash flow at any random rate, say 10%, 15% or 20%.

Step 2: If resultant NPV is negative, then discount cash flows again by lower discounting rate to make NPV positive. Con-

versely, if resultant NPV is positive, then again discount cash flows by higher discounting rate to make NPV negative.

Step 3: Use following Interpolation Formula:

$$\text{LR} + \frac{NPV\ at\ LR}{NPV\ at\ LR - NPV\ at\ HR}\ X\ (HR - LR)$$

Where

LR = Lower Rate

HR = Higher Rate

Illustration 5

Calculate the internal rate of return of an investment of ₹1,36,000 which yields the following cash inflows:

Illustration 5

Calculate the internal rate of return of an investment of ₹1,36,000 which yields the following cash inflows:

Year	Cash Inflows
1	30,000
2	40,000
3	60,000
4	30,000
5	20,000

Solution

Let us discount cash flows by 10%.

Year	Cash Inflows	Discounting factorat10%	Present Value
1	30,000	0.909	27,270
2	40,000	0.826	33,040
3	60,000	0.751	45,060
4	30,000	0.683	20,490
5	20,000	0.621	12,420
Total present value			1,38,280
Less: Initial Investment			1,36,000
NPV			+2,280

The NPV calculated @ 10% is positive. Therefore, a higher discount rate is suggested, say, 12%.

Year	Cash Inflows	Discounting factorat 12%	Present Value
1	30,000	0.893	26,790
2	40,000	0.797	31,880
3	60,000	0.712	42,720
4	30,000	0.636	19,080
5	20,000	0.567	11,340
Total present value			1,31,810
Less: Initial Investment			1,36,000
NPV			-4,190

The internal rate of return is, thus, more than 10% but less than 12%. The exact rate can be obtained by interpolation.

$$LR + \frac{NPV\ at\ LR}{NPV\ at\ LR - NPV\ at\ HR} X\ (HR - LR)$$

$$10 + \frac{2280}{2280-(-4190)} X\ (12 - 10)$$

$$10 + \frac{2280}{6470} X\ (12 - 10)$$

$$= 10 + 0.704$$

IRR $= 10.704\%$

Comparison of the DCF techniques (Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI)

Feature	Net Present Value (NPV)	Internal Rate of Return (IRR)	Profitability Index (PI)
Meaning	Difference between present value of cash inflows and outflows	The rate at which NPV becomes zero	Ratio of present value of inflows to present value of outflows
Formula	NPV = PV of inflows – PV of outflows	IRR is the discount rate that makes NPV = 0	PI = PV of inflows ÷ PV of outflows
Decision Rule	Accept if NPV > 0	Accept if IRR > Cost of Capital	Accept if PI > 1
Indicates	Total profit in today's value	Percentage return expected from project	Return per ₹1 invested

Best for	Knowing the actual amount of gain	Comparing return rates of projects	Comparing efficiency of investments
Limitation	Doesn't show return as a percentage	May give wrong result if cash flows are irregular	Doesn't show actual profit amount
Ranking Projects	Chooses project with highest NPV	Chooses project with highest IRR	Chooses project with highest PI

vi. Modified Internal Rate of Return (MIRR)

The Modified Internal Rate of Return (MIRR) is an improved version of the regular IRR. It solves some of the problems with IRR by assuming:

- Cash inflows are reinvested at the firm's cost of capital (or any other chosen rate), instead of at the IRR.
- Only one IRR is calculated, so there's no confusion (unlike IRR, which sometimes gives multiple rates).

- Realistic rate of return

MIRR shows the realistic rate of return a project is expected to earn, considering both the cost of investment and the return on reinvested earnings.

Advantages of MIRR

a. Considers Time Value of Money
b. Assumes Realistic Reinvestment Rate
c. Gives a Single, Clear Answer
d. Helps in Ranking Projects
e. Better for Long-Term Projects

Disadvantages of MIRR:

a. Slightly More Complex to Calculate
b. Needs Assumption of Reinvestment Rate
c. Not as Widely Understood
d. Does Not Show Actual Cash Flow Amounts

v. Discounted Payback Period

- Time to recover the cost by considering discunting factor

The Discounted Payback Period (DPP) is the time it takes for a project to recover its initial investment in present value terms, by considering the time value of money. Unlike the simple payback period (which just adds up raw cash flows), DPP uses discounted cash flows, meaning future cash inflows are brought to their present value using a discount rate (usually the cost of capital).

Advantages of Discounted Payback Period

- Considers Time Value of Money
- Better Risk Measurement
- Simple to Understand
- Good for Liquidity Analysis

Disadvantages of Discounted Payback Period

- Ignores Cash Flows After Payback
- Still a Partial Measure
- More Complex than Simple Payback
- Difficult to Compare Projects with Long Lifespans

Illustration 6

A project requires an initial investment of ₹1,00,000. The expected cash inflows over the next 3 years are as follows:

Year	Cash Inflow
1	30,000
2	40,000
3	50,000

Assume the discount rate is 10%. Calculate the Discounted Payback Period.
(Use PV factors: Year 1 = 0.909, Year 2 = 0.826, Year 3 = 0.751)

Solution

First, calculate the discounted cash inflows for each year:

Year	Cash Inflow	PV Factor @ 10%	Discounted Cash Flow
1	30,000	0.909	27,270
2	40,000	0.826	33,040
3	50,000	0.751	37,550

Now, add the discounted cash flows cumulatively:

- After Year 1: 27,270
- After Year 2: 27,270 + 33,040 = 60,310

- After Year 3: 60,310 + 37,550 = 97,860

Total investment to recover = 1,00,000

Amount recovered by end of Year 3 = 97,860

The investment is almost recovered by Year 3.

To be exact, some part of Year 4 would be needed, but if we are limiting to 3 years, the Discounted Payback Period is just over 3 years.

2.1.3 Capital Rationing

- Choose a project from the multiple project with the available budget

Capital Rationing means a situation where a company has limited funds or budget and cannot take up all profitable projects. It must carefully choose the best ones to invest in. In such cases, businesses use techniques like Net Present Value (NPV), Internal Rate of Return (IRR), or Profitability Index (PI) to rank and select projects that provide the best return within the available budget.

Types of Capital Rationing

i. Hard Capital Rationing: This happens due to external reasons, like borrowing limits set by banks, government rules, or a weak financial market.

ii. Soft Capital Rationing: This is a result of internal decisions, like the company wanting to reduce risk or limit investment in a particular year.

Example:

If a company has only Rs.10 crores to invest but finds three projects costing Rs.5 crores each, it may only be able to choose two. In such a case, it must pick the best combination that gives the highest return.

2.1.4 Inflation in Capital Budgeting

- Rise in prices over time

Inflation refers to the rise in prices over time, reducing the purchasing power of money. When companies evaluate investment projects, it's important to consider inflation because it affects future costs and revenues.

Impact of Inflation on Capital Budgeting:

- Future cash inflows and outflows may increase due to inflation.
- If inflation is ignored, the project may look more profitable than it actually is.
- The discount rate used in present value calculations should reflect inflation expectations.

Example:

If a project earns ₹1,00,000 per year for 5 years, and inflation is 5% annually, the real value of money received each year will reduce unless this inflation is factored into the analysis.

2.1.5 Projects with Unequal Lives

Often, companies must compare investment projects that do not have the same lifespan. These are called projects with uneven or unequal lives.

For example,

Project A might last for 3 years, while

Project B might last for 5 or 6 years.

This makes it difficult to compare the projects directly because one gives benefits for a shorter time and the other for a longer time.

If you simply compare the Net Present Value (NPV) of each project without adjusting for the life span:

- The longer project may look better just because it runs longer, not because it's more efficient.
- The shorter project might be more profitable on an annual basis but appear weaker due to its shorter duration.

- Projects that do not have the same lifespan

Therefore, we need special methods to compare these projects fairly.

Methods to Compare Uneven Projects

i. Replacement Chain Method (LCM Approach)

Find the least common multiple of project lives and assume that the shorter project will be repeated until both projects have the same time frame.

ii. Equivalent Annual Annuity (EAA) Method

Convert each project's NPV into an equal annual amount (annuity) over the life of the project. The project with the higher EAA is preferred.

Advantages of Adjusting for Uneven Lives:

- Gives a fair comparison between projects.
- Helps in making better investment decisions.
- Considers the efficiency of return per year, not just the total value.
- Useful in long-term planning where project lives differ a lot.

Summarised Overview

Capital budgeting techniques are essential for evaluating the profitability and feasibility of investment proposals, especially when comparing projects with different cash flow patterns and timeframes. Net Present Value (NPV) is a widely used method that calculates the difference between the present value of cash inflows and outflows, considering the time value of money. It provides a clear indication of how much value a project adds. However, it requires accurate estimations and can be challenging when projects have unequal lifespans.

The Profitability Index (PI) is another method that calculates the ratio of the present value of inflows to outflows. It is useful for ranking projects, especially when resources are limited. Internal Rate of Return (IRR) identifies the discount rate that makes NPV zero and is simple to understand. However, it may be misleading in projects with complex cash flows or multiple IRRs. The Modified Internal Rate of Return (MIRR) overcomes this limitation by adjusting for reinvestment at the cost of capital, providing a more reliable solution.

The Discounted Payback Period considers the time value of money and calculates how long it takes for a project to recover its initial investment. However, it ignores any cash flows after the payback period. Equivalent Annual Annuity (EAA) converts the NPV of a project into equal annual payments, allowing a fair comparison between projects with different lifespans. Finally, the Replacement Chain Method is useful for comparing projects of unequal lengths by assuming shorter projects will be repeated until they match the duration of longer projects.

Self-Assessment Question

1. What is Net Present Value (NPV), and why is it considered a reliable method for project evaluation?
2. How does the Profitability Index (PI) help in ranking investment projects?
3. Explain the main difference between Internal Rate of Return (IRR) and Modified Internal Rate of Return (MIRR).
4. Why might IRR give misleading results in projects with non-conventional cash flows?
5. What does the Discounted Payback Period measure, and how does it differ from the traditional payback period?
6. A company invests ₹2,00,000 in a project. The expected net cash inflows are ₹70,000 per year for 4 years. If the discount rate is 10%, calculate the NPV. (PV factors at 10%: Year 1 = 0.909, Year 2 = 0.826, Year 3 = 0.751, Year 4 = 0.683)

7. A project requires an investment of ₹1,00,000 and is expected to generate cash inflows of ₹30,000 per year for 5 years. Calculate the Profitability Index if the present value of inflows is ₹1,20,000.

8. A company is considering a project with an initial outlay of ₹90,000. The cash inflows for three years are ₹35,000, ₹40,000, and ₹30,000. If the cost of capital is 12%, determine the NPV. (PVIF @ 12%: Year 1 = 0.893, Year 2 = 0.797, Year 3 = 0.712)

Assignments

1. Why is the time value of money important in evaluating capital investment decisions?

2. What is capital rationing, and how does it affect project selection decisions?

3. How can inflation impact the evaluation of long-term investment projects?

4. A project has a cost of ₹50,000 and yields the following cash inflows: ₹20,000 in Year 1, ₹20,000 in Year 2, and ₹20,000 in Year 3. If the discount rate is 12%, calculate the Discounted Payback Period.(PVIF at 12%: Year 1 = 0.893, Year 2 = 0.797, Year 3 = 0.712)

5. A company is considering two projects with the same cost. Project A has a PI of 1.25 and Project B has a PI of 1.10. Which project should be preferred and why?

6. Project Alpha requires an initial investment of ₹1,20,000. The expected cash inflows for the next 4 years are ₹40,000, ₹50,000, ₹30,000, and ₹20,000. If the discount rate is 10%, calculate the NPV.(PVIF @ 10%: Year 1 = 0.909, Year 2 = 0.826, Year 3 = 0.751, Year 4 = 0.683)

7. Project A and Project B both require an initial investment of ₹1,00,000. The expected cash inflows are as follows: Project A: ₹40,000, ₹35,000, ₹30,000, ₹25,000 Project B: ₹25,000, ₹30,000, ₹35,000, ₹40,000If the discount rate is 10%, calculate and compare the NPV of both projects. (PVIF @ 10%: Year 1 = 0.909, Year 2 = 0.826, Year 3 = 0.751, Year 4 = 0.683)

8. Two projects – X and Y – require investments of ₹80,000 and ₹1,00,000 respectively. The present value of expected cash inflows from Project X is ₹95,000 and from Project Y is ₹1,10,000. Calculate the NPV and suggest which project should be selected.

Suggested Reading

1. I.M. Pandey, *Financial management* (12th ed.), Pearson
2. M Y Jain, P.K. Jain, *Financial Management Text, Problems and Cases* (8th ed.),, McGraw Hill
3. Brigham, E. F., & Houston, J. F. (2022). *Fundamentals of financial management* (17th ed.). Cengage Learning
4. Smith, K. V., & Begley, J. P. (2000). *Working capital management* (3rd ed.). Thomson Learning. (Note: This is an older but still relevant text for core concepts).

Reference

1. Ross, S. A., Westerfield, R. W., & Jaffe, J. F. (2022). *Corporate finance* (13th ed.). McGraw Hill.
2. Van Horne, J. C., & Wachowicz, J. M., Jr. (2021). *Fundamentals of financial management* (14th ed.). Pearson Education
3. Berk, J., & DeMarzo, P. (2020). *Corporate finance* (5th ed.). Pearson Education.
4. Hull, J. C. (2018). *Options, futures, and other derivatives* (10th ed.). Pearson Education.
5. Brealey, R. A., Myers, S. C., & Allen, F. (2020). *Principles of corporate finance* (13th ed.). McGraw Hill

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 3

Risk Analysis in Capital Budgeting

Learning Outcomes

After completing this unit, the learner will be able to:

- familiarise the concept of risk in capital budgeting decisions and the importance of incorporating risk analysis.
- apply different techniques such as Payback Period, Risk-Adjusted Discount Rate, and Certainty Equivalent Approach to evaluate risky projects.
- use advanced decision-making tools like Decision Tree Analysis and Utility Theory in capital budgeting under uncertainty.
- develop the ability to compare and select the most suitable capital budgeting techniques based on project risk and managerial preferences.

Background

Capital budgeting decisions are crucial for the long-term success of any business, as they involve committing substantial financial resources to projects that generate returns over time. Unlike routine financial decisions, capital budgeting is inherently risky because it deals with uncertain future cash flows, changes in market conditions, inflation, technological shifts, and competitive dynamics. Traditional evaluation methods such as Net Present Value (NPV) and Internal Rate of Return (IRR) assume certainty in cash flows, which often fails to capture the complexity of risk in real-world projects.

To address this challenge, various risk analysis techniques have been developed. Methods such as the Payback Period, Risk-Adjusted Discount Rate, and Certainty Equivalent Approach incorporate risk into project evaluation by adjusting expected returns. More sophisticated techniques like Sensitivity Analysis, DCF Break-Even Analysis, and Decision Tree Analysis provide detailed idea on the variability of outcomes and the impact of changing assumptions. Utility Theory further strengthens decision-making by considering the risk preferences of managers and investors.

This unit emphasizes the importance of integrating these risk analysis tools into capital budgeting to improve decision-making, minimize financial losses, and ensure that projects align with the organization's risk appetite and long-term strategic goals.

Keywords

Capital Budgeting, Risk Analysis, Sensitivity Analysis, Decision Tree Analysis, Utility Theory

Discussion

- Evaluating the uncertainties

Risk analysis in capital budgeting refers to the process of identifying, measuring, and evaluating the uncertainties associated with future cash flows of investment projects. Since capital budgeting decisions involve committing large amounts of money for a long period, the actual returns may differ from the expected returns due to changes in sales, costs, interest rates, inflation, competition, government policies, or economic conditions. Risk analysis helps managers to systematically study these uncertainties and assess how they may affect the profitability and viability of a project.

- Reduce the chances of financial loss

The main purpose of risk analysis is to reduce the chances of financial loss by making more informed decisions. Different techniques such as the Risk-Adjusted Discount Rate, Certainty Equivalent Approach, Sensitivity Analysis, DCF Break-Even Analysis, Decision Tree Analysis, and Utility Theory are used to incorporate risk into project evaluation. By applying these methods, managers can compare projects, understand their vulnerability to risk factors, and select the option that best fits the organization's risk appetite and strategic goals.

- Prioritizing potential risks

2.3.1 Risk Analysis in Capital Budgeting

Risk analysis is the process of identifying, assessing, and prioritizing potential risks that could negatively affect individuals, projects, businesses, or systems. It helps organizations to make informed decisions by understanding possible threats and evaluating the likelihood and impact of those threats.

In capital budgeting, risk analysis refers to the process of identifying and evaluating the uncertainties that may affect the expected returns of a proposed investment project. Since future cash flows are never certain, risk analysis helps managers to as-

sess the potential variability in returns and make better investment decisions.

Risk analysis in capital budgeting is the process of assessing the potential impact of various types of uncertainties (such as market fluctuations, cost overruns, demand changes, or regulatory issues) on a project's cash flows, profitability, and overall viability, in order to make informed investment choices. It is the systematic process used to identify and evaluate potential risks to operations, assets, individuals, or environments, and to determine the likelihood and consequences of these risks in order to develop effective mitigation strategies.

2.3.2 Methods of Risk Analysis in Capital Budgeting

Risk analysis is a vital part of capital budgeting. It enables decision-makers to understand the uncertainty surrounding investment projects and choose options that offer the best risk-return balance. By using tools like sensitivity analysis, scenario analysis, and risk-adjusted discount rates, businesses can make more rational, data-driven investment decisions and reduce the chances of costly errors.

2.3.2.1 Risk-Adjusted Discount Rate (RADR)

- Consider uncertainty of future cash flows

The Risk-Adjusted Discount Rate (RADR) is a method used in capital budgeting to take into account the uncertainty of future cash flows. In simple terms, when a project is risky, the expected future cash inflows are discounted at a higher rate to reflect the extra risk involved. The discount rate used here is not just the cost of capital but includes an additional risk premium. Thus, the formula can be expressed as: Risk-Adjusted Discount Rate = Normal Discount Rate + Risk Premium. By using a higher discount rate, the present value of risky projects is reduced, which prevents managers from being misled by seemingly attractive but uncertain cash flows.

- Risk premium for riskier projects

In capital budgeting, every project has a certain level of risk. The Risk-Adjusted Discount Rate (RADR) method adjusts the discount rate to reflect the risk level of a project. Projects with higher risk are evaluated using a higher discount rate, while low-risk projects use a lower rate. "Risk-Adjusted Discount Rate is the rate of return that a project must earn to compensate for its risk level, above the risk-free rate. It is used to discount future cash flows in capital budgeting decisions."

For example, suppose a company is considering two projects. Project A is relatively safe, such as expanding an existing product line, and is expected to generate ₹40,000 per year for four

years. Since the risk is low, the company may use only its cost of capital, say 10%, as the discount rate. The present value of cash inflows from Project A will be around ₹1,26,795, and after deducting the initial investment of ₹1,00,000, the Net Present Value (NPV) becomes ₹26,795. On the other hand, Project B is risky, such as launching a new technology, but also promises ₹40,000 per year for four years. Because of the higher risk, the company uses a discount rate of 15% (10% cost of capital + 5% risk premium). Here, the present value of cash inflows will be about ₹1,14,207, giving an NPV of only ₹14,207. Although both projects are profitable, the risky project appears less attractive after adjusting for risk.

This approach is simple and widely used in practice because it directly adjusts for risk in the discounting process. It also helps managers differentiate between safe and risky projects easily. However, its main limitation is that determining the appropriate risk premium is subjective and may vary across decision makers. Moreover, it assumes that risk can only be captured by increasing the discount rate, which may not always reflect the true nature of project risk. Despite these limitations, the Risk-Adjusted Discount Rate remains a practical and popular method for incorporating risk into capital budgeting decisions.

- Determining risk premium is subjective

Computation of risk adjusted discount rate (RADR)

The risk-adjusted discount rate (RADR) is computed by adding a project's risk premium to the risk-free rate of return, using the Capital Asset Pricing Model (CAPM) where the risk premium is calculated as the market rate of return minus the risk-free rate, multiplied by the investment's beta. The formula is: RADR = Risk-Free Rate + (Market Rate of Return - Risk-Free Rate) * Beta.

- Simple, widely used, directly adjusts for risk

Steps For Computing The RADR :

1. **Identify the Risk-Free Rate:**

This is the return on an investment with no risk, like a treasury bill.

2. **Determine the Market Rate of Return:**

This is the expected return from the overall market, such as a stock market index.

3. **Calculate Beta:**

Beta measures the investment's volatility relative to the market.

A beta of 1.0 means the investment's returns are expected to

move with the market.

A beta greater than 1.0 signifies higher volatility and risk than the market.

A beta less than 1.0 indicates lower volatility and risk.

4. Calculate the Risk Premium:

Multiply the beta by the difference between the market rate of return and the risk-free rate.

Risk Premium = (Market Rate of Return - Risk-Free Rate) * Beta .

5. Calculate the RADR:

Add the risk premium to the risk-free rate to get the final risk-adjusted discount rate.

RADR = Risk-Free Rate + Risk Premium .

Formula of RADR

$$RADR = Rf + Rp$$

Where:

Rf = Risk-free rate (e.g., return on government bonds)

Rp = Risk premium (extra return required for taking risk)

Example:

Consider a technology startup with the following: Risk-Free Rate: 3, Market Rate of Return: 10, and Beta: 1.5.

Risk-Free Rate: 3%

Market Rate of Return: 10%

Beta: 1.5

Risk Premium: (10% - 3%) * 1.5 = 7% * 1.5 = 10.5%

RADR: 3% + 10.5% = 13.5%

This means investors would require a 13.5% return for the startup investment to compensate for the time value of money and the higher risk compared to the overall market.

2.3.2.2 Certainty Equivalent Approach (CEA)

- Adjust cash inflows to reflect only the "certain" portion, then discount at risk-free rate

The Certainty Equivalent Approach (CEA) is another method used in capital budgeting to handle risk in investment decisions. Unlike the Risk-Adjusted Discount Rate, which increases the discount rate for risky projects, this method focuses on adjusting the cash inflows themselves to reflect the level of risk. In other words, instead of changing the discount rate, managers reduce the expected cash inflows to the amount they feel "certain" about receiving. These adjusted values, called certainty equivalents,

are then discounted using the risk-free rate of return (for example, government bond rate). By doing so, the method separates the adjustment for risk (through cash flows) from the time value of money (through discounting).

For example, suppose a project is expected to generate a cash inflow of ₹50,000 in the first year, ₹60,000 in the second year, and ₹70,000 in the third year. However, because future cash flows are uncertain, the manager applies certainty equivalent coefficients such as 0.9 for the first year, 0.8 for the second year, and 0.7 for the third year. This means the manager is confident of only 90% of the first-year inflow, 80% of the second-year inflow, and 70% of the third-year inflow. The adjusted cash inflows then become ₹45,000 (50,000 × 0.9), ₹48,000 (60,000 × 0.8), and ₹49,000 (70,000 × 0.7). These reduced values are then discounted at the risk-free rate, say 8%, to calculate the project's Net Present Value (NPV).

- Separates risk and time clearly; transparent

The main advantage of the Certainty Equivalent Approach is that it provides a more transparent way of dealing with risk, as it clearly shows how much of the expected cash flow is considered reliable. It also separates the concepts of risk and time, making the analysis more realistic. However, the limitation is that estimating certainty equivalent coefficients is highly subjective and may differ widely among managers. Despite this, the method is a useful and logical tool to evaluate projects under uncertainty, especially when managers have a clear idea about the reliability of expected cash inflows.

2.3.2.3 Sensitivity Analysis

Capital budgeting, the process of evaluating and selecting long-term investments, is a cornerstone of strategic financial management. However, the future is inherently uncertain. Projected cash flows, discount rates, and project lifespans are all subject to fluctuations, potentially rendering even the most meticulously planned projects unprofitable. This is where sensitivity analysis steps in, providing a crucial tool for understanding and mitigating risk.

- Change one variable at a time

Sensitivity Analysis is a technique used in capital budgeting to study how sensitive a project's results (like Net Present Value or Internal Rate of Return) are to changes in key assumptions. In real life, project outcomes depend on many uncertain factors such as sales volume, selling price, costs, or discount rate. Sensitivity analysis helps managers identify which of these variables has the most impact on project profitability. The method involves changing one factor at a time while keeping others constant, and then observing how the NPV or IRR changes. This helps in understanding the "critical variables" of a project and

prepares managers to handle uncertainties better.

For example, imagine a company evaluating a new product launch. The expected NPV of the project is ₹50,000 based on certain assumptions: sales of 10,000 units, selling price of ₹100 per unit, and cost of ₹70 per unit. Through sensitivity analysis, the manager may test how NPV changes if sales fall by 10%, or if the selling price drops to ₹95, or if the cost per unit increases to ₹75. If the analysis shows that even a small fall in sales volume turns NPV negative, it means the project is highly sensitive to sales and management must be cautious. On the other hand, if costs increase slightly and NPV remains positive, the project is less sensitive to cost changes.

- Identifies critical variables

The strength of Sensitivity Analysis is that it highlights the variables that matter the most in project evaluation, allowing managers to focus their attention on monitoring and controlling them. It also gives a range of possible outcomes rather than a single figure, which helps in better risk assessment. However, one major limitation is that it changes only one variable at a time, while in reality, many variables may change simultaneously. Despite this drawback, Sensitivity Analysis remains a simple and practical tool to measure risk in capital budgeting decisions.

2.3.2.4 Break-Even Analysis

- Find minimum sales/output needed to make NPV = 0

Break-Even Analysis (Discounted Cash Flow Break-Even Analysis) is a method used in capital budgeting to find the minimum level of output or sales that a project must achieve so that its Net Present Value (NPV) becomes zero. In other words, it identifies the point where the present value of inflows is exactly equal to the initial investment, after considering the time value of money. This helps managers understand how much flexibility the project has and the minimum performance required to avoid losses. It is different from simple accounting break-even analysis because it uses discounted cash flows rather than just revenues and costs.

For example, consider a project requiring an investment of ₹2,00,000 with an expected life of 4 years. Suppose the discount rate is 10%. If the project generates cash inflows of ₹70,000 each year, the present value of inflows is about ₹2,21,000, making the NPV positive at ₹21,000. Now, to find the break-even point, we reduce the annual cash inflows until the NPV becomes zero. In this case, the annual inflow that makes the NPV exactly zero is around ₹63,300. This means the project must generate at least this amount per year to be considered financially viable. If the actual inflows fall below this figure, the project will not cover its cost of capital.

The advantage of Break-Even Analysis is that it clearly shows

- Considers time value of money

the minimum performance level required for success and considers both risk and time value of money. It helps managers to plan realistically and set performance benchmarks. However, a drawback is that it assumes other factors remain constant, and it does not show the probability of achieving the break-even level. Still, it is a valuable tool in capital budgeting to test the financial strength and resilience of a project under uncertainty.

2.3.5 Decision Tree Analysis

- Diagram represents decision nodes

Decision Tree Analysis is a technique used in capital budgeting to evaluate projects that involve a series of decisions under uncertainty. Many investment projects are not decided in a single step; instead, managers face choices at different stages, and each choice can lead to different possible outcomes. A decision tree is a diagram that represents these choices (decision nodes) and their possible results (chance nodes). By assigning probabilities to each possible outcome and calculating the expected values, managers can determine the best decision path to follow. This method is especially useful for projects with sequential decisions, such as research and development, product launches, or expansion strategies.

- Represent sequential decisions and uncertain outcomes with probabilities.

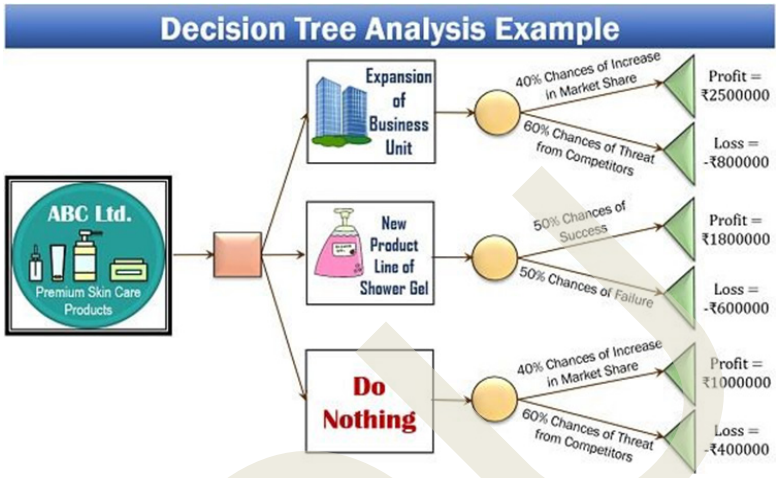
A decision tree is a diagram that shows the sequence of decisions and events that affect the cash flows and risks of a project. Each node of the tree represents a decision point or an uncertain event, and each branch represents a possible outcome or action. The end nodes of the tree show the expected value or net present value of the project under different scenarios. A decision tree can help managers visualize the trade-offs and uncertainties involved in a project, and compare different alternatives based on their expected values and probabilities.

- Visual, structured, handles multi-stage decisions

For example, imagine a company considering whether to launch a new product. The first decision is whether to spend ₹50,000 on a market survey. If the survey predicts high demand, there is an 80% chance the product will succeed, giving a payoff of ₹2,00,000, and a 20% chance it will fail, resulting in only ₹20,000. If the survey predicts low demand, the company may decide to abandon the project, saving further losses. By drawing a decision tree, assigning probabilities to each branch, and calculating the expected monetary value (EMV) of each decision, the company can compare the options. If the expected value of going ahead after the survey is greater than the expected value of not doing the survey, then conducting the survey is the better choice.

The main advantage of Decision Tree Analysis is that it provides a clear, visual representation of complex decisions and incorporates both risks and rewards. It also allows managers to

consider future choices in advance and plan accordingly. However, its limitation is that it relies heavily on accurate probability estimates, which may be difficult to determine in practice. Despite this, Decision Tree Analysis is a powerful tool for making structured, logical, and risk-informed investment decisions.



In the above decision tree, we can easily make out that the company can expand its existing unit or innovate a new product, i.e., shower gel or make no changes.

Given below is the evaluation of each of these alternatives:

Expansion of Business Unit

If the company invests in the development of its business unit, there can be two possibilities, i.e:

- 40% possibility that the market share will hike, increasing the overall profitability of the company by ₹2500000;
- 60% possibility that the competitors would take over the market share and the company may incur a loss of ₹800000.

To find out the viability of this option, let us compute its EMV (Expected Monetary Value):

$$EMV = (\frac{40}{100} X\ 2500000) + (\frac{60}{100} X - 800000)$$

EMV = 1000000 -480000

= 520000

New Product Line of Shower Gel:

If the organization go for new product development, there can be following two possibilities:

- 50% chances are that the project would be successful and yield ₹1800000 as profit;
- 50% possibility of failure persists, leading to a loss of ₹800000.

To determine the profitability of this idea, let us evaluate its EMV:

$$EMV = (\frac{50}{100} X\ 1800000) + (\frac{50}{100} X - 600000)$$

$$= 900000 - 300000$$

$$= 600000$$

Do Nothing:

If the company does not take any step, still there can be two outcomes, discussed below:

- 40% chances are there that yet, the organization can attract new customers, generating a profit of ₹1000000;
- 60% chances of failure are there due to the new competitors, incurring a loss of ₹400000.

Given below is the EMV in such circumstances:

$$EMV = (\frac{40}{100} X\ 1000000) + (\frac{60}{100} X - 400000)$$

$$= 400000 - 240000$$

$$= 160000$$

From the above evaluation, we can easily make out that the option of a new product line has the highest EMV. Therefore, we can say that the company can avail this opportunity to make the highest gain by ensuring the best possible use of its resources.

2.3.6 Utility Theory in Capital Budgeting

- Considers risk preferences

Utility Theory in Capital Budgeting is an approach that considers the attitude of decision makers toward risk when evaluating investment projects. Traditional methods like Net Present Value (NPV) and Internal Rate of Return (IRR) assume that managers or investors are always rational and risk-neutral, meaning they only focus on maximizing monetary returns. However, in reality, different people view risk differently: some are risk-averse (prefer safety), some are risk-seeking (willing to take chances), and some are risk-neutral (indifferent to risk). Utility theory adjusts project evaluation to reflect these preferences by converting uncertain monetary outcomes into utility values, which measure the level of satisfaction or usefulness an investor gets from different outcomes. This helps in making decisions that align with the organization's or investor's risk appetite.

For example, suppose two projects each have an expected return of ₹1,00,000. Project A offers a guaranteed return of ₹1,00,000, while Project B offers a 50% chance of earning ₹2,00,000 and a 50% chance of earning nothing. Although both projects have the same expected monetary value (₹1,00,000), a

risk-averse manager may prefer Project A because the guaranteed return provides higher utility (peace of mind). On the other hand, a risk-seeking manager might prefer Project B because of the excitement of a higher payoff. By applying a utility function, managers can assign values to different outcomes and select the project that maximizes overall utility rather than just financial value.

The strength of Utility Theory is that it incorporates human behavior and psychological attitudes toward risk into financial decision-making, making it more realistic than purely mathematical methods. It also helps organizations to align investment decisions with their long-term risk strategy. However, the limitation is that defining and quantifying utility functions can be subjective and difficult in practice. Despite this, Utility Theory adds a valuable behavioural perspective to capital budgeting and helps managers to choose projects that not only make financial sense but also match their tolerance for risk.

- Incorporates human behavior

Summarised Overview

Risk analysis in capital budgeting is essential because future cash flows are uncertain and projects carry varying degrees of risk. Different techniques help managers to incorporate this uncertainty into decision-making. The Risk-Adjusted Discount Rate increases the discount rate to penalize risky projects, while the Certainty Equivalent Approach reduces cash inflows to reflect the portion considered reliable. Sensitivity Analysis and DCF Break-Even Analysis test how changes in assumptions affect project outcomes and identify critical variables. Decision Tree Analysis is useful for projects involving sequential decisions and multiple possible outcomes, while Utility Theory incorporates the risk preferences of managers or investors. Together, these methods provide a comprehensive toolkit for making informed and balanced investment decisions under risk.

Self-Assessment Question

1. What is meant by Risk-Adjusted Discount Rate (RADR) and how is it calculated?
2. How does the Certainty Equivalent Approach differ from the RADR method?
3. In what way does Sensitivity Analysis help managers identify critical variables in capital budgeting?
4. Explain the significance of DCF Break-Even Analysis in project evaluation.
5. How does Decision Tree Analysis incorporate probabilities into capital budgeting decisions?

6. What role does Utility Theory play in considering human behavior in investment decisions?

7. List two major advantages and limitations of using risk analysis techniques in capital budgeting.

Assignments

1. Compare and contrast Risk-Adjusted Discount Rate and Certainty Equivalent Approach with suitable numerical examples.

2. "Sensitivity Analysis is useful for highlighting risk but not for measuring it." Discuss with examples.

3. Explain how DCF Break-Even Analysis can be used by managers to assess the financial resilience of a project.

4. Prepare a decision tree for a project that involves two stages of decision-making (e.g., initial survey followed by product launch) and evaluate it.

5. Critically evaluate the importance of incorporating risk preferences through Utility Theory in capital budgeting decisions.

Suggested Reading

1. I.M. Pandey, *Financial management* (12th ed.), Pearson

2. M Y Jain , P.K. Jain, *Financial Management Text, Problems and Cases* (8th ed.),, McGraw Hill

3. Brigham, E. F., & Houston, J. F. (2022). *Fundamentals of financial management* (17th ed.). Cengage Learning

4. Smith, K. V., & Begley, J. P. (2000). *Working capital management* (3rd ed.). Thomson Learning. (Note: This is an older but still relevant text for core concepts).

Reference

1. Ross, S. A., Westerfield, R. W., & Jaffe, J. F. (2022). *Corporate finance* (13th ed.). McGraw Hill.

2. Van Horne, J. C., & Wachowicz, J. M., Jr. (2021). *Fundamentals of financial*

management (14th ed.). Pearson Education

3. Berk, J., & DeMarzo, P. (2020). *Corporate finance* (5th ed.). Pearson Education.
4. Hull, J. C. (2018). *Options, futures, and other derivatives* (10th ed.). Pearson Education.
5. Brealey, R. A., Myers, S. C., & Allen, F. (2020). *Principles of corporate finance* (13th ed.). McGraw Hill

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

03 BLOCK

Capital Structure Theories and Cost Of Capital

Block Content

Unit 1

Theories of capital structure

Learning Outcomes

After completing this learner will be able to,

- Aware of the significance of capital structure
- Explain the concept of optimum capital structure
- Introduce the risks affecting the capital structure
- Familiarise different capital structure theories

Background

A few years ago, Tata Motors, a well-known automobile company in India, had to make an important decision when it planned to launch new electric vehicles. The company needed a lot of money to spend on research, development, and making the cars. It had two main options: either raise money by selling more shares (equity) or borrow money (debt). The finance team looked at both options carefully. Selling more shares would reduce the control of existing owners but would be less risky because there are no fixed payments. Borrowing money could give tax benefits and higher returns, but it also brings the risk of trouble if sales fall. This situation is a good example of capital structure theories, which help companies decide the best mix of debt and equity. Businesses need to think wisely about how they raise funds, and that's what these theories help us understand.

Keywords

capital structure, Optimum capital structure, financial risk, NEDC risk, relevance theories, irrelevance theories

Discussion

Every business requires funds to survive, grow, and succeed. From start to finish, finance plays a crucial role in the smooth operation of a company. If a business lacks sufficient funds, it may struggle to operate effectively. Even if money is available but not utilised wisely, the company may encounter serious problems. That is why it is important to estimate how much money a company needs and plan how this money will be raised. This brings us to the concept of Capital Structure, a strategic combination of various sources such as equity shares, preference shares, and loans, which together form the backbone of a company's finances. A well-planned capital structure enables a business to operate without stress and supports long-term growth. Understanding capital structure is the first step towards making robust financial decisions. Estimating capital requirements is necessary, but forming a capital structure is equally important. According to Gerestenberg, "Capital structure of a company refers to the composition or make-up of its capitalisation and it includes all long-term capital resources viz: loans, reserves, shares and bonds."

- Capatalisation

Capital structure refers to the mix of debt and equity that a company uses to finance its operations. For example, suppose Dhruvin Ltd. needs ₹10 lakhs to expand its business. It decides to raise ₹6 lakhs through equity (owners' funds) and ₹4 lakhs through debt (bank loans). This means its capital structure consists of 60% equity and 40% debt. A higher equity portion reduces financial risk but may dilute ownership, while debt offers tax advantages but increases repayment obligations. Thus, Dhruvin Ltd.'s capital structure reflects a balanced approach to funding, combining both ownership and borrowed funds.

- Combination of debt and equity

It is the way a company finances its overall operations and growth by using different sources of funds. It mainly includes equity (owner's funds) and debt (borrowed funds). A well-planned capital structure helps a business balance risk and return, reduce the cost of capital, and improve financial stability. Choosing the right mix of debt and equity depends on factors like business size, profitability, industry type, and market conditions. The main goal is to maximize the value of the company while maintaining financial flexibility.

In the words of C W Gerstenberg, " Capital structure refers to the kind of securities that makeup capitalization". R. H. Wessel says, "The term capital structure is frequently used to indicate the long term sources of funds employed in a business".

In short , capital structure means the proportion of debt and

equity in the total capital of a company. It involves decision with respect to (a) the type of securities to be issued and (b) the relative proportion of each type of security.

The capital structure of a new company may consist of any of the following forms:

a. Equity Shares only
b. Equity and Preferences Shares
c. Equity Shares and Debentures
d. Equity Shares, Preferences Shares and Debentures.

3.1.1 Significance of capital structure

Capital structure is the mix of long-term sources of finance a company uses, such as equity shares, preference shares, and loans (debt). It plays an important role in deciding how a business should fund its activities and growth. A good balance between debt and equity helps a company reduce its cost of capital and improve returns to shareholders. When a company uses borrowed funds like loans or debentures, it has to pay fixed interest, but if the business earns more than the cost of debt, the remaining profit goes to the owners, increasing their return. This is called financial leverage. For example, if a company needs ₹1,00,000 for expansion, it can either issue new shares or take a loan at 10% interest. If the company expects to earn ₹60,000, using a loan is better because it pays only ₹10,000 as interest and keeps ₹50,000 profit for equity shareholders, resulting in higher earnings per share. Thus, the capital structure affects how much profit is available for owners and helps in making smart financial decisions. Thus the significance of capital structure may be understood from the following ponts :

- Higher EPS

A good capital structure minimizes the financial risk assumed by the company.

1. A sound capital structure avoids over or under capitalization.
2. A good capital structure maximizes the value of the firm.
3. A sound capital structure minimizes the cost of capital.
4. A sound capital structure helps to determine the required rate of return from the investment.

Capital structure is highly significant for every business as it directly influences the financial strength, stability, and profitability of a firm. It refers to the combination of long-term sources of

funds, mainly equity capital, preference shares, and debt (such as loans or debentures), used to finance business operations and assets. An ideal capital structure ensures a proper balance between these sources, helping the company achieve its financial goals while minimizing the cost of capital. Suppose XYZ Ltd. wants to raise ₹10 lakhs to start a new project. It decides to raise ₹6 lakhs through equity and ₹4 lakhs through a bank loan. The expected return demanded by equity investors is 12%, and the interest rate on the bank loan is 8%. To calculate the overall cost of capital, the company needs to take a weighted average of both sources. So, the cost of equity is ₹6 lakhs × 12% = ₹72,000, and the cost of debt is ₹4 lakhs × 8% = ₹32,000. Adding both gives a total annual cost of ₹1,04,000. Now, dividing this by the total capital (₹10 lakhs), the overall cost of capital is 10.4%. This means the company must earn more than 10.4% on the project to make it worthwhile and profitable. If the project earns less than this, it would not add value to the business.

- Minimise cost of capital

As discussed above the capital structure decision significantly influence the value of a through earnings and cost of capital. All firms aimed to create a capital structure that maximises earnings and minimises the cost of capital. There arises the relevance of optimum capital structure.

3.1.2 Optimum capital structure

A capital structure is the mix of a company's own money (equity) and borrowed money (debt). The right combination of debt and equity helps the company increase its value and reduce the total cost of raising funds. This structure should also be flexible so the company can adjust it when needed.

- Maximise value minimise cost

Optimum Capital structure simply refers to the best or most economical capital structure . It is the mix of debt or equity that maximizes the value of the company and minimizes the cost of capital. It is the capital structure at which the weighted average cost of capital is minimum and the value of the firm is maximum. In the words of Ezra, “Optimum leverage is that mix of debt and equity which will maximize the market value of the company and minimize the company’s overall cost of capital”.

The best or "optimum" capital structure balances two types of risks. So, in an optimum capital structure, there are two main risks to manage:

1. Financial risk
2. NEDC risk (non-employment of debt capital risk)

3.1.2.1 Financial risk

Financial risk refers to the variability in return due to the

change in the pattern of capital structure. It is the risk on account of debt or fixed-interest securities. If no debt finances no financial risk. For example, consider two companies Company A and Company B. Both earn a profit of ₹10 lakhs annually. Company A is fully financed by equity, while Company B has taken a loan of ₹20 lakhs at 10% interest. When business conditions are stable, both companies earn well. However, if profits fall to ₹5 lakhs due to market slowdown, Company A is not affected much because it has no fixed interest obligations. But Company B still has to pay ₹2 lakhs as interest on its loan, leaving only ₹3 lakhs for equity shareholders. This creates variability in returns for Company B's shareholders due to the presence of debt. This extra risk caused by using debt is called financial risk. If a company uses only equity (no debt), there is no financial risk. But when fixed-interest debt is involved, changes in profit levels can significantly affect the returns to shareholders, increasing financial risk.

- Risk of debt funds

3.1.2.2 NEDC Risk

Risk arose due to the non-employment of debt capital, because of the following reasons:

1. The cost of debt is lower than the cost of equity.
2. The cost of flotation of debt is lower than the cost of equity.
3. Loss of tax benefit.

For example, if a company like ABC Ltd. raises ₹10 lakhs entirely through equity, it may miss out on important financial advantages. Firstly, the cost of debt is usually lower than the cost of equity because lenders accept a lower return compared to equity shareholders. Secondly, the cost of raising debt (like interest and processing fees) is generally cheaper than the cost of issuing equity, which involves higher flotation costs such as legal fees, underwriting, and documentation. Thirdly, debt offers a tax benefit because the interest paid on loans is tax-deductible, which helps reduce the company's taxable income. By relying only on equity, ABC Ltd. loses these benefits, making its capital costlier and less efficient. Therefore, while avoiding debt may seem safe, it can also create a risk in the form of higher expenses and lower profitability.

- non-employment of debt capital

If Debt capital increases, NEDC decrease
If debt capital decreases, NEDC increases

The firm has to reach a balance between financial risk and

NEDC risk to increase the market value of the firm. These two risks need to be balanced carefully, which is called a risk-return trade-off. If the company makes the right decision and maintains a proper balance between debt and equity, it can improve profitability and increase the market value of the firm.

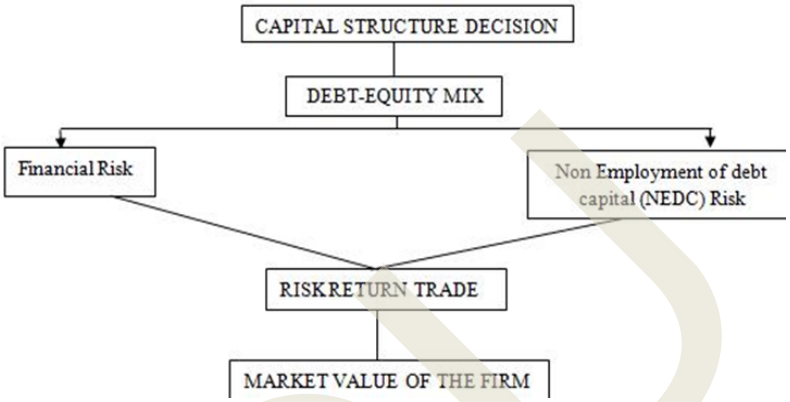


Figure 3.1.1 Optimum Capital Structure

- Optimum capital structure

Once the concept of optimal capital structure is understood, it becomes essential to study the theories that explain how different combinations of debt and equity influence the value of a firm. These theories help in understanding whether capital structure matters in financial decision-making. They also guide firms in selecting the most suitable financing pattern to achieve their financial goals. The major theories of capital structure are discussed below.

3.2.3 Theories of capital structure

- Relation ship between firm value and capital structure

Theories of capital structure explain the relationship between a firm's capital structure, its cost of capital, and the overall value of the firm. These theories help us understand whether changes in the mix of debt and equity affect a company's value and, if so, how. They provide a framework for making better financing decisions by analyzing the benefits and risks of using debt or equity. Each theory presents a different view on the impact of capital structure on firm value and cost of capital. The most important capital structure theories are as follows:

1. Net Income (NI) Approach
2. Net Operating Income (NOI) Approach
3. Traditional Approach
4. Modigliani and Miller (MM) Approach

To properly understand the elements of capital structure, the value of the firm, or the cost of capital controversy, we make the

following assumptions:

- Firms use only two types of capital: debt and equity.
- The total assets of the firm are fixed. However, the leverage (debt-equity mix) can be changed by either:
  - selling debt to buy back shares, or
  - selling shares to pay off debt.
- All investors have the same beliefs (subjective probability distributions) about the firm's expected future operating earnings.
- The firm follows a policy of paying 100% of its earnings as dividends.
- The firm's operating earnings are expected to remain constant—they will not grow over time.
- The business risk stays constant and does not depend on the capital structure or financial risk.
- There are no corporate or personal income taxes (though this assumption will be reconsidered later).

1. Net Income Approach

- Relevance

This theory was contributed by David Durand. This theory States that a firm can Minimise the weighted average cost of capital and increase the value of a firm as well as the market price of equity shares by using debt financing to the maximum possible extent. This approach is based on the following assumptions.

- Cost of debt is less than the cost of equity.
- There are no taxes.
- Risk perception remains constant.

Increase the value of the firm and reduce the overall cost of capital by increasing the proportion of debt in the capital structure. Arguments in favour of the net income approach are as follows:

- Debt capital is a cheaper source of capital as compared to equity capital
- Lower flotation cost for debt capital.
- Tax benefit as compared to equity capital.

So, debt capital reduces the overall cost of capital and maximises the value of the firm. The optimum capital structure ac-

cording to this approach is employing debt capital to the maximum possible extent.

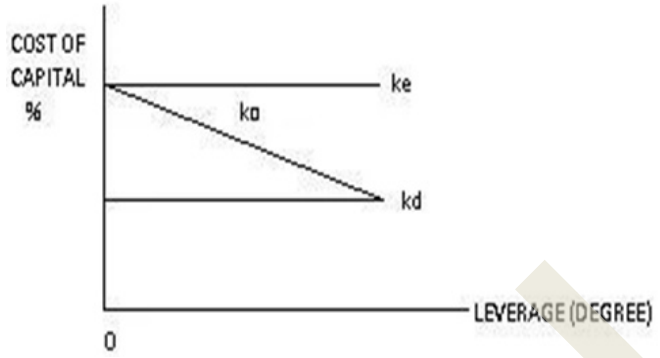


Figure 3.1.2 -Net income approach

The figure3.1.2 shows that both the cost of debt (k_e) and cost of equity (k_d) remain constant at all levels of leverage (i.e., at all levels of debt financing). As the debt proportion increases, the WACC (Weighted Average Cost of Capital K_o) goes down, because k_d is lower than k_e. This leads to an increase in the firm's value. The figure also shows that as debt increases, WACC moves closer to k_d, but it never becomes equal to k_d, because a firm can't be financed by 100% debt and must have some equity. On the other hand, if the firm is financed by 100% equity, then WACC equals k_e. The rate at which WACC decreases depends on the difference between k_d and k_e.

- Debt financing

According to the Net Income (NI) approach, a firm achieves its maximum value when WACC is at its minimum. By carefully balancing debt and equity, a firm can reach an optimal capital structure at the point where WACC is lowest and the value of the firm is highest.

2. Net operating income approach

This theory is also suggested by David Durand as the exact opposite of the Net income approach. This theory states that capital structure is irrelevant to the value of a firm. There is no relationship between capital structure change and the value of a firm. The overall cost of capital remains constant irrespective of the method of financing. It implies that the overall cost of capital remains constant or the same whether the debt-equity mix is 50:50 or 20:80 or 0:100. there is nothing as an optimum capital structure every capital structure is optimum capital structure according to this approach.

- Irrelevance

Arguments in favour of this approach are that the use of more debt capital will increase the financial risk of equity shareholders and thereby they demand higher returns and lead to an increase in the cost of equity capital. So, the advantage of using debt cap-

ital will be offset by increasing the cost equity.

This theory assumes that:

- Business risk remains constant at every level of debt equity mix.
- The market capitalises the value of the firm as a whole.
- There is no corporate tax.

- Irrelevant

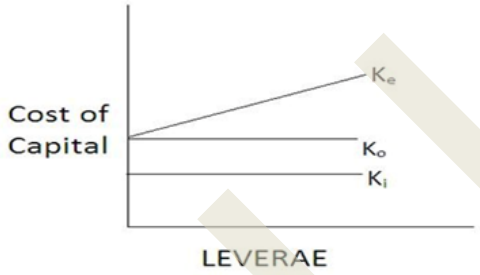


Figure 3.1.3 Net Operating Income Approach

Figure 3.2.3 explains the relationship between leverage (use of debt) and the cost of capital under the Net Operating Income (NOI) approach. The vertical axis represents the cost of capital, while the horizontal axis shows leverage. As leverage increases, the cost of equity (K_e) rises because equity holders demand a higher return due to increased financial risk. However, the cost of debt (K_i) remains constant, assuming the firm can borrow at a fixed rate regardless of its debt level. The overall cost of capital (K_o), or WACC, also remains constant across different levels of leverage. According to the NOI approach, this means that changes in the capital structure (mix of debt and equity) do not affect the firm's overall cost of capital or its total value. In simple terms, no matter how much debt or equity a firm uses, the value of the firm stays the same.

3. Traditional approach

The Traditional Approach to Capital Structure, also known as the Intermediate Approach, is contributed by **Ezra Solomon** and lies between two extreme theories: the Net Income Approach and the Net Operating Income Approach. This theory suggests that a company can increase its value and reduce its overall cost of capital by choosing the right mix of debt (borrowed money) and equity (owner's money). Debt is generally cheaper than equity because companies pay lower interest rates on loans, and they can deduct interest payments from their taxable income. Therefore, in the early stages, incorporating some debt into the capital structure helps lower the average cost of capital and enhances the firm's value. But, if the company continues to borrow more, it faces higher financial risk. There is a greater chance

- The right combination of debt and equity

that the company might struggle to repay its loans. This uncertainty makes equity investors feel less secure, leading them to demand higher returns to compensate for the extra risk. Eventually, a point is reached where the benefit of cheap debt is offset by the rising cost of equity, and sometimes even the cost of debt increases as lenders perceive the company as risky. Beyond this point, adding more debt causes the overall cost of capital to rise and the value of the company to decline.

Imagine DKV Ltd, a company that produces organic fruit products, requires ₹10 crore to expand its business. It has three options for raising the funds. In the first option, it uses only its own capital (all equity). This means there are no loans to repay, resulting in no financial risk. However, this approach can be costly as the owners expect high returns, making the total cost of capital around 14%. In the second option, the company employs ₹5 crore as equity and ₹5 crore as a loan (debt). The loan attracts a lower interest rate of 8%, thus reducing the average cost of capital to 11%. The financial risk remains low, allowing the company to save money. This represents the best or optimal capital structure. In the third option, DKV Ltd borrows ₹8 crore and utilises just ₹2 crore of its own funds. As the debt level is quite high, both lenders and investors become cautious, demanding higher interest rates and returns. Consequently, the cost of capital rises to 13%, and the company's value begins to decline. This example illustrates that while incorporating some debt can be beneficial, excessive borrowing can elevate risk and diminish the company's value.

4. Modigliani and Miller Approach

The M&M approach is a theory about how a business's value is affected by its capital structure (the mix of debt and equity used for funding). This theory is mainly based on the idea that the value of a firm does not depend on how it is financed, whether by debt or equity if certain conditions are met.

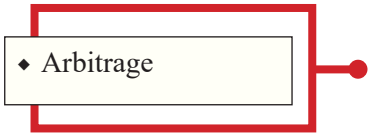
a. If there is no corporate tax

- Theory of Irrelevance

According to Modigliani and Miller, when there are no corporate taxes, exactly the same as the net operating income approach. That means, changing the debt-to-equity ratio does not affect the total value of the firm or its overall cost of capital. Even though debt is cheaper than equity, using more debt increases financial risk. Because of this, equity shareholders will demand higher returns to take on the extra risk. So, the savings from cheaper debt are cancelled out by the higher cost of equity. In the end, the overall cost of capital stays the same, and the firm's value remains unchanged, also said that if two firms are the same

in every way except for how they are financed, they should have the same value in the market. If they don't, investors will notice the difference and shift their investments (this is called arbitrage). For example, they will invest in a firm that gives them better returns with less cost. This will balance things out again, and both firms will end up with the same value.

Imagine there are two companies. Company A is fully funded by equity, meaning it uses only the owners' money. Company B, on the other hand, uses a mix of equity and some debt, like loans. Both companies have the same level of profits, do the same type of business, and have similar growth in the future. Although Company B uses debt, which is cheaper than equity, it also comes with more risk. Because of this higher risk, the shareholders of Company B expect a higher return. This increase in expected return balances out the lower cost of debt, so in the end, the overall cost of capital is the same for both companies. Now, if Company A is priced higher in the market than Company B, smart investors will notice the difference. They will start selling their shares in Company A and buying shares in Company B to earn better returns. This movement of investors will slowly balance the market prices, and both companies will end up having the same value. This adjustment process is known as arbitrage.



b. If there is corporate tax

When there is corporate tax, this theory is identical to the Net income approach. Modigliani and Miller later revised their theory in 1963 to include the effect of corporate taxes. They explained that when companies take loans, the interest they pay can be deducted from their profits before paying tax. This reduces the amount of tax the company has to pay, which increases its total value. For example, imagine two similar companies, Green Farm Ltd. and Healthy Harvest Ltd. Both earn ₹1 crore as profit before interest and tax. Green Farm doesn't take any loans, so it pays tax on the full ₹1 crore, say 30%, which comes to ₹30 lakh. But Healthy Harvest has taken a loan and pays ₹20 lakh in interest. It only pays tax on ₹80 lakh (₹1 crore minus ₹20 lakh), which comes to ₹24 lakh. So, Healthy Harvest saves ₹6 lakh in tax just because it uses debt. According to M&M, this tax saving increases the value of the company. The more debt a company uses (carefully), the more tax it can save, and the higher its value becomes. So, the capital structure becomes relevant.

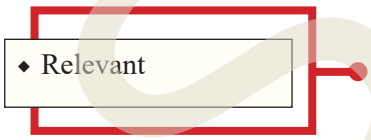


Figure 3.1.4

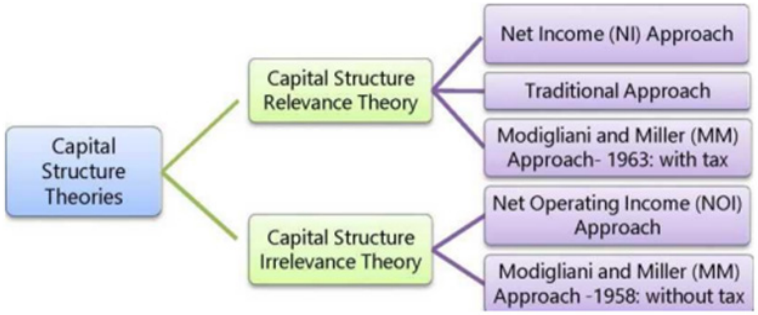


Figure 3.1.4 presents the classification of capital structure theories into two main categories:

- Capital Structure Relevance Theory and
- Capital Structure Irrelevance Theory.

- Relevance of optimum capital structure

The relevance theories propose that a firm's value can be affected by its capital structure that is, the proportion of debt and equity it employs. This group includes the Net Income (NI) Approach, which suggests that increasing debt reduces the overall cost of capital and thereby enhances the value of the firm; the Traditional Approach, which holds that there is an optimal combination of debt and equity that minimises cost and maximizes value; and the Modigliani and Miller (MM) Approach of 1963, which considers corporate taxation and supports the view that debt usage provides tax advantages, ultimately increasing firm value.

- irrelevance of Optimum capital structure

Conversely, the irrelevance theories argue that capital structure does not affect a firm's value. These include the Net Operating Income (NOI) Approach, which assumes that the overall cost of capital remains unchanged regardless of the debt-equity ratio; and the Modigliani and Miller (MM) Approach of 1958, which is based on ideal market conditions without taxes and concludes that financing choices do not influence the value of the firm. Put simply, the relevance theories regard capital structure decisions as significant, whereas the irrelevance theories maintain that such decisions have no impact on the firm's overall value.

Summarised Overview

Capital structure refers to the way a company finances its operations through a mix of debt and equity. Making the right capital structure decision is important because it affects the company's cost of capital and overall value. The goal is to find the optimum capital

structure, the best mix of debt and equity that keeps the cost low and firm value high. Different capital structure theories explain how this mix affects the company. The Net Income (NI) Approach says more debt increases value, while the Net Operating Income (NOI) Approach says the mix doesn't matter. The Modigliani and Miller (MM) Approach also says capital structure is irrelevant without taxes, but when taxes are included, using debt can increase value due to tax savings. These theories are based on different assumptions, such as no taxes, no bankruptcy costs, and perfect markets.

Self-Assessment Question

1. Explain the significance of capital structure decisions
2. What is the optimum capital structure?
3. Essay on two types of risks that are taken into consideration while making capital structure decisions.
4. Short note on relevance theories of capital structure
5. Explain the Net Operating Income (NOI) Approach. Why does it argue that capital structure is irrelevant?
6. Short note on differentiate between the NI Approach and the NOI Approach.
7. Describe the Traditional Approach to capital structure. How does it differ from NI and NOI approaches?
8. State and explain the Modigliani-Miller (MM) theory of capital structure in a no-tax world.

Assignments

1. Discuss the major theories of capital structure. Critically examine the assumptions, implications, and practical relevance of each theory."
2. Select a listed company from the Indian stock market. Analyze its capital structure using the lens of Modigliani-Miller theory. Does it support or contradict the theory? Justify with data.
3. Choose two companies in the same industry one with high debt and one with low debt. Compare their financial performance and discuss which capital structure theory best explains their strategy.

4. Conduct a case study of a company that underwent financial distress due to poor capital structure decisions. Identify the mistakes and suggest what theory could have helped avoid them.

5. Assume you are a financial consultant. A startup approaches you for advice on choosing between equity and debt financing. Prepare a report using the traditional approach and NI/NOI theories.

Suggested Reading

1. Brigham, E. F., & Ehrhardt, M. C. (2021). *Financial management: Theory and practice* (15th ed.). Cengage Learning.

2. Jaggi, B., & Kaur, P. (2016). *Financial management: Theory and practice* (1st ed.). Tata McGraw-Hill Education.

3. Pandy, I. M. (2014). *Financial management* (11th ed.). Vikas Publishing.

4. Singh, J. K. (2017). *Financial management: Principles and practice* (1st ed.). Himalaya Publishing House.

Reference

1. Chandra, P. (2019). *Financial Management: Theory and Practice* (Xth ed.). McGraw-Hill Education.

2. Gupta, S. K. (2018r). *Financial Management: Theory and practice*. Kalyani publishers.

3. Khan, M. Y. (2012). *Financial Management: Text, Problems, and Cases* (Xth ed.). Tata McGraw-Hill Education.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 2

Leverage

Learning Outcomes

After completing this unit learner will be able to

- comprehend the concept of financial leverage
- familiarise the operating leverage
- get an idea about combined leverage
- evaluate different approaches to establish target capital structure

Background

Have you ever wondered how big companies like Tata Motors or Infosys decide where to get money for expanding their business? Should they borrow from banks, or raise money from shareholders? These decisions are not made by chance. Companies carefully study concepts like financial leverage, operating leverage, combined leverage, EBIT-EPS analysis, valuation approach, and leverage analysis to make the best choice. These tools help a business understand the risk of taking loans, the effect of fixed costs, and the impact on profits and returns to owners. A wrong decision can make a company weak or even lead to failure, while the right decision can help it grow and succeed in the long term. This unit will teach you how companies plan their capital structure wisely and balance risk and return for safe and profitable growth. Understanding these ideas is not just important for big businesses it is also useful for anyone who wants to run or manage a business in the future.

Keywords

Financial Leverage, Operating Leverage, Combined Leverage-, EBIT-EPSAnalysis-Valuation approach, Leverage Analysis

Discussion

- Use fixed cost to generate additional revenue

Imagine trying to lift a large stone. It might be impossible with just your hands, but if you use a long stick and strong support (a fulcrum), you can lift it more easily. That's leverage in action. In business, the concept of leverage works similarly. Just like a tool helps us lift heavy objects, certain financial strategies help a business increase its profits, even without increasing its resources. In simple terms, leverage enables a company to utilise borrowed money or fixed costs to generate additional returns for its owners, particularly equity shareholders.

Generally the term leverage means the relationship between two inter related variables. These variables may be cost, output, sales revenue, EBIT, EPS etc. Leverage refers to the percentage change in one variable corresponding to percentage change in the other variable. In Financial management, it means that by use of certain fixed costs, the firm increases manifold or levers upits profitability. It implies the ability of a firm to use fixed cost assets or funds in order to increase the returns to its shareholders.

According to financial expert James Horne, leverage is "the use of an asset or source of funds that involves a fixed cost or return." This means that whether the company sells more or less, it still has to pay certain costs like rent or interest on loans. These fixed costs can help boost the company's profits if used wisely. But just like the seesaw, if balance is lost, things can go wrong too. That's why higher leverage can lead to both higher gains and higher risks.

There are mainly two types of leverage:

- **Operating Leverage** – linked to using fixed costs in day-to-day business operations (like salaries or machinery).
- **Financial Leverage** – linked to using borrowed money or funds that need a fixed return (like loans or bonds).

Some companies also look at composite leverage, which shows the combined effect of both operating and financial leverage. In recent times, the idea of leverage is also applied to working capital, showing how returns are affected by changes in current assets. In the next sections, we will explore each type of leverage in detail, how it works, why it matters, and what risks it involves.

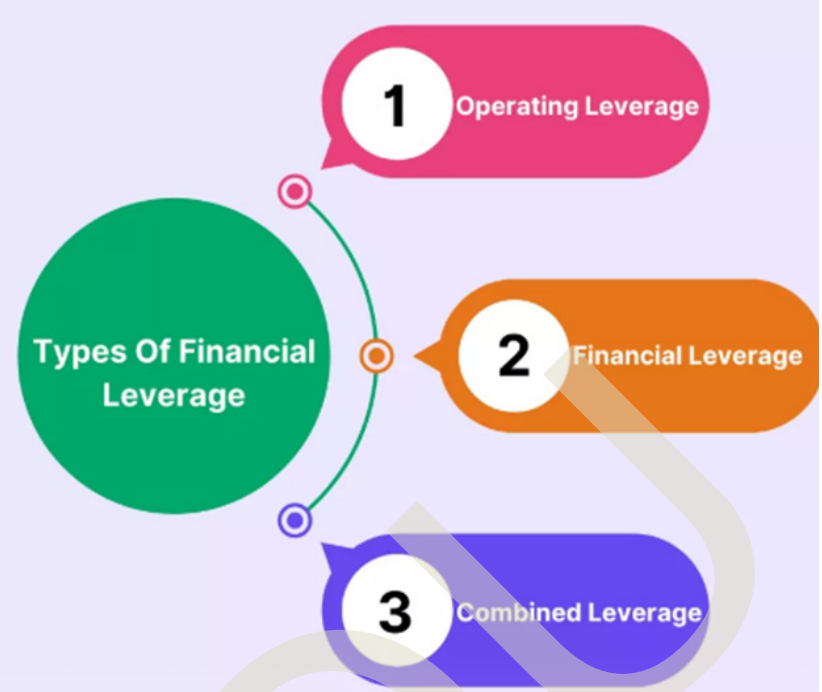


Figure 3.2.1 Leverage

2.2.1 Financial Leverage

Every business requires funds to start, operate, and grow. These funds can originate from two sources: owners and outsiders. Money provided by the owners is termed equity, while money obtained from outsiders, such as banks or other lenders, is referred to as debt or borrowed funds. When a firm raises capital using both equity and debt, it establishes a capital structure. The capital structure represents the combination of long-term financing sources, including equity shares, preference shares, and long-term loans (debentures). It is displayed on the liabilities side of the balance sheet. Typically, short-term borrowings are not factored into capital structure decisions.

- Using fixed interest-bearing securities

Financial leverage, also known as trading on equity, refers to the use of borrowed money (which has a fixed cost, such as interest) within a capital structure to boost returns for equity shareholders. When a company borrows funds at a fixed interest rate and employs them to achieve a higher return, the additional profit is allocated to the equity shareholders without requiring them to invest further. This enhances their earnings per share (EPS). However, if the business generates less than the cost of borrowing, it may result in losses for shareholders. Therefore, financial leverage is advantageous only when the return generated from the borrowed funds surpasses the cost of that borrowing.

Let us take an example. Suppose a company needs ₹5,00,000

for a project. It considers two options. In Plan A, it raises the full amount from equity, meaning there is no debt. In Plan B, it raises ₹2,50,000 from equity and ₹2,50,000 from debt at 10% interest. Assume that the company's earnings before interest and tax (EBIT) is ₹50,000 and the tax rate is 50%. In Plan A, there is no interest to pay, so the company pays tax on ₹50,000 and the profit after tax becomes ₹25,000. If it has issued 50,000 shares (at ₹10 each), the earnings per share (EPS) is ₹0.50. In Plan B, the company pays ₹25,000 as interest on the debt. This reduces taxable income to ₹25,000. After paying 50% tax (₹12,500), the profit becomes ₹12,500. But this is shared among only 25,000 shares (since only ₹2,50,000 was raised through equity). So, EPS is also ₹0.50. However, if EBIT increases in future, Plan B will give higher EPS than Plan A. That's how financial leverage works.

When the return from using borrowed funds is higher than the cost of those funds (interest or preference dividend), it is called favourable leverage. In such a case, shareholders get more profit without more investment. But if the company earns less than the cost of the borrowed funds, it is called unfavourable leverage, and shareholders' earnings decrease. The term trading on equity is used when a company uses more debt in comparison to equity. If the company has a high amount of debt compared to equity, it is said to be trading on thin equity. If the debt is low compared to equity, it is trading on thick equity. Using financial leverage carefully helps improve shareholders' earnings, but it also increases risk. The company must pay interest even when profits are low or negative. Therefore, every company must make decisions about borrowing carefully, keeping in mind its earning capacity and risk level.

- Risk

2.2.1.1 Impact of financial leverage

- Used to magnify equity shareholders' return.
- It is based on the assumption that fixed charges fund can be obtained at a cost lower than the firm's rate of return on assets.
- The benefit of leverage is distributed to equity shareholders; they will get additional earnings without increasing their investment.
- Conversely, if a firm secures fixed-cost funds at an elevated cost, the return for equity shareholders may diminish.

Computation of Financial Leverage

Fianncial Leverage is calculated by using the following formula

FL = EBIT / EBT

EBIT = Earning Before Interest and Tax

EBT = Earning Before Tax

I = Interest Charge

Example :

Calculate Financial Leverage from the following information

Interest	Rs.20,000
Sales (1000 units)	Rs. 2,00,000
Variable Cost	Rs. 1,00,000
Fixed Cost	Rs. 60,000

Solution :

Sales	2,00,000
Less : Variable Cost	1,00,000
Contribution	1, 00,000
Less : Fixed Cost	60,000
EBIT	40,000
Less : Interest	20,000
EBT	20,000

FL = EBIT / EBT = 40,000 / 20,000 = 2

A financial leverage of 2 indicates that the change in EBIT is twice in relation to EBT. This is because of the presence of fixed financial cost.

2.2.1.2 Degree of financial leverage

- Impact on operating income

It is the impact of changes in operating income (EBIT-Earnings before interest and tax) on change in earnings on equity capital or equity shares.

$$\text{Degree of Financial Leverage} = \frac{\text{\% Change in EPS}}{\text{\% Change in EBIT}}$$

$$\text{Degree of Financial Leverage} = \frac{\text{EBIT}}{\text{EBIT} - \text{Interest}}$$

- **EPS** = Earnings Per Share (what each shareholder earns)
- **EBIT** = Earnings Before Interest and Taxes (the profit before paying interest and tax)

A company earns ₹5,00,000 as EBIT (Earnings Before Interest and Taxes), and it pays ₹1,00,000 as interest on its borrowed funds. To find the Degree of Financial Leverage (DFL), we use the formula: DFL = EBIT ÷ (EBIT – Interest). Substituting the values, we get DFL = ₹5,00,000 ÷ (₹5,00,000 – ₹1,00,000) = ₹5,00,000 ÷ ₹4,00,000 = 1.25. This means the DFL is 1.25. It indicates that for every 1% change in EBIT, the EPS (Earnings Per Share) will change by 1.25%. Therefore, if EBIT increases by 10%, the EPS will increase by 10% × 1.25 = 12.5%.

3.2.1 Illustration

DKV Ltd. is considering two financial plans to examine their impact on Earnings Per Share (EPS). The total fund required is Rs.500000.

Financial plans		
	Plan A	PlanB
Debt (interest @10% p.a)	400000	100000
Equity shares (Rs.10 each)	100000	400000
Total finance required	500000	500000
No; of equity shares	10000	40000

Additional information:

- Earnings before interest and tax are assumed as Rs. 50000, Rs.75000, Rs. 125000.
- The rate of tax is taken at 50 %.

Solution 3.2.1

EBIT @ 50000		
	PLAN A	**PLAN B**
EBIT	50000	50000

Less: interest on debt	40000	10000
Earnings before tax (EBT)	10000	40000
Less: Tax@50%	5000	20000
Earnings after interest and tax	5000	20000
No: of equity shares	10000	40000
Earnings per share	5000/10000 = **0.50**	20000/40000 = **0.50**

	EBIT @ 75000	
	PLAN A	**PLAN B**
EBIT	75000	75000
Less: interest on debt	40000	10000
Earnings before tax (EBT)	35000	65000
Less: Tax@50%	17500	32500
Earnings after interest and tax	17500	32500
No: of equity shares	10000	40000
Earnings per share	17500/10000= **1.75**	32500/40000 =**0.81**

	EBIT @ 125000	
	PLAN A	**PLAN B**
EBIT	125000	125000
Less: interest on debt	40000	10000
Earnings before tax (EBT)	85000	115000

Less: Tax@50%	42500	57500
Earnings after interest and tax	42500	57500
No: of equity shares	10000	40000
Earnings per share	42500/10000=**4.25**	57500/40000=**1.438**

- Plan A is a leveraged plan (thin equity) because it has 80 % debt financing and only 20 % owned funds (equity).
- Plan B is a conservative plan (thick equity) where fixed cost funds are only 20% of total funds and the balance is financed through equity capital.
- The EPS is increasing in Plan A with the increase in profits (EBIT). In situation (1) the earnings per share is the same in both plans i.e. Rs. 0.50. As the EBIT has increased from ₹ 50,000 to ₹ 75,000 (situation 2) the EPS in plan A is 1.75 while it is 0.81 in plan B. EPS is 4.25 in Plan A and 1.438 in Plan B when EBIT increases to ₹ 1,25,000
- It is clear from the analysis that EPS is increasing with the increase in profits in Plan A as compared to that of Plan B. This is possible with the use of more fixed-cost funds in Plan A as compared to Plan B
- The increase in EPS in Plan A is due to the financial leverage because earnings before interest and tax are the same in all situations.

3.2.1.3 Significance of Financial Leverage

- Balance between debt and equity

Financial leverage helps a company plan how much money to raise through debt and how much through equity. The goal is to increase the earnings available for equity shareholders. A proper balance between debt and equity is important, and financial leverage allows the company to choose this mix wisely. When borrowing is done carefully, it can reduce the overall cost of capital and increase the return on equity. However, this decision must also consider the financial risks involved with fixed-inter-

est payments.

i. **Role in Capital Structure Planning**

- debt equity mix

Financial leverage plays a crucial role in determining a company's capital structure. Capital structure refers to how a company raises its long-term funds, either through loans (debt) or by issuing shares (equity). A financial manager must decide how much should be raised from each source. Before finalizing the structure, they must understand how much risk the company can tolerate and whether debt will increase or decrease the cost of funds.

ii. **Importance in Profit Planning**

- Profit planning

Financial leverage is also important in planning profits. If a company's earnings are growing, using debt can increase the returns to equity shareholders. This is because after paying fixed interest, the remaining profit goes to them. Financial leverage also connects with break-even analysis, which shows the level of sales needed to cover all costs. Through this, companies can predict the effect of sales changes on profits, and plan better.

3.2.1.4 Limitations of Financial Leverage

Although financial leverage has its advantages, it also has certain limitations. These must be carefully considered before depending too much on borrowed funds.

i. **A Double-Edged Weapon**

Financial leverage is like a double-edged sword. It is useful only when the company earns more than the interest it pays on borrowed money. If the earnings are less, then leverage reduces the income available to equity shareholders and works against them.

ii. **Not Suitable for Unstable Companies**

Leverage is suitable only for companies with stable and predictable earnings. This is because interest on loans must be paid regularly. A company with irregular income may face difficulties in paying interest during low-earning years, which increases the risk of default.

iii. **Increases Financial Risk**

As a company takes more debt, its financial risk also increases. Lenders may demand higher interest rates or ask for extra security. This makes it costlier and harder for the company to borrow more. In turn, this reduces the company's net earnings.

iv. **Restrictions from Financial Institutions**

Sometimes, financial institutions place restrictions on how

much a company can borrow. They may also set conditions that reduce the company's financial freedom. These restrictions can affect the company's future financial decisions.

In financial leverage fixed interest-bearing securities are used as a fulcrum to magnify the return of equity shareholders. Next, we discuss operating leverage where fixed cost is treated as a fulcrum of leverage.

3.2.2 Operating leverage

- fixed cost constant

Operating leverage arises due to the presence of fixed operating costs in a firm's cost structure. These fixed costs act as a fulcrum of leverage because they remain unchanged regardless of the level of sales. When a company increases its sales, but the fixed costs remain the same, the operating income (or EBIT) increases at a faster rate. This magnified effect on profit, due to unchanged fixed costs, is known as operating leverage.

Computation of Operating Leverage

Operating Leverage is calculated as follows :

OL = Contribution / EBIT

Contribution = Sales - Variable Cost

EBIT = Contribution - Fixed Cost

Example : Find out operating leverage from the following date:

Sales Rs. 5,00,000 Variable Cost 60% and Fixed Cost Rs. 1,20,000

Solution :

OL = Contribution / EBIT

Variable Cost = 60% of Rs. 5,00,000 = 3,00,000

Contribution = Sales – Variable Cos i.e, 5,00,000 - 3,00,000 = 2,00,000

EBIT =Contribution - Fixed Cost = 2,00,000 - 1,20,000 = 80,000

OL =2,00,000/ 80,000 = 2.5

In other words, operating leverage reflects the relationship between sales revenue and operating profit. It occurs when a firm has costs that must be paid regardless of the volume of sales, such as rent, salaries, or depreciation. Because these costs do not vary with sales, any increase in revenue results in a proportionately larger increase in operating profit. Similarly, a decline in sales can lead to a significantly sharper drop in profit. The degree of operating leverage (DOL) depends on the proportion of the firm's total cost that comprises fixed components. A higher

proportion of fixed costs indicates a greater degree of operating leverage, meaning the firm's operating profit is more sensitive to changes in sales.

Degree of operating leverage = contribution $\div$ *operating profit*

Contribution = sales – variable cost

Operating profit = contribution- fixed cost

The break-even point can be calculated by dividing the fixed cost by the percentage of contribution to sales or the P/V ratio.

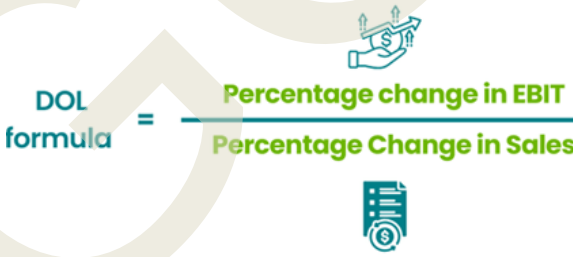
Break-even point = $fixed\ cost \div P/V Ratio$

P/V ratio = $Contribution \div Sales$

When the production and sales move above the breakeven point, the firm will enter high profitable range of activities. At BEP, fixed cost are fully recovers, any increase in sales beyond this level will increase profit. That means a firm operating with high degree of leverage and above break-even point earns good number of profits. If a firm does not have fixed cost, there will be no operating leverage. The percentage change in sales will be equal to percentage change in profit. when the fixed cost is there, the percentage change in profit will be more than percentage change in sales.

- Above break even sales

Degree of Operating Leverage



A high-level situation will magnify operating profits but introduce risk elements. While operating leverage can help a firm earn higher profits when sales rise, it also escalates risk. If sales decline, losses will grow more rapidly, making the business more vulnerable. Therefore, operating leverage presents both higher profit potential and increased financial risk.

- Escalates Risk

For instance, if you run a small printing business, you have a machine that costs you ₹1,00,000 per month regardless of whether you use it a little or a lot; this is your fixed cost. Each book you print incurs ₹50 in material costs, and you sell it for ₹100. Thus, for each book, you earn a profit of ₹50 after covering the material costs. Now, to cover your ₹1,00,000 machine cost, you need to print 2,000 books. This is your break-even point, where you neither make a profit nor incur a loss. If you print and sell 2,500

books, you have already covered your ₹1,00,000 fixed cost and made an additional profit on 500 books, resulting in a profit of ₹25,000 (500 × ₹50). Now, suppose you increase sales by just 10% (printing and selling 2,750 books). Suddenly, your profit jumps to ₹37,500. That represents a 50% increase in profit, solely from a 10% rise in sales. This occurs because your machine cost remains constant, but your sales grow; this is what is termed operating leverage. It enables you to earn more after surpassing the break-even point. However, be cautious: if sales decline, you still must pay the ₹1,00,000 machine cost, so your losses can escalate quickly too.

- Significance

Operating leverage is important because it helps a business earn more profit after covering its fixed costs. Once a company reaches its break-even point, any increase in sales leads to a bigger increase in operating profit. This is because the fixed costs, such as rent, machinery or salaries, remain the same, while sales continue to rise. As a result, a business with high operating leverage can benefit greatly from even a small rise in sales. It also helps managers plan better by understanding how much they need to sell to cover costs and make a profit. Operating leverage is useful in making cost-related decisions and helps firms make better use of their fixed assets.

- limitation

However, operating leverage also has its downsides. While it can increase profits during good times, it also increases the risk of losses during bad times. If sales drop, the firm still has to pay its fixed costs, which means profits fall faster or even turn into losses. This makes the business riskier. Also, operating leverage is only relevant when a business has fixed costs if all costs are variable, there is no leverage effect. It may not be suitable for all types of businesses, especially those in the service sector with fewer fixed costs. Over-relying on operating leverage without proper sales forecasting can also lead to poor decisions and financial trouble.

Operating leverage shows how fixed operating costs affect profit when sales change. But businesses also have financial costs like loan interest. To understand the full effect of both operating and financial costs on profit, we use **composite leverage**. It gives a clearer picture of how sales changes affect the company's final earnings.

3.2.3 Composite leverage

- fixed cost and financial cost

Let's say you run a small factory that makes chairs. You have to pay ₹1,00,000 every month for rent, salaries, and other fixed costs, this is your operating cost. You also took a loan from the bank and have to pay ₹20,000 interest every month; this is your financial cost. suppose you sell more chairs this month. Your

income goes up, but your rent and interest stay the same. Because both your operating and financial costs are fixed, the extra income gives you a much bigger increase in profit. This total effect of fixed operating and financial costs together is called composite leverage. So, composite leverage shows how a small rise in sales can lead to a large rise in your final profit – but it also means more risk if sales go down. Simply composite leverage is the combination of operating and financial leverage. so, it's also called combined leverage.

Both operating leverage and financial leverage help to increase the company's earnings. Operating leverage is linked to production and shows how fixed operating costs affect profit. Financial leverage comes from financial decisions, like taking loans and paying interest. Composite leverage brings both of these together and shows the total effect on the company's profit. Before using composite leverage, the management should carefully study the risk, because having both high operating and high financial leverage can be risky. However, if one is high and the other is low, the risk may be balanced.

- combined effect

DCL=Percentage Change in Sales ÷percentage/Change in EPS

Or

Composite Leverage=Operating Leverage Financial Leverage

Combined Leverage = Operating Leverage * Financial Leverage

Or

Combined leverage = Contribution / EBT

3.2.2 Illustration

Details	Amount (₹)
Sales (units)	10,000 units
Selling Price per Unit	₹200
Variable Cost per Unit	₹100
Fixed Operating Costs	₹3,00,000
Interest on Debt	₹1,00,000

SOLUTION

Step 1: Calculate Contribution per Unit

Contribution = Selling Price - Variable Cost

= ₹200 - ₹100 = ₹100 per unit

Step 2: Calculate Operating Income (EBIT)

Total Contribution = Contribution × Sales
= ₹100 × 10,000 = ₹10,00,000

Operating Income = Total Contribution - Fixed Operating Costs
= ₹10,00,000 - ₹3,00,000 = ₹7,00,000

Step 3: Calculate Earnings Before Tax (EBT)

EBT=OperatingIncome-Interest
= ₹7,00,000 - ₹1,00,000 = ₹6,00,000

Step 4: Calculate Leverages

Degree of Operating Leverage (DOL):
DOL = Contribution / Operating Income
= ₹10,00,000 / ₹7,00,000 ≈ 1.43

Degree of Financial Leverage (DFL):
DFL = Operating Income / Earnings Before Tax
= ₹7,00,000 / ₹6,00,000 ≈ 1.17

Degree of Composite Leverage (DCL):
DCL = DOL × DFL
= 1.43 × 1.17 ≈ 1.67

If sales go up by 1%, the company's operating income will rise by about 1.43%. After paying interest on loans, the profit before tax will increase by roughly 1.67%. This means the company's total profit changes 1.67 times for every 1% change in sales.

- effect

Composite leverage measures the combined effect of operating leverage and financial leverage on a company's profit. It illustrates the sensitivity of overall profit to changes in sales. A higher composite leverage means that a small change in sales will result in a larger change in profit, thereby increasing both potential returns and risks. Therefore, management should carefully assess the levels of fixed operating costs and financial debt before making decisions to balance risk and reward.

- Balance risk and return

After understanding the concepts of operating and financial leverage, it becomes clear that a firm's capital structure decisions directly influence its risk and return profile. Leverage shows how the use of fixed costs (whether operating or financial) can magnify profits or losses. Similarly, when deciding the target capital structure, a company needs to carefully choose the right mix of debt and equity to balance risk, cost, and return. This is important because excessive debt may increase financial risk (due to interest obligations), while too much equity may dilute ownership and reduce return on equity. For example, if a company uses more debt (financial leverage), its EPS (Earnings Per Share) may increase in good times but can fall sharply if profits decline.

Therefore, companies use various approaches to decide the target capital structure such as the EBIT-EPS approach, which focuses on maximising shareholder earnings, the Valuation approach, which aims to minimises the overall cost of capital and maximise the firm's value; and the Cash Flow approach, which ensures the company can safely meet its debt obligations. These approaches help in selecting the most suitable and balanced capital structure for the firm.

3.2.4 Approaches to Establishing Target Capital Structure

Capital structure decisions are among the most critical financial decisions taken by a business firm. These decisions influence the profitability, risk, and overall value of the business. When a company is started, the initial capital structure is planned carefully. This means deciding how much money will be raised from equity (shares) and how much from debt (borrowings). The management sets a target capital structure an ideal mix of debt and equity that they want to maintain in the long term. All future financing decisions are made with the aim of keeping this target structure. Capital structure decisions are not made only once. A company needs funds regularly to run and grow its business. Each time the company requires additional money, the financial manager carefully compares different sources of finance (like new shares, loans, debentures, etc.) and chooses the most suitable one. This choice depends on what will help the company maintain or reach its target capital structure. Therefore, the capital structure decision is a continuous and ongoing process, not a one-time activity. To decide the most appropriate capital structure, companies generally follow three main approaches:

1. EBIT -EPS analysis
2. Valuation approach
3. Cash flow analysis/Leverage analysis

3.2.4.1 EBIT – EPS analysis

- Impact on EPS

EBIT-EPS analysis is a technique used to study the relationship between Earnings Before Interest and Taxes (EBIT) and Earnings Per Share (EPS) under various financing options. The main objective of this analysis is to determine how different financing choices (debt, equity, or preference shares) impact the firm's EPS at different levels of EBIT. This analysis assists the financial manager in identifying the capital structure that results in the highest EPS, which is often taken as a signal of shareholder wealth maximisation.

Let's understand this with a simple example. Suppose a company needs ₹10,00,000 for expansion. It is thinking of two ways to raise this money:

1. **Equity Financing**: Issue 10,000 new shares at ₹100 each.
2. **Debt Financing**: Borrow ₹5,00,000 at 10% interest and issue only 5,000 new shares at ₹100 each.

If the company expects to earn ₹2,00,000 as EBIT (Earnings Before Interest and Taxes):

- **Option 1 (All Equity)**:
  EPS = (₹2,00,000 – 0) ÷ 10,000 = ₹20
- **Option 2 (Debt + Equity)**:
  Interest on debt = ₹5,00,000 × 10% = ₹50,000
  EPS = (₹2,00,000 – ₹50,000) ÷ 5,000 = ₹30

Here, the second option (using some debt) gives a higher EPS of ₹30 compared to ₹20. But if the company earns less than expected, the debt interest will still have to be paid, which increases risk. So, the EBIT-EPS analysis shows both the **benefit of higher EPS and the danger of extra risk**. This helps the management to choose a target capital structure that balances profit and risk.

3.2.4.1.1 Significance of EBIT-EPS Analysis in Determining Target Capital Structure

The EBIT-EPS analysis is a very useful tool when a company wants to decide the right mix of debt and equity in its capital structure. This method helps the company's management to carefully assess which type of financing whether raising money by borrowing (debt) or by issuing shares (equity) is more beneficial for the business.

- comparison

Firstly, this analysis allows a comparative evaluation of different financing choices. It means the company can check how debt financing or equity financing affects the Earnings Per Share (EPS). For example, if the company uses debt, it has to pay interest, but the number of shares remains less, so the profit is divided among fewer shareholders. On the other hand, if the company issues more shares (equity financing), it has no interest burden, but profits have to be shared among more shareholders. This comparison helps in choosing the better option.

- shareholders wealth

Secondly, the analysis shows the impact on shareholder wealth. When the company's EPS is higher, shareholders get more earnings per share, which makes the company's shares

more valuable and attractive in the market. A high EPS sends a positive signal to investors that the company is performing well and generating good returns.

- Risk analysis

Thirdly, risk assessment is another key benefit of this analysis. When the company uses debt, it must pay interest every year, even if the profits are low. This increases the financial risk. Through EBIT-EPS analysis, management can see how much risk comes with borrowing and whether the company will be able to manage the interest payments comfortably.

- Better decisions

Finally, this analysis helps in better decision-making. It provides a clear and easy way to choose the financing option that offers good profitability while keeping financial risk under control. By checking the possible EPS under different financing plans, the company can decide which plan will help the business grow safely and profitably.

3.2.4.1.2. Process of EBIT – EPS Analysis

- Choose optimum capital structure

The EBIT-EPS analysis is carried out in a step-by-step way to help a business choose the most suitable capital structure. It compares different financing options and shows their impact on the Earnings Per Share (EPS) of the company. Here is how the process works:

1. Identify Financing Alternatives

The first step is to list out the different ways the company can raise funds. The most common financing alternatives include:

- Entirely equity financing – The company raises the full amount by issuing new shares.
- combination of equity and debt – Part of the amount is raised by issuing shares, and the rest is borrowed as a loan (debt), which will require regular interest payments.
- Combination of equity and preference shares – The company uses both ordinary (equity) shares and preference shares, where preference shareholders are paid a fixed dividend.

These financing options will affect the EPS differently because of the differences in interest payments and dividend obligations.

2. Calculate EPS for Different Levels of EBIT

Once the financing alternatives are selected, the next step is to calculate the **Earnings Per Share (EPS)** for each option at different levels of EBIT (Earnings Before Interest and Taxes).

The formula to calculate EPS is

$$EPS = \frac{EBIT - Interest - PreferenceDividend}{Number\ of\ Equity\ Shares}$$

- EBIT: The company's profit before paying interest and taxes.
- Interest: The cost of borrowing, applicable only if debt is used.
- Preference Dividend: The dividend paid to preference shareholders, if preference shares are used.
- Number of Equity Shares: Total number of ordinary shares issued.

By applying this formula, the company can see how much each shareholder will earn under each financing option.

3. Plot the EBIT-EPS Indifference Point

- Point of indifference

After calculating the EPS for each option, the next step is to find the indifference point. This is the level of EBIT where two financing options give the same EPS. At this point, the choice between the options does not affect EPS. However, if EBIT is expected to be higher than this level, then the option with debt or preference shares might provide a better EPS. If EBIT is likely to be lower, then the equity-only option may be safer, as it avoids fixed costs like interest. This step helps the company understand at which profit level a particular financing plan becomes more advantageous.

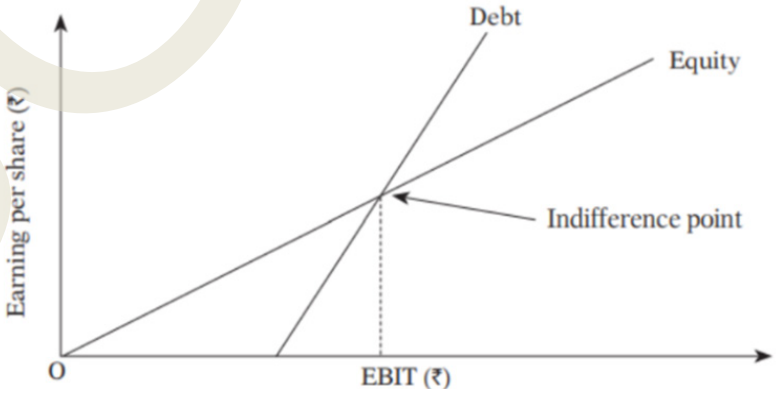


Figure 3.2.1

The above figure 3.2.1 explains the concept of the EBIT-EPS Indifference Point in a simple manner. On the horizontal axis, we have EBIT (Earnings Before Interest and Taxes) represented in rupees, and on the vertical axis, we have EPS (Earnings Per Share) also in rupees. The two sloping lines show the rela-

tionship between EPS and EBIT under two different financing plans – one with debt financing and the other with equity financing only. The point where these two lines cross is known as the Indifference Point. At this specific level of EBIT, the company earns the same EPS under both financing options. This means that whether the company uses debt or equity to raise funds, the shareholders' earnings per share remain unchanged at this point.

If the company expects its EBIT to be higher than the indifference point, then debt financing becomes more profitable as it results in higher EPS due to the advantages of financial leverage and fewer equity shares being issued. On the other hand, if the company's EBIT is expected to be lower than the indifference point, it is better to use equity financing to avoid the burden of fixed interest payments on debt, which can reduce EPS. This diagram helps the management to decide which financing method is more suitable based on the expected level of profits.

4. Select the Best Option

- Based on level of EBIT& EPS

The final step is to choose the most suitable financing option based on the company's expected level of EBIT. The plan that results in the highest EPS, while keeping the financial risk at a manageable level, is usually selected. For example, if the company expects a high and stable EBIT, using some amount of debt may boost EPS. But if the company's earnings are uncertain or low, then it might be better to avoid debt to reduce the financial burden of fixed interest payments.

Suppose a company requires ₹10,00,000 to expand its business. The management is considering two different financing options. Plan A suggests raising the full ₹10,00,000 by issuing equity shares only. Since the face value of each share is ₹100, the company will issue 10,000 equity shares (₹10,00,000 ÷ ₹100 = 10,000 shares). On the other hand, Plan B proposes to raise ₹5,00,000 through equity by issuing 5,000 equity shares and the remaining ₹5,00,000 through a loan, carrying an interest rate of 10% per annum. This means that the company will need to pay an annual interest of ₹50,000 on this debt (10% of ₹5,00,000 = ₹50,000).

Let us assume that the company expects to earn an EBIT (Earnings Before Interest and Tax) of ₹2,00,000. Now, let's calculate the EPS under both plans. Under Plan A (Equity Financing only), there is no debt or interest, so the entire EBIT is available for shareholders. The EPS will be ₹20 (₹2,00,000 ÷ 10,000 shares = ₹20 per share). Under Plan B (Debt + Equity Financing), the company has to pay ₹50,000 as interest, which reduces the available earnings to ₹1,50,000 (₹2,00,000 – ₹50,000). The EPS under this plan is ₹30 per share (₹1,50,000 ÷ 5,000 shares =

₹30). Therefore, when the company earns an EBIT of ₹2,00,000, Plan B results in a higher EPS of ₹30 compared to ₹20 in Plan A.

However, if the EBIT reduces to ₹80,000, the outcome will change. In Plan A, since there is no debt, the entire EBIT of ₹80,000 is available for equity shareholders, giving an EPS of ₹8 (₹80,000 ÷ 10,000 shares = ₹8 per share). But in Plan B, the company still needs to pay ₹50,000 as interest, which leaves only ₹30,000 (₹80,000 – ₹50,000) for equity shareholders. Thus, the EPS under Plan B is ₹6 (₹30,000 ÷ 5,000 shares = ₹6 per share). In this situation, Plan A becomes the better option, as it gives a higher EPS when EBIT is low.

This example clearly shows how the choice of financing method affects the earnings available to shareholders under different levels of EBIT, helping the company decide the most suitable capital structure based on its expected profitability. If the company expects high and stable profits (EBIT), then using some debt (Plan B) is better as it increases EPS.If the company expects low or uncertain profits, then using only equity (Plan A) is safer because it avoids the fixed cost of interest.

Next, we discussing about another approach that helps to determine appropriate capital structure is valuation approach. The Valuation Approach is an important method used to determine the best capital structure for a firm. This approach suggests that a firm should select a mix of debt and equity that maximises that its overall value (or total market worth). In other words, the capital structure which results in the highest total value of the firm is considered the most appropriate.

3.2.4.2 Valuation approach

- maximizing value

The Valuation Approach to capital structure is one of the most important concepts in financial management. It helps a business decide the right mix of debt and equity for financing its operations. According to this approach, a company should choose that capital structure which maximizes the total market value of the firm. In simple words, the best capital structure is the one that makes the company most valuable in the eyes of its investors. The total value of a firm is made up of two parts: the market value of equity (shares) and the market value of debt (borrowings). The firm can increase its total value by changing the proportion of these two sources of funds.

The cost of capital is the minimum return that investors expect from their investment in a company. It is also the cost the company must bear to use these funds. Different sources of finance have different costs, depending on the risk they carry for the investors. For example, debt-holders (lenders) take on less risk than ordinary shareholders. This is because debt-holders receive a fixed

interest regularly, whether the company makes a profit or not. Also, the company must legally repay the debt within a certain time. In contrast, ordinary shareholders face a higher risk. They do not get a fixed dividend. Even if the company earns profit, the board of directors is not legally required to declare dividends. Also, shareholders will get back their capital only if the company is closed down and after all debts are repaid. This means that for the company, equity (shares) is a more expensive source of finance than debt because investors expect higher returns for taking higher risks. Even when we do not consider taxes, debt usually remains a cheaper source of funds than equity. But when taxes are included, debt becomes even cheaper because interest on debt is tax-deductible, which reduces the company's tax liability. Preference shares are also cheaper than equity shares but costlier than debt because preference shareholders get a fixed dividend but cannot force repayment like debt-holders.

Based on this analysis, if a company only looks at the specific cost of each type of capital, and ignores other factors like financial risk, it would prefer to use more debt because it is the cheapest source of finance. Under the Valuation Approach, the company tries to use the mix of debt and equity which makes the total value of the company in the market highest. Using more debt can reduce the company's overall cost of capital (called Weighted Average Cost of Capital – WACC), because of the lower cost of debt. This may increase the firm's market value. However, too much debt increases the risk of bankruptcy, which may reduce the market value of equity shares. So, the company must balance the benefits of cheaper debt with the risks of high borrowings. The optimal capital structure is the one where the company's value is maximized, and the overall cost of capital is minimized.

- Weighted average cost of capital

Valuation Formula:

$$\text{Value of the Firm (V)} = \text{Value of Equity (E)} + \text{Value of Debt (D)}$$

$$\text{Overall Cost of Capital (Ko)} = \frac{EBIT \times (1 - Tax)}{V}$$

The given formula is useful in explaining the approach to determine the best capital structure for a firm. According to the formula, the total value of the firm (V) is the sum of the value of equity (E) and the value of debt (D). This shows that a company is financed by a mix of owned funds (equity) and borrowed funds (debt). The overall cost of capital (Ko) reflects the average cost of using this combined capital. It is calculated by taking the firm's earnings before interest and tax (EBIT), adjusting it for taxes by multiplying with (1 – Tax rate), and then dividing by the total value of the firm (V). This formula helps in identifying

the optimal capital structure by showing how the mix of debt and equity affects the firm's cost of capital and value. A lower overall cost of capital generally leads to a higher firm value, guiding the firm towards selecting the best proportion of debt and equity that maximises its market worth and minimises its financing cost.

- Market value

In valuation approach explains how the market value of a firm changes with different combinations of debt and equity in its capital structure. It helps in determining the optimal capital mix that maximises the firm's total value or minimises its overall cost of capital. For example, Tata Steel, in its expansion phase, used more debt due to cheaper interest rates, reducing its overall cost of capital and increasing its market value temporarily. However, excessive debt later raised financial risk, affecting its credit rating.

3.2.4.3 cash flow analysis /Leverage analysis

- Cash flow's Impact

When a company decides how much debt and equity to use in its capital structure, it must carefully assess its ability to meet financial obligations. One key tool used in this decision is cash flow analysis. Cash flow analysis helps in understanding whether a firm can service its debts (like interest and principal payments) while also providing returns to shareholders. cash flow is a more reliable measure of a firm's financial health than profits, as it represents the actual movement of money in and out of the business. A good capital mix balances risk and return, ensuring that the firm remains solvent while maximising shareholder value.

Cash flow analysis examines the timing, magnitude, and certainty of cash inflows and outflows. This analysis is crucial because:

- Debt requires fixed cash outflows (interest and principal payments).
- Equity does not legally demand cash payouts but shareholders expect dividends or value appreciation.

A firm with strong, predictable cash flows can afford to take on more debt (higher financial leverage or thin equity), while a firm with unstable or weak cash flows should rely more on equity(Thick equity) to avoid the risk of insolvency.

A structure cash flow analysis includes following steps:

- **Estimate future operating cash flows** to assess the cash likely to be generated from the business's core operations.
- **Identify all financial obligations**, such as interest payments, principal loan repayments, lease rentals, and other committed outflows.
- **Calculate free cash flows** by deducting total financial obli-

gations from operating cash flows to find the surplus available for other uses.

- **Conduct stress testing** to check whether the company can meet its financial obligations under adverse conditions, such as reduced sales or increased costs.
- **Evaluate the company's ability to service additional debt** if free cash flows remain strong, steady, and sufficient.
- **Decide on the proportion of equity finance** to reduce the risk of financial strain if cash flows are uncertain or insufficient.
- **Select an appropriate capital mix** based on the analysis to ensure the company remains financially sound and flexible in different business scenarios.

- Optimum capital mix

Cash flow analysis helps management decide the right capital mix by showing whether the business can handle its financial responsibilities. A company with strong, stable cash flows may use more debt. But if cash flows are uncertain or low, using more equity reduces the risk of financial trouble. Ignoring cash flow and looking only at profits can mislead decision-makers, leading to insolvency or bankruptcy. Therefore, cash flow analysis is a must for safe and sound capital structure planning. In the same way leverage analysis also used to determine the appropriate capital mix.

- Balance of benefit and Risk

Choosing the right capital structure is very important for any business. The company must decide how much money to raise through loans (debt) and how much from shareholders (equity). Approaches like EBIT-EPS analysis, valuation approach, cash flow analysis, and leverage analysis help the business make this decision carefully. Taking more loans can give higher returns but also brings risk because the company must pay interest and repay the loan on time, even if profits are low. Equity is safer because there is no fixed payment obligation, but it may reduce the control of the original owners and spread profits among more shareholders. Leverage analysis plays an important role as it shows how much debt the company can safely use without creating financial problems. It helps the company balance the benefit of using borrowed funds to earn more with the risk of not being able to meet fixed costs if income falls. So, the best capital mix is the one that helps the company earn good returns, meet its payments on time, avoid too much risk, and increase its total value in the market. A proper balance between debt and equity, guided by these analyses, keeps the business strong, flexible, and successful in the future

Summarised Overview

Deciding the right capital structure is an important financial decision for every business, as it affects risk, return, and overall value. Tools like financial leverage, operating leverage, and combined leverage help to understand how fixed costs both operating and financial impact a firm's earnings and risk levels. Approaches such as setting a target capital structure, EBIT-EPS analysis, valuation approach, and leverage analysis guide management in choosing the most suitable mix of debt and equity. These methods ensure that the business can meet its financial obligations, take advantage of growth opportunities, and protect itself from excessive risk. A balanced capital structure, based on these analyses, helps the firm improve shareholder value, maintain financial stability, and achieve long-term success.

Self-Assessment Question

1. Essay different types of leverages?
2. Evaluate different types of approaches to establish appropriate capital structure?
3. Short note on combined leverage.
4. Explain the concept of EBIT – EPS Analysis.
5. Role of EPS in determining capital mix.
6. short note on trading on thin equity and thick equity.
7. Briefly explain the valuation approach to determine target capital structure

Assignments

1. Discuss the relationship between Operating Leverage, Financial Leverage, and Combined Leverage. Give suitable examples.
2. Explain the steps involved in performing an EBIT-EPS Analysis for determining an appropriate capital structure.
3. Discuss how the Valuation Approach helps in selecting the right capital mix for a company.
4. "Higher leverage increases both risk and return." Discuss this statement with the help of an example.
5. Using a real-life company (such as Tata Motors or Infosys), explain how leverage and capital structure decisions affect business performance.

Suggested Reading

1. Brigham, E. F., & Ehrhardt, M. C. (2021). *Financial management: Theory and practice* (15th ed.). Cengage Learning.
2. Jaggi, B., & Kaur, P. (2016). *Financial management: Theory and practice* (1st ed.). Tata McGraw-Hill Education.
3. Pandy, I. M. (2014). *Financial management* (11th ed.). Vikas Publishing.
4. Singh, J. K. (2017). *Financial management: Principles and practice* (1st ed.). Himalaya Publishing House.

Reference

1. Chandra, P. (2019). *Financial Management: Theory and Practice* (Xth ed.). Mc-Graw-Hill Education.
2. Gupta, S. K. (2018r). *Financial Management: Theory and practice*. Kalyani publishers.
3. Khan, M. Y. (2012). *Financial Management: Text, Problems, and Cases* (Xth ed.). Tata McGraw-Hill Education.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 3

Cost of capital

Learning Outcomes

After completing this unit learner will be able to

- get an overview of the concept and significance of cost of capital
- able to compute the cost of specific sources capital mix.
- get an insight to the concept of weighted average cost of capital.
- comprehend the concept of marginal cost of capital

Background

In today's competitive business environment, companies must make smart financial decisions to grow and stay ahead. One such decision involves choosing the best way to raise money for new projects, whether through loans, equity, or internal funds. This is where the concept of cost of capital becomes crucial. It helps a company understand the minimum return it must earn to justify the cost of financing. For example, when Infosys Ltd., a leading Indian IT company, planned to invest in a new research facility, its finance team had to assess which source of funds would be most cost-effective. This case helps us understand how the cost of capital influences real-world business decisions and long-term financial health

Keywords

cost of capital, Business risk, financial risk, cost of specific source of capital, WACC, Marginal cost of capital

Discussion

Suppose you want to start a tuition center. You need ₹1,00,000 to get started. You have two choices: take a loan from the bank at 10% interest or borrow the money from a friend who expects a 12% return. No matter which option you choose, your tuition center must earn more than the cost of that money. If you earn less, you'll either struggle to pay the bank interest or disappoint your friend. So, before starting, you calculate how much return you must earn to make the business worthwhile. This required return is what we call the cost of capital.

Cost of capital for a firm may be defined as the cost of obtaining funds, i.e., the average rate of return that the investors in a firm would expect for supplying funds to the firm. In the words of Hunt, William and Donaldson, "Cost of capital may be defined as the rate that must be earned on the net proceeds to provide the cost elements of the burden at the time they are due".

James C. Van Horne defines cost of capital as, "a cut-off rate for the allocation of capital to investments of projects. It is the rate of return on a project that will leave unchanged the market price of the stock."

According to Solomon Ezra, "Cost of capital is the minimum required rate of earnings or the cut-off rate of capital expenditures."

From the definitions given above we can conclude three basic aspects of the concept of cost of capital:

i. Cost of capital is not a cost as such. In fact, it is the rate of return that a firm requires to earn from its projects.

ii. It is the minimum rate of return. Cost of capital of a firm is that minimum rate of return which will at least maintain the market value of the shares.

- Minimum rate return

iii. It comprises of three components. As there is always some business and financial risk in investing funds in a firm, cost of capital comprises of three components:

a. the expected normal rate of return at zero risk level, say the rate of interest allowed by banks;

b. the premium for business risk; and

c. the premium for financial risk on account of pattern of capital structure.

It can be represented as:

Cost of Capital = Risk-Free Return + Business Risk Premium + Financial Risk Premium

3.3.1 Significance of Cost of Capital

- Capital structure planning

Every business needs money to run its operations, such as buying machines, building factories, or producing goods. This money can come from various sources like owners (equity), lenders (debentures or loans), or retained earnings (profits kept in the business instead of being distributed to shareholders).

But this money is never free. Each source of money has a cost attached to it. For example:

- When the company borrows money (debt), it has to pay interest.
- When the company uses shareholders' money (equity), it has to give them dividends or a return on their investment.
- When the company uses retained profits, it could have used that money elsewhere to earn returns.

It plays a vital role in planning capital structure, measuring company performance, and making decisions like investment, dividend policy, and working capital management.

- Minimum rate of return expected

In simple words, the Cost of Capital is the minimum return a business must earn on its investment to satisfy its fund providers and maintain its market value. If you want to start a small bakery you need ₹1,00,000 as capital. You borrow ₹50,000 from a bank at 8% interest per year, and your friend gives you the remaining ₹50,000 but expects a 12% return on his money. This means you have to pay ₹4,000 to the bank as interest (8% of ₹50,000) and ₹6,000 to your friend as his expected return (12% of ₹50,000). So, the total cost of using ₹1,00,000 comes to ₹10,000 per year. This ₹10,000 is the minimum you must earn as profit to cover the cost of this money. If your bakery earns less than ₹10,000, you will not be able to pay the bank interest or satisfy your friend's expected return. Therefore, the cost of capital is like the minimum price you must pay for using other people's money in your business. It is the required return you must earn to keep your lenders and investors happy.

The cost of capital is very important for a business because it acts as a benchmark for making financial decisions. A company must earn at least this much return to cover the cost of the funds it uses. It helps in deciding whether to start a new project or not if the expected profit is less than the cost of capital, the project should be avoided. It also guides the company in choosing the

best source of funds, like whether to borrow from a bank or issue shares. Overall, the cost of capital ensures that the business earns enough to satisfy lenders and investors and to increase its value in the market. Significance of the cost of capital is as follows:

1. **Investment Decisions:**
   A business uses cost of capital as a benchmark. It invests in projects that give returns higher than this cost. Otherwise, the project is rejected.

2. **Helps in Financial Decisions:**
   It helps a firm to decide whether to raise money through equity, debt, or retained earnings depending on which source is cheaper.

3. **Performance Measurement:**
   It helps to measure the performance of the company. If the business earns more than the cost of capital, it is doing well.

4. **Helps in Shareholder Wealth Maximisation:**
   If the firm earns more than its cost of capital, the value of shares increases, which is good for shareholders.

5. **Risk Assessment:**
   Cost of capital also reflects the risk of the business. The higher the risk, the higher the expected return (cost).

The cost of capital not only represents the minimum return a business must earn but also reflects the risk associated with its operations and financial decisions. The overall risk faced by a business can be divided into two main types as follows:

- Business risk
- financial risk.

- Risk

While cost of capital helps in deciding whether an investment is worthwhile, understanding these risks is important because they directly influence the expected return from the business. A company with high uncertainty in production, sales, or market conditions faces business risk, whereas the risk arising from the use of borrowed funds or fixed financial obligations is called financial risk. Together, these risks impact the firm's cost of capital and its decision-making process.

3.3.2 Business risk and financial risk

Business risk refers to the uncertainty associated with the day-to-day operations of a business. It is influenced by factors such as market demand, competition, costs of raw materials, and tech-

- Business operations related

nological changes. For instance, if you operate a factory that produces umbrellas, your sales are dependent on the rainy season. If the monsoon is weak, fewer people will purchase umbrellas, and your profits may decline. This uncertainty in your fundamental business activities is termed business risk.

- debt fund related

Financial risk is the risk that comes from using borrowed money (debt) in the business. When you take a loan, you must pay interest regularly, whether your business earns profit or not. For example, if you borrowed ₹5,00,000 to expand your umbrella factory, you must pay the bank interest every month, even if there is no rain and you make fewer sales. The pressure of paying fixed interest and loan instalments adds financial risk.

Both these risks business risk and financial risk affect the cost of capital. If your business has high risk (either in operations or borrowing), investors and lenders will expect a higher return to compensate for the danger of losing their money. This will increase your cost of capital because you must offer them more profit or interest to attract their money. Therefore, the higher the risk, the higher the cost of capital for the business.

Table 3.3.1 business risk vs financial risk

Basis	**Business Risk**	**Financial Risk**
Meaning	Risk related to the basic operations of the business (like production, sales, etc.)	Risk arising from the way the business is financed (like use of debt)
Cause	Uncertainty in demand, price, competition, technology, etc.	Use of debt or borrowed funds in capital structure
Control	Partially controllable by management through better operational decisions	Depends on the financing decision of the business
Impact Area	Affects the company's operating income (EBIT)	Affects the company's net income due to interest burden
Example	Fluctuation in raw material prices affects production cost	High interest payments on loans may reduce profit
Type of Risk	Operational risk	Financing or leverage risk
Existence	Present in every business regardless of capital structure	Exists only if the firm uses debt (borrowed capital)

- Risk and return

Cost of capital is the reflection of investors expected risk and return level. It represents the minimum return that investors expect for providing their funds to the business, considering the level of risk they are taking. If the business fails to offer this expected return, investors may choose to invest their money elsewhere where the return justifies the risk involved. For example, shareholders investing in private securities expect a higher return compared to Government securities because they bear more risk because such as no guaranteed returns and possible loss of capital. Therefore, the cost of capital reflects not only the required return but also the confidence of investors in the company's ability to generate sufficient profits to meet their expectations. A higher risk perceived by investors usually demands a higher cost of capital, while a stable and low-risk business may enjoy a lower cost of capital.

3.3.3 classification of cost

For the purpose of computing the cost of capital accurately, it is essential to classify costs into different categories. This helps in identifying the relevant costs applicable to particular financial decisions such as capital budgeting, capital structure planning, or working capital management

1. Historical Cost and Future Cost

Historical Cost refers to the cost which has already been incurred in the past. It is recorded in the books of accounts. Future Cost is the cost that is expected to occur in the future. It is estimated for decision-making.

2. Specific Cost and Composite Cost

Specific Cost relates to the cost of a particular source of finance such as equity, debt, or preference share capital. Composite Cost (also called Weighted Average Cost of Capital - WACC) represents the average cost of the various sources of finance used by the firm, weighted according to their share in total capital.

3. Explicit Cost and Implicit Cost

Explicit Cost is the direct cost associated with raising capital. It is the discount rate that equates the present value of cash inflows with the present value of cash outflows. Implicit Cost (or Opportunity Cost) refers to the return foregone by using the funds in a particular way rather than in the next best alternative.

4. Average Cost and Marginal Cost

Average Cost is the weighted average of the costs of all sources of capital, such as debt, equity, and preference shares. It represents the total cost of capital employed by the firm. Marginal

Cost is the cost of obtaining one additional unit of capital. It reflects the cost of new or incremental financing needed for a new project.

3.3.4 Computation of cost of capital

For the computation of the cost of capital, the calculation can be classified into two main approaches:

Specific Cost of each source of fund and

Weighted Average Cost of Capital (WACC).

3.3.4.1 Specific Cost of Capital

This refers to the cost related to an individual source of finance, such as equity shares, preference shares, debentures, or retained earnings. The cost is calculated separately for each source. It includes the following:

a. Cost of debt capital

b. Cost preference shares

c. Cost of equity

d. Cost of retained earnings

a. Cost of debt

- Debentures

A business can raise money in many ways by taking loans. It can borrow funds from banks or the general public by issuing debt instruments like bonds, debentures, or certificates of deposit for a fixed period and at an agreed interest rate. These bonds or debentures can be issued at their face value (par), at a discount (less than face value), or at a premium (more than face value).

When calculating the cost of debt, the main thing to consider is the interest the company has to pay to the lenders as this is the return expected by them.

Debts can be of two types based on how they are repaid:

1. Irredeemable Debts – These do not have a fixed repayment date.
2. Redeemable Debts – These are repaid after a fixed period.

i. Cost of Irredeemable debt

Debentures that are not repaid by the company are called irredeemable or perpetual debt. This means the company pays interest on these debts forever, without returning the main amount (principal) to the lenders. The cost of irredeemable debt is the

- Irredeemable

rate of return that lenders expect to earn on the money they have given. This is usually shown by the coupon interest rate the fixed rate of interest printed on the bond or debenture. This coupon rate represents the before-tax cost of debt, which means the return expected by lenders before any tax savings. Since interest on debt is a tax-deductible expense for the company, the actual (effective) cost of debt is lower after considering tax benefits. So, to find the after-tax cost of perpetual debt, you adjust the before-tax interest rate by the tax rate. Also, companies may issue debt at face value (par), at a discount (lower than face value), or at a premium (higher than face value).

1. **Before tax cost of debt can be computed as follows:**

$$Kd = I / NP \ *100$$

I = Interest

NP = Net Proceeds of debt capital

Example : A Ltd issued Rs.1,00,000 , 8% debenture at par. The tax rate applicable to the company is 50%. Compute before tax cost of debt capital.

Solution :

$$Kd = \frac{I / NP \ *100}{}$$

I = 1,00,000 * 8/100 = 8,000

NP = 1,00,000

So Kd = 8000 / 1 00 000 * 100

= **8%**

2. After tax cost of debt is computed as follows:

$$K_d = \frac{I}{NP}(1 - t)$$

K_d	=	Cost of debt after tax
I	=	Annual interest payment
NP	=	Net proceeds of debenture / bond
t	=	Tax rate

- flotation costs

Net proceeds of debenture mean issue price minus total cost of issuing securities. When a company issues new securities like shares or debentures, it has to bear some extra expenses. These expenses are called floatation costs. They include things like:

- Fees paid to underwriters or stockbrokers,
- Legal and administrative charges,

- Registration fees,
- Printing costs, and other related charges.

These costs are necessary to make the new securities available to investors in the market.

Illustration 3.3.1

A company issues Rs. 2,00,000 worth of 12% Debentures of Rs. 100 each.
The corporate tax rate is 30%. Calculate the after-tax cost of debt in the following cases:

(a) When debentures are issued at:

i. Par
ii. 10% Discount
iii. 10% Premium

$$K_d = \frac{I}{NP}(1-t)$$

Where:

- I = Annual Interest = 12% of Rs.100 = Rs.12
- T = Tax Rate = 30%
- NP = Net Proceeds

i. **Issued at Par:**
NP = Rs.100

$$K_d = \frac{12 \times (1-0.30)}{100} = \frac{12 \times 0.70}{100} = 8.4\%$$

ii. **Issued at 10% Discount:**
NP = Rs.100 – 10 = Rs.90

$$K_d = \frac{12 \times 0.70}{90} = \frac{8.4}{90} = 9.33\%$$

iii. **Issued at 10% Premium:**
NP = Rs.100 + 10 = Rs.110

$$K_d = \frac{12 \times 0.70}{110} = \frac{8.4}{110} = 7.64\%$$

ii. Cost of redeemable debt

- repaid after fixed period

Redeemable debt is a type of debt that the company must repay after a certain period. Until then, the company pays interest regularly (usually every year or every month).To find the after-tax cost of this type of debt, both the interest payments and any gain or loss from issuing or repaying the debt (at par, discount, or premium) must be considered. The company may issue

and/or redeem this debt at its face value (par), at a discount, or at a premium.

Equation to compute after tax cost

$$K_d = \frac{I(1-t) + \frac{RV - NP}{n}}{\frac{RV + NP}{2}}$$

Where,

I	=	Interest payment
NP	=	Net proceeds of debentures
RV	=	Redeemable value of debt
t	=	Tax rate
n	=	Number of years in which debt is to be redeemed

Equation to compute before tax

$$K_d = \frac{I + \frac{RV - NP}{n}}{\frac{RV + NP}{2}}$$

Where:

- K_d = Cost of debt (before tax)
- I = Annual Interest Payment
- RV = Redeemable Value (the amount that will be repaid at maturity)
- NP = Net Proceeds from the issue of debt (issue price minus any flotation costs)
- n = Number of years to maturity

Illustration 3.3.2

DKV Ltd has issued ₹75,000 worth of 11% debenture securities with a face value of ₹100 each. The company bears an issue cost (flotation charge) of 3% on the face value. These debentures are to be redeemed at a premium of 7% after 8 years. Interest is payable annually.

If the applicable corporate tax rate is 30%, calculate the after-tax cost of these debentures to the company.

$$K_d = \frac{I(1-t) + \frac{RV - NP}{n}}{\frac{RV + NP}{2}}$$

- Face Value (F): ₹100
- Net proceeds: ₹100 – 3% flotation cost = ₹97

- Interest Rate (R): 11% of Face Value = ₹11 per year
- Redemption Value (RV): ₹100 + 7% premium = ₹107
- Number of Years (N): 8 years
- Corporate Tax Rate (T): 30%

$$Kd = \frac{7.70 + \frac{107-97}{8}}{\frac{107+97}{2}}$$

$$= \frac{7.70 + \frac{10}{8}}{\frac{204}{2}}$$

$$= \frac{7.70 + 1.25}{102}$$

$$= \frac{8.95}{102} = 0.0877 \text{ or } 8.77\%$$

c. Cost of Preference Capital

- appropriation of profits in fixed rate

There are some basic challenges in measuring the cost of preference capital. When a company takes on debt, it is legally required to pay interest on that debt, and this interest forms the basis for calculating the cost of borrowing. But this is not the case with preference capital. A company is not legally bound to pay dividends on preference shares. Even when dividends are paid, they are not treated as an expense in the profit and loss account; instead, they are considered an appropriation of profits to preference shareholders.

Because of this, some might think that dividends on preference shares are not a real cost to the company, but this is not true. The cost of preference capital depends on the returns that investors expect to receive. Although the company is not legally forced to pay preference dividends every year, in practice, these payments are usually made when the company earns sufficient profits. Failure to pay these dividends does not lead to bankruptcy, but it can create serious concerns for equity shareholders.

If preference dividends remain unpaid, preference shareholders may receive voting rights and take part in the company's management. Most preference shares are cumulative, meaning that any unpaid dividends build up and must be paid before equi-

ty shareholders receive any dividend. This can prevent the company from raising further funds through preference or ordinary shares. Moreover, if preference and equity shareholders do not receive dividends, the market price of the company's ordinary shares may fall.

For these reasons, companies generally try to pay preference dividends regularly, except in cases where they are facing losses or cash shortages. Preference capital can be divided into two types

i. Irredeemable

ii. Redeemable and

i. **Irredeemable preference shares**

The price of irredeemable preference shares is calculated in the same way as a perpetuity. To find the price of an irredeemable preference share, you divide the annual preference dividend by either the market rate of return or the net proceeds received from issuing the share.

The formula to calculate the cost of an irredeemable preference share is:

$$\text{Cost of Preference Share (Kp)} = \frac{\text{Preference Dividend}}{\text{Net Proceeds or Market Price}}$$

Illustraion 3.3.3

Dhruvin Ltd has issued preference shares with a face value of ₹100 each, carrying a fixed dividend of 12%. These shares are currently trading in the market at ₹90. The company has no plans to redeem these shares, making them irredeemable.

Calculate the cost of preference share capital to the company.

- Face Value (FV): ₹100
- Dividend Rate: 12%
- Market Price (MP): ₹90
- Preference Dividend: ₹100 × 12% = ₹12

$$K_p = \frac{\text{Preference Dividend}}{\text{Market Price}}$$

$$K_p = \frac{₹12}{₹90} = 0.1333 \text{ or } 13.33\%$$

ii. **Redeemable Preference Shares**

In practice, companies also issue redeemable preference shares, which means preference shares that have a fixed maturity period. These shares can be bought back (redeemed) by the company after a specified time.While calculating the cost of redeemable preference shares, it is important to consider both the maturity period and the redeemable (repayment) value of these shares.

The cost of redeemable preference shares can be estimated using the following formula :

$$K_p = \frac{D + \frac{(RV - NP)}{N}}{\frac{(RV + NP)}{2}}$$

Where:

- **Kp** = Cost of Preference Share Capital
- **D** = Annual Preference Dividend
- **RV** = Redeemable Value of the share
- **NP** = Net Proceeds (issue price minus flotation cost, if any)
- **N** = Number of years to maturity

Illustration 3.3.4

XYZ Ltd has issued ₹100 face value preference shares offering a 10% dividend rate. These shares are redeemable at ₹110 after 5 years. The company issued these shares at ₹95 each (net proceeds).

Calculate the cost of redeemable preference share capital to the company.

- Face Value (FV): ₹100
- Dividend Rate: 10%
- Dividend (D): ₹100 × 10% = ₹10
- Redeemable Value (RV): ₹110
- Net Proceeds (NP): ₹95
- Maturity Period (N): 5 years

$$K_p = \frac{D + \frac{(RV - NP)}{N}}{\frac{(RV + NP)}{2}}$$

$$K_p = \frac{10 + \frac{(110 - 95)}{5}}{\frac{(110 + 95)}{2}}$$

$$K_p = \frac{10 + \frac{15}{5}}{\frac{205}{2}}$$

$$K_p = \frac{10 + 3}{102.5}$$

$$K_p = \frac{13}{102.5} = 0.1268 \text{ or } 12.68\%$$

c. Cost of equity shares

- variable return

Some people think that equity capital (money raised by issuing shares to owners) is free of cost because companies are not legally forced to pay dividends to their ordinary (equity) shareholders. Also, unlike loans or preference shares where fixed interest or dividends must be paid, dividends on equity shares are not fixed and can change. Equity capital is not free of cost because it has an opportunity cost. When investors put their money into a company's shares, they expect to earn returns such as dividends or an increase in the share price as a reward for the risk they are taking. If the company does not provide a fair return, the market price of its shares will fall, as investors will choose to invest elsewhere for better returns.

In a competitive capital market, the current share price reflects what return investors expect from the company. This expected return is the cost of equity capital for the business because the company must earn at least this much to satisfy its shareholders and keep the share price stable.

Various techniques for computing cost equity share capital as follows:

Figure 3.3.1 cost of equity share capital

I. Dividend Price Approach

- Same dividend every year

The Dividend Price Approach, also known as the Dividend Valuation Model (DVM), is a simple method to calculate the cost of equity capital. This method assumes that the dividend paid on each share will remain the same every year (no increase or decrease). According to this approach, the expected dividend is compared to the current market price of the share.

$$\text{Cost of Equity (Ke)} = \frac{D}{P}$$

- **D** = Expected Annual Dividend per Share
- **P** = Current Market Price per Share

This result shows the return (in percentage) that shareholders expect to earn from the dividends they receive based on the current share price.

Illustration 3.3.5

DKV Ltd. has issued equity shares that currently sell in the stock market for ₹200 per share. The company pays a constant dividend of ₹10 per share every year. Calculate the cost of equity capital using the Dividend Price Approach.

ii. Earning Price Approach

- constant

The Earning Price Approach is another method used to calculate the cost of equity capital.

According to this method, the cost of equity is the rate that connects (or "discounts") the company's future earnings per share (EPS) to the present market price of the share.

This method assumes that the company's earnings will remain constant in the future.

$$\text{Cost of Equity (Ke)} = \frac{E}{P}$$

E = Earnings per Share (EPS)

P = Current Market Price per Share

This tells us what return shareholders are expecting based on the company's earnings, not dividends.

Illustration 3.3.6

Dhruvin Ltd. has an earnings per share (EPS) of ₹15. The current market price of the share is ₹150. Calculate the cost of equity using the Earning Price Approach.

$$\text{Ke} = \frac{E}{P} = \frac{15}{150} = 0.10 \text{ or } 10\%$$

iii. iii.Growth Approach

The Growth Approach is used to calculate the cost of equity capital when dividends are expected to grow at a constant rate every year. This method assumes that dividends, earnings, and the share price will all increase steadily over time at the same growth rate.

$$\text{Ke} = \frac{D_1}{P_0 - F} + g$$

Where:

- **Ke** = Cost of Equity
- D_1 = Expected Dividend for the next year
- P_0 = Current Market Price per share
- **F** = Flotation cost per share (if any)
- **g** = Expected constant growth rate of dividends

If no new shares are issued (or no flotation cost is involved), then:

$$\text{Ke} = \frac{D_1}{P_0} + g$$

Illustration 3.3.6

JMJ Ltd. is expected to pay a dividend of ₹6 per share next year (D_1 = ₹6). The current market price of its share is ₹120 (P_0 = ₹120). Dividends are expected to grow at a rate of 4% per year (g = 4%). There is no flotation costs involved.

$$Ke = \frac{D_1}{P_0} + g$$

$$Ke = \frac{6}{120} + 0.04$$

$$Ke = 0.05 + 0.04 = 0.09 \text{ or } 9\%$$

The cost of equity capital for ABC Ltd. is 9%. This means the company must earn at least 9% to meet shareholder expectations, considering the annual growth in dividends.

iv. Realized yield approach

- Reinvesting

In this method, the average return earned by shareholders over the past few years is taken as the expected return for the future. It uses the actual dividend payments received by equity shareholders to calculate the cost of equity capital. Although this approach gives a direct way to find the cost of capital, it assumes unrealistically that the company's risk and shareholders' expected returns will remain the same. It also assumes that shareholders will reinvest at the same return rate, and that the market price of shares will not change much.

$$\text{Cost of Equity (Ke)} = \frac{\text{Average Dividend per Share}}{\text{Current Market Price per Share}} \times 100$$

Illustration 3.3.7

A company has paid the following dividends per share over the past 3 years:

- Year 1: ₹4
- Year 2: ₹5
- Year 3: ₹6

Current Market Price per Share = ₹50

Calculate cost of equity according to realized yield approach.

$$\text{Average Dividend} = \frac{4+5+6}{3} = ₹5$$

$$\text{Ke} = \frac{5}{50} \times 100 = 10\%$$

v. The Capital Asset Pricing Model (CAPM)

- risk free return and risk premium

CAPM is a method used to find the cost of equity capital, which is the return expected by investors for investing in a company's shares. According to this approach, the return on a share depends on two things a risk-free return and a risk premium. The risk-free return is what an investor would earn from a safe investment like government bonds, where there is almost no risk of losing money. The risk premium is the extra return expected for taking the risk of investing in a company's shares.

This method also uses a factor called Beta (β), which shows how much the price of a company's share moves compared to the whole stock market. If Beta is 1, the share's movement is the same as the market. If Beta is more than 1, the share is riskier and changes more than the market. If Beta is less than 1, the share is safer and changes less than the market. CAPM only considers systematic risk, which is the market-related risk that cannot be avoided even if the investor invests in many different companies. It does not consider unsystematic risk, which is the risk related to a particular company and can be reduced through diversification.

$$\text{Ke} = \text{Rf} + \beta(\text{Rm} - \text{Rf}),$$

where Ke is the cost of equity, Rf is the risk-free rate, β is the Beta value of the share, and Rm is the expected market return.

For example, suppose a company's share has a risk-free return of 5%, which means an investor can earn 5% safely by investing in government bonds. The expected return from the overall market is 11%, and the share has a Beta value of 1.2. Beta shows how much the share's price moves in relation to the market. If we use the CAPM formula to calculate the cost of equity, it will be:

$$\text{Ke} = \text{Rf} + \beta\,(\text{Rm} - \text{Rf})$$

Putting the given values into the formula, we get:

$$\text{Ke} = 5\% + 1.2 \times (11\% - 5\%) = 5\% + 1.2 \times 6\% = 5\% + 7.2\% = 12.2\%$$

So, the expected return or cost of equity for this company is 12.2%. This means the company must offer at least a 12.2%

return to its shareholders to make the investment worthwhile, considering the level of market risk involved.

Illustration 3.3.7

A company's share has a Beta (β) of 1.5. The risk-free rate of return is 6%, and the expected market return is 12%. Calculate the cost of equity using the CAPM approach.

Risk-free rate (Rf) = 6%
Expected market return (Rm) = 12%
Beta (β) = 1.5

$$Ke = Rf + \beta(Rm - Rf)$$

$$Ke = 6\% + 1.5 \times (12\% - 6\%)$$

$$Ke = 6\% + 1.5 \times 6\%$$

$$Ke = 6\% + 9\% = 15\%$$

Cost of equity: CAPM VS Dividend-Growth model

Capital Asset Pricing Model (CAPM) and the Dividend Growth Model. The CAPM method considers the relationship between risk and return. It calculates the cost of equity using a formula that includes the risk-free rate, the company's beta (which measures the stock's risk compared to the market), and the market risk premium. This model is widely used as it directly includes risk and is suitable for companies listed on the stock exchange. On the other hand, the Dividend Growth Model estimates the cost of equity based on the expected dividend and its constant growth rate. It is simple but has limited application, as it assumes dividends will grow at a constant rate forever and that this growth rate is lower than the required rate of return. It also cannot be applied to companies that do not pay regular dividends. While the Dividend Growth Model is easier to use when dividend data is available and stable, the CAPM is more flexible and realistic as it uses market-based inputs and reflects risk directly.

- CAPM based on risk and return and Growth model based Constant expected dividend

d. cost of retain earnings

Retained earnings are an important source of finance within the company. These are the profits that are not given to shareholders as dividends but are kept in the business for future use. When the company keeps back these earnings, shareholders lose the chance to earn income in the form of dividends. This lost

- opportunity cost

income is called an opportunity cost, as shareholders could have invested this money elsewhere to earn a return. So, the cost of retained earnings represents this opportunity cost to shareholders. It is the return that shareholders expect to earn if the company had paid the profits as dividends and they had invested it somewhere else.

$$K_r = \frac{D_1}{NP} + G$$

Where,

Kr = Cost of retained earnings

D = Expected dividend at the end of the year

NP = Net proceeds of share issue

G = Rate of growth

Illustration 3.3.7

ANC company expects to pay a dividend of ₹5 per share at the end of the year. The net proceeds per share (NP) are ₹50, and the expected growth rate of dividends is 8%. Calculate the cost of retained earnings.

Expected dividend (D) = ₹5
Net proceeds per share (NP) = ₹50
Growth rate (g) = 8%

$$Kr = \frac{5}{50} + 0.08$$

$$Kr = 0.10 + 0.08 = 0.18$$

$$Kr = 18\%$$

3.3.4.2 Weighted Average Cost of Capital

- Composite Cost

The Weighted Average Cost of Capital (WACC) is the overall average cost that a company pays for using the different sources of capital, such as equity shares, preference shares, debentures (debt), and retained earnings. Since a business may use more than one source of finance, it is necessary to compute a combined cost of these sources to make better financial decisions. This combined cost is called WACC. WACC represents the minimum return that the company must earn from its investments to satisfy its investors (equity holders, debt holders, etc.) and to maintain the market value of the firm.

In WACC, compute the specific cost of each source of finance

(for example, the cost of equity, the cost of debt, the cost of preference shares). Then, these costs are multiplied by their respective weights in the total capital employed by the business.

Steps involved in calculating WACC

1. **Assignment of weights : First of all, weights have to be assigned to each source of capital** These weights can be based on:

b. Book Value Weights

Book Value Weights are based on the values of different sources of capital as recorded in the company's balance sheet or financial statements. These values represent the original amount of capital raised or invested by the company, not their present market worth.

c. Market Value Weights

Market Value Weights are based on the current market prices of the company's sources of capital, such as equity shares, preference shares, and debentures. These values represent what investors are actually willing to pay in the open market, making them more realistic and relevant compared to book values. The market value reflects the true worth of a company's capital from the perspective of the investors. For example, if the equity share of a company has a face value of ₹10 but is currently trading in the market at ₹80, then ₹80 (not ₹10) will be taken as the basis for calculating weights. Using market values helps in understanding the present cost of raising funds or the economic value of existing capital. There are certain challenges with using market value weights. that are as follows:

- Current market price

a. Market values change frequently, making the calculation unreliable.

b. Using market value weights may give undue importance to equity capital because its market price may be significantly higher than the book value.

Due to these problems, book value weights are often preferred in practice because they are stable and easy to find.

2. Computation of specific cost of each source : after assigning the weights, the next step is to calculate the specific costs of each source .

3. Computation of WACC : After ascertaining the weights and cost of each source, the WACC is calculated. This is calculated by multiplying the cost of each source by its

respective weights.. Now we get weighted cost of each source. Then the weighted cost of all the sources are added. This is the WACC.

The formula for the computation of WACC as follows.

$$K_W = \frac{\Sigma(XW)}{\Sigma W}$$

Where:

- K_W = Weighted Average Cost of Capital
- X = Specific cost of each source of finance (e.g., cost of debt, cost of equity)
- W = Weight or proportion of that source in the total capital

Illustration 3.3.8

KV ltd has the following capital structure and after-tax costs for the different source of funds used.

Source of funds	Amount	Proportion	After tax cost (%)
Debt	200000	20	5
Preference shares	300000	30	10
Equity shares	400000	40	15
Retained earnings	100000	10	12
Total	1000000	100	

You are required to compute the weighted average cost of capital.

Solution:

Weighted average cost of capital

Source of funds	Amount	Proportion(W)	After tax cost (%) (x)	$\frac{\Sigma(XW)}{\Sigma W}$
Debt	200000	20	5	20*5/100=1
Preference shares	300000	30	10	30*10/100=3

Equity shares	400000	40	15	40*15/100=6
Retained earnings	100000	10	12	10*12/100=1.2
Total	1000000	100		**11.2%**

3.3.5 Marginal cost of capital

- cost of raising additional funds

Sometimes, a company needs to raise extra funds. The Marginal Cost of Capital is the cost of getting this extra (or new) capital. It is calculated as the weighted average cost of the new funds, using marginal weights. Marginal weights mean the proportion of each type of finance (like debt, preference shares, equity) used to raise the new money.If the company raises the new money in the same proportion as its existing capital structure, and the cost of each source stays the same, then the marginal cost of capital will be the same as the Weighted Average Cost of Capital (WACC).

But in reality, when a firm raises more funds:

- The proportions of funds may change,
- The cost of each type of fund may also change.

In such cases, the marginal cost of capital will not be equal to the existing WACC.

Also, this marginal cost of capital calculation ignores the long-term effects of the new financing decision. Therefore, for the purpose of maximising shareholder wealth in the long run, the Weighted Average Cost of Capital (WACC) is generally preferred over the marginal cost of capital.

Summarised Overview

Cost of capital is a fundamental concept in financial management, representing the minimum return a business must earn on its investments to preserve its market value and satisfy investors' expectations. This unit has explored the meaning and significance of cost of capital and highlighted its vital role in investment and financing decisions.

We examined the impact of business risk and financial risk on a firm's overall risk profile and capital cost. The unit also covered how to calculate the cost of debt, cost of retained earnings, and cost of preference capital, alongside methods to estimate the cost of equity using both the Capital Asset Pricing Model (CAPM) and the Dividend Growth Model, including the constant growth approach.The concept of the Weighted Average Cost of Capital (WACC) was introduced using both book value and market value weights,

illustrating how a firm combines different sources of finance. In addition, the weighted marginal cost of capital was discussed, helping us understand the cost of raising additional funds in line with existing capital structure.In conclusion, a clear understanding of the cost of capital equips financial managers to make informed decisions on investment, financing, and dividend policies. It supports the strategic aim of maximising shareholder wealth while maintaining an optimal capital structure.

Self-Assessment Question

1. Explain the concept of cost of capital
2. Essay on different methods for computation of cost equity.
3. Short note on CAPM.
4. A company issues debentures worth ₹1,00,000 at par value. The interest rate is 10% per annum, and the company is in the 30% tax bracket. Calculate the cost of irredeemable debt after tax.
5. A company issues preference shares worth ₹50,000 at par, offering a fixed dividend of 12% per annum.There are no flotation costs, and the shares are irredeemable. Calculate the cost of preference capital.
6. A company's equity has a beta of 1.2. The risk-free rate is 6%, and the expected market return is 12%. Calculate the cost of equity using CAPM.
7. What is Weighted Marginal Cost of Capital? How does it differ from WACC?

Assignments

1. Discuss the components of the cost of capital. How is the Weighted Average Cost of Capital (WACC) calculated.
2. Calculate the WACC From the following data;

Source of funds	Amount	proportion	After tax cost (%)
Debt	300000	30	10
Preference shares	150000	15	13
Equity shares	450000	45	16
Retained earnings	100000	10	16
Total	1000000	100	

3. Analyse the different methods for the computation of cost equity share capital.
4. "An incorrect estimate of the cost of capital can lead to poor financial decisions." Discuss this statement in detail.

Suggested Reading

1. Brigham, E. F., & Ehrhardt, M. C. (2021). *Financial management: Theory and practice* (15th ed.). Cengage Learning.
2. Jaggi, B., & Kaur, P. (2016). *Financial management: Theory and practice* (1st ed.). Tata McGraw-Hill Education.
3. Pandy, I. M. (2014). *Financial management* (11th ed.). Vikas Publishing.
4. Singh, J. K. (2017). *Financial management: Principles and practice* (1st ed.). Himalaya Publishing House.

Reference

1. Chandra, P. (2019). *Financial Management: Theory and Practice* (Xth ed.). Mc-Graw-Hill Education.
2. Gupta, S. K. (2018r). *Financial Management: Theory and practice*. Kalyani publishers.
3. Khan, M. Y. (2012). *Financial Management: Text, Problems, and Cases* (Xth ed.). Tata McGraw-Hill Education.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

04 BLOCK

DIVIDEND POLICIES AND WORKING CAPITAL DECISIONS

Block Content

Unit 1

Dividend Policies

Learning Outcomes

After completing this unit, the learner will be able to

- identify the different forms of dividend.
- understand the different types of dividend policy
- gain insight into the objectives and issues in dividend policy

Background

The term dividend refers to that part of profits of the company which is distributed by it among its shareholders. Dividend can be considered as the reward earned by the shareholders for the investments made by them in the share capital of the company. Dividend Decision is the third major financial decision and it is concerned with the quantum of profits to be distributed among its shareholders. The business concerns are confronted with the problem of deciding whether to distribute all its profits or retain all the profits for financing the future activities of the firm or retain certain portion of profits and distribute the rest. This is determined by the dividend policy of the business concerns. It lays out the payout including how often, when, and how much dividend has to be distributed. The aim of the dividend policy is to maximise a shareholder's return so as to maximise the value of his investment. This unit deals with the different forms of dividend, the different types of dividend policy and the objectives and the issues in dividend policy.

Keywords

Dividend, Dividend Policy, Forms of dividend

Discussion

Retained Earnings are the most important of source of internal financing of the firm. However, from the point of view of the shareholders, dividends are considered desirable. The form in which dividends are distributed can vary, depending on several factors such as the company's financial health, levels of profit, and long-term goals. The choice of dividend type is not merely a matter of routine but, involves careful consideration of its impact on shareholder value, market perception, and internal resource allocation. Understanding the different ways in which dividends can be issued provides insight into a company's overall financial philosophy and its relationship with investors. The different forms of dividends are discussed below:

4.1.1 Forms of dividends

i. Cash Dividend

- Payment of dividend in cash

Most often the companies pay dividends in cash. Cash here implies, cash, cheque, demand draft, warrant, or directly through Electronic Clearing Service (ECS) and not in kind. Otherwise it would have to borrow funds. Paying a cash dividend reduces both the company's cash and reserve accounts. As a result, the total assets and shareholders' equity (net worth) decrease. In most cases, the market price of the company's shares also falls by roughly the same amount as the cash dividend paid.

ii. Bonus Shares

- Distribution of new shares free of cost to exisiting shareholders

It is also referred to as stock dividends. It is the distribution of new shares free of cost to its existing shareholders. In other words, when shares are issued in lieu of cash dividend, it is referred to as Bonus Shares. The number of outstanding shares of the company increases as a result of the issue of bonus shares. These shares are distributed proportionately to the existing shareholders. So the exisiting shareholders retain their proportionate ownership and will not result in dilution of ownership.

iii. Share Split

- Increasing the number of outstanding shares by lowering par value of each share

A share split is a method used to increase the number of a company's outstanding shares by proportionally lowering the par value of each share. This adjustment affects only the par value and the total number of shares, without changing the overall value of shareholders' equity. The primary goal of a share split is to lower the share's market price, making it more appealing to potential investors. By bringing the share price into a more ac-

cessible and commonly traded range, the split attracts a broader base of investors, especially those with limited funds. This, in turn, enhances the marketability and liquidity of the company's shares.

- divident paid in the form of assets

iv. Property Dividend

It is paid in the form of assets in the form of assets other than cash. This form of dividend is not common and not popular in India. They are only distributed under special circumstances.

- issues of notes or bonds to shareholders

v. Scrip Dividend / Bond Dividend

If a company does not have sufficient cash to pay dividend, then it may issue notes or bonds to the shareholders. This is referred to as scrip dividend or bond dividend. The objective of issuing the scrip dividend is to postpone the immediate cash payment. A scrip dividend is accepted as a collateral security and it also bears interest.

- repurchase of own shares by a company

vi. Buyback of Shares

It refers to the repurchase of its own shares by a company. Until recently, the buyback of shares by companies in India was prohibited under Section 77 of the Indian Companies Act. As a result of the Companies Act (Amendment) 1999, a company in India can now buyback its own shares. In India the following conditions apply in case of the buyback shares:

i. A company buying back its shares will not issue fresh capital, except bonus issue, for the next 12 months.

ii. The company will state the amount to be used for the buyback of shares and seek prior approval of shareholders.

iii. The buyback of shares can be affected only by utilizing the free reserves, viz., reserves not specifically earmarked for some purpose.

iv. The company will not borrow funds to buy back shares.

- payment of dividend to its shareholders during a full or partial liquidation

vii. Liquidating Dividends:

When a company pays dividend to its shareholders during a full or partial liquidation. Such dividend is referred to as liquidating dividends. Such dividends are only distributed by companies during once in their lifetime.

4.1.2 Relevance of dividend

Dividends and retention are two key elements on how a company manages its profits. Dividends represent a portion of profits which are distributed to its shareholders and retained earnings

refer to the profits which are ploughed back for financing the future business activities of the company. The balance between these two directly influences a company's growth potential and shareholder value.

Relevance of Dividend

- Provides regular income stream for investors

Regular payment of dividend is an indicator that the company has available cash for dividend payment and is performing well. Usually the dividend paying shares are more appealing to investors, potentially increasing demand and stock price. Dividends provide a regular income stream for investors, which is particularly important for those seeking passive income.

Relevance of Retained Earnings:

- enables a company to strength its financial position and withstand economic challenges

Retained earnings are crucial for funding future investments, expansion, and research and development activities of the company. Retained earnings can be reinvested in the business to generate higher returns than the cost of capital, potentially increasing shareholder value in the long - run. Retaining a share of profits enables a company to strengthen its financial position and withstand economic challenges.

4.1.3 Management of Earnings as to Dividend and Retained Earnings

Companies must try to strike a balance between distributing dividends and retaining earnings. Higher dividends mean less money for re-investment, and vice-versa. The stage of growth of a company, investment opportunities of a company, and the preferences of the shareholders determines the choice between dividends and retention. In addition to this, dividend policy also acts as an indicator of company's financial health and future prospects.

4.1.4 Types of Dividend Policy

- strategy a company adopts to divide how its earnings have to be allocated

Dividend policy refers to the strategy a company adopts to decide how its earnings have to be allocated. A company has to decide the proportion of profits to be paid as dividends and the proportion of profits to be retained for business growth. While some companies prefer paying regular dividends, other companies will prefer to reinvest most of their earnings back into the business. It is a crucial financial decision as it has an impact on the company's capital structure, investor satisfaction, and overall valuation of the firm. The aim of dividend policy is to strike a balance between rewarding shareholders with regular returns and retaining earnings to fund expansion and operations of the company. A well-planned dividend policy indicates the company's financial health, stability, and management's confidence in future performance.

Following are the different types of dividend policy

1. Regular Dividend Policy

- dividend paid consistently at a fixed rate

A dividend paid consistently at a regular or fixed rate is known as regular dividend. Such dividends are especially preferred by investors like retirees, widows, and individuals from financially weaker sections, as they rely on a steady source of income.

A regular dividend policy provides several benefits:

a. It helps to build a track record of profitability for the company.

b. It enhances shareholder confidence.

c. It supports long-term financing and simplifies the process of raising funds.

d. It contributes to the stability of the company's share price in the market.

e. Regular dividends serve as a vital source of income for ordinary shareholders to cover daily living expenses.

If profits are not distributed consistently and are instead retained, shareholders may face a higher tax burden when the accumulated profits are eventually paid out.

However, it is important to note that only well-established companies with stable earnings can afford to maintain regular dividends. To ensure sustainability, companies should set regular dividend rates at a conservative level, lower than their average earnings.

2. Stable Dividend Policy / Stability in Dividends

- Maintaining consistency in dividend payments

Stability in dividends refers to the situation where there is a consistency in dividend payments. In simple words, it means the payment of certain minimum amount of dividend on a regular basis. There are three forms of stable dividend policy. They are :

a. Constant dividend per share.

- Paying fixed dividend per share irrespective of level of earnings

Some companies follow a policy of paying fixed dividend per share irrespective of the level of earnings year after year. For the payment of dividend, such firms, create Dividend Equalisation Reserve . This enables them to pay the fixed dividend even if the earnings are not sufficient or when there are losses. This policy is suitable for firms whose earnings are expected to remain stable over a number of years.

b. Constant payout ratio.

- Paying fixed percentage of net earnings as dividends

It means the practice of paying a fixed percentage of net earnings as dividends every year. However, in this policy, the amount of dividend fluctuates in direct proportion to the earnings of the company. Firms often favor a constant pay-out policy because it aligns with their financial capacity to distribute dividends.

c. Stable rupee dividend plus extra dividend.

- distributing a consisitently low dividend per share

Certain companies adopt a policy of distributing a consistently low dividend per share along with an additional dividend during years of high profitability. This approach is particularly appropriate for firms with earnings that change significantly from year to year.

3. Irregular Dividend Policy

- Does not pay dividends consistently in terms of amount frequency

If a company does not pay dividends consistently either in terms of amount or frequency, then such a dividend distribution strategy is referred to as Irregular Dividend Policy. Under this policy, dividends are declared only when the company has excess profits or surplus cash, and management deems it appropriate. There is no fixed schedule or rate for dividend payments. Some companies follow irregular dividend payments when there is

a. Uncertainty of earnings.

b. Unsuccessful business operations.

c. Lack of liquid resources.

4. No Dividend Policy

- Policy of paying no dividends

A company may follow a policy of paying no dividends when the working capital position is unfavourable or when the firm needs to keep aside the funds for future.

4.1.5 Corporate Dividend Behaviour

- Patterns and decisions made by companies with the reference to distribution of dividends

The patterns and decisions made by companies with reference to the distribution of dividends to their shareholders is referred to as Corporate Dividend Behaviour. It involves various strategies, trends, and factors that influence how companies manage their dividend policies over time. The corporate Dividend behaviour of the company is influenced by numerous factors such as stability of earnings, financial health of the company, preferences of the investors and the market conditions,

Factors influencing Corporate Dividend Behaviour

i. Earnings Stability: Companies with steady income levels are more likely to provide regular dividend payouts to their shareholders.

ii. Financial Health: The financial health and cash flow position of the company significantly impact the ability of the company to pay dividend.

iii. Investor Preferences: It is also crucial to understand the preference and expectations of the shareholders preferences as they play a crucial role in shaping corporate dividend behaviour.

iv. Market Conditions: Economic conditions, industry trends, and regulatory factors also impact corporate dividend behaviour of companies.

4.1.6 Objectives of dividend policy

- Acts as an indicator of financial health and future prospects

i. Maximization of Shareholder Wealth

It is one of the predominant objectives of dividend policy. A well-defined dividend policy acts as an indicator of the financial health and future prospects of the company. A well framed dividend policy will help in increasing the confidence of the investors. This will ultimately help in positively impacting the market value of shares.

- Ensure stable and predictable returns to shareholders

ii. Providing Stable Returns to Shareholders

Another key objective of the dividend policy is to ensure stable and predictable returns to shareholders. Income focussed investors such as retirees and institutions rely on regular dividend income. The companies can build trust and attract long-term investment by maintaining a consistent or gradually increasing dividend payout policy. Even when profits fluctuate, stability in dividends will help to reflect prudent financial management.

- Balance the use of retained earnings

iii. Optimal Capital Allocation

The aim of the dividend policy is to balance the use of retained earnings between reinvestment in profitable opportunities and returning surplus cash to shareholders. It is better to distribute profits as dividends if the company has no worthwhile investment opportunities with positive net present value (NPV). This approach ensures optimal capital allocation and prevents the misuse of excess funds by the management.

- Communicate key insights about a company's expected future performance

iv. Signalling Effect to the Market

Dividend policy also plays a signalling role. Based on signalling theory, adjustments in dividend pay outs communicate key insights about a company's expected future performance. For example, a considerable increase in dividends can considered be as a positive indication that management anticipates stronger future earnings, whereas a reduction in dividends may suggest potential financial difficulties.

v. Maintaining Target Capital Structure

- Helps in maintaining company's desired capital structure

An effective dividend policy also helps in maintaining the company's desired capital structure. By controlling the level of retained earnings (through dividend payout), companies manage their debt-equity ratio, which impacts their cost of capital and risk profile. Excessive retention may lead to over-capitalization, whereas very high payouts could compel firms to borrow unnecessarily, increasing financial risk.

4.1.7 Issues in dividend policy

i. Deciding the Optimal Payout Ratio

- Percentage of dividend per share as a percentage of earnings per share

A complex issue is determining the appropriate payout ratio. Payout ratio refers to the percentage of dividend per share as a percentage of earnings per share. In other words, it refers to the amount of dividend paid relative to the company's earnings. Retention ratio implies 100 per cent minus payout percentage. While a high payout ratio may be able to satisfy shareholders looking for regular income, it can affect the ability of companies to finance future growth and expansion activities of the company using owned funds. On the contrary, a low payout ratio implies lower current dividends, more amount of retained earnings and higher capital gains. A low payout ratio policy might produce a higher share price as it accelerates growth in earnings. But it may disappoint shareholders expecting regular returns. The optimal payout ratio often depends on the firm's stage in the business lifecycle, industry norms, and future investment opportunities. Growth companies usually prefer lower payout ratios, while mature firms with limited growth opportunities may adopt a higher ratio to distribute excess funds.

ii. Liquidity Constraints

- Lack of enough liquid cash

A company may not always have enough liquid cash to pay dividends even if it earns significant profits. As dividends are paid out of cash and not profits, this scenario creates a critical issue in decision-making. The liquidity position of the business is often affected by working capital needs, debt obligations, capital expenditures, and unexpected expenses. This lack of parity between profits and cash flows may induce companies to reduce or suspend dividends, and thus potentially upsetting investors. Therefore, it is important for the companies to maintain adequate cash reserves before announcing dividends and avoid negative market sentiment and financial distress.

iii. Effect on Share Price and Value

Another significant issue is the perceived impact of the dividend policy on the market price of the company's shares. A con-

- Helps to boost investor confidence leading to increase in share price

sistent dividend policy will help to boost investor confidence, potentially leading to an increase in the share price. On the other hand, cutting dividends might be interpreted negatively by the investors and can lead to decline in market value, even if it's for reinvestment in profitable ventures.

iv. Market Signalling and Investor Perception

- Acts as a tool for communicating with investors

Dividend announcements are often interpreted by investors as signals of a company's future performance. A rise in dividends is usually viewed as a sign of strong future earnings, while a cut may be perceived as a red flag, even if it's made for strategic reinvestment purposes. This signalling effect makes dividend policy a tool for communicating with investors. Companies must, therefore, manage dividend changes carefully to avoid misinterpretation. Unintended negative signals can lead to a decline in share prices and loss of investor trust, which makes consistent communication and strategic clarity essential.

4.1.8 Factors or Determinants of Dividend Policy

There are a large number of factors affecting dividend policy. These factors may be classified into two:

A. Internal Factors

B. External Factors

A. Internal Factors :

Following are the important internal factors affecting dividend policy

- Stability in earnings

1. **Stability and size of earnings** : Dividend is dependent on the earnings of the firm. If the earnings are relatively stable, a firm is able to predict what its future earnings will be. Therefore, it can follow a liberal dividend policy. A rational dividend policy should take into account both the amount and nature of earnings from year to year.

- availabilty of greater liquid resources

2. **Liquidity position** : The liquidity position is an important consideration in dividend decision. Payment of dividend involves outflow of cash. Even if the earnings are a company may not be able to pay cash dividend because of inadequate cash balance. A fast growing firm requires more funds in the near future. The greater the future needs for funds, the more likely the firm is to retain earnings rather than to pay them out.

- Rates of dividend in past are considered for existing firm

3. **Past dividend rates :** In an existing firm, the board of directors will have to consider the rate of dividend declared in the past. In a new concern, the rate of dividend being declared by rival companies will have to be taken into consideration.

- More profits will be retained if there is huge debt to repay

4. **Need to repay debt :** A firm which has huge debts to repay is likely to retain more profits. It means the rate of dividend will be lower if the company needs to repay huge debts.

- Should strike balance between shareholders

5. **Investment opportunities and shareholder's preference :** Management should adopt that dividend policy which strikes a balance between the shareholders preference for dividends and investment opportunities with retained earnings. If there are large number of profitable investment opportunities, it should give preference to retention of earnings over payment of dividends. In short management should follow that policy which suits to shareholder's interest and company's interest.

B. External factors:

Following are the important external factors affecting dividend policy.

- Influence dividend policy

1. **Trade Cycle**: Trade cycle also exercise influence upon dividend policy. For example, during inflation, funds generated from depreciation may not be sufficient for replacement of assets. This may compel a company to retain more profits and pay a lower rate of dividend.

- Consider the legal requirements

2. **Legal requirements:** Whenever the board of directors meet to formulate a dividend policy, it has to consider the legal requirements with regard to dividend. Some of the legal restrictions are – 1) Dividend can only be paid out of profit and not out of capital. 2) The company can declare and pay dividend out of past years profit

- affect dividend

3. **Corporate tax**: Corporate taxes affect dividend both directly and indirectly. Heavy rates of taxation reduce the residual profit available to shareholders. Consequently the rate of dividend is affected.

- Affected by changes in government policies

4. **Government policy :** The earning capacity of the company is widely affected by the change in fiscal, industrial, labour control and other government policies.

Summarised Overview

Dividend policy is a crucial aspect of financial management. It encompasses a company's strategic approach in determining the portion of profits to be distributed to its shareholders as dividends versus the amount to be retained for reinvestment for financing the future expansion activities and growth of the business. It influences the investor confidence and expectations and the market value of the business concern. The relevance of dividend and retention lies in how a firm allocates its earnings between immediate distribution to shareholders and reinvestment for future growth. Dividends provide a tangible return to shareholders. On the other hand, retained earnings are a crucial internal source of internal financing the expansion, innovation, and long-term value creation of the firm. The decision to pay dividends or retain profits must align with the firm's financial goals, investment opportunities, and liquidity position. Striking the right balance between dividend payouts and profit retention is essential for sustaining growth while maintaining shareholder satisfaction. The dividend policy involves deciding how much profit have to be distributed to shareholders and how much profit have to be retained for financing the future activities of the business. Dividend can be paid in varied forms namely Cash Dividend, Bonus Shares, Share Split, Property Dividend, Scrip Dividend, Bonus Shares and Buy Back of shares. There are different types of Dividend Policy such as Regular Dividend Policy, Stable Dividend Policy, Irregular Dividend Policy and No Dividend Policy. Maximization of shareholder wealth, ensuring stable returns to shareholders, ensuring optimal capital allocation, signalling effect to the market and maintaining target capital structure are some of the key objectives of dividend policy.

Self-Assessment Question

1. What do you mean by dividend?
2. Explain the different types of dividend
3. What are the objectives of dividend policy?
4. Elucidate the different types of dividend policy
5. Discuss the issues in dividend policy.
6. Explain the relevance of dividend and retained earnings
7. What do you mean by corporate dividend behaviour?
8. Expalin the factors affecting corporate dividend behaviour

Assignments

1. How does a stable dividend policy impact investor confidence compared to a residual dividend policy?
2. What are the advantages and disadvantages of adopting a constant payout ratio policy in a volatile industry?
3. How can a well-structured dividend policy support a firm's goal of maximizing shareholder wealth?
4. To what extent do dividend policies influence the market value of a firm's stock?
5. How does a dividend policy help in attracting long-term versus short-term investors?

Suggested Reading

1. Khan, M. Y., & Jain, P. K. (2019.). *Financial management: Text, problems and cases*. McGraw-Hill Education.
2. Chandra, P. (2015.). *Financial management: Theory and practice*. Tata McGraw

Reference

1. Gupta, S. K., Sharma, R. K., & Gupta, N. (2018). *Financial management: Theory and practice* (9th ed.). Kalyani Publishers.
2. Pandey, I. M. (2015). *Financial management* (11th ed.). Vikas Publishing House Pvt. Ltd.
3. Tulsian, T. C., Tulsian, B., & Tulsian, T. (2020). Tulsian's Cost and Management Accounting. McGraw Hill Education (India), Private Limited.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 2

Dividend Theories

Learning Outcomes

After completing this unit, the learner will be able to

- Gain insight into the different dividend theories

Background

Dividend theories examine the relationship between a company's dividend policy and its valuation of the firm. There are two prominent schools of thought which examines whether the payment of dividends has any effect on the value of the firm or not. One is called the "Theory of Relevance" and the latter is called the "Theory of Irrelevance". Walter's Model and Gordon's Model are relevance theories which argue that dividends are relevant and influences the valuation of the firm. On the other hand, irrelevant theories like Modigliani and Miller (MM) Hypothesis and Residual Theory, claim that dividend policy has no impact on a company's value under perfect market conditions. This unit discusses the Relevance theories and Irrelevance theories of dividend.

Keywords

Relevance Theories, Irrelevance Theories, Dividend Policy, Valuation

Discussion

- Two schools of thought

Dividend Theories

There are two schools of thought regarding the impact of dividend decision on the valuation of the firm. One school of thought argues that dividend decision does not have an impact on the wealth of the shareholders and hence the valuation of the firm.

Whereas, the second school of thought argues that dividend decision influences the shareholders' wealth which ultimately impacts the valuation of the firm.

4.2.1 Relevance Concept of Dividend (The Theory of Relevance)

4.2.1.1 Walters's model

- dividend decisions are relevant and affects the firm's value

Walter's Model is based on the relationship between the firm's return on investment (denoted by r) and the cost of capital or required rate of return (denoted by k).According to this model dividend decisions are relevant and affects the value of the firm. So, the relationship between the internal rate of return earned by the firm and its cost of capital is very significant in determining the dividend policy to serve the ultimate goal of maximising the wealth of the share holders.

According to Prof. Walter ,

- growth firms

i. If the firm's rate of return on investment (r) is greater than its required rate of return (k) , (i.e, if r > k), then it should retain its earnings. Such firms are called as growth firm's. So in the case of growth firms the optimum payout ratio would be zero. This would aid in maximising the value of shares.

- declining firms

ii. If the firm's rate of return on investment (r) is lesser than its required rate of return (k) , (i.e, if r < k), then it should distribute its entire earnings as dividends. Such firms are known as declining firm's. So in the case of declining firms the optimum payout ratio would be 100 percent and the shareholders would stand to gain if the firm distributes its earnings

- normal firms

iii. If the rate of return on investment (r) of a firm is equal to its required rate of return (k) , (i.e, if r = k), then such firms are known as normal firms. There is no optimum dividend payout for such firms and the value of the firm would not change with the change in dividend. In the case of normal firms, dividend policy does not change the market value of shares because shareholders receive the return they expect, whether the company pays dividends or keeps the profits.

Assumption of Walter's Model

- Assumptions

Following are the assumptions of this model,

i. Retained earnings only are used for financing the investments of the firm and it does not depend on any external sources of funds.

ii. The internal rate of return (r) and the cost of capital (k) of the firm remain constant.

iii. Earnings and dividends are constant and they remain the same while determining the value.

iv. The firm has a long life.

Walter's Formula for Determining the Value of a Share

Walter has developed a mathematical equation to ascertain the market price of a share

$$P = \frac{D}{ke - g}$$

Where

P= Price of equity share

D = Initial dividend per share

ke = Cost of equity capital

g = Expected growth rate of earnings/dividend

He has also given the following formula to ascertain the market price of a share

$$P = \frac{D}{ke} + \frac{r(E-D)/ke}{ke}$$

Where

P = Market Price per equity share

D = Dividend per share

r = Internal rate of return

E = Earnings per share

ke = Cost of equity capital

Illustration 4.2.1

The following information is available in respect of a firm:

Capitalisation rate – 10%

Earnings per share - ₹ 100

Assumed rate of return on investments:

i. 12%

ii. 10%

Show the effect of dividend policy on market price of shares applying Walter's formula when dividend pay out ratio is (a) 0% (b) 40%, (d) 80%, and (d) 100

Solution :

$$P = \frac{D}{ke} + \frac{r(E-D)/ke}{ke}$$

Effect of dividend policy on market price of shares

(i) When dividend pay out ratio is 0 %	
(i) r = 12 %	(ii) r = 10%
$P = \frac{0}{.10} + \frac{0.12(100-0)/0.10}{.10}$ = ₹1200	$P = \frac{0}{.10} + \frac{0.10(100-0)/0.10}{.10}$ = ₹1000
(ii) When dividend pay out ratio is 40 %	
(i) r = 12 %	(ii) r = 10%
$P = \frac{40}{.10} + \frac{0.12(100-40)/0.10}{.10}$ = ₹1120	$P = \frac{40}{.10} + \frac{0.10(100-40)/0.10}{.10}$ = ₹1000
(iii) When dividend pay out ratio is 80 %	
(i) r = 12 %	(ii) r = 10%
$P = \frac{80}{.10} + \frac{0.12(100-80)/0.10}{.10}$ = ₹1040	$P = \frac{80}{.10} + \frac{0.10(100-80)/0.10}{.10}$ = ₹1000
(iv) When dividend pay out ratio is 100 %	
(i) r = 12 %	(ii) r = 10%
$P = \frac{100}{.10} + \frac{0.12(100-100)/0.10}{.10}$ = ₹1000	$P = \frac{100}{.10} + \frac{0.10(100-100)/0.10}{.10}$ = ₹1000

4.2.2.2 Gordon's model

Similar to Prof. Walter, Myron Gordon has also developed a model which argues that dividends are relevant and the dividend decision of the firm affects the valuation of the firm.

- dividends are relevant and dividend decision affects valuation of the firm

Assumptions of Gordon's Model

This model is based on the following assumptions:

(I) The firm is an all equity firm.

(ii) The rate of return on the firm's investment i.e, r, is constant.

(iii) No external financing is employed and retained earnings

is the only source for financing the investments.

(iv) The retention ratio, denoted by ' b ', is constant. The growth rate of the firm g = br, is also constant.

◆ assumptions

(v) The cost of capital for the firm is also constant. It is greater than the growth rate.

i.e.k > br.

(vi) The firm assumed to have a perpetual life

(vii) There are no corporate taxes.

According to this model, a share's market value is equal to the present value of future stream of dividends.

Gordon's valuation formula is given below

$$P = \frac{E(1-b)}{ke-br}$$

$$P = \frac{D1}{ke-g} = \frac{D0\,(1+g)}{ke-g}$$

P = Price of shares

E = Earnings per share

b = Retention ratio

ke = Cost of equity capital

br = g = Growth rate in r,

i.e, rate of return on investment of an all-equity firm

D_0 = Dividend per share

D_1 = Expected dividend at the end of year

Implications of Gordon Model:

◆ growth firms

i. When the rate of return on investment of the firm (r) is greater than the required rate of return (k) , i.e, when r > k, then the per share price increases as the dividend payout ratio decreases. So, it would be ideal for growth firms to distribute lesser dividends and retain maximum earnings.

◆ normal firms

ii. When the rate of return (r) is equal to the required rate of return (k) , i.e., when r = k the per share price remains constant and is not affected by the dividend policy. Thus, there is no optimum dividend payout for a normal firms,.

◆ declining firms

iii. When the rate of return (r) is less than the required rate of return (k) , i.e., when r < k the per share price increases as the dividend payout ratio increases. Thus, it would be ideal for the declining firms to distribute their earnings to the shareholders. For such firms, the optimum pay out would be 100%.

Illustration 4.2.2

Following information is relating to Arnav Ltd.

Rate of return on investment

(i) 5 % (ii) 12 % (iii) 15%

Cost of Capital (k) = 12 %

Earnings per Share (E) = ₹ 20

Calculate the value of the shares of Arnav Ltd using Gordon's Model assuming the following

	D/P ratio (1-b)	Retention Ratio (b)
(a)	100	0
(b)	80	20
(c)	40	60

Solution

$P = \frac{E(1-b)}{ke-br}$

(i) r=5%	(ii)r=12%	(iii) r= 15%
(a) When D/P ratio is 100% or b = 0		
$P = \frac{E(1-b)}{ke-br}$ $= \frac{20(1-0)}{0.12-0 \times 0.05}$ = ₹166.67	$P = \frac{E(1-b)}{ke-br}$ $= \frac{20(1-0)}{0.12-0 \times 0.12}$ = ₹166.67	$P = \frac{E(1-b)}{ke-br}$ $= \frac{20(1-0)}{0.12-0.\times 0.15}$ = ₹166.67
(b) When D/P ratio is 80% or b = . 20		
$P = \frac{E(1-b)}{ke-br}$ $= \frac{20(1-.20)}{0.12-0.20 \times 0.05}$ = ₹145.45	$P = \frac{E(1-b)}{ke-br}$ $= \frac{20(1-.20)}{0.12-0.20 \times 0.12}$ = ₹166.67	$P = \frac{E(1-b)}{ke-br}$ $= \frac{20(1-.20)}{0.12-0.20 \times 0.15}$ = ₹177.78
(c) When D/P ratio is 40% or b = . 60		

$$P = \frac{E(1-b)}{ke-br}$$

$$= \frac{20(1-.60)}{0.12-0.60\times0.05}$$

$= ₹88.89$

$$P = \frac{E(1-b)}{ke-br}$$

$$= \frac{20(1-.60)}{0.12-0.60\times0.12}$$

$= ₹\ 166.67$

$$P = \frac{E(1-b)}{ke-br}$$

$$= \frac{20(1-.60)}{0.12-0.60\times0.15}$$

$= ₹\ 266.67$

4.2.2.3 Bird in the hand Argument/ Theory (Gordon's Revised Model)

- model is revised to incoporate risk and uncertanity

The basic assumption underlying Gordon's Basic Valuation Model was that that cost of capital i.e, k will remain constant for a firm. However, it is not true in practice. In order to incorporate risk and uncertainty, Gordon revised his basic model.

It is based on two assumptions. They are

i. investors are risk averse,

ii. they put a premium on a certain return and discount/ penalise uncertain returns.

- Value of a rupee of dividend is more than value of rupee of capital gain

As the investors are rational and want to avoid risk, they prefer near dividends than future dividends. So, bird – in – the hand argument means that the value of a rupee of dividend income is more than the value of rupee of capital gain.

Shareholders prefer to act on the principle that a bird in the hand is worth more than two in the bushes. They will be willing to pay a premium for the share with the higher dividend rate due to this reason. Therefore, when dividend policy is viewed in the context of uncertainty, the cost of capital cannot be treated as fixed. To minimise the cost of capital, a firm should aim for a high dividend payout ratio and provide a strong dividend yield.

4.2.2 Irrelevance Concept of Dividend (The Theory of Irrelevance)

4.2.2.1 Modigliani and Miller Approach (MM Model) / MM hypothesis

- Market price of shares is unaffected by divident policy of the firm

According to this model, market price of the shares is unaffected by the dividend policy of the firm. The value of a firm is determined by its earning capacity or its investment policy. According to this model, "Under conditions of perfect capital markets, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on

the market price of the shares."

Assumptions of MM Hypothesis

Following are the assumptions of the MM hypothesis of irrelevance of dividends

i. There are perfect capital markets.

ii. Investors are rational.

iii. Information about the company is freely accessible to everyone at no cost.

iv. Floatation and transaction costs are absent.

v. No single investor is strong enough to alter the market price of shares.

vi. Either taxes do not exist, or the tax rates on dividends and capital gains are the same.

- assumptions

vii. The firm adheres to a fixed investment policy.

viii. The future of the firm is free from any risk or uncertainty (However, this assumption was later removed by Modigliani and Miller).

Argument given by Modigliani and Miller

Modigliani and Miller argue that any increase in a firm's value due to the payment of dividends will be exactly offset by a corresponding decrease in the market price of its shares resulting from the need for external financing. As a result, there is no overall change in the total wealth of the shareholders

- argument for MM Hypothesis

If a company with profitable investment opportunities pays out all its earnings as dividends to shareholders, it will need to raise additional capital from external sources. This could lead to the issuance of more shares or incurring interest costs, which in turn may reduce future earnings per share. As a result, any benefit a shareholder receives from dividends is entirely offset by a decrease in the share's market price, caused by the drop in anticipated future earnings. More precisely, the market price of a share at the beginning of a period equals the present value of the dividend received at the end of the period plus the expected market price of the share at that time.

This can be put in the following formula

$$P_0 = \frac{D1 + P1}{1 + ke}$$

Where P_0 = Market price per share at the beginning of the period or prevailing market price of a share

D1 = Dividend to be received at the end of the period

P1 = Market price per share at the end of the period

Ke = Cost of Equity Capital or rate of capitalisation

From the above equation $P1 = P_0 (1+ Ke) – D1$

By presuming that investment required by firm on account of payment of dividends is financed out of the new issue of equity shares, the MM hypothesis can be explained in another form also

Then, the number of shares to be issued can be computed with the help of the following equation:

$$m = \frac{I\,(E-nD1)}{P1}$$

Further, the value of the firm can be ascertained with the help of the following formula:

$$nP_0 = \frac{(n+m)P1-(1-E)}{1+Ke}$$

Where m =number of shares to be issued.

I = Investment required.

E = Total earnings of the firm during the period.

P1 = Market price per share at the end of the period.

Ke = Cost of equity capital.

n = number of shares outstanding at the beginning of the period.

D1 = Dividend to be paid at the end of the period.

nP_0 = Value of the Firm

Criticism of MM Approach

On account of various unrealistic assumptions as given below the MM model is criticized.

- Criticisms

1. In reality, the situation of prefect capital market is impossible.
2. All the persons will not equally have information about the company.
3. Flotation costs have to be incurred by firms while issuing securities.
4. Taxes exist and there is difference in tax treatment for

dividends and capital gains.

5. A rigid investment policy may not be followed by firms.
6. While doing any transaction, the investors will have to pay brokerage, fees, etc
7. As compared to further gains, shareholders may prefer current income.

4.2.2.2 Residual Theory of dividend

- Divident decision has no effect on market price of shares

As per this theory, dividend decision has no effect on the shareholders wealth or the market price of the shares. So, dividend decision has no relevance in the valuation of the firm. This theory regards dividend decision merely as a part of financing decision as it suggests that earnings available may be retained in the business for re-investment. However, if the funds are not required in the business they may be distributed as dividends. So the decision to retain or distribute the profits may only be considered as a residual decision.

- No distinction is made between dividend and retained earnings

This theory is based on the idea that no distinction is made between dividends and retained earnings by the investors. Their prime goal is to earn a good return on their investment. If the company has profitable investment opportunities that can yield a return higher than the cost of retained earnings, investors would be satisfied with the company keeping the profits to fund those opportunities. However, if no such profitable opportunities exist, investors would rather receive the profits as dividends. Therefore, a company should retain earnings only when it can invest them wisely; otherwise, it should distribute them as dividends.

Summarised Overview

Dividend theories examine how a company's decision to distribute profits impacts its market value and shareholder wealth. The core question addressed by these theories is whether paying dividends increases a firm's value or if investors are indifferent to dividend payments. Over time, several theories have emerged with differing views. Relevance theories, such as Walter's Model and Gordon's Model, suggest that dividends have relevance and can influence the firm's stock price and investor perception. On the other hand, the Modigliani and Miller (MM) Irrelevance Theory argues that, under ideal market conditions, dividend policy does not affect a firm's value. These theories help financial managers understand the potential impact of dividend decisions on investor behaviour, capital structure, and long-term growth. In real-world scenarios, however, factors like taxes, transaction costs, market imperfections, and investor preferences often make dividend policy a complex and strategic issue for companies.

Suggested Reading

1. Khan, M. Y., & Jain, P. K. (2019.). *Financial management: Text, problems and cases*. McGraw-Hill Education.
2. Chandra, P. (2015.). *Financial management: Theory and practice*. Tata McGraw

4. What do you mean by MM hypothesis ?
5. Explain the residual theory of dividend .
6. What are the assumptions of Walter's Model
7. What are the assumptions of Gorden's Model

Assignments

1. Differentiate between Relevance and Irrelevance theories of Dividend.
2. How does Walter's model explain the relevance of dividend policy in influencing a firm's market value?
3. How does the bird-in-the-hand theory conflict with the MM dividend irrelevance theory?

Suggested Reading

1. Khan, M. Y., & Jain, P. K. (2019.). *Financial management: Text, problems and cases*. McGraw-Hill Education.
2. Chandra, P. (2015.). *Financial management: Theory and practice*. Tata McGraw

Reference

1. Gupta, S. K., Sharma, R. K., & Gupta, N. (2018). *Financial management: Theory and practice* (9th ed.). Kalyani Publishers.
2. Pandey, I. M. (2015). *Financial management* (11th ed.). Vikas Publishing House Pvt. Ltd.
3. Tulsian, T. C., Tulsian, B., & Tulsian, T. (2020). Tulsian's Cost and Management Accounting. McGraw Hill Education (India), Private Limited.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 3

Concepts of Working Capital

Learning Outcomes

After completing this unit, the learner will be able to

- understand the concept of working capital
- Gain insight into the factors determining working capital
- explain the operating cycle
- understand the different types of working capital

Background

Working capital can be considered as the lifeblood of business. Just as the circulation of blood is essential in a human body, every business requires adequate amount of working capital for ensuring smooth flow of operations. Working Capital refers to that part of the firm's capital which is required for managing the day-to-day operations and an financing the short-term assets of the business. Short - term current assets comprises of cash, receivables and inventories. The working capital requirements are dependent on various factors such as the nature of the business, size of operation, manufacturing process, production policy, operating cycle and so on. The operating cycle of a business has a direct impact on how much working capital is needed. It refers to the time taken to convert raw materials into finished goods, sell them, and collect payments. It is very crucial for the business to ensure proper estimation of working capital so that it can operate smoothly without facing liquidity issues. It involves forecasting the requirements for cash, receivables, inventories, and payables, based on production levels and expected sales. Proper management of current assets such as cash, inventory, and trade receivables is very essential for avoiding under-investment or over-investment. Over –investment or under – investment are both harmful for the business as it could either strain operations or block funds unnecessarily. This unit discusses the concept of working capital, factors affecting working capital, concept of operating cycle and the different types of working capital.

Keywords

Working Capital, Operatiing Cycle, Permanent Capital, Temporary Capital

Discussion

4.3.1 Working Capital - Meaning and Definition

- Fixed capital and working capital

A business firm requires two types of capital in order to function efficiently. The first category of capital is required for the purchase of fixed assets or the establishment of the production facilities. Such investment requires long term commitment of funds as they are permanently invested in the fixed assets. This capital is referred to as fixed capital. The second category of capital that a business firm requires are the funds that are required for funding the day to day operations of the business and in order to keep its daily operations go on a smooth and uninterrupted basis. Such capital is referred to as "Working Capital". Working capital is required for the purchase of raw materials, payment of wages and for meeting day-to-day expenses, etc.

- Short- term capital

Working capital is the short - term capital required for financing or funding the short term assets such as cash, marketable securities, debtors and inventories. These funds so invested in these assets keep revolving fast. They are being constantly converted into cash. This cash flows out aqain in exchange for other current assets. This is the reason why working capital is also referred to as revolving or circulating capital.

- definiton of working capital

According to Genestenberg, "Circulating capital means current assets of a company that are changed in the ordinary course of business from one form to another, as for example, from cash to inventories, inventories to receivables, receivables into cash."

4.3.2 Importance of Working Capital

- adequate working capital is to be maintained

It is very important for business concerns to maintain adequate working capital in order to ensure the smooth flow of business operations. There should neither be excess or shortage of working capital as both are bad for any business. Excessive working capital represents the situation of having idle funds which does not earn any profits for the business. On the other hand, in the case of inadequate working capital the business firms will not be able to meet its short term obligations, pay for day – to - day expenses or exploit favourable market conditions. Thus, a firm

will loose its reputation and will not be able to avail good credit facilities when required. The significance of maintaining adequate working capital is explained below :

i. Maintain Solvency

An adequate level of working capital enables business firms to maintain their solvency. Firms will be able to meet their short term obligations as and when they arise.

ii. Regular supply of raw materials

Sufficient working capital ensures regular supply of raw materials. This facilitates continuous production in business firms without any disruptions.

iii. Regular payment of salaries, wages and other day-to-day commitments

A business concern which has ample working capital can make regular payment of salaries, wages and other day-to-day commitments. This helps to raise the morale of its employees. This further results in increase in the efficiency of workers and reduction in wastages. This will help in lowering of production costs and enhancing profits.

iv. Increase Goodwill

The provision of adequate working capital enables a business concern to meet its short - term obligations on time. This helps in increasing the goodwill of the business firm.

v. Easy availability of loans

A business firm having adequate working capital, high solvency and good credit standing will be able to arrange loans from banks and other financial institutions on favourable terms with ease

vi. Helps in availing Cash discounts

Adequate working capital enables business firms to avail cash discounts on the purchases. This will help in reducing costs.

vii. Exploitation of favourable market conditions

Having adequate working capital enables business firms to take advantage of favourable market conditions, such as buying supplies in bulk at lower prices and holding inventory until market prices rise, thereby maximizing profits.

viii. Ability to face crisis

A business firm having adequate working capital will be able to face emergencies such as depression. During such periods, the pressure on working capital will be high.

viii. Quick and regular return on investments.

Every investor wants a quick and regular return on his investments. Sufficiency of working capital enables a concern to pay quick and regular dividends to its investors as there may not be much pressure to plough back profits. This gains the confidence of its investors and creates a favourable market to raise additional funds in the future.

4.3.3 Working Capital Management

- Planning and controlling the level of current assets

It is the process of planning and controlling the level of current assets, the mix of the current assets of the firm as well as the manner of financing these current assets. Financial Managers have to determine what quantities of cash, other liquid assets, accounts receivable, and inventories the firm will have to maintain or hold at a given point in time. They are also responsible for deciding how these current assets will be financed.

4.3.4 Factors determining working capital requirements

The requirement of working capital requirement of a business concern is dependent on numerous factors. Some of the important factors are discussed below:

i. Nature of the business

- requirement of working capital varies with the nature of the business

The nature or character of the business firm is a predominant factor which determines the amount of the working capital required by the firm. In the case of public utility undertakings such as Railways, Electricity and Water Supply, the requirement of working capital is very minimal as they supply services and not products. Moreover, they have only cash sales and credit sales. Hence, no funds are tied up in the form of inventories and receivables in such undertakings. However, if we consider the case of trading and financial business firms, the requirement of working capital is very large as they have to invest their funds in current assets like inventories, receivables and cash though their investment in fixed assets is less. Similarly, manufacturing undertakings also require ample amount of working capital along with fixed capital.

In conclusion, public utility undertakings need only a small amount of working capital, while trading and financial firms require a relatively large amount of working capital. Manufacturing enterprises, on the other hand, need a moderate level of working capital, falling between these two extremes.

ii. Size of operations

- Larger the size of the firm larger the working capital requirment

Size of operations of the business is the second major factor which determines the working capital requirements of a business firm. Larger the size of the firm, then larger will be its working capital requirements and vice- versa. However, in certain situations such as high overhead charges or inefficient usage of working capital, even a small firm would also require huge amount of working capital.

iii. Production Policy of the Firm

- depends on production policy of business concerns

The demand of market offerings of certain industries are influenced by seasonal variations. Hence, the requirement of the working capital in such industries are dependent on the production policy of the business concerns. So the business firms in such industries have two options. The business firms may either keep the production steady by accumulating inventories during stack periods with the aim of meeting high demand during the peak season. So to keep the production steady, higher working capital will be required. The second option is to the curtail the production during the slack season with a view to increase it during the peak season.

iv. Manufacturing Process

- length or duration of manufacturing process

In manufacturing firms, the working capital requirements is directly proportional to the length or duration of the manufacturing process. So, if the period of manufacture is long, then larger amount of working capital will be required and vice versa. It is because the raw materials and other supplies will be required for a long period of time. Similarly the labour and service costs will also increase with the increase in the duration of the manufacturing process.

v. Working Capital Cycle/Operating Cycle

- longer the period of working capital cycle, larger the working capital requirement

Another major determinant of the working capital requirement is the speed with which the working capital completes one cycle. Longer the period of the working capital cycle, larger will be the requirement of working capital. In the case of manufacturing concerns, the working capital cycle begins with the purchase of raw materials and stores, which are then converted into finished goods through work-in-progress, along with the gradual addition of labour and service costs. The finished goods are then sold, leading to the creation of debtors and receivables, and finally, the realization of cash. This cash is once again used to purchase raw materials, thus continuing the cycle.

vi. Rate of Stock Turnover

- working capital requirment is inversely related to speed with which sales are effected

Rate of Stock Turnover is another major determinant which determines the quantum of working capital required. The quantum of working capital required is inversely related to the speed with which the sales are effected. A firm having a low stock turnover will require a high amount of working capital as compared to a firm having a high stock turnover.

vii. Credit Policy

- depends on credit policy of the business concern

A business concern that purchases its raw materials and other requirements on credit and sells its products/services on cash will require lesser amount of working capital as compared to a business concern buying its requirements for cash and allowing credit to its customers. The second business concern shall need larger amount of working capital as huge funds are likely to be tied up in the form of debtors or bills receivables.

viii. Earning Capacity and Dividend Policy

- depends on earning capacity and dividend policy of the business concern

Firms having high earning capacity will be able to generate cash profits from operations Thus, they will be able to contribute to their working capital. Similarly, the dividend policy of a concern also influences the requirements of its working capital. A business firm that consistently pays a high cash dividend regardless of its levels of profit will require more amounts of working capital as compared to a firm that retains a larger portion of its earnings and pays a lower cash dividend.

ix. Rate of Growth of Business.

- working capital requirements increases with growth of business

Along with the growth and expansion of its business activities, the working capital requirements of a business concern increases. Although it is difficult to precisely to define the relationship between the growth in business volume growth and growth in working capital, it can be concluded that for a typical rate of business expansion, retained profits may be sufficient to support the additional working capital needed. However, in the case of rapidly growing businesses, a significantly larger amount of working capital will be required.

x. Seasonal Variations

- More working capital during peak season compared to off-seasons

Raw material may not be available throughout the year in certain industries. So the business firms in such industries will have to buy raw materials in bulk during the available season in order to maintain continuous production throughout the year. This will give rise to a situation where significant amount of funds are being tied up in inventory during that period. increasing the need for working capital. Typically, a business firm will require more working capital during peak seasons as compared to off-seasons.

xi. Business Cycles

- requirements of working capital is dependend stage of business cycle

The business cycle describes the repeated pattern of economic activity that moves through phases such as boom (a period of rapid growth), recession (a slowdown in economic activity), depression (a prolonged and severe downturn), and recovery (a gradual return to growth), forming a continuous cycle of ups and downs in the economy. During boom period, there will be larger requirement of working capital due to increase in sales, rise in prices, optimistic expansion of business, etc. In contrast, during the period of depression, sales decline, difficulties are faced in collections from debtors. In such situation, firms may have a large amount of working capital lying idle.

xii. Price Level Changes.

- large working capital during period of rising prices

Price level changes also impact the working capital requirements of a business concern. During the period of rising prices, business firms will have to maintain larger amount of working capital.

xiii. Other Factors.

- other factors affecting working capital requirements

In addition to the above mentioned factors, certain other factors such as the operating efficiency and management ability of the firm, supply irregularities, import policy, asset structure, banking facilities, etc., also determine the working capital requirements of a business concern

4.3.5 Dangers of Inadequate Working Capital

- Excess and shortage of working capital are bad for the business

Every business unit should have adequate working capital to run the business. A firm should neither have excess or redundant working capital nor inadequate or shortage of working capital. Both excess as well as short working capital position are bad for any business. However, out of the two, it is the inadequacy of working capital which is more dangerous from the point of view of the firm. The following are the dangers of deficiency or shortage of working capital :

- damages of inadequate working capital

1. It may lead to business failure.
2. The firm cannot take advantage of new opportunities or adapt to changes.
3. Financial reputation is lost.
4. Creditors may apply to court for winding up
5. Rate of return on investment falls.
6. It affects dividend policy adversely

Dangers of Excessive Working Capital

Following are the dangers of excessive working capital

1. Excessive working capital means idle funds which give no profits. Thus the rate of return falls.
2. The value of shares may fall due to lower rate of return on investment.
3. Efficiency of management may deteriorate.
4. It may lead to speculative transactions
5. It may result in overall inefficiency.
6. Excessive working capital may cause unnecessary purchasing and accumulation of inventories. This may lead to waste and losses.
7. Excess working capital indicates excessive debtors and defective credit policy. This may lead to higher incidence of bad debts.

- damage of excessive working capital

4.3.6 Operating Cycle / Working Capital Cycle

- working capital is determined by the duration to complete working capital cycle

The circular flow concept of working capital is based on the operating cycle of the firm. Operating cycle or working capital cycle refers to the period/ length/ duration of time extending from the purchase of raw material, its conversion into stock and receiving cash from the sale of finished goods. The amount of working capital is determined by the speed or duration to complete one working capital cycle. Longer the period of the cycle, larger will be the requirement of the working capital.

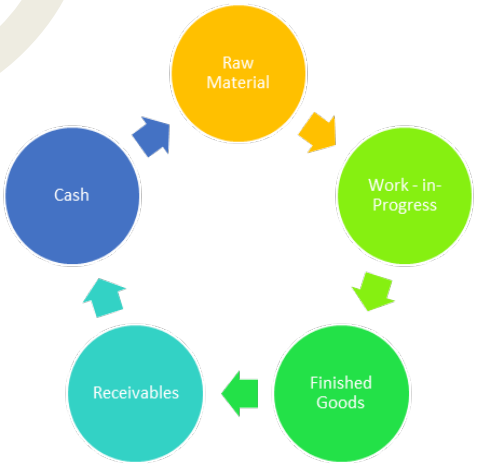


Figure 4.3.1 : Operating Cycle

There are two types of Working capital cycle

- Gross working capital cycle and net working capital cycle

1. Gross Working Capital cycle and
2. Net Working Capital Cycle.

Gross Working Capital Cycle = Raw Material Conversion Period + Work in Progress Conversion period + Finished Goods Conversion Period + Receivables Conversion Period

Net Operating Cycle = Gross Operating cycle – Payable Deferral Period

1. Raw material Conversion Period = $\frac{Average\ Stock\ of\ Raw\ Material}{Raw\ material\ Consumption\ per\ day}$

2. Work – in – progress Conversion Period = $\frac{Average\ Stock\ of\ Work\ in\ Progress}{Total\ Cost\ of\ Production\ per\ day}$

3. Finished Goods Conversion Period = $\frac{Average\ Stock\ of\ Finished\ Goods}{Total\ Cost\ of\ Goods\ Sold\ per\ day}$

4. Receivables Conversion Period = $\frac{Average\ Account\ Receivables}{Net\ Credit\ Sales\ per\ day}$

5. Payables Deferral Period = $\frac{Average\ Payables}{Net\ Credit\ Purchases\ per\ day}$

Illustration 4.3.1

From the following data, compute the duration of operating cycle

Particulars	A Ltd	B Ltd
Stocks		
Raw Material	30,000	50,000
Work in progress	20,000	35,000
Finished Goods	15,000	28,000
Purchase/ Consumption of Raw Material	1,50,000	1,70,000
Cost of goods produced / sold	1,00,000	2,80,000
Sales (all credit)	2,60,000	3,32,000
Debtors	62,000	98,000
Creditors	10,000	17,000

Assume 360 days per year for computational purposes

Solution

Computation of Operating Cycle

Particulars	A Ltd	B Ltd
(a) Raw Material Conversion / Holding period = $\frac{\text{Average Stock of Raw Material}}{\text{Raw material Consumption per day}}$	$= \frac{30,000}{1,50,000} \times 360$ = 72 days	$= \frac{50,000}{1,70,000} \times 360$ = 106 days
(b) 2. Work – in – progress Conversion Period = = $\frac{\text{Average Stock of Work in Progress}}{\text{Total Cost of Production per day}}$	$= \frac{20,000}{1,00,000} \times 360$ = 72 days	$= \frac{35,000}{2,80,000} \times 360$ = 45 days
(c) Finished Goods Conversion Period = $\frac{\text{Average Stock of Finished Goods}}{\text{Total Cost of Goods Sold per day}}$	$= \frac{15,000}{1,00,000} \times 360$ = 54 days	$= \frac{28,000}{2,80,000} \times 360$ =36 days
(d) Receivables Conversion Period = $\frac{\text{Average Account Receivables}}{\text{Net Credit Sales per day}}$	$= \frac{62,000}{2,60,000} \times 360$ = 86 days	$= \frac{98,000}{3,32,000} \times 360$ = 106 days
(e) Payables Deferral Period = $\frac{\text{Average Payables}}{\text{Net Credit Purchases per day}}$	$= \frac{10,000}{1,50,000} \times 360$ = 24 days	$= \frac{17,000}{1,70,000} \times 360$ =36 days
Gross duration of Operating Cycle = (a) +(b)+(c)+(d)	= 284 days	= 293 days
Net duration of Operating Cycle = (a) +(b)+(c)+(d) – (e)	=260 days	=257 days

Illustration 4.3.2

Prepare an estimate of working capital requirement from the following information of a trading concern: Sun Ltd

a. Projected annual sales Rs. 1,00,000/-units

b. Selling Price Rs.8 per unit

c. Percentage of net profit on sales 25%

d. Average credit period allowed to customers 8 weeks

e. Average credit period allowed by suppliers 4 weeks

f. Average stock holding in terms of sales requirement 12 weeks

g. Allow 20% for contingencies

Solution :

A. CURRENT ASSETS	Rs.
Debtors (8 weeks) 6,00,000*8/52 (at cost)	92,308
Stock (12 weeks) 6,00,000 * 12 / 52	1,38,462
Total Current Assets	2,30,770
B.CURRENT LIABILITIES	
Creditors (4 weeks) 6,00,000 * 4 /52	46,154
Net Working Capital A - B	1,84,616
Add : 20% for contingencies	36,923
Working Capital Required	22,15,39

Working Note: 1

a. Sales = 1,00,000* 8= Rs 8,00,000

b. Profit = 25% of Rs.8,00,000 = Rs.2,00,000

c. Cost of sales = Sales – Profit = Rs.8,00,000 – Rs.2,00,000

d. Cost of sales = Rs.6,00,000

Working Note: 2 : as it is a trading concern cost of sales are assumed to be the purchase

4.3.7 Types of Working Capital

Working Capital can be classified on the basis of concept and on the basis of time.

(A) On the basis of Concept

On the basis of concept, working capital may be

1. Gross working capital
2. Net working capital.

- Total amount of funds invested in current assets

1. Gross working capital represents the total amount of funds or capital which are invested in the current assets of a business enterprise. Current assets are assets which may be converted into cash within a short period of time normally within a span of one accounting year. Current assets include cash, bank balances, bills receivable, sundry debtors, short - term securities, inventories, prepaid expenses and accrued incomes.

- Difference between current assets and current liabilities

2. Net working capital refers to the difference between current assets and current liabilities. Current liabilities are claims of outsiders and these liabilities mature for payment within a span of one accounting year. These include bills payable, sundry creditors, outstanding expenses, short term loans, dividends payable and Bank Overdraft

- Net working capital may be positive or negative

Net working capital may be positive or negative. A positive working capital arises when the current assets exceeds current liabilities. The situation of negative working capital arises when the current liabilities exceeds the current assets.

B. On the basis of Time

On the basis of time, working capital may be Permanent Working Capital and Temporary Working Capital

1. Permanent Capital

- Minimum working capital required for carying out normal businesss operations

It is also referred to as fixed working capital. Fixed working capital is the minimum working capital which is required for the efficient utilisation of fixed facilities and also for maintaining the circulation of current assets. This minimum capital is required for carrying out the normal business operations of the business. Every business organisation should ensure to maintain a minimum level of raw materials, work-in-process, finished goods and cash balance. Such type of capital is called permanent working capital as it is permanently blocked in the current assets. As the business organisation expands its scale of operations, its requirements of permanent working capital will also increase due to the increase in current assets. The permanent working capital

can further be classified as regular working capital and reserve working capital.

- Working capital required to ensure circulation of current assets

a. Regular working capital

It refers to the working capital which is required to ensure circulation of current assets from cash to inventories, from inventories to receivables and from receivables to cash and so on.

- Maintained over and above the requirment for regular working capital

b. Reserve working capital

It is the excess amount of funds which a business firm has to maintain over and above the requirement for regular working capital. This is required for meeting the contingencies or emergency situations such as strikes, rise in prices, depression, etc.

2. Temporary Working Capital

- Variable working capital

It is also referred to as variable working capital. It is the amount of working capital which is required for meeting the seasonal demands and some special exigencies. Temporary working capital differs from permanent working capital in the sense that it is required for short periods and cannot be permanently employed gainfully in the business. Another difference is that permanent working capital is fixed or constant over the period of time while temporary working capital is fluctuating in nature.

Temporary working capital is further bifurcated into seasonal working capital and special work capital.

- For meeting seasonal needs

a. Seasonal working capital

It is the working capital which is required for meeting the seasonal needs.

- For meeting special exigencies

b. Special working capital

It refers to the working capital which may required for meeting special exigencies. For example a firm may require additional working capital for conducting research before launching of extensive marketing campaigns.

4.3.8 Management of Current Assets

Current Assets are those assets which can be converted to cash within a period of one year. Current assets include cash, bills receivable, sundry debtors, inventories etc. Management of current assets can be considered as one among the vital aspects of financial management.

Components of Current Asset Management :

The major components of current asset management include :

i. Cash Management

It refers to the efficient planning, monitoring, and controlling of cash flows. It involves managing the movement of cash into and out of the firm, managing the circulation of cash within the firm, and maintaining adequate cash balances. Cash management mainly aims to provide sufficient cash for meeting the requirements of the business units, ensure that no funds remain blocked as idle cash, and ensure that surplus cash are invested in profitable avenues to maximise returns. Thus, cash management is essentially a balancing act between liquidity and profitability, ensuring that the firm has enough cash to meet its obligations while minimizing the cost of holding cash.

ii. Receivables Management

It involves the formulation of sound credit policies, assessing customer creditworthiness, and designing effective collection procedures so as to minimise bad debts and taking appropriate measures to accelerate cash inflows.

iii. Inventory Management

It focuses on maintaining sufficient stock so as to ensure uninterrupted production and sales, while avoiding overstocking and high carrying costs by employing various inventory control techniques.

iv. Marketable securities management

It involves the planning and controlling of short-term investments with the objective of ensuring safety, liquidity, and reasonable returns on surplus funds. Short-term investments include treasury bills, commercial papers, certificates of deposit, and government bonds. It focuses on investing idle cash in highly liquid and low-risk instruments that can be quickly converted into cash, thereby balancing profitability with financial flexibility.

Summarised Overview

Working capital is the short - term capital required for financing or funding the short term assets such as cash, marketable securities, debtors and inventories. The funds so invested in these assets keep revolving fast. It is very important for business concerns to maintain adequate working capital in order to ensure the smooth flow of business operations. There should neither be excess or shortage of working capital as both are bad for any business. The working capital requirements of a business is affected by the nature of the business, size of operation, manufacturing process, production policy, working capital cycle, rate of stock turnover, credit policy, earning capacity and dividend policy, rate of growth of business, seasonal variations, business cycles, price level changes and

other factors. Operating cycle refers to the period/ length/ duration of time extending from the purchase of raw material, its conversion into stock and receiving cash from the sale of finished goods. Working Capital can be classified on the basis of concept and on the basis of time. On the basis of concept, working capital may be classified as gross working capital and net working capital. On the basis of time working capital is classified as Permanent Working Capital and Temporary Working Capital.

Self-Assessment Question

1. What do you mean by working capital? Explain its importance.
2. Explain the factors determining working capital requirements.
3. What is Operating Cycle / Working capital Cycle?
4. Differentiate between gross working capital and net working capital.
5. What is the difference between permanent and temporary working capital?
6. What are regular working capital and reserve working capital?
7. What is special working capital and seasonal working capital ?
8. Expalin the dangers of inadequate working capital

Assignments

1. Explain the different types of working capital
2. From the following data, compute the duration of operating cycle

Particulars	X Ltd	Y Ltd
Stocks		
Raw Material	₹40,000	₹55,000
Work in Progress	₹25,000	₹30,000

Finished Goods	₹20,000	₹25,000
Purchase/ Consumption of Raw Material	₹1,80,000	₹2,00,000
Cost of Goods Produced/ Sold	₹1,50,000	₹3,00,000
Sales (All Credit)	₹3,00,000	₹3,60,000
Debtors	₹75,000	₹1,05,000
Creditors	₹12,000	₹20,000

Assume 360 days per year for computational purposes

Suggested Reading

1. Khan, M. Y., & Jain, P. K. (2019.). *Financial management: Text, problems and cases*. McGraw-Hill Education.
2. Chandra, P. (2015.). *Financial management: Theory and practice*. Tata McGraw

Reference

1. Gupta, S. K., Sharma, R. K., & Gupta, N. (2018). *Financial management: Theory and practice* (9th ed.). Kalyani Publishers.
2. Pandey, I. M. (2015). *Financial management* (11th ed.). Vikas Publishing House Pvt. Ltd.
3. Tulsian, T. C., Tulsian, B., & Tulsian, T. (2020). Tulsian's Cost and Management Accounting. McGraw Hill Education (India), Private Limited

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

Unit 4

Components of Working Capital Decisions

Learning Outcomes

After completing this unit, the learner will be able to:

- gain insight into the concept of cash management, receivables management, and inventory management

Background

In any business, effective management of short-term financial resources such as cash, receivables and inventory is essential for efficient conduct of business operations. One of the most important areas in this regard is the management of cash. It focuses on maintaining adequate cash levels to meet immediate expenses and liabilities. Firms hold cash for various motives such as transactional motive, precautionary motive, and speculative motive. This makes it essential to carry out cash planning and efficiently manage cash inflows and outflows. Alongside cash, receivables management also forms a crucial element of working capital. Receivables management involves establishing a sound credit policy, determining the optimum level of credit to extended, conducting credit evaluations of individual customers, and monitoring receivables to reduce delays and defaults. Another important area of working capital management is the management of inventory. Business concerns use various inventory management techniques such as EOQ, ABC, and JIT to control stock levels effectively. Collectively, managing cash, receivables, and inventory enables businesses to optimize their working capital, reduce costs, and improve overall efficiency and profitability. This unit discusses about the various concepts related to cash management, receivables management, and inventory management.

Keywords

Cash management, receivables management, inventory management

Discussion

4.4.1 Cash and Liquidity Management

Cash is the most important current asset required for the operations of the business. Every business requires adequate cash balance (neither more nor less) in order to keep the business running on a continuous basis. The shortage of cash will disrupt the manufacturing operations of the firm. On the other hand, the problem of having excessive cash is tha,t it will remain idle, without contributing anything towards the firm's profitability. Thus, maintaining a sound cash position is one the predominant functions of a financial manager.

The term 'cash' refers to the coins, currency and cheques held by the firm and balances in the bank accounts. It also involves near-cash assets such as marketable securities and time deposits in banks. These securities can be readily sold and converted into cash whenever it is required.

Cash management is a broad term which involves managing the cash flows into and out of the firm, cash flows within the firm, and managing and controlling of cash balances held by the firm at a point of time by financing deficit or investing surplus cash. Cash management assumes very much importance than other current assets. Even though cash is the most significant asset, it is also the least productive one. As compared to the fixed assets or inventories it does not produce goods for sale. Thus, the sole aim of cash management is to maintain adequate control over the cash position in order to maintain sufficient liquidity and to use excess cash in a profitable and judicious manner.

- involves managing the cash flows

4.4.1.1 Motives of Holding Cash

i. Transaction Motive

It means that every firm should hold cash in order to carry out its day-to-day business activities. Cash is mainly required to meet regular payments such as making purchases, payment of wages and salaries, operational expenses, taxes, dividends, and similar obligations. Ideally, if there were a perfect match between the timing of cash inflows and outflows i.e, if the business firm received cash exactly when the payments were due, the firm would be not need to maintain cash reserves. However, in reality this is not possible. In addition to this, there are periods when cash outflows exceed the cash inflows. This makes it essential for the firm to hold a buffer of cash to fulfill its obligations on time. To manage this, firms may also temporarily invest idle cash

- firms should hold cash to carry out day to day business activities

in marketable securities, selecting instruments that mature in line with expected future payments, such as taxes or dividends. Thus, transactions motive is primarily concerned with holding cash to meet predictable payments when the timing of receipts and disbursements does not align perfectly.

ii. Precautionary Motive

The precautionary motive means the business concerns must hold cash to meet contingencies in the future. This will act as a cushion or buffer for firms in order to withstand any unexpected emergency that may arise. The precautionary amount of cash to be maintained by the business concerns depends upon the predictability of cash flows. If the firm can predict the cash flows with emergency, then only less amount of cash will have to be maintained. The amount of precautionary cash to be maintained by a business concern is also influenced by the firm's ability to borrow at short notice whenever a need arises. If the ability of the firm to borrow at short notice is not strong, then it will have to maintain adequate amount of precautionary balance. The precautionary balance may be kept in cash and marketable securities. The funds should be invested in high-liquid and low-risk marketable securities.

- business concerns must hold cash to meet contingencies in the future

iii. Speculative Motive

It refers to holding of cash for investing in profitable investment opportunities as and when they arise. When the security prices change, the opportunity to make profit may arise. If a firm expects that interest rates will rise and security prices will fall, it will hold cash. When the interest rate is expected to fall, securities can be purchased. It is because the firm will benefit by the subsequent fall in interest rates and increase in security prices. The firm may also speculate on the price of materials. If it is expected that price of the materials will fall, the firm can postpone the purchasing of materials and make purchases in future when price actually falls.

- holding of cash for investing in profitable investment opportunities

4.4.1.2 Cash Planning

Cash planning refers to the process or technique of planning and controlling the use of cash. Business concerns require sufficient cash for various purposes such as investing in inventory, receivables and fixed assets and to make payment for operating expenses. Sometimes, even when a firm has adequate profits it may suffer from the shortage of cash.

- technique of planning and controlling the use of cash

The poor cash position of the firm can be corrected if its cash needs are planned in advance. It helps to anticipate the future cash flows and needs of the firm and also helps in reducing the

possibility of idle cash balances which lowers firm's profitability and cash deficits (which can cause the firm's failure). Cash planning becomes inevitable for its continuing success as a firm grows and business operations become complex,

- helps to protect the financial condition of the business firm

Cash planning helps to protect the financial condition of the business firm by preparing projected cash statement. It is statement showing the forecast of expected cash inflows and outflows, for a given period. Such forecasts may be based on the present operations or the anticipated future operations.

- depends on the size of the firm and philosophy of the management

Cash planning may be done on daily, weekly or monthly basis. The period and frequency of cash planning generally depends upon the size of the firm and philosophy of the management. Daily and weekly forecasts are prepared by large firms. Medium-size firms usually prepare weekly and monthly forecasts. Small firms may not prepare formal cash forecasts due to the non-availability of information and small-scale operations. But, if the small firms prepare cash projections, it will be usually done on monthly basis.

4.4.1.3 Managing cash collections and disbursement

- estimate of receipts and disbursements of cash during future period of time

A cash budget is an estimate of the receipts and disbursements of cash during a future period of time. It is a device/tool used to plan and control the use of cash. Thus, a cash budget helps to understand when there will be excess or shortage of cash. So, a firm by preparing cash budget will be able to plan the use of excess cash and make arrangements for necessary cash as and when they are required.

When a firm prepare its cash budget , the finance manager should ensure that, there is no deviation between the projected and actual cash flows. For this, the efficiency of cash management has to be improved through the control of cash collection and disbursement. A firm can conserve cash and reduce its requirements for cash balances if it can speed up its cash collections.

A. Methods of Accelerating Cash Inflows

i. Prompt Payment by Customers

- collection from customers should be done promptly

It is important to ensure that from customers collections are done promptly so as to speed up the cash inflows. This can be achieved through timely billing. Customers should be clearly informed about the amount due and the deadline for payment. Including a pre-addressed envelope with the bill and requesting a quick response can also encourage faster payments. Another alternative would be to offer a cash discount. This will motivate the customers to make early payments in order to take advantage

of the savings.

ii. Quick Conversion of Payment into Cash

- improve cash collection process

Another method to speed up the cash inflows is to improve the cash collection process. Once the customer writes a cheque in favour of the concern, through early collection of the cheque the collection can be quickened. Normally there is a time gap between the cheque sent by the customer and the amount collected by the firm. This happens owing to numerous reasons like

a. mailing time, (ie. time taken by post office for transferring cheque from customer to the firm), referred to as postal float

b. time taken in processing the cheque within the organisation and sending it to bank for collection, it is called lethargy and,

c. collection time within the bank, ie. time taken by the bank in collecting the payment from the customer's bank, called bank float.

a. Mailing time, also known as postal float, refers to the duration the postal service takes to transfer the cheque from the customer to the company.

b. Processing time within the firm, referred to as lethargy, is the time the company takes to process the cheque after receiving it and then forward it to the bank for collection.

c. Bank collection time, or bank float, is the period the bank requires to collect the funds from the customer's bank and credit them to the company's account.

iii. Decentralised Collections

- multiple collection centres are set up in different areas

A large business concern having its business operations scattered across various regions can speed up collection by adopting a decentralised collection system. In this system, instead of collecting receipts at one place, multiple collection centres are set up in different areas. This approach helps to shorten the mailing time between the customer sending the cheque and the firm receiving it. Once the cheque is received, it is quickly forwarded for collection. If the cheque is drawn on a local bank, the clearance process is usually faster. The collected funds are then promptly transferred to the central office. Thus, Decentralised Collection system effectively reduces both mailing and processing delays, thereby lowering the firm's financial needs.

iv. Lock Box System.

- business firm desiginates collection centres in strategic locations and rents post office box known as lock box

The lock box system is another technique used to minimize mailing delays, processing time, and bank collection time. Under this system, the firm designates certain collection centres in strategic locations, typically based on the volume of customers and expected remittances from those areas. The firm rents a post office box referred to as lock box at these locations. The customers are then instructed to send their cheques directly to that post box number. A local bank is authorized to manage the lock box, collecting the mail several times a day and immediately initiating the cheque collection process. The funds are then credited directly to the firm's account. The bank also prepares a detailed record of all cheques received, which the firm uses for its accounting purposes. This system speeds up the entire collection process by eliminating delays caused by mailing and internal processing. Additionally, since the bank handles clerical tasks, the firm benefits from reduced administrative costs, enhanced internal control, and a lower risk of fraud.

B. Methods of Slowing Cash Outflows

- objectives is to slow down payments

A company can keep cash by effectively controlling disbursements. The objective of controlling cash outflows is to slow down the payments as far as possible.

Following methods can be used to delay disbursements:

i. Making Payments only on the last date of payment

- making payments on due date only

The payments can be delayed by making payments on the due date only. If the credit is given to the business concern for 10 days then payment should be made on 10th day only. This will help in using the money for short periods and the firm can make use of cash discount also.

ii. Payments through Drafts

- payments made through drafts instead of cheques

When a cheque is issued, the company must maintain sufficient funds in its bank account to ensure the cheque is paid whenever it comes. On the contrary, a draft is only payable once it is presented to the issuing bank. The receiver submits the draft to their bank, which then forwards it to the buyer's bank for payment. This process usually takes several days. By using drafts instead of cheques, a company can delay the outflow of funds and conserve significant financial resources during the processing period. These temporarily available funds can be invested in low-risk, highly liquid securities to generate additional income.

iii. Adjusting Payroll Funds.

- reducing frequency of payments.

This method involves reducing the frequency of payments. If payments are made on a weekly basis, the interval can be extended to a monthly cycle. Another way is for the finance manager to plan the timing of issuing and disbursing salary cheques. For example, if cheques are distributed on a Saturday, only a few may be presented for payment immediately. Even by Monday all cheques may not be cashed. Based on past trends and experience, the finance manager can estimate the average time employees take to encash their salary cheques. Accordingly, he can decide when to deposit the necessary funds in the bank. This allows for more efficient cash management.

iv. Inter-bank Transfer

- transfer of fund from one bank account to another

If a business concern has more than one bank account, then amounts can be transferred from one bank account to another when disbursements are to be made. It will help in avoiding excess amount in one bank.

v. Use of Float

- difference between company's cash book balance and balance in pass book

Float refers to the difference between company's cash book balance (bank column in cash book) and its bank pass book balance. Whenever a cheque is issued, cash book balance is reduced. However, the party to whom the cheque is issued may not present the cheque for payment immediately. If the party is at some other location, then cheque will come through post and it may take a number of days before it is presented. Until the time, the cheques are not presented to bank for payment there will be a balance in the bank. The company can make use of this time gap or float to estimate it correctly.

vi. Centralisation Payments

- making centralised payment using cheques and drafts

The business concern should make centralised payment using cheques and drafts. As the cheques are issued from main office, it will take time for cheques to be cleared through the post. So the business concern can avail the benefit of cheque collecting time.

4.4.1.4 Investment of Surplus Funds

Sometimes the firms may have surplus fund available with them. These funds could be employed in liquid and risk free securities in order to earn income. There are a number of investment avenues where the surplus funds could be invested by the firm. Some of them are discussed below :

i. Bank Fixed Deposits (FDs):

Bank fixed deposits are one among the popular and secure options for investing surplus funds. Here a lump sum is deposit-

- lump sum amount deposited by the company with a bank

ed by the company with a bank for a specified period for a fixed interest rate. Investment in Bank Deposits offer stability. They are free from market fluctuations. They are one of the suitable options for investing funds which are not immediately required.

ii. Treasury Bills (T-Bills):

- short-term debt instruments

These are short-term debt instruments issued by the government with a maturity period ranging from 91, 182, or 364 days. They are also considered as one among the safest investment avenues due to government backing. T-bills are sold at a discount and redeemed at face value. They are highly liquid and has negligible risk involved. These securities are ideal option for companies looking for a secure short-term investment.

iii. Commercial Papers (CPs):

- unsecured, short-term promissory notes issued by highly credit worthy companies

These are unsecured, short-term promissory notes that are issued by highly credit worthy companies. As compared to FDs and T-bills, they generally offer higher returns. However, they also carry a slightly higher risk. Their maturity period ranges from 7 days to 1 year.

iv. Certificates of Deposit (CDs):

- time deposits issued by scheduled commercial banks and all India Financial institutions

These are time deposits issued by scheduled commercial banks and all India Financial institutions at a fixed interest rate for a fixed period. They are issued at a discount from their face value. They have a maturity period ranging from 7 days to 1 year. They offer more attractive returns than savings accounts and are considered relatively safe. They are preferable for companies that do not need immediate access to funds but want to earn a steady return over the short to medium term.

v. Inter-corporate deposits:

- companies with surplus cash deposits funds in associate or sister company

It is a popular short-term investment avenue for companies in India. Here, a company having cash surplus will deposit its funds in a sister or associate company or with outside companies having high credit standing. Even though the risk of default is high, but returns are quite attractive.

vi. Money market mutual funds (MMMFs)

- focussed on short-term marketable securities

It focussed on short-term marketable securities such as Treasury Bills, Commercial Papers, Certificate of Deposits or call money. These securities have a minimum lock-in period of 30 days. An investor can withdraw his or her money any time at a short notice after the expiry of the lock in period.

4.4.2 Receivables Management

Receivables -Meaning

Trade Credit arise from credit sales of goods and services. Trade credit results in the creation of accounts receivables or trade debtors. Trade debtors refers to the customers from whom or the book debts have to be collected by the business for the goods or services sold on credit basis. When a firm makes sale of goods or services to its customers and does not receive immediate payment, the firm grants trade credit and creates accounts receivable. This will be collected in the future. A firm grants credit to its customers to protect its sales and to attract its potential customers. Receivables constitute a significant portion of current assets of a firm.

- consititute significant portion of current assets

Receivables Management – Meaning

Receivables Management refers to the planning and controlling of debt owed to the business concerns by customers that arises as a result on account of credit sales. It is also referred to as trade credit management. The basic objective of receivables management is to optimise the return on investment on these assets. But, for investment in receivables, a firm has to incur several costs and bear the risk of bad debts. It is, therefore, very essential to have a proper control and management of receivables.

- planning and controlling of debt owed to the business concerns by customers

Costs incurred for investment in receivables

A business concern will have to incur the following cost on maintaining the receivables. They are

- administrative costs associated with collecting the receivables from the customers

i. Collection Cost : These are the administrative costs associated with collecting the receivables from the customers to whom credit sales have been made by the business concern such as cost incurred on the creation and maintenance of a credit department, expenses involved in acquiring credit information either through outside specialist agencies or by the staff of the firm itself.

- cost for additional capital

ii. Capital Cost : It refers to the cost incurred for using additional capital to support credit sales which otherwise could have been utilised for alternative purposes.

- cost when the customers makes a failure to make payment

iii. Delinquency Cost : It is the cost when the customers makes a failure to make payment on the due date.

- cost on account of inability to recover dues

iv. Default Cost: These are the costs incurred when the firm is not able to recover the dues from the customers. These debts are considered as bad debts and have to be written off.

Factors influencing the Size of Receivables

i. Size of Credit Sales out of the Total Sales

The size of the receivables is affected by the volume of credit sales. If the credit sales constitutes a higher percentage out of total sales as compared to the cash sales, then the size of receivables will also increase and vice versa.

ii. Credit Policies of the firm

If a conservative credit policy is followed by the business concern, then the size of its receivables will low. While a business concern following a liberal credit policy will have a high size of receivables.

iii. Terms of Trade

There is correlation between the period of credit allowed and the size of receivables. If more credit period is allowed, then there will be more receivables.

iv. Expansion Plans of the Business Concern

When a business plans to expand its operations, it often needs to explore new markets. To attract customers in these markets, the company may offer credit as an incentive. Initially, offering longer credit periods becomes necessary to encourage sales and build a customer base. As the firm starts gaining loyal and regular customers, it can gradually reduce the length of the credit period. During the early phase of expansion, extending credit is usually unavoidable, resulting in a larger volume of receivables.

v. Credit Collection Efforts.

A business concern following an efficient credit collection machinery will be able to reduce the size of receivables. If collection efforts of the firm is slow then outstanding amounts will also be more.

Credit Management

- combination of credit standards, credit terms and the collection efforts

4.4.2.1 Credit Policy

Credit Policy of a business refers to the combination of three decision variables on which the finance manager has influence namely the credit standards, credit terms and the collection efforts.

i. Credit standards

It pertains to the criteria that is used to decide the types or categories of customers to whom goods could be sold on credit. Large investment in accounts receivable will have to be maintained by a business concern if it has a large number of slow

paying customers. In addition to this, it will also have to bear high default risk.

- duration of credit and the terms of payment by customers

ii. Credit terms

It refer to the duration of credit and the terms of payment by customers. If a business concern allows extended time period for making payments to its customers, then the investments in accounts receivables will also be high.

- firms collection efforts influence collection period

iii. Collection efforts:

Collection efforts of the firm also influence the actual collection period. The investment in accounts receivable will be lower if the collection period is lower and vice versa.

4.4.2.2 Optimum Credit Policy

- credit policy, which maximises value of the firm

A credit policy, which maximises the value of the firm, is referred to as optimum credit policy. When the incremental or marginal rate of return of investment becomes equal to the incremental or marginal cost of funds which is used to fund the investment, the value of the firm is maximised.

$$\text{Incremental rate of return} = \frac{\textit{Incremental Operating Profit}}{\textit{Incremental investment in receivables}}$$

Incremental Cost of funds refers to the rate of return required by the suppliers of funds with the reference to the risk of investment in accounts receivable.

Higher the risk, higher will be the required rate of return of investment. If the firm loosens its credit policy, its investment in accounts receivables becomes more risky. Thus, the evaluation of investment in accounts receivable involves the estimation of the

i. Incremental operating profit

ii. Incremental investment in accounts receivable

iii. Incremental rate of return of investment

iv. Comparison of the incremental rate of return with the required rate of return.

4.4.2.3 Credit Evaluation of Individual Accounts

- clear cut guidelines should be prescribed when granting credit to individual customers

The business concerns should lay clear cut guidelines when granting credit to individual customers and collecting their accounts for ensuring the effective management of credit. The firm need not follow the policy of treating all customers equal for the purpose of extending credit. Each case may be fully examined before offering any credit terms. Similarly, collection procedure will differ from customer to customer. With the permanent, but

temporarily defaulting, customers, the firm may not be very strict in following the collection procedures efforts.

The credit evaluation procedure of the individual accounts should involve the following steps: (1) credit information, (2) credit investigation, (3) credit limits and (4) collection procedures.

A. Credit Information

- information regarding all customers to whom the credit is granted

Credit need to be granted only to those customers who can make timely payments. For this, the business concerns should have credit information regarding all customers to whom the credit will be granted. However, cost is involved in collecting credit information. The cost of collecting information should be less than the potential profitability. Time is another factor which must be considered when collecting credit information. The decision to grant credit cannot be delayed for long because of the time involved in collecting the credit information. Following sources may be used for collecting information related to the individual customers:

a. Financial statements

- Analysing Balance Sheet and Profit and Loss account

One of the simplest ways for procuring information for assessing the financial health and performance of a potential customer is to analyse their financial statements, such as the Balance sheet and Profit and Loss Account. Though it is easy to obtain the published financial statements of public limited companies, it is very difficult to obtain the financial statements particularly, the audited accounts of partnership firms or individuals as they do not have legal obligation to audit their accounts.

b. Bank references

- contacting the bank where the customer holds an account

Another way to gather credit information is by contacting the bank where the customer holds an account. The customer can additionally be asked to authorize their bank to share the necessary information with the firm. However, more information from other sources may also be required to supplement the credit information of the individual customers as this cannot be taken as the complete basis by the business concerns for believing that the customer will be able to make the timely settlement of dues.

c. Trade references

- Names of business with whom business transaction are conducted

A business concern can ask a prospective customer to provide trade reference i.e, the names of businesses or individuals with whom they currently conduct transactions. The firm can then personally contact these referees to collect pertinent details.

This is an easy source to gather credit information. However, the business concerns should take steps to verify the authencity of the referees provided by the customers as there are chances of providing misleading referees by the customers.

- Rating agencies

d. Other sources

Another source of obtaining credit information is from rating agencies such as CRISIL, CARE or ICRA and trade and industry associations.

B. Credit Investigation and Analysis

It involves the detailed investigation and analysis of the following

i. Credit file

- maintain credit file for every customer

The business concerns should keep a credit file for every customer and ensure that it is regularly updated with information gathered from sales representatives, bankers, and the customers themselves. This file should also include the firm's past trade dealings with the customer and an evaluation of their financial performance based on financial statements submitted by them. By routinely reviewing this credit file, the firm can assess the customer's current creditworthiness.

ii. Financial ratios

- calculation of financial ratios from financial statements of customer

Here, the financial ratios are calculated from the financial statements submitted by the customer to determine the customer's liquidity position and ability to in order to evaluate their capacity to repay debts. Performance of the customer are then compared with industry average and the main competitors of the firm. This will be fruitful in assessing whether the poor performance of the customer is due to inefficiencies existing within the firm or due to the general economic conditions.

iii. Analysis of business and its management

- conducting management audit

The business concern should also evaluate the quality of management and the nature of the customer's business. The firm should conduct a management audit to identify the management weaknesses of the customer's business. If the customer's business is over-centralized structure without management systems, then it may result in mismanagement, over-trading and business failure. If the nature of the customer's business fluctuating in nature,or if it has weak buyers or if it has few buyers, then it would be extremely risky to extend credit to them.

C. Credit Limit

- maximum amount of credit extended by a business concern

It pertains to the maximum amount of credit which will be extended by a business concern at a point of time. It shows the extent of risk taken by the business concern at the time of credit sales to a customer. The amount of sale and financial strength are the two main factors which determines whether to extend credit to the customer, amount of credit to be extended and the duration of credit. Credit limit can be established in the case of regular customers. This would eliminate the need to investigate each order from the customers. A periodical review of credit limit is essential. The credit limit can be revised downwards if tendencies of slow paying are found. Similarly, the duration of credit also has to be determined along with the amount of credit. Keeping in view the industry norm, the normal collection period should be determined after considering the industry norm.

D. Collection Efforts

- procedure to recover outstanding payments from customers.

The firm should implement a clearly defined collection policy and procedure to recover outstanding payments from customers. Once a customer exceeds the allowed credit period without settling the dues, the firm should begin by sending a courteous reminder letter indicating that the account is overdue. If there is no response, the firm can escalate the matter by sending increasingly firm letters. If the payment is still not received, follow-ups should be made. If these efforts fail, the firm may consider initiating legal action.

4.4.2.4 Monitoring Receivables

- two methods for evaluation of management of receivables

A business concern should have a well laid down collection policy in order to collect dues from its customers. To ensure the success of collection efforts of a business concern, the business concern must monitor and control its receivables on a continuous basis. There are two traditional methods for evaluation of management of receivables namely (1) average collection period (ACP) and (2) aging schedule. However as these methods have certain limitations , a better approach for evaluation would be to adopt the collection experience matrix.

Average Collection Period

Average Collection Period (ACP) = (Debtors x 360) / Credit sales

Here, the average collection period of the business concern is compared with the firm's stated credit period in order to evaluate the efficiency of the collection efforts of the business concern. Say, if the stated credit period of the business concern is 30 days and the actual collection period is 60 days, then it may be assumed that the business concern follows a lax system of

- Average collection period compared with stated credit period

collection. If the collection period is an extended one, then it has chances of delaying cash inflows. It affects a firm's liquidity position and increases the chances of bad-debt losses. However, this method suffers from two limitations. For control purposes, specific information about the age of outstanding receivables is required. However, this method only provides an average picture of collection experience and is based on aggregate data. Another limitation of this method is that it is susceptible to sales variations and the period over which sales and receivables have been aggregated. As a result, the average collection period may not be able to provide a very meaningful information about the quality of outstanding receivables.

Aging Schedule

- break down receivables according to the length of time for which they have been outstanding

The aging schedule helps to removes one of the main limitations of the average collection period by breaking down receivables according to the length of time for which they have been outstanding. It helps to provide more information about the collection experience and spot out the slow-paying debtors. However, it is also not free from limitations. It does not relate receivables to sales of the same period.

4.4.2.5 Factoring

It may be possible for a small business concern to effectively manage its receivables. However, it may not be possible for large business concerns to efficiently manage their receivables as they may be exposed to the risk of more and more bad debts. In such situations, business concerns seek the services of specialised institutions engaged in receivables management. These institutions are referred as Factors.

- financial institution which offers services relating to management and financing of debts

A factor is a financial institution which offers services relating to management and financing of debts arising out of credit sales. In factoring, a contractual relationship is formed between the financial institution (known as the factor) and a business concern (the client) selling goods and services on credit to its customers. The factor purchases accounts receivable of its client (business concern) and , controls the credit extended to its customers and administers the sales ledger.

Factoring Services

Factor provides the following services to its client

i. Credit administration

A factor offers comprehensive credit administration services to its clients (businesses). Factors maintain detailed accounts for

each customer of the client (business concern). They keep track of the outstanding amounts due from customers to ensure payments are collected on or before the due date. They also help the clients to make informed decisions about whether to offer credit to a customer and, if so, how much credit has to be provided to them. Factors provide valuable insights to the clients regarding the market conditions, competition, and customer behaviour and also helps in assessing a customer's creditworthiness. By systematically analyzing credit-related information, the factor ensures effective credit monitoring and management. They also help in generating various reports on credit and collections and share them with clients to aid in decision-making and follow-up actions.

- provision of comprehensive credit administration services

ii. Credit collection and protection

One of the main functions of the factor is to collect the receivables on behalf of its client. . The factor undertakes the necessary collection activity when book debts become due from the customer. This helps the client to concentrate on other important areas of his business .

- collecting receivables on behalf of clients

iii. Financial assistance

Factors often support their clients financially by offering advance payments against outstanding receivables. As a result, in such arrangements, the client's customers become the debtors of the factor and are required to make payments directly to the factor to clear their dues. This not only provides immediate funds to the client but also ensures full protection against bad debts, thereby offering both credit risk coverage and liquidity support through the firm's accounts receivable.

- offering advance payments aganist outstanding receivables

iv. Protection against Risks

There are mainly two types of factoring namely with recourse and without recourse factoring. In with recourse factoring, risk against bad debts is not borne by the factor and it is borne by the client. However, in the case of without recourse factoring, the factor assumes the risk of bad debt and thus, the client is relieved of the loss on account of bad debt.

- with recourse factoring and without recourse factoring

4.4.3 Inventory Management

4.4.3.1 Meaning of inventory

Inventories are one of the major components of working capital and every business needs inventory for its smooth operations. The term inventory includes raw materials, work – in – progress, consumables, finished goods and spares.

i. Raw material

- any material essential for the production of the finished goods on which the work has not yet begun

Raw material refers to any material which is essential for the production of the finished goods but on which the work has not yet begun. For example, the wooden planks and screws used to build the chair are considered raw materials. The amount or quantity of raw materials will be determined by the consumption rate and the time needed for replenishing or restocking the supplies. In addition to this, other factors like raw material availability and government regulations, etc. also affect the stock of raw material.

ii. Work - in - progress

- semi-manufactured goods

The raw materials enter production process, but have not yet reached the final shape of finished goods. They are semi- manufactured goods. They refers to goods that require more work before they become finished goods. It is the stage of stock between raw materials and finished goods. For example, a chair frame that has been assembled but not yet polished or upholstered is a work-in-progress. The quantity of work-in-progress is determined by the time taken for the manufacturing or production process. The greater the time taken for production, more will be the requirement of amount of work in progress.

c. Consumables

- act as catalysts

These materials do not directly enter production but they act as catalysts. These are the materials required for the smooth and uninterrupted flow of production. They may be classified according to their consumption and criticality. Glue, sandpaper, varnish, and paint used during the chair-making process are considered consumables.

d. Finished goods

- final result of the production process

They are the final result of the production process. Raw materials enter the production process gets transformed into the work in progress and finally becomes the finished goods. They represent the stage or form where it is ready for the final consumption. For example, a fully assembled, varnished, and cushioned wooden chair ready for sale is a finished good.

e. Spares

These are components or parts kept in reserve to replace damaged, worn out, or faulty parts of machinery, equipment, or prod-

- essential for smooth operation, maintenance, and repair

ucts. Even though, they do not part of the main production output, but are essential to ensure smooth operation, maintenance, and repair of tools, machines, or even the products themselves. Extra chair legs and screws kept in storage for future repairs or replacements are examples of spares.

4.4.3.2 Inventory Management

- efficient and effective control of materials and products held in stock

The efficient and effective control of materials and products that are held in stock is referred to as inventory management. It aims to maintain an optimum level of inventory to ensure uninterrupted production and sales operations and at the same time minimizing inventory holding and ordering costs.

Objectives of Inventory Management

i. To ensure the continuous supply of raw materials, work in progress and finished goods so that the production does not get interrupted and to ensure that the customer's demand is met.

ii. To prevent the understocking or over stocking of material.

iii. To maintain inventories at the optimum level that is required by the operational and sales activities.

iv. To control the material cost so as to reduce the cost of production and overall costs.

v. To eliminate duplication in ordering or replenishing stock through centralising purchases.

vi. To minimise loss of inventory caused as a result of deterioration, pilferage, wastages and damages.

vii. To design a proper inventory management system .

viii. To ensure perpetual inventory control so that materials shown in stock ledgers should actually lying in the stores.

ix. To ensue right quality goods are available at reasonable prices. Quality of stocks can be through adopting suitable quality standards. Proper prices van be verified through conducting price-analysis, the cost-analysis and value-analysis.

4.4.3.3 Tools and Techniques of Inventory Management

An effective inventory management system requires an effective system for the control of inventories. The following are the important tools and techniques of inventory management and control.

1. Stock Levels

- maintaining adequate level of inventory

It is very important for the business concerns to maintain adequate level of inventory. When inventory level is too low, the firm may encounter frequent stock shortages, leading to high ordering costs. On the other hand, holding too much inventory results in unnecessary capital being locked up in stock. Therefore, an efficient inventory management is essential to maintain an optimum level of inventory. Optimum inventory levels helps to minimise inventory costs and also helps to avoid the situation of stock - outs which leads to the stoppage of production. In short, the main purpose of setting of stock levels is to prevent the situation of understocking or over stocking.

The various stock levels are therefore fixed by business concern for the effective management of inventory. They are

b. Minimum Level

- quantity of inventory which must be maintained by the business concern at all times.

This level refers to the quantity of inventory which must be maintained by the business concern at all times. If stock fall below the minimum level then, the production will be interrupted due to the shortage of materials.

Minimum Level = Reordering Level –
(Normal Consumption X Normal Re –order period)

A firm must consider the lead time, Rate of consumption and nature of material before fixing the minimum levels. Lead time refers to the time taken in processing the order and then executing the order. It is essential to maintain some inventory during the lead time. Rate of Consumption pertains to the average consumption of raw materials in the factory which depends upon the past experience and production plans. The nature of material also affects the minimum level. If a material is required only against special orders of the customer then minimum stock will not be required for such orders.

c. Re-ordering Level

- fixed between minimum level and maximum level

A fresh order is sent to get materials again when the quantity of materials reaches certain level. This order is above the minimum stock level and the order is sent before the materials reach minimum stock level. Re -ordering level or ordering level is fixed between minimum level and maximum level. While fixing re-ordering level, the rate of consumption, number of days required to replenish the stocks, and maximum quantity of materials required on any day are taken into account.

Re-ordering Level = Maximum Consumption x Maximum Re-order period.

d. Maximum Level

A firm should not exceed its stocks beyond the quantity of this material. It is because it will result in the situation of overstocking eventually resulting in high material costs. Overstocking has so many consequences such as blocking of more working capital requiring more space for storing the materials, more wastage of materials and more chances losses from obsolescence. Maximum stock level will depend upon the availability of capital for the purchase of material and space for storing the materials, maximum requirements of materials at any point of time, cost of maintaining stores, possibility of price fluctuations and so on.

Maximum Stock Level = Re-ordering Level + Re-ordering Quantity - (Minimum Consumption x Minimum Re-ordering period).

e. Danger Level

- level of stock beyond which materials must not fall

Danger level refers to the level of stock beyond which materials must not fall under any circumstances. If danger level arises then immediate steps should be taken to replenish the stocks even if more cost is incurred in arranging the materials. If materials are not arranged immediately there is a possibility of stoppage of work.

Danger Level = Average Consumption x Maximum re-order period for emergency purchases.

f. Average Stock Level

The average stock level is calculated as such:

Average Stock Level = Minimum Stock Level + ½ Re-order quantity.

Illustration 4.4.1

Calculate the minimum stock level, maximum stock level and reordering level

i. Maximum Consumption - 400 units per day

ii. Minimum consumption - 300 units per day

iii. Normal Consumption - 320 units per day

iv. Re –order period - 20 – 30 days

v. Re – order quantity - 3200 units

vi. Normal re –order period - 24 days

Solution :

i. Re- ordering level = Maximum Consumption x Maximum Re –order Period

= 400 x 30

= 12000 units

ii. Minimum Stock Level = Reordering level – (Normal Consumption x Normal Reordering period)

= 12000 - (320 x 24)

= 12000 – 7680

= 4320 units

iii. Maximum Stock Level = Reordering Level + Re –order Quantity – (Minimum Consumption x Minimum Re - order Period)

= 12000 + 3200 – (300 x 20)

= 12000 + 3200 – 6000

= 9200 units

2. Determination of Safety Stocks

- buffer to handle unexpected increases in inventary usage

Safety stock acts as a buffer to handle unexpected increases in inventory usage. Since it is not possible to predict demand and deliveries may also be delayed sometimes and stock-outs can also. This disrupts operations leading to increase in costs. To prevent this, firms have to maintain safety stock. However, the key challenge is to determine the optimal level, balancing two main costs: the opportunity cost of stock-outs and the carrying cost of holding extra inventory. Stock-outs of raw materials disrupt production and raise costs, while stock-outs of finished goods damage customer service and competitiveness. Maintaining too little safety stock leads to frequent stock-outs and higher opportunity costs, while excessive safety stock results in higher carrying costs.

3. Economic Order Quantity / Re –order Quantity

- quantity of inventory at which the ordering cost and carrying cost are minimum

In inventory management, the decision about how much to order has great relevance. Since the costs of buying and carrying materials are very high, the quantity to be purchased should neither be small nor big. Economic Order Quantity (EOQ) is the size of the lot to be purchased which is economically viable. It is the quantity of inventory at which the ordering cost and carrying cost are minimum. Generally, economic order quantity refers to that point where the inventory carrying costs are equal to ordering costs. The main objective is to determine the order size

which is most economical for ordering.

Factors to be considered while determining Economic Order Quantity

A. Annual Consumption : It refers to the total quantity which is required to be purchased inorder to produce the required annual output.

- cost associated with purchasing or odering of materials

B. Ordering costs

These are the costs which are associated with the purchasing or ordering of materials.

These costs include:

1. Costs of staff appointed for ordering of goods. When an purchase order is processed and placed with suppliers, labour would be required for facilitating this. The labour spent on this process is included in ordering costs.
2. Transportation expenses incurred on the purchase of goods.
3. Inspection expenses of incoming materials.
4. Expenses related to the cost of stationery, typing, postage, telephone charges, etc.

Total Ordering Cost = No of orders per year x Ordering Cost per order

= (Annual Consumption/ Order size) x Ordering cost per order

- cost incurred for holding the inventories

C. Carrying Costs

It refers to the cost incurred for holding the inventories. They will not be incurred if inventories are not carried. Such costs comprises of

1. Cost of capital invested in inventories. Here, an interest will be paid on the amount of capital locked-up in inventories.
2. Cost of storage which otherwise could have been used for other purposes.
3. The material loss which happens as a result of deterioration and obsolescence.
4. Insurance expenses
5. Spoilage incurred while handling of materials.

Total Carrying Cost = (Annual Consumption / No : of orders /2) x Carrying cost per unit p.a

The ordering and carrying costs are inversely related. Ordering cost increases with the with the increase in number of orders placed. Whereas, per unit carrying costs decreases with the increase in the number of units purchased and stored.

The formula calculating Economic Order Quantity is given below

$$EOQ = \sqrt{\frac{2AS}{I}}$$

Where EOQ = Economic Order Quantity

A = Annual Consumption in Rupees

S = Cost of placing an order

I -= Inventory carrying costs of one unit

Illustration 4.4.2

Annual usage = ₹5,00,000

Cost of placing and receiving one order = ₹ 100

Annual Carrying Cost : 10 % of inventory value

Find out the economic order quantity

Solution :

EOQ = √2AS/ I

A = Annual usage = ₹5,00,000

S = Cost of placing an order is ₹ 100

I = Annual carrying cost is 10 % of material value $\frac{10}{100} \times 100 = 10$

$$EOQ = \sqrt{\frac{2AS}{I}}$$

$$= \sqrt{\frac{2 \times 500000 \times 100}{10}}$$

$$= \textbf{31,623 units}$$

4. Selective Inventory Control Techniques

i. ABC Analysis

In ABC Analysis, a selective approach for material control is

adopted where the materials are divided into a number of categories. Under ABC analysis, the materials are divided into three categories namely A, B and C. On the basis of prior experience, it is seen that in manufacturing concerns, a small percentage of items (10 percent) contribute a large percentage of value of consumption (70 percent). They are referred to as A category items. On the other hand, a large percentage of items of materials (70 percent) contribute a small percentage of value (10 percent). They are referred to as C category items. In between these two categories there are some items (20 percent) which have almost equal percentage (20 percent) of value of materials.

- material are divided into 3 catogories namely A,B,C

ABC analysis aids the business concerns to give focus on category A items as the greatest monetary advantage will come by controlling these items. So, efforts should be made in estimating requirements, purchase, maintaining safety stocks and for the proper storage of 'A' category materials. A substantial amount of material cost may be controlled by keeping these items under constant review. Control over 'C' category items can be kept minimal, and these items may be procured in bulk for the entire year. 'B' category items, however, require moderate supervision, and their purchase can be planned on a quarterly or half-yearly basis.

ii. VED Analysis

- employed in the case of spare parts

This analysis is normally employed in the case of spare parts. Under this, the spare parts are classified as Vital (V). Essential (E) and Desirable (D). The vital spares are compulsory for the smooth running of the business and so these must be stored adequately. The non-availability of vital spares will cause serious repercussions in the concern. The E type spares are also necessary and they have to be kept at low figures The D type of spares stocking may be avoided at times especially if the lead time of these spares is less.

- classification of inventory based on criticality

Under this system, inventories are classified based on the criticality for the production function and final product. Generally, this classification is done for spare parts which are used for production.

a. Vital Items

- unavailability interupt production process

Items are classified as vital when its unavailability can interrupt the production process and cause a production loss. Items under this category are strictly controlled by setting re-order level.

b. Essential Items

Items under this category are essential but not vital. The un-

- unavailability cause loss of efficency

availability may cause sub standardisation and loss of efficiency in production process. Items under this category are reviewed periodically and get the second priority.

c. Desirable Items

- unavailability does not cause efficency loss

Items under this category are optional in nature. The unavailability of such items does not cause any production or efficiency loss.

iii. High Cost, Medium Cost, Low Cost (HML) Inventory

- materials are classified based on the cost of individual items

Here, the materials are classified based on the cost of individual items. More priority for control is given for High Cost inventories. On the other hand, lesser priority is given to Medium cost and Low cost inventories.

iv. FSN Analysis

- divides goods into 3 categories

This inventory control technique divides goods into three categories – fast-moving, slow-moving, and non-moving based on how fast they are used or sold and how long they stay in storage.

i. Fast-moving items

- used or sold frequently

These are items which are used or sold frequently and so require regular replenishment to avoid shortages.

ii. Slow-moving items

- items which stay in stock for a longer period

These are the items having lower rate of turnover and stay in stock for a longer period, requiring careful monitoring to prevent excess inventory.

iii. Non-moving items

- items having no movement for an extended period

These are those items that have no movement for an extended period of time, indicating they may be obsolete or no longer in demand.

FSN analysis aids businesses to manage inventory more efficiently by identifying which items need to be reordered frequently and which ones may need to be cleared or discontinued.

5. Inventory Turnover Ratio

- stock velocity

Inventory turnover ratios are used to determine the efficiency with which the inventories are maintained whether inventories have been used efficiently or not. The purpose is to ensure the blocking of only required minimum funds in inventory. The Inventory Turnover Ratio also known as stock velocity. It is calculated using the following formula:

$$\text{Inventory Turnover Ratio} = \frac{Cost\ of\ goods\ Sold}{Average\ Inventory\ at\ Cost}$$

and Inventory Conversion Period $= \frac{Days\ in\ a\ Year}{Inventory\ turnover\ Ratio}$

$$Average\ inventory = \frac{opening\ inventory + closing\ inventory}{2}$$

Illustration 4.4.3

The cost of goods sold of Dev Limited is ₹10,00,000. The opening inventory is ₹80,000 and the closing inventory is ₹1,20,000. Find out the inventory turnover ratio.

Solution :

Inventory Turnover Ratio $= \frac{Cost\ of\ goods\ sold}{Average\ Inventory}$

$= Average\ inventory = \frac{80000 + 120000}{2}$

$= 100000$

$= \frac{10,00,000}{1,00,000}$

$= 10$ times

4.4.3.4 Analysis of investment in inventory

- evaluating the profitability of making investment in inventory

A finance manager is responsible for proper management of inventory as inventories involve the investment of a substantial amount of a firm's funds. The decision to determine or alter the inventory level is basically an investment decision. Therefore the analysis of investment in inventory essentially means evaluating the profitability of making investment in inventory. Maximisation of the firm's value is the main goal of the inventory policy. A firm's value is said to be maximised at a point where the incremental or marginal return from the investment in inventory becomes equal to the incremental or marginal cost of funds used to finance the investment in inventory.

Investment in Inventory involves the following steps

i. Determination of Operating Profit

ii. Determination of Investment in inventory

iii. Determination of rate of return from investing in inventory

iv. Comparing the rate of return from investing in inventory with the cost of funds.

4.4.3.5 Inventory Control Systems

Every business concern requires a proper inventory control system in order to manage its inventory in an effective manner.

- process and tools to manage, monitor and regulate inventory levels

Inventory Control Systems refer to the processes and tools used by businesses concerns to manage, monitor, and regulate their inventory levels efficiently. These systems aim to ensure that the right quantity of goods is available at the right time. It also aims in minimizing costs related to overstocking, understocking, or obsolescence. Following are some of the main inventory control systems.

i. ABC Analysis

- classifies inventory items into 3 categories namely A, B, and C

ABC Analysis is a widely used inventory control technique which suggests that a small portion of items often account for a large portion of the overall value. ABC Analysis classifies inventory items into three categories namely A, B, and C

Category A items :

- most valuable items

These items are considered the most valuable. Though they represent only about 10 % of the total items, they account for around 70 % of the total inventory value. These items require tight control, frequent reordering, and accurate records as they significantly impact financial performance of the business concern. High degree of control is excercised for these items by fixing stock levels like maximum level, minimum level, reorder level and determining Economic Order Quantity.

Category B items :

- moderate value items

These items are of moderate value of the total value of inventory (20%) and moderate percentage of total items of inventory (20%). These items require moderate control and are monitored less strictly than category A items but still need some degree of control and review.

Category C items :

- low value items

These represent the large percentage of total inventory (70%) but constitute only 10% of the total value inventory. These are low-cost, high-quantity items. So lower degree of control is exercised for these items.

ii. Just-in-time (JIT) System

- raw materials or the manufactured components and parts reach the manufacturing sites just before they are put to use

The Just-in-time (JIT) System was introduced by Toyata in 1950. It is an inventory control system where the raw materials or the manufactured components and parts reach the manufacturing sites or stores just few hours before they are actually put to use. Here, the delivery of the raw materials/ manufactured parts/ components are synchronized with the manufacturing cycle and speed. In simple words, it is a system which involves the purchase of materials in such a way that purchased materials are delivered just before they are actually used or demanded.

Schonberger defines, JIT as, "to produce and deliver finished

goods just in time to be sold, sub-assembles just in time to be assembled into finished goods, fabricates parts just in time to go into sub - assembles and purchased materials just in time to be transformed into fabricated parts.

- involves just in time production and just in time purchasing

The philosophy of JIT control system implies that the business concerns should rely on suppliers to provide materials just in time to meet the requirements and maintain a minimum i.e, zero level of inventory. This is in contrast to the traditional inventory control systems where the business concerns are required to maintain a healthy level of safety stock to provide protection against uncertainties of production and supplies. JIT involves two concepts namely (i) just in time production, and (ii) just in time purchasing.

However, this system requires proper coordination between the manufacturer and suppliers with respect to the timing of delivery and quality of the material. If the materials or components supplied are poor, it could lead to the stoppage of production. The JIT inventory system complements the total quality management (TQM).

Advantages of JIT Inventory Control System

i. The right quantities of materials are purchased or produced at the right time.

ii. This system helps to eliminate the necessity of carrying large inventories. Thus, investment in inventory is reduced.

iii. It helps to eliminate wastages in production and non – value added activities

iv. Due to reduced inventory, carrying or holding cost of inventory is also reduced .

v. It helps in reduction in costs of quality such as inspection, costs of delayed delivery, early delivery, processing documents etc. resulting into overall reduction in cost.

- quantity and value ascertained based on physical weight or count

iii. Periodic Inventory System

It is a system in which the quantity and value of inventory is ascertained based on the actual physical weight or count or measure of all the inventory items in hand at the end of accounting period. For stock taking closing down would be required.

Cost of Materials issued = Opening Inventory + Purchases - Closing Inventory

recording stores balances after every receipt and issue

iv. Perpetual Inventory System

It is a system of recording stores balances after every re-

ceipt and issue of stock. This would facilitate regular checking and will help to prevent the requirement for closing down for stock-taking.

4.4.3.6 Inventory Management Process

- process of continuous planning, coordination, control and monitoring of inventory

Inventory management techniques are very much helpful to the management in determining the level of inventory, determining the economic order quantity, the reorder point and the safety stock. These techniques aid the business concerns in economizing the use of resources by reducing the total inventory cost. Inventory Management is a managerial process of continuous planning, coordination, control and monitoring of inventory. It involves the following steps:

1. Inventory Planning

- forecasting demand and determining the quantity and type of inventory

It involves forecasting demand and determining the quantity and type of inventory needed over a specific period of time. For this, market trends, seasonal fluctuations, historical sales data, and lead times have to be analysed. Accurate inventory planning helps a business concern to maintain sufficient stock to meet customer needs and prevents the need for overstocking. Effective inventory planning lays the foundation for smooth procurement and inventory control.

2. Purchasing/Procurement

- initiating purchase of required goods or raw materials

Once inventory needs are identified by the business concern, the next step is to initiate the purchase of the required goods or raw materials. For this, reliable suppliers have to be selected and after negotiating the terms of purchase, orders have to be placed in a timely manner. The cost, quality, delivery timelines, and the credibility of the supplier have to be evaluated before taking procurement decisions. An efficient purchase process ensures that materials arrive when needed, avoiding production delays or stockouts, while also optimizing purchase costs and supplier relationships.

3. Receiving Goods

- receiving and inspect the ordered goods carefully

The business concerns must receive and inspect the ordered goods carefully. This process includes verifying the shipment against the purchase order, checking the quantity, quality, and condition, and documenting any discrepancies or damages. Accurate receiving records are essential for updating inventory levels in the system and initiating payments to suppliers.

4. Storing and Warehousing

The next step after the receipt of the inventory, is the storage of the inventory in a designated storage area or warehouse. Prop-

- storage of inventory in ware house

er storage of goods is essential to protect goods from damage, theft, or spoilage. Proper warehousing practices helps to ensure easy access, efficient space utilization, and quick retrieval of inventory when needed, supporting smooth business operations.

5. Inventory Tracking and Recording

- tracking and recording inventory movements

The next important step in inventory management is the tracking and recording inventory movements. This requires the updation of records whenever items are received, issued, or transferred. Manual systems or automated tools like barcoding, RFID tags, or inventory management software for tracking of inventory. Accurate tracking of inventory will help in preventing stock discrepancies, detection of theft or loss, and facilitates timely reordering. It also helps in in real-time monitoring of stock levels across multiple locations.

6. Inventory Control and Reordering

- focuses on maintaining optimal stock levels without overstocking

Inventory control focuses on maintaining optimal stock levels to meet demand without overstocking. Techniques like setting reorder points, calculating safety stock, and using models like EOQ (Economic Order Quantity) will help to determine when and how much to reorder. Inventory control techniques like ABC analysis and Just-in-Time systems will help to manage inventory efficiently. Similarly, reordering at the right time avoids production halts or lost sales due to shortage of stocks.

7. Stock Auditing and Reporting

- verifying the physical presence of inventory and comparing it with the recorded data

Regular stock audits are essential for verifying the physical presence of inventory and comparing it with the recorded data. Conducting audits will help to identify errors, theft, or spoilage. Accurate reporting based on audits will help to provide insights into inventory turnover, stock valuation, and obsolete items. These reports support decision-making in purchasing, production, and financial planning, ensuring that inventory levels align with the business goals.

8. Disposal of Obsolete/Surplus Inventory

- deciding suitable disposal methods

Inventory may become obsolete, slow-moving, or surplus due to changes in demand, technology, or product lines. Therefore, it is also important to review such items regularly and decide on suitable disposal methods.

Summarised Overview

It is imperative for modern businesses to manage short- term current assets in an effective manner. Current assets such as cash, receivables, and inventory are highly essential for maintaining financial stability and operational efficiency. Cash management involves managing the cash flows into and out of the firm, cash flows within the firm, and managing and controlling of cash balances held by the firm at a point of time by financing deficit or investing surplus cash. Cash planning refers to the process or technique of planning and controlling the use of cash. Efficient management of cash inflows and outflows helps to ensure liquidity and avoids disruptions in business activities of a firm. Business concerns should utilise the excess cash available. It should be prudently invested in short-term opportunities to enhance returns. Like the management of cash, receivables management plays a key role in revenue generation. Receivables management encompasses carious aspects such as establishing a sound credit policy, determining the optimum level of credit, evaluating individual customer accounts, and consistently monitoring receivables and also employing tools like factoring to manage risks and improve cash flow. The efficient and effective control of materials and products that are held in stock is referred to as inventory management. It aims to maintain an optimum level of inventory to ensure uninterrupted production and sales operations and at the same time minimizing inventory holding and ordering costs. Together, these functions form the foundation of efficient working capital management and help businesses stay competitive and financially sound.

Self-Assessment Question

1. What are the motives of holding cash?
2. What do you mean by cash planning?
3. What is Lock box system?
4. What do you mean by Factoring?
5. What is Credit Policy?
6. What do you mean by Inventory Management? What are its objectives?
7. Explain the various inventory control systems
8. What do you mean by Receivables Management?
9. Expalin the various Stock Levels?
10. What is EOQ?

Assignments

1. From the following information, calculate economic order quantity Annual usage = ₹5,00,000 Cost of placing and receiving one order = ₹ 100 Annual Carrying Cost : 10 % of inventory value
2. Calculate the minimum stock level, maximum stock level and reordering level and re- ordering level

i. Maximum Consumption 600 units per day

ii. Minimum consumption 500 units per day

iii. Normal Consumption 520 units per day

iv. Re –order period 40 – 50 days

v. Re – order quantity 5200 units

vi. Normal re –order period 44 days

3. Explain the methods of accelerating cash inflows and methods of slowing cash outflows
4. Elaborate Credit Evaluation of Individual Accounts
5. Explain the tools and techniques of Inventory Management

Suggested Reading

1. Khan, M. Y., & Jain, P. K. (2019.). *Financial management: Text, problems and cases*. McGraw-Hill Education.
2. Chandra, P. (2015.). *Financial management: Theory and practice*. Tata McGraw

Reference

1. Gupta, S. K., Sharma, R. K., & Gupta, N. (2018). *Financial management: Theory and practice* (9th ed.). Kalyani Publishers.
2. Pandey, I. M. (2015). *Financial management* (11th ed.). Vikas Publishing House Pvt. Ltd.
3. Tulsian, T. C., Tulsian, B., & Tulsian, T. (2020). Tulsian's Cost and Management Accounting. McGraw Hill Education (India), Private Limited.

Space for Learner Engagement for Objective Questions

Learners are encouraged to develop objective questions based on the content in the paragraph as a sign of their comprehension of the content. The Learners may reflect on the recap bullets and relate their understanding with the narrative in order to frame objective questions from the given text. The University expects that 1 - 2 questions are developed for each paragraph. The space given below can be used for listing the questions.

MODEL QUESTION PAPER SETS

SREENARAYANAGURU OPEN UNIVERSITY

Model Question Paper (SET- A)

QP CODE: ……

Reg. No :.....

Name:……

FOURTH SEMESTER MASTER OF COMMERCE (M.COM) DEGREE EXAMINATION DISCIPLINE CORE COURSE

M21CM03DE – Advanced financial management

Time: 3 Hours

Max Marks: 70

SECTION A

Answer any five of the following questions in one or two sentences each. Each question carries 2 marks.

(5x2=10)

1. State the 3 types of financial decisions.
2. What are the objectives of financial management
3. list out any two motives of holding cash.
4. Formula for the calculation of EOQ.
5. What do you mean by VED analysis?
6. What is working capital cycle
7. List out the relevance theories of capital structure?
8. What do you mean by share split?

SECTION B

Answer any six of the following questions in half a page each. Each question carries 5 marks

(6x5=30)

9. Short note on forms of dividend.

10. Briefly explain Weighted average cost of capital?
11. Difference between business risk and financial risk?
12. Explain the significance of cost of capital.
13. Short note on EBIT-EPS analysis.
14. Discuss the different types of leverage.
15. Explain Decision tree analysis
16. Dhruvin invested Rs.1,00,000 to open a store. The store generates a consistent after-tax cash inflow of Rs. 25,000 every year. Calculate payback period
17. A company issues Rs. 2,00,000 worth of 12% Debentures of Rs. 100 each. The corporate tax rate is 30%. Calculate the after-tax cost of debt in the following cases:

    (a) When debentures are issued at:

    i. Par

    ii. 10% Discount

    iii. 10% Premium

18. Devadath Ltd. has an earnings per share (EPS) of ₹15. The current market price of the share is ₹150. Calculate the cost of equity using the Earning Price Approach

SECTION C

Answer any two of the following questions in detail. Each question carries 15 marks. (2x15= 30)

19. Discuss the capital structure theories of relevance and irrelevance

20. KV ltd has the following capital structure and after-tax costs for the different source of funds used

Source of funds	Amount	Proportion	After tax cost (%)
Debt	200000	20	5
Preference shares	300000	30	10
Equity shares	400000	40	15
Retained earnings	100000	10	12
Total	1000000	100	

You are required to compute weighted average cost of capital

21. A project requires an initial investment of ₹1,00,000. The expected cash inflows over the next 3 years are as follows:

Year	Cash Inflow
1	30,000
2	40,000
3	50,000

Assume the discount rate is 10%. Calculate the Discounted Payback Period. (Use PV factors: Year 1 = 0.909, Year 2 = 0.826, Year 3 = 0.751)

22. Explain the factors affecting dividend policy

SREENARAYANAGURU OPEN UNIVERSITY

Model Question Paper (SET- B)

QP CODE: …… **Reg. No :.....**

Name:……

FOURTH SEMESTER MASTER OF COMMERCE (M.COM) DEGREE EXAMINATION DISCIPLINE CORE COURSE

M21CM03DE – ADVANCED FINANCIAL MANAGEMENT

Time: 3 Hours Max Marks: 70

SECTION A

Answer any five of the following questions in one or two sentences each. Each question carries 2 marks.

(5x2=10)

1. What do you mean by capital rationing?
2. Short note on sensitivity analysis.
3. List the different forms of dividend .
4. Short note traditional approach of capital structure theories
5. What is operational leverage?
6. Define financial management?
7. What is optimum capital structure?
8. List out any 4 techniques of computing cost of equity .

SECTION B

Answer any six of the following questions in half a page each. Each question carries 5 marks.

(6x5=30)

9. Discuss the different types of dividend policy.
10. Explain the concept of bird - in the- hand argument.
11. Explain the working capital cycle .

12. Malkin Ltd has issued ₹75,000 worth of 11% debenture securities with a face value of ₹100 each. The company bears an issue cost (flotation charge) of 3% on the face value. These debentures are to be redeemed at a premium of 7% after 8 years. Interest is payable annually. If the applicable corporate tax rate is 30%, calculate the after-tax cost of these debentures to the company.

13. Short note on capital asset pricing model.

14. Essay on scope of financial management.

15. Discuss the Measuring of share holders value creation.

16. Briefly explain the evolution of financial management.

17. Short note on discounting techniques of capital budgeting.

18. Given the three projects with discounted cash out flows of 4,00,000, 60,000, and 85,00,000 respectively. Also, assume that the present value of discounted cash inflows for these projects are 4,80,000, 75,000, and 85,50,000 respectively. Calculate the desirability factors (Profitability Index) for the three projects

SECTION C

Answer any two of the following questions in detail. Each question carries 15 marks.

(2x15= 30)

19. Kevin Pvt. Ltd. is considering investing in a renewable energy project that requires an initial investment of ₹10,00,000. The project is expected to generate annual cash in flows of ₹2,50,000 for the next 6 years. Assuming that the project has no salvage value at the end, calculate the Internal Rate of Return (IRR) for the project

20. Discuss the methods of risk analysis in capital budgeting

21. Explain the different types of working capital.

22. The following information is available in respect of a firm:

Capitalisation rate – 10%

Earnings per share - ₹ 100

Assumed rate of return on investments:

i. 12%

ii.8%

iii. 10%

Show the effect of dividend policy on market price of shares applying Walter's formula when dividend pay out ratio is

(a) 0% (b) 40%, (d) 80%, and (d) 100

സർവ്വകലാശാലാഗീതം

വിദ്യയാൽ സ്വതന്ത്രരാകണം
വിശ്വപൗരരായി മാറണം
ഗ്രഹപ്രസാദമായ് വിളങ്ങണം
ഗുരുപ്രകാശമേ നയിക്കണേ

കൂരിരുട്ടിൽ നിന്നു ഞങ്ങളെ
സൂര്യവീഥിയിൽ തെളിക്കണം
സ്നേഹദീപ്തിയായ് വിളങ്ങണം
നീതിവൈജയന്തി പാറണം

ശാസ്ത്രവ്യാപ്തിയെന്നുമേകണം
ജാതിഭേദമാകെ മാറണം
ബോധരശ്മിയിൽ തിളങ്ങുവാൻ
ജ്ഞാനകേന്ദ്രമേ ജ്വലിക്കണേ

കുരീപ്പുഴ ശ്രീകുമാർ

SREENARAYANAGURU OPEN UNIVERSITY

Regional Centres

Kozhikode
Govt. Arts and Science College
Meenchantha, Kozhikode,
Kerala, Pin: 673002
Ph: 04952920228
email: rckdirector@sgou.ac.in

Thalassery
Govt. Brennen College
Dharmadam, Thalassery,
Kannur, Pin: 670106
Ph: 04902990494
email: rctdirector@sgou.ac.in

Tripunithura
Govt. College
Tripunithura, Ernakulam,
Kerala, Pin: 682301
Ph: 04842927436
email: rcedirector@sgou.ac.in

Pattambi
Sree Neelakanta Govt. Sanskrit College
Pattambi, Palakkad,
Kerala, Pin: 679303
Ph: 04662912009
email: rcpdirector@sgou.ac.in

DON'T LET IT BE TOO LATE

SAY NO TO DRUGS

LOVE YOURSELF AND ALWAYS BE HEALTHY

SREENARAYANAGURU OPEN UNIVERSITY

SREENARAYANAGURU OPEN UNIVERSITY

The State University for Education, Training and Research in Blended Format, Kerala

Advanced Financial Management

COURSE CODE: M21CM03DE

Sreenarayanaguru Open University
Kollam, Kerala Pin- 691601, email: info@sgou.ac.in, www.sgou.ac.in Ph: +91 474 2966841

ISBN 978-81-991429-0-9