PREFACE

In the curricular structure introduced by this University for students of Post Graduate degree programme, the opportunity to pursue Post Graduate course in Subjects introduced by this University is equally available to all learners. Instead of being guided by any presumption about ability level, it would perhaps stand to reason if receptivity of a learner is judged in the course of the learning process. That would be entirely in keeping with the objectives of open education which does not believe in artificial differentiation.

Keeping this in view, study materials of the Post Graduate level in different subjects are being prepared on the basis of a well laid-out syllabus. The course structure combines the best elements in the approved syllabi of Central and State Universities in respective subjects. It has been so designed as to be upgradable with the addition of new information as well as results of fresh thinking and analysis.

The accepted methodology of distance education has been followed in the preparation of these study materials. Co-operation in every form of experienced scholars is indispensable for a work of this kind. We, therefore, owe an enormous debt of gratitude to everyone whose tireless efforts went into the writing, editing and devising of a proper lay-out of the materials. Practically speaking, their role amounts to an involvement in invisible teaching. For, whoever makes use of these study materials would virtually derive the benefit of learning under their collective care without each being seen by the other.

The more a learner would seriously pursue these study materials the easier it will be for him or her to reach out to larger horizons of a subject. Care has also been taken to make the language lucid and presentation attractive so that it may be rated as quality self-learning materials. If anything remains still obscure or difficult to follow, arrangements are there to come to terms with them through the counselling sessions regularly available at the network of study centres set up by the University.

Needless to add, a great part of these efforts is still experimental—in fact, pioneering in certain areas. Naturally, there is every possibility of some lapse or deficiency here and there. However, these do admit of rectification and further improvement in due course. On the whole, therefore, these study materials are expected to evoke wider appreciation the more they receive serious attention of all concerned.

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Vice-Chancellor

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Notification

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Post Graduate : Commerce

M. Com-18

Module 1

Module 2

Unit 1 ❑ Functions of Financial Management

Structure

1.0 Introduction

All business activities require acquisition and use of funds for their commercial running, i.e. generating revenues over total costs incurred. Without funds no business activity can take a final shape in practice. Finance is the life blood of a business. The Financial Management study about the process of procuring and judicious use of financial resources with a view to maximising the value of the firm thereby the value of owners i.e. equity shareholders in a company is maximised. Today finance is one of the basic foundations of all kinds of economic activities. It is the master key which provides access to all the sources for being employed in manufacturing and merchandising activities. It has rightly been said that business needs money to make more money. However, it is also true that money begets more money, only when it is properly managed. Therefore, efficient management of every business enterprise is closely linked with efficient management of its finances.

1.1 Meaning of Business Finance

In general, finance may be defined as the provision of money at the time it is wanted. However, as a management function it has special meaning. Finance refers to the application of skills or care in the procurement, use and control of money. This is as far as the dictionary goes. It would, however, not be in fitness of things to place

too heavy reliance on the dictionary meaning of finance because the word finance has a marvelous ability to evoke different concepts in the minds of different persons. Some of the authoritative definitions are as follows :

- "Business finance deals primarily with raising, administering and disbursing funds by privately owned business units operating in nonfinancial fields of industry" (Prather and Wert).
- "Business finance can be broadly defined as the activity concerned with planning, raising, controlling and administering of funds used in the business" (Guthmann & Dongall).
- "The Finance function is the process of acquiring and utilising funds by a business" (R. C. Osborn).
- "Financing consists in the raising, providing, managing of all the money, capital or funds of any kind to be used in connection with the business" (Bouneville & Dewey).

1.2 Meaning of Financial Management

From the various definitions of the term business finance given above, it can be concluded that the term business finance mainly involves raising, providing and managing of the money to be used in connection with business activities. This requires great caution and wisdom on the part of management. The management makes use of various financial techniques for administering the financial affairs of the firm in the most effective and efficient way. Financial management, therefore, means the entire gainest of managerial efforts devoted to the management of finance—both its sources and uses—of the enterprise. From the point of view of modern corporate firm, financial management is related not only to fund raising but encompasses the wider perspective of managing the finances for the company efficiently. The finance manager must see that the funds are procured in a manner that the risk, cost and control considerations are properly balanced in a given situation and there is optimum utilisation of funds. Hence, financial management is nothing but managerial decision making on asset mix, capital mix and profit allocation.

1.3 Functions of Financial Management

The functions of financial management have undergone sea changes over the years. Until about the middle of the last century it was restricted to only procurement of funds. This was known as the traditional function of financial management. The traditional approach looked at the matter from the investors' point of view—the finance manager had no concern with decisions concerning allocation of funds ; he was required to procure the funds from the right sources at the right time. But beginning in the 1950s, a broader definition of financed management began to emerge. It came to be considered an integral part of general management rather than a staff function specially concerned only with administering sources of funds. It was now concerned also with decisions pertaining to use of funds and those to payment of dividend. So dividend decision also becomes an important part and parcel of the proper financial management of the firm. Accordingly, the modern approach is to consider the following as the important functions of financial management :

(a) investment decisions

(b) financing decisions

(c) dividend decisions.

The investment decisions relate to the careful selection of viable and profitable investment proposals, allocation of funds to the investment proposals with a view to obtaining net present value of the future earnings of the company and to maximise it. It is the function of a finance manager to carefully analyse the different alternatives of investment and determine investment levels in different assets. Various techniques are used for the appraisal of various investment decisions. They help to formulate acceptance criterion, or required rate of return for the investment decisions. Efficient management of existing and new investments is of paramount importance as it brings an overall change in the value of the firm which may be positive or negative. Positive change in the value of the firm signifies a high rating by the investors.

The second major decision of the firm is the financing decision. It relates to procuring funds from outside the business organisation. Funds should be procured at a reasonable cost and it should be effectively utilised to give maximum value. The different sources of obtaining funds form the basis of organization's capital structure. The mix of different sources of funds at which the overall cost of capital remains minimum is the optimum capital structure of the firm, although this hypothesis does not remain unchallenged.

The next important decision is the dividend decision. The dividend decision of a finance manager is mainly concerned with the decisions relating to the distribution of earnings of the firm among its equity holders and the amounts to be retained by the firm. Formulating a dividend policy brings into focus the retention policy of the firm and vice versa. Thus, they are so interrelated that consideration of one leads to consideration of the other.

The investment, finance and dividend decisions are interrelated to each other and therefore, the finance manager while taking any decision, should consider the impact from all the three angles simultaneously. In the words of Ezra Solomon "the function of financial management is to review and control decision to commit and recommit funds to new and on-going uses. Thus, in addition to raising funds, financial management is directly concerned with production, marketing and other functions within an enterprise". We have briefly outlined the major functions of financial management into three key areas, namely, financing, investment and dividend decisions. There are many other areas that need proper attention for efficient management viz., Cash flow analysis, inventory management and credit management. These are generally included under working capital management (see unit 6) which, again, is part and parcel of financial management.

1.4 Role of Finance Manager

Finance manager is an integral part of corporate management of an enterprise and is involved in almost all the crucial decision making affairs because every problem and every decision entails financial implications. He manages the existing assets of the firm and invests in the new real assets. He makes investment decision to buy real assets. Real assets produce real cash flows to increase the value of existing shareholders and to attract the potential investors. All decisions of the finance manager, whether it be financing decision or investment decision, cannot be separated from the financial market where the firm operates. Further, every decision has to be taken in the light of risk-return tradeoff. Any opportunity which costs more than its benefits should not be accepted by the finance manager. Finance manager plays significant role in helping the business entrepreneurs and management in overcoming their business problems and accomplishing their wealth maximisation objective. Besides handling day-to-day problems, finance manager also helps the corporate management in dealing with episodic problems including reorganisation, merger, consolidation and liquidation.

Thus, finance manager plays a vital role in optimal utilisation of financial resources in the firm and thereby ensures its successful survival and growth.

1.5 Objectives of the firm

The two well known and widely discussed objectives of the firm are :

i) Profit maximisation, and

ii) Wealth maximisation.

Profit maximisation

Maximisation of profits is regarded as the traditional objective of the firm, but it is not as inclusive a goal as that of maximising shareholder wealth. To maximise profit, the firm must maximise output for a given set of scarce inputs, or equivalently, minimise the cost of producing a given output. So the firm must be efficient in its use of scarce resources. It is argued that under conditions of perfect competition, profit maximisation objective leads to an efficient allocation of resources and maximum social welfare in that goods and services desired by the society are produced in the largest quantity possible given the available stock of productive resources. But it suffers from several drawbacks rendering it as an ineffective decisional criterion. These drawbacks are briefly mentioned below :

(a) It is vague.

Ambiguity of the term profit as used in the profit maximisation objective is its first weakness. It is not clear in what sense the term profit has been used. It may be total profit before tax or after tax or profitability rate. Rate of profitability may again be in relation to share capital, owner's funds, total capital employed or sales. Which of these variants of profit should the management pursue to maximise so as to attain the profit maximisation objective remains vague. Further, the word profit does not speak anything about short-term and long-term profits. Profits in the short run may not be the same as those in the long run.

(b) It ignores time value factor.

In practice, most investment decisions involve complex patterns of cash flows over times. The fact that money has a time value has to be recognised in the decision-making process. But 'the profit maximisation objective does not take account of differences in timing of cash flows and thus the time value of money.

(c) It ignores risk factor.

It overlooks risk factor, future earnings of different projects are related with risks of varying degrees. Hence, different projects may have different values even though their earning capacity is the same. A project with fluctuating earnings is considered more riskier than the one with certainty of earnings. Naturally, an investor would provide less value to the farmer than to the latter. Risk element of a project is also based on the financing mix of the project.

In view of the above, the profit maximisation objective is considered inappropriate and unsuitable as an operational objective of the firm. Profit maximisation has therefore, been replaced by wealth or value maximisation as the operational criterion for financial management decisions.

Value or Wealth maximisation

This objective is a widely recognised criterion with which the performance of a business enterprise is evaluated. Value generally means value to the firm. It is represented by market value per share. Thus, value maximisation means maximising market value per share. The term value or wealth may also mean the net present worth of the firm. So wealth maximisation is also stated as net present worth. Wealth maximisation objective as decisional criterion suggests that any financial action which creates wealth or which has a net present value above zero is desirable one and should be accepted and that which does not satisfy this test should be rejected.

Value maximisation goal aims at maximising the value of its bonds and equity, hence reduces chance of hostile takeovers and acquisition by other business enterprises, which is so common in liberalised economies.

The value or wealth maximisation objective when used as decisional criterion serves as a very useful guideline in taking investment decisions. This is because the concept of weath is very clear. It represents present value of the benefits minus the cost of the investment. Further, this objective considers time value of money.

In view of the above reasons, value maximisation objective is considered superior to profit maximisation objective. It may be pointed out that value maximisation objective is simply the extension of profit maximisation to real life situation. Where the time period is short and magnitude of uncertainty is not great, wealth maximisation and profit maximisation amount to almost to same thing.

1.6 Questions

Long answer type

1. Explain the functions of financial management.
2. "The principal focus of finance is on decisions and actions which affect the value of the firm". How can the financial management help to maximise them?
3. Explain the role of finance manager.
4. What are the objectives of a firm. What are the limitations of profit maximization objective?
5. What do you understand by value maximization of the firm? Why is it considered superior objective of the firm?

Short type

1. What is finance?
2. What is financial management?
3. What is investment decision?
4. What is finance decision?
5. What is dividend decision?

1.7 References

- Bhabatosh Banerjee, *Financial Policy and Management Accounting,* Prentice Hall of India.
- Ezra Solomon, *The Theory of Financial Management,* Columbia University Press.
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Unit 2 ❑ Some Basic Concepts of Finance : Time Value of Money and Risk-Return Relationship

Structure

2.1 Introduction

We know that maximisation of shareholders' wealth is the basic objective of the finance manager of a firm. This requires him to take appropriate decisions on financing, investment and dividends. These decisions to a great extent shape the risk-return character of the organisation and finally the value of the firm. At the time of taking these decisions the finance manager must consider the time factor e.g. (i) when interest on funds raised will have to be paid ; (ii) when return on investment (ROI) will be received ; and (iii) whether it will be received on a consistent basis or

not. All these requires that the finance manager knows about the various valuation concepts, namely, compound value concept, annuity concept, present value concept, etc. All these concepts are based on the fact that money has a time value. A rupee today is more valuable than a rupee a year hence. Thus, it can be said that present, riskfree money is better and preferred over future and risky money. The present unit discusses the reasons for money having a time value and the various valuation concepts associated with it. Further, the value of a firm is affected by two key factors ; risk and return. This unit also discusses the relationship between risk and return.

2.2 Time Value of Money

Money has a time value because of the following reasons :

(i) Individuals, in general, prefer current consumption to future consumption.

(ii) An investor can profitably employ a rupee received today for getting a higher value to be received tomorrow or after a certain period.

(iii) In an inflationary period, a rupee today represents a greater real purchasing power than, a rupee, say, a year hence.

Thus, the fundamental principle behind the concept of time value of money is that a sum of money received today is worth more than if the same is received in the future. A corollary to this concept is the concept that an amount received in future is less than what it is today.

2.2.1 Simple Interest Approach

If a sum P_0 is invested for a years at r% return then the Simple Interest (SI) on the sum P will be calculated as follows.

$SI = P_0(r)(n)$

Where P_0 = Principal amount or initial amount invested

r = rate of return

n = number of years.

On the basis of simple interest, future value can be calculated as follows :

Future Value (FV) $= P_0[1 + (r)\ (n)]$

$P_0 = FV/[1 + (r)\ (n)]$

2.2.2 Compound Value Concept

Under this concept the interest earned on the initial principal becomes a part of principal at the end of the compounding period. For example, if Rs. 1000 is invested

at 10% and for the second year interest will received on Rs. 1 100. The total amount due at the end of the second year will become Rs. 1210 (i.e. 1000 + 100 + 110).

Generally, the following formula is used for compounding of interest income over N number of compounding periods :

$$A = P\left(1+\frac{r}{100}\right)^n$$

Where A = Amount at the end of 'N' period
P = Principal amount at the beginning of the 'N' period
r = Interest rate per period
n = Number of periods.

Illustration

Mr X has invested Rs. 10,000 in a scheme @ 10% p.a. compounded half-yearly. Now Rs. 10,000 become Rs. 10,500 at the end of the first half year and then the sum due at the end of the second half year will be Rs. 10,500 + interest on it @ 10% for half year i.e. Rs. 10,500 + 5% or 10500 + 525 or Rs. 11025.

Using the above formula Rs. 11,025 can be determine in the following way.

$$A = P\left(1+\frac{r}{100}\right)^n$$

$$A = 10,000\left(1+\frac{5}{100}\right)^2 = 10,000\left(\frac{105}{100}\right)^2 = 10,000(1.1025) = \text{Rs.}11,025$$

2.2.3 Multiple Compounding Periods

Interest can be compounded even more than once in a year. In case of semiannual compounding, interest is paid twice a year but at half the annual rate. For the purpose of calculation, semi-annual compounding implies that there are two period of six months. Similarly in case of quarterly compounding interest rate effectively is $^1/_4$th of the annual rate and there are four quarter years. In general, the formula to calculate the compounded value is :

$A = P(1 + i/m)^{m \times n}$

Where A = Amount after a period
P = Amount in the beginning of period
m = number of times per year compounding is made
i = interest rate
n = number of years for which compounding is to be done.

Illustration

Calculate the compound value when Rs. 1000 is invested for 3 years on it is compounded at 10% p.a. semi-annually.

$$A = 1000\left(1+\frac{.10}{2}\right)^{2\times3}$$

= Rs. 1,340

2.2.4 Discounting and Compounding

The system of calculating the present value of a future sum is known as discounting and the present value tables are known as discounting tables. Compounding means calculating future value of a present sum. The future value tables are also known as compounding tables. It is obvious that discounting will decrease the value as we calculate the present value of our future sum but compounding will increase the value because we calculate the future value of a present sum. The two terms discounting and compounding hold true our first rule of finance that present amount is more valuable than future amount. So the present value of the future sum has to be smaller and future value of a present amount has to be greater.

2.2.5 Future Value of an Annuity

An annuity is the fixed amount of money received or paid for a particular period of time. When the cash flows (receipts or payments) occur at the end of each period the annuity is called a regular annuity or a deferred annuity. When the cash flows occur at the beginning of each period, the annuity is called an annuity due. In general terms the future value of an annuity is calculated with the help of the formula.

$$FVA_n = A(1 + K)^{n-1} + A(1 + K)^{n-2} + \ldots\ldots\ldots + A$$

$$= A\left[\frac{(1+K)^{n-1}}{K}\right]$$

Where FVA_n = Future value of an annuity which has a duration of n periods

A = Constant periodic flow

K = Interest rate per period

n = Duration of the annuity.

Illustration

Annual deposit in a Bank per 5 years is Rs. 1,000. Deposits earn a compound interest rate of 10%. What will be the value of this series of deposits (an annuity) at the end of 5 years?

Solution

Assuming that each deposit occurs at the end of the year the future value of the annuity will be :

Rs. $1000(1.10)^4$ + Rs. $1000(1.10)^3$ + Rs. $1000(1.10)^2$ + Rs. 1000(1.10) + Rs. 1000 = Rs. 1000(1.4641) + Rs. 1000(1.3310) + Rs. 1000 (1.2100) + Rs. 1000 (1.10) + Rs. 1000

= Rs. 6105

2.2.6 Present Value of an Annuity

An individual or depositor may receive only constant returns over a number of years. For example returns on debentures or fixed deposits etc. is fixed in nature. It means that the cash flows are equal in amount. To calculate the present value of annuity either we can determine the present value of each cash flow or use the annuity. The annuity table gives the present value for an annuity of Re 1 for interest rate 'r' over number of years 'n'. The present value of a series of cash flows can be determined with the help of the following formula.

$$PVA_n = \frac{A_1}{(1+t)^1} + \frac{A_2}{(1+t)^2} + \ldots\ldots + \frac{A_n}{(1+t)^n}$$

$$= A\left[\sum_{t=1}^{n} \frac{1}{(1+t)^n}\right]$$

Where PVA_n = Present value of 'n' annuity

A = Value of single instalment to be received at the end of each period

t = Rate of interest

Cash flows may be even, i.e., same amount to be received at the end of each period, or uneven, i.e., different amounts to be received at the end of different periods. The present value of a cash flow stream—uneven or even—may be determined with the help of the same formula as shown above i.e.under present value of an annuity.

2.2.8 Perpetuities

Perpetuity is an annuity with infinite time period. Unlike annuity perpetuity does not have a finite period. So perpetuity is a fixed amount of money paid or received for an infinite time period, for example irredemable preference shares. Present value, of perpetuities can be determined with the help of the following formula.

$$P = \frac{A}{r}$$

Where A = Annual receipt or payment

r = Interest rate.

Ilustration

X, an investor expects to receive Rs. 1000 annually from his investment. What is the present value of the perpetuity if rate of interest is 10%?

Solution

$$P = \frac{1000}{.10}$$

= Rs. 10,000

2.3 Risk-return Relationship

2.3.1 Risk

Risk refers to a condition where there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for. There is no requirement that the possibility be measurable, only that it must exist. It is related to the uncertainly of future. When the certainty regarding future loss is high or maximum, of risk is low. The variability of expected outcome is considered as the risk. It may be operating profit of the company, cash flow from a project and so on. There are various methods of measurement of risk e.g. rule of thumb (high, low, medium, etc.), standard deviation, co-efficient of variation and beta co-efficient. Risks may be of two types—market-related (non-diversifiable) and firm/industry-related (diversiviable). This is popularly known as systematic (unavoidable) risk and unsystematic (avoidable) risk. Systematic risk again comprises business or operating risk and financial risk which are discussed in unit 5.

2.3.2 Return

Return is the remuneration of capital invested. It is the reward to the investor for a given amount of investment over a period of time. The concept of return varies considerably depending upon the object. Consider the following :

(1) Return on Capital Employed (ROCE) :

$$ROCE = \frac{\text{Profit after tax}}{\text{Capital Employed}}$$

(2) Internal Rate of Return (IRR) from a project :

$$\text{IRR} : I_0 = \frac{A_1}{(1+r)^1} + \frac{A_2}{(1+r)^2} + \ldots + \frac{A_n}{(1+r)^n}$$

where, A_1 A_2, ... A_n are future stream of cash flows

n = Project life

r = IRR

I_0 = Initial Get of investment or present value of cost of investment.

(3) Dividend yield (Dy) :

$$\text{Dy} = \frac{\text{Dividend per share}}{\text{Market Price per share}}$$

2.3.3 Relationship between Risk and Return

The rate of return required by a firm, to a great extent, depends upon the risk involved. Higher the risk, greater is the return expected by the firm.

Conversely, when the risk is low, the return may also be low. This fundamental relationship between risk and return may shown in the diagram below.

Fig. 2.1 Relationship between risk and return

Figure 2.1 shows the general relationship between risk and return. Other things being constant the greater the degree of systematic risk, the greater would be the expected return and vice-versa.

In unit 4 (section 4.6), capital Asset Pricing Model (CAPM) has been explained. It is the most popular method of determining risk-return relationship. In short, the expected return, under the CAPM, comprises risk-free return and premium for undertaking systematic risk. That is—

Expected Return = Risk-free return + Risk premium.

Risk-free, or zero-risk, investment represents an investment in the government securities, deposits in nationalised banks, etc.

2.4 Questions

Long Answer Type

1. Why does money have time value? State the general formula for the future value of a single cash flow.
2. State the formula for the present value of an annuity. Illustrate with an example.
3. How will you calculate the compound value of a sum after (i) 3 years, (ii) n years. Explain with practical examples.
4. Explain the relationship between risk and return.

Short Type

1. What is Compounding?
2. What is Discounting?
3. What is Risk?
4. What is Return?
5. What is Systematic Risk?
6. What is Unsystematic Risk?
7. What comprises expected return from an investment?
8. What is Perpetuities?
9. What is return at Zero Risk?

2.5 References

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Unit 3 ❑ Various Sources of Finance

Structure

3.1 Introduction

Financing of a firm means providing money for investment in the form of fixed assets and also in the form of working capital needed for day-to-day operations. The business cannot run efficiently if it does not have adequate finance to meet its requirements. The financial requirements of business can be classified into two categories :

(i) Short-term financial requirements

(ii) Long-term financial requirements.

Day-to-day requirements in normal routine operations of any firm are financed by short-term funds. This is popularly known as financing working capital or current assets. In other words, current assets are financed by short term funds. Short term funds are funds borrowed for repayment within a year i.e. within a financial year.

All firms require long term 'fund financing' for purchasing its fixed assets, expansion, diversification, acquisition and takeovers etc. In other words any decision, which requires large amount of money, is irreversible and requires a lot of time to give results, needs long-term funds to finance it.

The present unit discuss the various sources of finance and the Indian financial symtem.

3.2 Short-term Sources of Financing

There are various sources of short term funds e.g.

a) Accrued Expenses

b) Trade Credit

c) Provisions

d) Bank Finance

e) Public deposits

f) Commercial papers

g) Treasury bills

h) Factoring

1) Euro currency loan

The above sources can be explained as under :

3.2.1 Accrued Expenses

The payments which are due but are to be made by the business but are payable at some future date are treated as accrued expenses. Examples are, accrued salaries, accrued rent, etc. However, accrued expenses form very small portion of short term finding.

3.2.2 Trade Credit

Under this system suppliers of goods and services allow the customers credit for a specified period to make payment for the goods or services supplied. The period of credit to be allowed depends on the customs of the trade, the credit reputation of the customers, the cost of capital, competition and such other incidental factors. With the help of trade credit a firm can continue its production and other activities smoothly without making an immediate cash outflow in the form of payments. By delaying these payments, the firm can utilize this money in its normal course of production and other activities profitably without incurring any major cost. For the purpose of measuring the cost of trade credit the following formula may be used:

$$\text{Percentage Cost} = \frac{\text{Discount percent}}{(100 - \text{Discount percent})} \times \frac{360}{(\text{Total Credit Period} - \text{Discount period})}$$

Illustration :

Cost of net being able to take discount when credit terms of suppliers are 2/10 net 30 and actual payment by the firm takes place or both day of purchase.

Solution :

$$\text{Cost} = \frac{.02}{1-.02} \times \frac{360}{80-10}$$

$$= \frac{0.2}{.98} \times \frac{360}{70} = 10.5\%$$

3.2.3 Provisions

From profit after tax (PAT) some amounts may be earned as provisions for spending in the future. These amounts are deducted from profit e.g. provision for banks, provision for dividend. As these provisions are not immediate cash outflow, they provide funds for the business for its current use. However, the business has to make these payments in future from its future profits.

3.2.4 Bank Finance

Bank in our country mostly provides only short-term credit to the business. They have started providing medium-term finance also, but only marginally. Bank provides finance in the following forms :

Cash Credit

A cash credit is an arrangement by which a banker allows his customer to borrow money up to a certain limit. Cash credit arrangements are usually made against the security of commodities hypothecated as pledged with the bank.

Overdraft

It refers to a running account and the customer is permitted to overdraw upto a fixed limit depending upon the requirement of the firm. It operates against the security in the form of pledge of shares and security like LIC policies, etc.

Bills discounted and purchased

The banks also provide advances to their customers by discounting their bills. The actual amount after deducting the amount of discount is credited to the account of the customers. The bank may discount the bills with or without security from the debtor in addition to the personal security of one or more persons already liable on the bill. The term discounting of bills is used in respect of time bills but the term purchasing of bills is used in respect of demand bills.

Note Lending

It is form of loan given to the borrower against promissory notes or debt instrument. It is a running account. It is sanctioned for a period of about 2-3 months. Interest is charged on the complete loan amount sanctioned unlike cash credit and overdraft account where interest is charged only on the utilised amount.

Letter of Credit

This is another form of credit purchase. Here bank takes the guarantee of payment by the buyers. In case of default the bank is responsible for making these Payments. The company offers security to the bank in the form of hypothecation or pledge in case of such bank finance. In case of hypothecation the possession of goods is not given to the bank. The bank is given access to goods whenever it so desires. But in case of pledge, the goods are placed in custody of the bank with its name of the godown where they are stored. The borrower has no right to deal with them.

3.2.5 Public Deposit

It means acceptance of deposits by a company directly from the members of the public at a fixed rate of interest. The rate of interest on deposits is higher than that allowed by the commercial banks so that members of the public may be attracted towards companies to advance deposits to them. Public deposits are regulated by regulations of public deposit under the companies amendment rules, 1978. However, the company raising public deposit cannot raise more than 10% of its paid-up share capital and free reserves. Maturity period of public deposit is 6 months to 3 years. The rate of interest on public deposit cannot be more than 15% which is calculated on quarterly basis. Financing through public deposit is simple without much of complicated formalities involved. The company has simply to advertise and inform the public that it is interested in and authorised to accept public deposits. It is a popular costly method for raising short term as well as medium term funds required by the business.

3.2.6 Commercial Paper

Commercial paper means short-term unsecured promissory notes of large non-banking firms. When a firm is in need of cash for short period, it may issue commercial paper. The maturity period of commercial papers varies from 3-6 months. Commercial papers are issued at a discount and have a big back facility. They are unsecured and stand against the credit wortheness of the firm. It is very popular in developed countries like the USA, the UK, France, etc.

In India, commercial paper was first introduced in 1990 on the basis of th recommendations of the Veghul Committee and the Reserve Bank of India's announcement in its credit policy statement dated March 27, 1989. By 1991 all non-finance companies and non-banking companies could raise money through commercial papers adhering to RB1 guidelines.

3.2.7 Treasury Bills

It refers to Central Government borrowings against a bill or a promissory note. This is a purely liquid risk free instrument. Presently, there are three types of treasury bills :

(a) 9 days Treasury Bills issued every week

(b) 182 days Treasury Bills issued every week

(c) 364 days Treasury Bills issued every month

Normally, there are two forms of treasury bills, e.g.

(i) Ordinary Treasury Bills which are issued to public and Reserve Bank of India by the Government.

(ii) Ad-hoc Treasury Bills which are created only in favour of Reserve Bank of India.

3.2.8 Factoring

This is a method of raising finance under which an agent or merchant buys invoiced debts from the firm requiring finance. In effect, the agent buys the debtors. Therefore, in respect of credit sales funds can be obtained under this method once sales are complete. Factoring is a business activity in which a financial intermediary takes over the whole responsibility of collecting a firm's receivables. By factoring device the firm is able to convert its non-productive, inactive current assets, receivables into productive and active assets, i.e. cash.

In India, factoring has been becoming increasingly popular. The RBI have initiated different measures for developing factoring and have issued necessary guidelines for its regulation. In 1991, The State Bank of India and few other commercial banks have formed SBI Factors & Commercial Services Ltd. but in India factoring is still in its nascent stage.

3.2.9 Eurocurrency Loan

Sometimes short-term funding is made through eurocurrency loans in international trade. Due to individual government regulations of different nations, on the interest rate, on domestic banks lending changes as one crosses the national boundary e.g. interest on euro dollar would be same as interest on domestic dollar loan if the world is made free of regulations and taxes imposed by the government.

3.3 Long-term Sources of Finance

The following are the important sources of long term funds.

a) Equity shares

b) Preference shares

c) Debentures

d) Ploughing back of profits

e) Loans from financial institutions

f) Venture capital

g) Leasing and Hire purchase

3.3.1 Equity Shares

Equity shares are owner's equity having no maturity date. Equity shareholders are entitled to the surplus of the firm ; without these shares the company cannot procure debt and preference share capital from investors. These owners have residual, unrestricted ownership on profits and assets of the firm. In other words, they are 'legal owners' of the firm. The rate of dividend on these shares is not fixed. It depends on the availability of divisible profits and the intention of the directors. In times of prosperity the shares have the chance of earning good dividends. The equity shareholders control the company on account of their entitlement to vote at the general meeting of the company. Equity shares are preferred by persons who prefer better return with risk and also wish to have a say in the management of the company.

Equity shares have three modes of issue namely :

(a) Public Issue : Here the firm raises share capital directly from public by issuing shares to them through prospectus.

(b) Private Issue : Here the shares of the firm are offered to a few selected investors like LIC, ICICI, UTI, IDBI, Commercial Banks, etc.

(c) Rights Issue : Subsequent issue of shares by an existing company to existing shareholders are known as rights issue. In case of right shares, the control of the company is retained in the hands of the existing shareholders.

(d) **Bonus Issue** : Companies may also issue bonus shares to its existing shareholders at a given ratio. It is done for capitalisation of reserves/profits. When liquidity position is not satisfactory, issue of bonus shares is an acceptable method of keeping the shareholders happy.

(e) **Sweat Equity** : The Companies (Amendment) Act, 1999 has introduced a new section 79A regarding issue of Sweat Equity Shares of a class of shares already issued. The term Sweat Equity Shares means the equity shares issued by a company to employees or directors at a discount for consideration other than cost or for providing know-how or making available rights in the nature of intellectual property rights or value additions.

3.3.2 Preference Shares

Shares which enjoy the preferential right as to dividend at a fixed rate and repayment of capital in the event of winding up of the company over the equity shares are called preference shares. Because of these two benefits, firms may secure long-term capital in this form without any difficulty. Preference shares may be divided into the following classes.

(a) Cumulative : In the event of absence of profit for payment of preference dividend in a particular year, the arrear dividend will accumulate and shareholders would be entitled to it in the year of sufficient profit.

(b) Non-cumulative : The holders of non-cumulative preference shares no doubt will get a preferential right in getting a fixed dividend before it is distributed to equity shareholders. But the fixed dividend is to be paid only out of the divisible profits of the year for which dividend is to be paid.

(c) Redeemable : These shares are redeemed at the expiry of a slipulated period. Redemption can be made out of proceeds of equity shares and/or out of profits of a firm.

(d) Non-redeemable : These shares are not returned to the holders during the life time of a firm. These are also called ordinary preference shares. As per Companies (Amendment) Act of 1988 such shares cannot be issued with affect from 15.06.1988.

(e) Participating : The preference shares which are entitled to a share in the surplus profit of the company in addition to the fixed rate of dividend are known participating preference shares. After the payment of the fixed rate of preference shares, a part of surplus is distributed as dividend among the equity shareholders at a particular rate. The balance of surplus left may be shared by both equity and preference shares.

(f) Non-participating : Those preference shares which do not carry the right of share in excess profits are known as non-participating preference shares.

(g) Convertible : Preference shares may be issued with an option for conversion into equity shares often a stipulated period of time. These are known as convertible preference shares.

3.3.3 Debentures

According to section 2(12) of the Companies Act, 1956 "Debenture includes debenture stock, bonds and any other securities of company whether constituting a charge on the assets of the company or not." Debentures are issued in the same manner as shares. A debenture may be issued at par, at a discount or premium. The different types of debentures are mentioned below :

(a) Naked Debentures : Naked debentures are those which do no carry any charge on the assets of the company.

(b) Mortgaged Debentures : These debentures are secured by a mortgage or charge on the whole or part of the assets of the company. In the event of liquidation of a firm, the holders are entitled to recover principal amount and the amount of unpaid interest out of proceeds from assets mortgaged.

(c) Bearer Debentures : These debentures are transferable by simple delivery and any one who possesses these debentures is entitled to get interest at the stipulated rate.

(d) Redeemable Debentures : These debentures are to be repaid after the expiry of a specified period.

(e) Non-redeemable Debentures : When debentures are not repayable unless the firm is liquidated, they are known as non-redeemable debentures.

(f) Convertible Debentures : These debentures can be converted into equity shares of the company as per the terms of their issue.

(g) Registered Debentures : Here transfer takes place only on execution of a transfer deed. Interest is payable to the person whose name is registered with a company.

(h) Rights Debentures : These debentures can be offered to the existing Indian resident shareholders for increasing the amount of working capital on a long-term basis.

3.3.4 Ploughing Back of Profits

It means a part of the profit earned is retained in the business to be utilised in future for financing development schemes or for meeting the special fixed or working capital requirements of the company. This is the most dependable source of financing as no reliance is made on outside sources. This source of finance is also known as internal financing or self financing as the company utilises its own funds. The shareholders of the company are benefited by the policy of ploughing back of profits. The business of the company is expanded and huge reserves are accumulated which are helpful in increasing the value of shares. The policy of ploughing back of profits reduces the number of business falures as the concerns become financially strong.

3.3.5 Loans from Financial Institutions

Loans from financial institutions are an important source of meeting fixed capital requirements of a company. These institutions include the following :

(i) The Industrial Financial Corporation of India (IFCI)

(ii) State Financial Corporations (SFC)

(iii) The Industrial Credit and Investment Corporation of India (ICICI)

(iv) The National Industrial Development Corporation (NIDC)

(v) General Insurance Companies (GICs)

(vi) Life Insurance Corporation of India (LICI)

(vii) Industrial Development Bank of India (IDBI)

(viii) The Unit Trust of India (UTI)

(ix) Industrial Reconstruction Bank of India (IRBI)

The Industrial Financial Corporation was set up in 1948 to serve the large seale industry by giving advances and long-term loans. Its primary role is to assist in the financing of industrial development in the country undertaken in private, public and co-operative sectors. IFCI is authorised to (a) grant long-term loans in rupee currency repayable in not more than 25 years ; (b) grant loans in Foreign currency ; (c) underwrite equity or preference or debenture issues ; (d) subscribe to equity or preference capital or debentures ; (e) guarantee deferred payments in respect of machinery imported from abroad or purchase in India ; (f) guarantee loans raised in foreign currency and (g) guarantee loans raised from scheduled banks or state-co-operative banks or floated in the public market.

In order to provide financial assistance to small-scale industries and medium-size industries, State Finance Corporations Act was passed by Parliament in 1951. The Act is applicable to all States except the State of Jammu and Kashmir. Almost all the States have set up such Corporations. The principal schemes of State Financial orporations are :

(a) Granting loans or advances or subscribing to debentures of industrial oncerns, repayable within 20 years.

(b) Guaranting loans raised by industrial concerns, on such terms and conditions may be mutually agreed upon, which are repayable within 20 years ; and

(c) Underwriting the stocks, share, bonds and debentures subject to their being disposed of in the market within 7 years.

The Industrial Credit and Investment Corporation of India was set up in 1955 to assist industrial enterprises in the private sector. Its formation was on the suggestion of the World Bank which desired the establishment of the financial institution in private sector. This corporation has become the important source through which flow the foreign loans meant for the private sector in India.

The main functions of the ICICI are :

(a) Granting loans in rupees repayable over periods upto 15 years.

(b) Underwriting of public issues

(c) Subscription to equity and preference captial

(d) Granting loans in foreign exchange for payment of important capital equipment and technical services.

(e) Guaranteeing payments for credit made by others.

(f) Furnishing, managerial, technical and administrative assistance to Indian industry.

The National Industrial Development Corporation was set up in 1954. The main object of establishing this corporation is the development of industries, particularly. Those which are to fill the gaps in the industrial field. It gives priority .in meeting the long-term requirements of capital of those units which are engaged in capital goods, machinery and equipment for other industries.

In India General Insurance Companies subscribe to, or purchase, shares and debentures and thus contribute directly to the long-term needs of industries. By investing in shares and debentures of other banking and financial institutions, they also indirectly participate in long-term financing.

In India, Life Insurance Corporation came into being in 1956 as a result of nationalisation of 245 Life Insurance Companies. The main purpose of LIC was to remove the drawbacks that marred the operations of the privately managed life insurance companies. The Corporation now occupies an important place in the organised money market in India. It not only takes an active interest in underwriting operations but also invests in shares and debentures of companies.

The Industrial Development Bank of India was established in 1964 to cordinate the activities of other financial institutions, supplement their resources, plan and promote industries to key importance to the industrial structure.

The Unit Trust of India was set up in 1964 to help private investors find less risky and reasonable profitable means of investing in shares. In this way, UTI helps the industrial growth by channelling private savings into productive investment.

The Industrial Reconstruction Bank of India was set up in 1971 as an adjunct to the developmental institutions. Its main objective is to revive industrial units which were closed or those which were sick and facing closure but showed promise of viability.

3.3.6 Venture Capital

Venture Capital is a long-term financial assistance provided to projects, which are established to introduce new products or projects or technology. Venture capitalists take huge risk in anticipation of future high returns ; hence venture capital is also known as risk capital. Venture capital is equity financing 'risk capital. Venture capital is equity financing based on the principle that a partnership formed between the entrepreneur and the investors. Venture capital activity involves a minority and temporary equity or quasi-equity investment in a growth-oriented business managed by a highly motivated entrepreneur.

The main difference between venture capital and conventional investment through holding companies or mutual funds, can be found in the proportion and duration of investment and in the importance attached, by the venture capitalist, to quality of the entrepreneur. Venture capital funds, in fact, prefer good entrepreneurs rather than good projects, Venture capital has the following important features :

(a) Equity participation : The loan advanced by the venture capitalist is in form of equity. Thus, venture capitalists become one of the shareholders or owners of the enterprise and thus gain by capital appreciation of their investment assuming that the enterprise will be successful commercially and grow in future.

(b) Management participation : Venture capitalists actively participate management of the enterprise. Sometimes the venture capitalists may also provide functional expertise to the new enterprise.

(c) Long-term financing ; Venture capital is provided in the form of equity. So it is long-term financing. However, if venture capitalists want to liquidate investment then they can sell off their equity and enjoy capital gain.

(d) Early stage financing : Venture capital is often thought of as the early stage financing of new and young companies making effects to grow rapidly. Historically, it started only with early-stage financing high technology which had been the main focus of most professional venture capital companies.

The formation of American Research and Development Corporation (ARDC) in Boston in 1946, is usually mentioned as the first step towards institutionalising the venture capital investment process. Another important step in the development of venture capital in the United States was the enactment of the Small Business Investment Act in 1958 which provided the basis for the creation of the Small Business Investment Companies. Further, the whole Silicon valley of America is a result of venture capital financing. As a result, America's growth has much to owe to the venture capital.

Next to the U.S.A., the U.K ranks second as venture capital financing industry. The government support is high, so much so that many tax incentives have been initiated particularly to encourage venture capital. In Europe, around 75% of venture capital investment is continued to the U.K., France and Netherlands.

In India venture capital started in 1986 when ICICI set up the first venture fund cell in Mumbai. This merged later on into the Technology Development a Information Company of India Ltd., a Bangalore based company of ICICI with equity of I crore. In India there are over 30 venture capital funds which have invested around Rs. 5000 crores. Most of these are promoted by financial institutions and banks. Around 450-500 companies have been benefited from venture capital funds so far.

3.3.7 Leasing and Hire Purchase

Leasing has recently emerged as an important source of long-term financing of the business enterprises. Leasing refers to an agreement under which a company acquires the right to use the asset without owning it. Actual owner of the asset who permits use of the assets to the other party on periodic fixed payments is known as lessor. On the other hand the person who acquires the right to use the asset on payment of periodic fixed amount to the lessor, is known as lessee. Leasing may take several forms. Three important forms of leasing are :

(a) Operating Lease : It is a short-term cancellable lease agreement. In operating lease agreement there is option available to the lessee/lessor to terminate the lease after due notice. Here the lessor bears the cost of asset, insurance, maintenance repair costs etc.

(b) Financial Lease : This is a long-term non-cancellable lease contract. It do not provide for maintenance service and it is fully amortized. Here the lessor receives rental payments equal to the full price of the leased equipment.

(c) Sales and Lease Back Leasing : Here the individual or the leasing firm owning the asset first sells it to another party (which now becomes the lessor) then leases it back.

(d) Upfronted Lease : In this case, the lease rentals are higher in the initial years and less in the later years.

(e) Back Ended Lease : In this case, the lease rentals are less in the initial years but high in later years.

Hire Purchase : Under hire purchase, the person using the asset may become the owner of the asset. The ownership to the asset passes to the purchaser only on payment of final instalment. The depreciation and other allowances on the asset are claimed by the lessee i.e. user of the asset. Asset is also shown in the balance sheet of the lessee.

3.4 Indian Financial System

The financial system facilitates the transformation of savings into investment and consumption. The financial system consist of **financial assets**, **financial intermediaries** and **financial markets** which are briefly discussed below.

3.4.1 Financial Assets

Financial assets may be viewed as the basic products of the financial system. There are three types of financial assets, namely, money debt and stock. Money is issued by the Reserve Bank of India and the Ministry of Finance, Goverment of India and by Commercial Banks (as demand deposits). Debt is issued by a variety of organisations including the government and its agencies. Stock is issued by the business organisation. Stock is of two types : equity and preference. Equity stock means ownership capital and equity shareholders collectively own the company. On the other hand preference stock means a hybrid form of financing in that it partakes some features of equity and some attributes of debt.

3.4.2 Financial Intermediaries

Financial intermediation in the organised sector is conducted by a wide range of institutions functioning under the overall surveillance of the Reserve Bank of India. Various kinds of financial intermediaries are :

a) Commercial Banks

b) Term-lending Institutions

c) Agricultural Financial Institutions

d) Insurance Companies

e) Other Public Sector Institutions

f) Non-banking Financial Organisations.

3.4.3 Financial Markets

When a financial asset is transferred or created, a financial transaction occurs Financial markets are divided into two classes : **money market** and **capital market**. **Money market deals in short-term debt**, in contrast to the **capital market which deals in long-term debt and stock**. A well-developed money market :

(a) uses a broad range of financial instruments such as bills of exchange, treasury bills etc.,

(b) promotes financial mobility in the form of inter-sectoral flows of funds,

(c) channellises savings into productive investments,

(d) facilitates the implementation of monetary policy by way of open market operations.

The money market in India, as in many other developing countries, is dichotomised into the organised and unorganised segments. The principal intermediarise in the organised segment are the commercial and other banks. On the other hand the principal participants in the unorganised money market are money-lenders, indigenous bankers, mutual loan associations and chit funds.

The capital market is the market for financial assets that have long or indefinite maturity. It can be classified into two segments : primary market and secondary market. When a company wishes to raise capital by issuing securities, it goes to primary market. The primary market facilitates the formation of capital. The secondary market in India, where outstanding securities are traded, consists of the stock exchanges recognised by the government.

3.4.4 Government Securities Market

Securities issued by the central government, state government, and quasi-government agencies are broadly referred to as gilt-edged securities. The gilt-edged securities market is the largest segment of the Indian capital market. Interest on these securities are not fully aligned with other states in the financial markets. Commercial banks hold a very substantial part of these securities to satisfy statutory liquidity rates requirement.

3.4.5 Financial Development Measures

The financial development of a country may be assessed in terms of the following measures :

(a) **Finance Ratio :** It indicates the relationship between financial development economic development. It can be defined as :

$$\frac{\text{Total Financial Claims}}{\text{National Income}}$$

(b) **New Issue Ratio :** It refers to the extent to which the non-financial sector directly finances investment. It can be expressed as :

$$\frac{\text{Primary issues (claims created by non-financial sector)}}{\text{Net physical capital formation}}$$

(c) **Financial Interrelations Ratio** : This is an indicator which expresses the relationship between the financial system and the funding of investment. It can be defined as :

$$\frac{\text{Total financial claims}}{\text{Net physical capital formation}}$$

(d) **Intermediation Ratio** : This is measure of the preparation of financial transactions which occur through financial institutions. It can be measured as :

$$\frac{\text{Issues of financial institutions}}{\text{Total financial issues in the economy}}$$

3.5 Questions

Long Answer Type

1. How is long-term fund financing different from short-term fund financing?
2. What are the different short term sources of financing?
3. Explain atleast two long-term sources of financing.
4. What are the principal components of a financial system?
5. What are the salient features of the gilt-edged securities market in India.

Short Type

1. What is Note lending?
2. Define factoring.
3. What is commercial papers?
4. Define eurocurrency loan.
5. What is trade credit? How cost of trade credit is measured.

6. What is letter of credit?
7. What is Treasury bills?
8. What is money market?
9. What is Financial lease?
10. What is capital market?

3.6 References

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Unit 4 ❑ Cost of Capital

Structure

4.1 Introduction

Capital is one of the factors of production. Like other factors of production, capital also bears a cost to the firm. Under capital expenditure decisions, cost of capital assesses profitability of long-term investments and justifies their adoption by the firm by comparing it to its cost. Thus, after estimating the total funds required for operational activities and capital investments, the firm estimates the total cost of capital. Cost of capital is the minimum acceptable rate of return on funds or capital employed by the company. Cost of capital helps the company in evaluating its investment decisions, designing its debt structure, deciding its dividend payments, investment in current assets and appraisal of financial performance of the firm to mention a few.

The present unit discusses the different aspects of cost of capital.

4.2 Meaning of Cost of Capital

The cost of capital refers to the cost which a firm incurs in retaining the funds obtained from different sources, such as, issue of shares and debentures, raising

loans, retained earnings etc. It is the required rate of return needed to justify the use of funds obtained. It is the minimum rate of return which will maintain the market value of share at its current level. It is the hurdle rate which advocates the desirability of undertaking a capital projects. If the rate of return on a capital project is less than the cost of capital, there is no desirability of undertaking the investment project. The aim of financial management is to increase shareholders wealth by increasing market value of shares. This objective can be achieved when the firm earns more than the cost of capital.

4.3 Significance of Cost of Capital

The cost of capital is an important decision criterion in many important decision areas. We give below a few examples of use of cost of capital.

(a) Capital Structure Decisions :

The finance manager must raise capital from various sources in a way that it optimises the risk and return cost factors. The sources of fixed-cost-bearing funds which may have less cost involve high risk. Raising of loans may, therefore, be cheaper on account of income tax benefits, but it involves heavy risk because a slight fall in the earning capacity of the company may bring the firm near to cash insolvency. It is, therefore, necessary that cost of each source of funds is carefully considered and compared with the risk involved with it.

(b) Capital Budgeting Decisions :

Capital budgeting decisions have a major impact on the firm, and proper investment decision procedures require an estimate of the cost of capital. In general, it may be stated that the cost of capital of the firm is usually taken to be the cut-off rate for determining profitability or otherwise of proposed projects.

(c) Evaluation of the Financial Performance of Top Management :

For evaluating the performance of top management, a comparison of the actual rate of return of the investment projects undertaken by the firm can be made with the overall cost of capital of the firm. Top management will be considered efficient of actual rate of return is much higher than the overall cost of capital and vice versa.

(d) Other Decisions :

Other decisions like working capital decisions, return on capital employed are influenced by the cost of capital. Rate of dividends declared and rate of return on capital employed have the impact to increase the share price in the market.

4.4 Components of Cost of Capital

The costs of different sources of funds obtained in the organisation from the components of cost of capital. They are :

(i) Cost of preference capital;

(ii) Cost of debt capital;

(iii) Cost of retained earnings; and

(iv) Cost of equity capital.

We deal with computation of cost of each of these components separaterly.

4.5 Explicit Cost Vs Implicit Cost

The cost of each component, or source is referred to as the specific cost or component cost. The cost of a source of finance is the minimum return its suppliers. The expected return depends on the degree of risk assumed by investors. **Specific costs are also known as explicit costs**. According to Van Harne, explicit cost is "the rate of return of the cash flows of financing opportunity." It is, in other words, the internal rate of return the firm pays for financing. The explicit cost can be calculated by computing value as per the following equation.

$$I_0 = \frac{C_1}{(1+K)^1} + \frac{C_2}{(1+K)^2} + \ldots + \frac{C_n}{(1+K)^n}$$

where,

I_0 = Net amount of funds received by the firm at time zero.

C = Outflow in period t

K = Explicit Cost of Capital

n = Duration for which the funds are provided.

The Implicit cost may be defined as "the rate of return associated with the best Investment opportunity for the firm and its shareholders that will be forgone if the project presently under consideration by the firm were accepted". (Porterfield James T.S.). When the earnings are retained, the implicit cost is the income which the shareholders could have earned if such earnings would have been distributed and invested by them. As a matter of fact, explicit costs arise when the funds are raised, while the implicit costs arise whenever they are used.

4.6 Cost of Equity Capital

The determination of cost of equity capital is a difficult task. Unlike, the cost of other sources, the cost of equity capital is not the out-of-pocket cost. Conceptually cost of equity share capital may be defined as the minimum rate of return that a firm must earn on the equity financed portion of an investment in a project in order to leave unchanged the market price of such shares. In theory it seems to be simple, but in practice it is difficult to measure the minimum rate of return which will keep the market price of the shares unaffected. Although there are many methods of computation of cost of equity, we discuss only four important methods.

(a) Price-Earnings Ratio

$$Ke = \frac{E}{P} \times 100$$

Where,

E = Earnings per share

P = Market price per share.

(b) Earnings-Growth model

$$Ke = \frac{E}{P} + g$$

Where,

E = Earnings per share

P = Market price per share

g = Growth rate in earnings.

(c) Dividend Growth Model :

$$Ke = \frac{D}{P} + g$$

Where,

D = Dividend per share

P = Market price per share

g = Growth rate in dividend.

(d) Capital Asset Pricing Model (CAPM). Cost of capital is computed from the stand point of shareholders' expected rate of return (R).

$$R = R_f + \beta(K_m - R_f)$$

Where,

R_f = Risk free return

K_m = Market return

β = risk factor.

It is considered to be the best methods since each component of the equation can be determined scientifically and accurately.

Illustration

Risk-free return = 6%

Market return = 10%

β = 1.8

What is cost of equity?

Ke = R = 6% + 1.8(10%–6%)

= 6% + 7.2% = 13.2%

The CAPM is widely used in determining risk-return relationship and in estimating expected return of shareholders from their investment in the firm.

4.7 Cost of Retained Earnings

Sometimes, it is argued that retained earnings as a source of finance are free of cost because companies are not required to pay any dividend on retained earnings. But like other sources of funds, retained earnings have cost. They have opportunity cost. One of the methods of computing cost of retained earnings is as follows :

$K_r = K_r = \frac{E}{P}(1-T)(1-B)100$

E = Earnings per share

T = Tax rate

P = Market price per share

B = Brokerage rate

K_r = Cost of retained earnings

Illustration

Earnings per share = Rs. 3

Market price per share = Rs. 15

Income tax rate = 50%

Brokerage rate = 2%

Calculate cost of retained earnings.

Solution

$$K_r = \frac{3}{15}(1-.5)(1-.02)$$

$$= \frac{3}{15}(.5\times-.98)$$

$$= \frac{1}{15}(.5\times.98)$$

$$= 9.8\%$$

4.8 Cost of Preference Capital

The fixed dividend rate payable adjusted to the cost of raising the preference share capital is the cost of preference share capital. It may be noted that cost of preference capital is not adjusted for tax because the preference divided being an appropriation of profit is paid after tax. The cost of preference share (Kp) is :

$$\frac{\text{Preference Dividend}}{\text{Net Price of preference share}} = \frac{D}{P}$$

The above formula is applicable in case of irredeemable preference share capital. But if preference shares are redeemable and redeemed on a fixed maturity date, the formula for the calculation of cost of preference capital is ;

$$K_{pr} = \frac{D + \frac{MV - NP}{N}}{\frac{1}{2}(MV + NP)} \times 100$$

Where,

K_{pr} = Cost of Redeemable preference Capital

D = Annual Preference Dividend

MV = Maturity Value of Preference Shares

NP = Net Proceeds of Preference Shares

N = Period of Maturity i.e. number of years.

Illustration

A company issues 5000 12% Preference shares of Rs. 100 each redeemable after 10 years at a premium of 5%, The cost of issue is 2% on the face value of shares Calculate the cost of preference share capital.

Solution

$$D = (5000\times100)\frac{12}{100} = \text{Rs. } 60,000$$

MV = Maturity Value i.e. 5000 shares @ Rs. 105 = Rs. 5,25,000

NP = Net Proceeds of issue i.e. 5000 shares @ Rs. 98 = 4,90,000

N = 10 years

$$K_{pr} = \frac{60,000 + \frac{5,25,000 - 4,90,000}{10}}{\frac{1}{2}(5,25,000 + 4,90,000)} \times 100$$

$$= \frac{60,000 + \frac{10,15,000}{10}}{5,07,500} \times 100$$

$$= \frac{60,000 + 1,01,500}{5,07,500} \times 100$$

$$= 31.82\%$$

4.9 Cost of Debt Capital

The explicit cost of debt capital is the agreed interest rate adjusted for income-tax and the cost of raising the debt.

(a) Where debentures are issued at par and redeemable at par, cost of debt capital will be :

$$K_{db} = \frac{I}{P} \times 100$$

Where,

Kdb, = Before tax cost of debt capital

I = Annual Interest

P = Principal

(b) Where debentures are issued at discount or premium and company is not to pay tax on profit, cost of debt capital will be calculated as follows :

$$K_{db} = \frac{I}{NP}(I - T)100$$

Where,

K_{da} = After-tax cost of debt

I = Annual Interest

NP = Net Proceeds of Debt

T = Tax rate.

(c) When debentures are redeemed after a certain period, cost of debt capital is as follows :

i) In case of before tax.

$$K_{db} = \frac{I + \frac{1}{N}(P - NP)}{\frac{1}{2}(P + NP)} \times 100$$

ii) In case of after-tax.

$$K_{da} = \frac{I + \frac{1}{N}(P - NP)}{\frac{1}{2}(P + NP)} (I - T)100$$

Where,

I = Annual Interest

P = Proceeds at par

NP = Net Proceeds

N = Number of years.

Illustration

A company issues a non-convertible debt for Rs. 4,00,000. Each debt has a face value of Rs. 100 and carries a rate of interest of 14%. The interest is payable annually and the debenture is redeemable at a premium of 5% after 10 years. If the company realised Rs. 97 per debt and corporate tax rate is 50%, what is the cost of debt to the company?

Solution

$$K_{da} = \frac{56,000 + \frac{1}{10}(4,00,000 - 3,88,000)}{\frac{1}{2}(4,00,000 + 3,88,000)} (1 - .5)100$$

$$= \frac{56,000 + \frac{1}{10} \times 12000}{3,94,000} .5 \times 100$$

$$= \frac{56,000 + 1200}{3,94,000} \times 50$$

$$= \frac{57,200}{3,94,000} \times 50$$

$$= \frac{28,60,000}{3,94,000}$$

$$= 7.25\%$$

4.10 Weighted Average Cost of Capital

After calculating the cost of each component of capital, the average cost of capital is generally calculated on the basis of weighted average method. This may be termed as overall cost of capital. The following steps are followed for calculating the weighted average cost of capital.

(a) Calculation of the cost of capital of different sources of funds

(b) Determining relative weights (Proportion of source to the total capital employed)

(c) Multiplying the cost of each source by its weight

(d) Adding the weighted costs as calculated under (c) one gets weighted average cost of capital.

Illustration

Calculate the Weighted Average Cost of Capital from the following information :

Source	**Amount**	**Cost of Capital**
	Rs.	(after tax)
Equity Share Capital	8,40,000	15%
Preference Share Capital	60,000	13%
Debenture	10,00,000	7%
Retained Earnings	1,00,000	10%
	20,00,000	

Solution

Source	**Amount**	**Proportion (Weights)**	**After tax cost**	**Weighted Cost**
Equity	8,40,000	42%	15%	$\frac{42\times15}{100}$ = 6.30
Preference	60,000	3%	13%	$\frac{3\times13}{100}$ = 0.39
Debenture	10,00,000	50%	7%	$\frac{50\times7}{100}$ = 3.50
Retained Earnings	1,00,000	5%	10%	$\frac{5\times10}{100}$ = 0.50
	20,00,000	100%	Weighted average Cost of Capital	=10.69

So the W.A.C. of Capital is 10.69%

4.11 Questions

Long Answer Type

1. What is Cost of Capital? Explain the role of Cost of Capital in Financial Management.
2. "Cost of Capital plays a key role in decisions for determining scale and capital intensity of projects". Comment.
3. "The equity capital is cost free" Discuss.
4. What is the cost of retained earnings? How is the cost of new equity issue determined?
5. Discuss the concept of weighted average cost of capital. Illustrate your answer.

Practical Problems

1. A company issues 10% irredeemable debentures of Rs. 1,00,000. Income tax rai is 55%. Calculate the cost of debt if the debentures are issued at (a) par; (b) 10% discount and (c) 10% premium. (Answers : (a) 4.5% ; (b) 5% ; (c) 4.1%)
2. A company has 10% redeemable preference shares redeemable at the end of 10th year from the year of their issue. The underwriting cost came to 2%. Calculate the cost of preference share capital. (Answer : 10.30%)
3. The current market price of the shares of a company is Rs. 95. The floatation costs are Rs. 5 per share. Dividend per share amount to Rs. 4.50 and is expected to grow at a rate of 7%. Calculate the cost of equity capital. (Answer 12%)
4. The following is the capital structure of a company

Source	Amount Rs.	Cost
12% Preference Share Capital	2,00,000	12%
16% Debt	3,50,000	10%
Retained Earnings	1,50,000	15%
Equity Share Capital	3,00,000	15%

Calculate weighted average cost of capital (Answer : 12.65%)

4.12 References

- Bhabatosh Banerjee, *Financial Policy and Management Accounting,* Prentice Hall of India.
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Unit 5 ❑ Analysis of Leverages and Capital Structure Theories and Planning

Structure

5.1 Introduction

The financing, or capital structure decision, is of tremendous significance for the management, since it influences the debt-equity mix of the company, which ultimately attects shareholders' return and risk. In case the borrowed funds are more as compared to the owners' funds, it results in increase in shareholders' earnings together with increase in their risk. This is because the cost of borrowed funds is less than that of the shareholders funds due to the fact that cost of borrowed funds is allowable as a deduction for income-tax purposes. But, at the same time, borrowed funds carry a fixed interest, which has to be paid whether the company is earning profits or not. Therefore, the risk of the shareholders increases in case these is a high proportion of borrowed funds in the total capital structure of the company. In a

situation where the proportion of the shareholders' funds is more than the proportion of the borrowed funds, the return as well as the risk of the shareholders will be much less.

The present unit will highlight the effects of financing or debt-equity mix on the shareholders' earnings and risk. The concept of leverage will help in examining this aspect.

Further, the capital structure of a company should be properly planned to get optimum use of funds. Some companies do not plan their capital structure and the result is that they face financial difficulties in the long run. It is possible that such companies may prosper in the short run, but ultimately they may face difficulties in raising funds to finance their activities and run the business smoothly. It is being increasingly felt that capital structure of a concern should be properly evolved to get the best use of funds employed in the business.

The present unit also discusses the capital structure theories and planning.

5.2 Meaning of Leverage

The term 'leverage' is used to describe a firm's ability to use fixed cost assets or funds to magnify the return to its owners. According to James.C. Vanhorne, "Leverage is the employment of an asset of funds for which the firm pays fixed return". Leverage occurs in varying degrees—the higher the degree of leverage, the higher the risk but at the same time to higher the expected return. The term 'risk' refers to the degree of uncertainty associated with a firm's ability to cover its fixed payment obligations. Leverage may be defined as "meeting a fixed cost or paying a fixed return for employing assets or funds. The fixed cost or return is considered as the fulcrum of a leverage.

5.3 Types of Leverages

There are two types of leverage in most business firms—operating leverage and financial leverage. Taken together, they constitute combined or composite Leverage.

Operating Leverage : Operating Leverage is the ability of a firm. to use fixed operating costs to magnify effects of changes in sales on its EBIT. The operating leverage may be defined as the tendency of the operating profit to vary disproportionately with sales. It is said to exist when the firm has to pay fixed cost regardless of volume

of output or sales. The firm is said to have a high degree of operating leverage if it employs a greater amount of fixed cost and a small amount of variable cost. Thus, the degree of operating leverage depends upon the amount of fixed elements in the cost structure. Operating leverage in a firm is a function of three factors—the rupee amount of fixed cost, the variable contribution margin, and the volume of sales. There are two approaches for calculating operating leverage. In the first approach, the degree of operating leverage can be measured at any level of output, Q as :

$$L = \frac{Q(P-V)}{Q(P-V)-F} > 1$$

Where, Q = Number of units sold

P = Selling price per unit

V = Variable cost per unit

F = Fixed cost

L = Degree of operating leverage

In other words,

$$L = \frac{\text{Contribution}}{\text{Operatring Profit}} > 1$$

In the second approach, the degree of operating leverage is ascertained as follows :

$$\text{Degree of operating leverage} = \frac{\%\text{Change in Operating income}}{\%\text{ Change in sales}} > 1$$

The higher the degree of operating leverage the greater the operating risk, and vice versa.

Illustration

The installed capacity of a factory is 600 units. Actual capacity used is 400 units. Selling price per unit is Rs. 10. Variable cost is Rs. 6 per unit. Calculate the operating leverage in each of the following three situations:

(i) When fixed costs are Rs. 400

(ii) When fixed costs are Rs. 1000

(iii) When fixed costs are Rs. 1200

Solution

Statement Showing Operating Leverage

	Situation (i) Rs.	Situation (ii) Rs.	Situation (iii) Rs.
Sales	4000	4,000	4,000
Variable cost	2400	2400	2400
Contribution (C) (Sales - V. Cost)	1600	1600	1600
Fixed Cost	400	1000	1200
Operating Profit (OP) (Contribution - F. Cost)	1200	600	400
Operating leverage			
$\frac{C}{OP}$	$\frac{1600}{1200}$	$\frac{1600}{600}$	$\frac{1600}{400}$
	= 1.33	= 2.67	4

Financial Leverage (FL)

Financial leverage refers to the use of fixed income securities—preference share capital and debt capital. It indicates the change that takes place in the taxable income as a result of change in the operating income. FL is the Firm's ability to use financial charges to magnity the effects of changes in EBIT on the firm's EPS. The higher the degree of financial leverage, the greater is the financial risk associated & vice-versa.

If a firm uses debt or preferred capital or both, it has financial leverage and vice versa. Thus, the use of fixed interest/dividend bearing securities, such as, debt and preference capital along with the owners' equity in the total capital structure of the company, is described as financial leverage. The degree of financial leverage can be computed under two approaches.

$$DFL = \frac{\% \text{ Change in EPS}}{\% \text{ Change in EBIT}} > 1$$

Alternatively, DFL can be determined as follows :

$$DFL = \frac{EBIT}{EBT - \frac{D_p}{(1-t)}} > 1$$

Where DFL = Degree of Financial Leverage
EBIT = Earning before interest and tax
t = Corporate tax rate
I = Interest paid on debt

EBT = Earning before interest

Dp = Preference dividend.

Illustration

Firm has sales of Rs. 20,00,000 variable cost of Rs. 14,00,000, fixed cost of Rs. 400,000 and debt of Rs. 10,00,000 at 10%

Calculate financial leverage.

Solution

$$DFL = \frac{SP - VC - FC}{SP - VC - FC - I} = \frac{2000 - 1400 - 400}{2000 - 1400 - 400 - 100} = \frac{200}{200 - 100} = 2$$

Combined or Composite Leverage

This leverage is the product of the financial leverage and the operating leverage. While operating leverage measures the operating risk and financial leverage measures the financial risk, the combined or composite leverage measures the total risk involved in a company. Total risk is the function of the operating leverage and the financial leverage. Therefore, composite leverage may be defined as the potential use of fixed costs, both operating and financial, which shows the effect of sales volume change on the earnings of the firm. The degree of total leverage can be measured as follows:

DTL = DOL× DFL

$$DTL = \frac{\% \text{ change in EPS}}{\% \text{ change in sales}}$$

DTL can also be determined as follows :

$$DTL = \frac{\text{Contribution}}{EBT - \frac{Dp}{(1-t)}}$$

Illustration

Given selling price = Rs. 2 per unit

Fixed Cost = Rs. 1,00,000

Variable cost per unit = 70 paise

No. of units = 1,00,000

From the above calculate DOL, DFL and DTL.

Solution

$$DOL = \frac{Q(S-V)}{Q(S-V)-F} = \frac{1,00,000(2-.7)}{1,00,000(2-.7)-1,00,000} = 4.3$$

$$DFL = \frac{EBIT}{EBT} = \frac{30,000}{26,000} = 12$$

$$DTL = DOL \times DFL$$

$$= 4.3 \times 1.2$$

$$= 5$$

5.4 Types of Risk

Normally, there are two types of risk—Business risk and Financial risk.

The inability of a firm to generate profits to cover up its operating fixed cost is known as business risk. Business or operating risk arises out of operating fixed costs—the higher the amount of operating fixed cost, the greater the risk and vice versa. Greater is the degree of operating leverage of a firm ; higher is the business risk. Higher is the business risk greater is the fluctuation in operating profits of the firm i.e., EBIT. This variation in EBIT, due to operating leverage is called business risk of the firm. Many factors may contribute to business risk, they are uncertainty in sales, increase in production costs, etc.

Financial risk is the risk of the firm of being unable to cover its fixed financing cost. The more is the level of fixed cost financing of a firm in its capital structure, the more is its financial risk. Therefore, it arises out of financing by debt and preference capital. Therefore, financial risk depends on the capital structure decision of the firm which is affected by the business risk the firm is exposed to.

5.5 Meaning of Capital Structure

Capital structure refers to the long-term financiang mix. According to Gerstenberg capital structure means the 'make up of a firm's capitalisation'. The term capital structure differs from financial structure. Financial structure refers to the way the firm's assets are financed. It includes both long-term as well as short-term source of funds. On the other hand, capital structure is the permanent financing of the company represented, primarily, by long-term debt and shareholders' funds but excluding all short term credit. Thus, Capital structure is only a part of financial structure of a company.

5.6 Objectives of Sound Capital Structure

The objectives of a sound capital structure can be described as follow :

(a) A good capital structure should aim at maximisation of shareholders' wealth i.e. maximum value of the firm.

(b) Cost of financing should be the minimum and earning per equity share should be the maximum. Within the constraints, maximum use of financial leverage at a minimum cost should be made to reduce the average cost of capital.

(c) The capital structure should take into consideration the control aspect of the firm because equity shareholders are not interested in losing control of the firm.

(d) A sound capital structure should be flexible so that it may be easily adjusted to the changing conditions.

(e) The capital structure should not be such which may lead to insolvency of the firm. A balance should be maintained between debt capital and owned capital.

(f) A sound structure should take into consideration the principle of conservatism.

5.7 Classification of Capital Structure

The various classifications of capital structure can be classified according to:

i) nature

ii) sources

iii) ownership

iv) behaviour of cost of financing.

According to *nature* a capital structure may be either (a) simple or (b) complex. A simple structure means a single source, e.g. equity share capital including retained earnings. When a firm finances capital for more than one source not of identical allied nature, it is called a complex structure.

According to *sources* a capital structure may be classified into (a) internal capital and (b) external capital. Internal capital covers share capital including bonus issue, capital reserve and surplus, etc. On the other hand external capital includes share capital excluding bonus shares, share premium and forfeited shares.

According to *ownership* a capital structure may be divided into (i) ownership capital and (ii) debt capital. Ownership capital includes equity share capital and retained earnings but debt capital comprises debenture and long-term loans.

According to cost-behaviour a capital structure may be classified into (a) fixed cost capital and (b) variable cost capital. Fixed cost capital includes preference share capital, debentures, long-term debt etc. On the other hand, variable cost capital includes equity share capital.

5.8 Different Theories of Capital Structure

There are a number of theories that explain the relationship between cost of capital, capital structure and value of the firm. They are :

(i) Net Income Approach

(ii) Net Operating Income Approach

(iii) Traditional Approach

(iv) Modigliani-Miller Approach.

These theories are explained in brief as follows.

5.8.1 Net Income (NI) Approach

This approach has been suggested by Durand David. The essence of the NI Approach is that firm can minimise the weighted average cost of capital and increase its value by increasing the proportion of debt in the capital structure. The assumptions of this approach are :

(i) The cost of debt capital (Kd) is less than the cost of equity (Ke) and it remains constant.

(ii) The firm's risk perception is not changed.

(iii) There are no corporate taxes.

The value of the firm on the basis of NI Approach can be ascertained as follows:

$V = S + B$

Where, S = Market value of equity

B = Market value of debt

V = Value of the firm.

Illustration

A Ltd. expects an annual income of Rs. 1,00,000. The company has Rs. 4 lakhs in 10% debentures. The cost of equity capital, or capitalisation rate, is 12.5%. You are required to calculate the total value of the firm and the overall cost of capital.

Solution

Statement showing value of the firm

	Rs.
Earnings Before Interest & Taxes (EBIT)	1,00,000
Less : Interest at 10% on Rs. 4 lakhs	40,000
Earnings available for equity shareholders	60,000
Equity Capitalisation Rate	12.5%
Market Value of Equity $\frac{60,000}{12.5}\times 100$	4,80,000
Add Market value debt	4,00,000
Value of the firm	8,80,000

Overall cost of capital $K_o = \frac{EBIT}{\text{Value of the firm}} \times 100$

$$= \frac{1,00,000}{8,80,000} \times 100 = 11.36\%$$

5.8.2 Net Operating Income (NOI) Approach

According to this approach, the market value of the firm is not affected by the capital structure changes and the overall cost of capital remains constant irrespective of the method of financing. The NOI approach advocated by David Durand is based on the following assumptions :

(i) Overall cost of capital does not vary with leverage. It remains constant for all degrees of leverage.

(ii) Overall capitalisation rate depends upon the business risk.

(m) The debt capitalisation rate is constant irrespective of the degree of financial leverage.

(iv) There are no corporate taxes.

(v) The use of debt having low cost increases the risk of equity shareholders; this results in increase in equity capitalisation rate.

According to this approach, the value of a firm can be determined with the help of the following formula :

$$V = \frac{EBIT}{K_o}$$

Where, EBIT = Earnings before interest and taxes
K_o = Overall Cost of Capital
V = Value of the firm

Illustration

A firm has an annual net operating income of Rs. 50,000. It has Rs. 3,00,000 10% Debentures. The overall capitalisation rate is 10%. You are required to calculate the value of the firm and the equity capitalisation rate according to NOI Approach.

Solution

Statement showing value of the firm and the equity capitalisation rate

	Rs.
Net Operating Income	50,000
Overall cost of capital	10%
Market value of the firm $\frac{50,000 \times 100}{10}$	50,000
Less Market value of 10% Debentures	3,00,000
Market Value of Equity	2,00,000

	Rs.
Net Income	50,000
Less interest on debentures $\left(3,00,000 \times \frac{10}{100}\right)$	30,000
Income available for equity shareholders	20,000

Equity capitalisation rate $= \frac{20,000}{2,00,000} \times 100$

$= 10\%$

5.8.3 Traditional Approach

The traditional approach is a compromise between the net income approach and the net operating income approach. Hence, it is known as an intermediate approach. According to the traditional approach, the value of the firm can be increased and the overall cost of capital can be decreased by judicial mix of debt and equity capital. Cost of capital decreases within the reasonable limit of use of debt capital and then increases with more use of debt capital because increased use of debt increases the financial risk of the equity shareholders resulting into increase in equity capitalisation rate. The benefit of debt as a cheaper source of finance after a particular proportion

of debt mix is offset by increased cost of equity. After this, there comes a stage when the increase in cost of equity capital is more than the advantage of low cost of debt resulting into lower value of the firm and increase in overall cost of capital.

Illustration

	Rs.
Net operating income	75,000
Total investment	5,00,000
Cost of Equity :	
When the firm uses no debt	15%
When the firm uses Rs. 2 lakhs debt	18%
When the firm uses Rs. 3 lakhs debt	20%

Rs. 2 lakhs debt can be raised at 10% rate of interest but Rs. 3 lakhs debt can be raised at 12% rate of interest.

You are required to calculate the market value of the firm and the overall cost of capital.

Solution

Statement showing market value of the firm and the overall

	No Debt	**Rs. 2 lakhs Debt**	**Rs. 3 lakhs Debt**
	Rs.	**Rs.**	**Rs.**
Net Operating Income	75,000	75,000	75,000
Less Interest on debt	—	20,000	36,000
	75,000	55,000	39,000
Equity capitalisation rate	15%	18%	20%
Market Value of Equity	$\frac{75,000\times100}{15}$	$\frac{55,000\times100}{18}$	$\frac{39,000\times100}{20}$
	= Rs. 5,00,000	= 3,05,555	1,95,000
Add Market Value of Debt	—	2,00,000	3,00,000
Market Value of the Firm	5,00,000	5,05,555	4,95,000
Overall cost of capital	$\frac{75,000\times100}{5,00,000}$	$\frac{75,000\times100}{5,05,555}$	$\frac{75,000\times100}{4,95,000}$
	=15%	=14.83%	=15.15%

5.8.4 Modigliani-Miller (M-M) Approach

The M-M Approach is similar to the NOI Approach. M-M are of the view that, in the absence of taxes, a firm's market value and the overall cost of capital remain invariant to the capital structure changes. The M-M approach is based on the following assumptions.

(i) Capital markets are perfect. Investors are free to buy and sell securities. They act rationally. There are no transaction costs.

(ii) The firms can be classified into homgeneous risk classes.

(iii) The dividend pay-out ratio is 100%.

(iv) There are no corporate taxes.

(v) The cut-off point for investment in a firm is capitalisation rate.

Under M-M approach the following formulae can be used for determining the value of unlevered firm and levered firm.

Value of Unlevered Firm $(V_u) = \frac{EBIT}{K_o}$

Where, EBIT = Earnings before Interest & Taxes

K_0 = Overall Cost of Capital

Value of Levered Firm $(V_L) = V_u + tD$

Where D = Amount of Debt Capital

Illustration

Firm X and Y are indentical in every respect except that X is unlevered white Y has Rs. 3,00,000 of 5% Debenture. Both the firms, EBIT are Rs. 50,000 and equity capitalisation rate is 10%. Assuming tax rate of 50%, calculate the value of the firms according to M-M approach.

Solution :

The market value :

Unlevered firm (X) :

$$V_u = \frac{EBIT}{K_o} = \frac{50,000}{\frac{10}{100}} = 5,00,000$$

Levered firm (Y)

$V_L = V_u + tD$

= 5,00,000 + 50% of Rs. 3,00,000

= Rs. 6,50,000

5.9 Questions

1. What do you mean by leverage? Explain the different types of leverages.
2. Make a comperative study of the operating leverage and the financial leverage.
3. What is meant by the concept of Financial Risk?
4. What do you mean by capital structure? Discuss the qualities which a sound capital structure should possess.
5. What do you mean by simple capital structure and complex capital structure.
6. Explain the Net Operating Income Theory of Capital Structure Planning.
7. What are the different types of risk?
8. Sales Rs. 50,000; Variable Cost Rs. 25,000 ; Fixed Cost Rs. 15,000.and Rs. 5,000.

   Calculate

   (i) Operating Leverage
   (ii) Financial Leverage
   (iii) Combind Leverage

   [Ans : (i) 2.5 ; (ii) 2 ; (iii) 4.5]
9. EBIT Rs. 1,00,000 ; The cost of debt 10% ; Debt Rs. 4,00,000 ; Overall capitalisation rate 12.5%. Calculate the total value of the firm and the equity capitalisation rate.

   [Ans : Rs. 8,00,000 ; 15%]

5.10 References

- Bhabatosh Banerjee, *Financial Policy and Management Accounting,* Prentice Hall.
- I. M. Pande, *Financial Management,* Vikash Publishing House.
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Unit 6 ❑ Management of Various Components of Working Capital

Structure

6.1 Introduction

Working capital is essential for running day-to-day operations of the business. It is the life blood of a business. The management of working capital has an impact on the profitability and the continued existence of a business. Working capital management refers to all aspects of the administration of both current assets and

current liabilities. In other words, working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelationships that exist between them (Smith, K. V., 1974). Inadequate planning of working capital requirements can more speedly and effectively bring an otherwise profitable business to a close, so proper attention should be given to the management of working capital. The present unit deals with the management of different components of working capital in section 6.10. Prior to that a few conceptual aspects, viz. meaning, types, policy, significance, determinants and operating concept of working capital may be briefly covered.

6.2 Meaning of Working Capital

Working capital is considered either as the total current assets or as th excess of current assets over current liabilities. In case of the former working capital is known as gross working capital and in the second case it is known as net working capital. Both the net and gross concepts of working capital are important. Gross working capital requires business attention on the efficient management of individual current assets in the day-to-day operations of the business. But for having a long-term view of working capital, it is vital to concentrate on the net concept of working capital, because long-term funds are to be arranged for financing net working Capital. Thus, from a more rational approach, working capital is the excess of current assets over current liabilities.

6.3 Types of Working Capital

Working capital can be classified :

i) On the basis of composition, and

ii) On the basis of time.

When working capital is classified on the basis of composition, we can have gross working capital comprising current assets and net working capital representing current assets minus current liabilities. From the viewpoint of the finance manager, this basis of classification is helpful since it categorises the various areas of financial responsibility. For instance, funds invested in cash, inventories and receivables responsibility. For instance, funds invested in cash, inventories and receivables require careful planning and control if the firm is to maximise its return on investment.

Using time as a basis, working capital may be classified as permanent and variable working capital. Permanent working capital is the minimum amount required to ensure

effective utilisation of fixed assets and to support the normal operations of the business. It will remain permanent in the business and will not be returned until the business is wound up. Temporary working capital is required for short periods to meet some special exigency. In case of seasonal industries, the amount of such capital will be more.

6.4 Positive and Negative Working Capital

When gross concept is used, working capital shall always be positive. But under net or qualitative concept, working capital may be positive, negative or nil. When current assets exceed current liabilities it is called positive working capital. Negative working capital refers to the exceeding of current liabilities over current assets. When current assets and current liabilities become equal, it is known as nil working capital. When a part of long-term source of finance is invested to finance current assets apart from short-term sources, working capital will be always positve. But when short-term sources are used to finance a part of fixed assets in addition to financing current assets, working capital shall be always negative.

6.5 Conservative and Aggressive Working Capital Policy

When the firm maintains huge investments in its current assets, its liquidity will be very high as current assets can be easily converted into cash. As funds are blocked in the existing current assets and are not invested to produce future benefits, the risk and uncertainty component is also low for this firm. Such an investment policy is known as conservative policy.

If the firm invests scarcely in its current assets then the liquidity of the firm will be quite low. As the firm invests scarcely in the current assets, the risk of production blockage or stoppage are very high because the supply to the production may be hampered due to scarcity of current assets. Arrangement of fund through borrowing in such a situation may entail extra costs compared to existing funds. These extra costs will land to increase in the total cost of funds for the firm. Further, the risk and uncertainty component of such a firm are very high. Such firms are said to adopt aggressive investment policy.

6.6 Significance of Working Capital Management

Working capital management is a significant part of business decisions and is of major concern to the finance manager in as such as accomplishment of value

maximisation goal depends essentially on prudent working capital decisions. So the significance of working capital management can be stated as follows :

i) To provide enough liquidity so that production process continues smoothly during the normal course of business.

ii) To maintain an optimum level of current assets so that funds of the firm do not remain unnecessarily idle.

iii) Working capital management is particularly more important to the small firm. A small firm may reduce its fixed assets requirements by renting or leasing plant and equipment, but there is no way it can avoid an investment in current assets. Further, owing to limited access to the capital market small firm has to rely heavily on trade credit and short-term bank loans.Both affect net working capital by increasing current liabilities.

6.7 Factors Determining Working Capital Requirements

The following are the important factors which determine the working capital requirement of a firm.

(a) *Nature of the Business* : In trading and manufacturing concerns, the amount of working capital requirement will be more as compared to that in public utility concerns because the former concerns are required to invest substantially in inventories and debtors as compared to public utility concerns.

(b) *Credit Policy* : If the terms of sales are liberal, the amount of working capital is bound to be tied in both debts or bills receivable than when sales are made mostly on cash basis or credit is properly administered. Similarly, when the firm enjoys more liberal credit from the suppliers of goods, the amount of working capital will be low.

(c) *Production Policies* : The amount of inventories is mostly determined by the production policies. In those concerns, where the work is mostly done by automatic machines, the amount of working capital will be less than those concerns where most of the work is done manually.

(d) *Length of the Production Cycle* : The requirement of working capital increases in direct proportion to the length of their production cycle in manufacturing concerns. If the production cycles is shorter, the amount of working capital required will also be less.

(e) *Seasonal Variation* : For seasonal industries, more working capital will be required as stocks of finished goods must be ready before the season comes as most of the amount is spent on raw materials, labour and other expenses.

(f) Rapidity of Turnover : A company whose products are first selling will require less amount of working capital than a company whose items are not fast selling.

(g) *Other factors* : Irregularities of suppliers, cyclical fluctuations, rising cost of materials, etc. also affect the working capital requirement.

6.8 Operating Cycle Concept

Operating cycle signifies the time taken by the firm in processing the raw materials into finished products to earn sales revenue. Under this concept, total operating expenses for a period are divided by the number of operating cycles in the relevant period to find out the cash basis of working capital. Operating cycle includes day-to-day operations and expenses of a business enterprise of any nature or size. It involves various steps in cyclical form. These are :

(i) Acquisition of raw materials and storage of raw materials, which is required for production process.

(ii) Engaging labour plus other manufacturing expenses like power, fuel etc.

(iii) Processing of raw materials to give it a final shape and quality of finished product.

(iv) Storage of finished goods.

(v) Sale of finished goods and credit allowed to customers.

We have to find out money lock period in each of the above cases.

6.9 Calculation of Operating Cycle

(a) Raw materials held in stock :

$$\text{Stocking Period} = \frac{\text{Average stock of raw materials held}}{\text{Raw materials consumed during the year}} \times 365$$

(b) Conversion period of raw materials into finished goods :

$$\text{Conversion Period} = \frac{\text{Average work} - \text{in process}}{\text{Total cost of production}} \times 365$$

(c) Storage period .of finished goods :

$$\text{Storage period} = \frac{\text{Average stock of finished goods}}{\text{Total cost of production}} \times 365$$

(d) Credit period allowed to debtors :

$$\text{Average collection period} = \frac{\text{Debtors Outstanding}}{\text{Sales for the year}} \times 365$$

(e) Average payment period of the firm :

$$\text{Average payment period} = \frac{\text{Average balance of sundry creditors}}{\text{Averge daily credit purchase}}$$

Net operating cycle = a + b + c + d – e

Illustration :

From the following information, compute the operational cycle in days

Period covered	365 days
Average period of credit allowed by suppliers	15 days
Average debtors outstanding	Rs. 450
Raw materials consumption	Rs. 4,000
Total production cost	Rs. 9,500
Total cost of goods sold	Rs. 10,000
Sales for the year	Rs. 15,500
Value of average stock maintained :	
Raw materials	Rs. 300
Work-in progress	Rs. 330
Finished goods	Rs. 270

Solution :

(i) Raw materials held in stock ;

$$\frac{\text{Average Raw Materials}}{\text{Raw material consumed}} \times 365$$

$$= \frac{300}{4000} \times 365 = 27 \text{ days}$$

(ii) Work in progress :

$$\frac{\text{Average work in progress}}{\text{Total cost of production}} \times 365$$

$$= \frac{330}{9500} \times 365 = 12 \text{ days}$$

(iii) Finished good :

$$\frac{\text{Average finished goods}}{\text{Total cost of goods sold}} \times 365$$

$$= \frac{270}{10,000} \times 365 = 9 \text{ days}$$

(iv) Credit period allowed to debtors :

$$\frac{\text{Average Debtors}}{\text{Credit sales for the year}} \times 365$$

$$= \frac{450}{15,500} \times 365 = 10 \text{ days}$$

(v) Average payment period of the firm is 15 days

Thus, total operating cycle = 27 + 12 + 9 + 10 = 58 days

And net operating cycle = 58 days – 15 days

= 43 days.

6.10 Management of different Components of Working Capital

Working capital management involves management of different components of working capital such as cash, inventories, accounts receivable, creditors, etc. A brief description regarding management of different components of working capital can be given below.

6.10.1 Management of Cash

Cash is the most liquid current asset a-firm can hold. It is the duty of the Finance Manager to provide adequate cash to all segments of the organisation. He has also to ensure that no funds are blocked in idle cash since this will involve cost in terms of interest to the business. Therefore, a sound cash management system maintains the balance between the twin objectives of liquidity and profitability.

6.10.1.1 Meaning of Cash

Cash is the crucial component of the working capital of a concern. It is the common purchasing power or medium of exchange. Cash, like blood stream in the human body, gives strength to a business unit. Without cash, the firm is not able to procure the other resources that it needs to continue for the operations of the business. Lack of cash can put the operations of a business unit to a standstill. Management

has a duty, therefore, to see that the firm has sufficient cash balance at all times to meet its day to day requirements.

6 10.1.2 Motives for Holding Cash

There are three primary motives for holding cash ;

(i) Transactions motive

(ii) Precautionary motive

(iii) Speculative motive.

Transactions motive : Cash balances are necessary to meet day-to-day transactions for carrying on with the operation of a firm. Ordinarily, these transactions include payments for materials, wages, expenses, dividends, taxation, etc. A firm enters into a variety of business transactions resulting in both inflows and outflows. In order to meet the business obligations in such a situation, it is necessary to maintain adequate cash balance. Therefore, cash balance is kept by the firms with the motive of meeting routine business payments.

Precautionary motive : Precautions against natural calamities, external contingencies like civil war, economic regression etc., internal complexities like breakdown etc. must be taken care of by the firm. These precautions can only be taken by creating 'ready cash' balance to meet out such contingencies.

Speculative motive : In order to tap profitable investment opportunities that cannot be predicted beforehand, firm has to maintain speculative funds. For example, sometimes the price of material input may decline sufficiently. In such a situation, firm must buy inputs in sufficient amount to take advantage of price. These transactions are of speculative nature requiring ready cash to be held by the firm.

6.10.1.3 Cash Management Models

Recently different types of cash management models have been designed to help in determining optimum cash balance. These models are :

1. *Banmol Model*

William J. Banmol has introduced this model. It is similar to one used for determination of economic order quantity. As per this model, optimum cash level is that level of cash where the carrying costs and transactions costs are the minimum. The formula for determining optimum cash balance can be .calculated as follows :

$$C = \sqrt{\frac{2U \times P}{S}}$$

where

C = Optimum cash balance

U = Annual or monthly cash disbursements

P = Fixed costs per transaction

S = Opportunity cost of one rupee p.a. or p.m.

2. *Miller-Orr Model*

If the future is not known with certainty, application of Banmol model is not suitable. Miller-Orr model helps in ditermining the optimum level of cash in such circumstances. It deals with cash management problem under the assumption of stochastic or random cash flows by .laying down control limits for cash balances. These limits consist of an upper limit (h), lower limit (o) and return point (z). When cash balance reaches the upper limit, a transfer of cash equal to "h-z" is effected to marketable securities. When it touches the lower limit, a transfer equal to "z-o" from markatable securities to cash is made.

3. *Operating or Cash Cycle Model*

Higher the cash turnover, the lower will be the requirement for cash and vice versa. The minimum level of operating cash needed by a firm is determined by dividing the firm's total annual outlays by its cash turnover rate.

4. *Probability Model*

It has been observed that in practice cash flows are neither completely predictable nor stochastic. They are, rather, predictable within a range. In that case, probability distributions may be used for a range of possible outcomes and optimum cash balance may be accordingly ascertained.

6.10.2 Management of Inventories

Inventories often constitute a major element of the total working capital and hence it has been correctly observed, "good inventory management is good financial management." The objective of inventory management is to minimize the total cost associated with holding inventories. It is dependent upon the degree of total investment in inventories i.e. how much inventory held costs to the firm? Inventories should neither be excessive nor inadequate. If inventories are kept at a high level higher interest and storage costs would be incurred. On the other hand, a low level of inventories may result in frequent interruption in the production schedule resulting in underutilisation of capacity and lower sales.

6.10.2.1 Significance of Inventories

A good amount of funds is blocked in invantory held by the firm. These funds do not generate any profits to the firm. They are idle but such investments are a necessary requirement of the firm as inventory helps the firm to maintain a required system of production and distribution. The benefits of inventory can be stated below :

(i) *Avoiding loss related to the gap between the demand and supply of goods :* As and when the demand of the product arises the firm has to deliver goods. Forecasted demands are met by a predisposed distribution system of the firm. For this an optimum amount of stock of finished goods has to be maintained as loss of sale may occur if demand is not met in time by the firm.

(ii) *Reduction of ordering cost* : If the firm increases the size of its order and decreases the frequency of its order, its operating cycle are reduced, reducing the overall cost of the firm.

(iii) *Gaining quantity discounts :* Suppliers usually give trade discount on bulk purchases by customers. The firm obtains gain from discount on the bulk purchases of material inputs. This decreases the overall cost of the firm.

(iv) *Buffer stock :* Inventory acts as buffer stock. It acts as a shock absorber and coordinates the various interdepartmental processes like purchasing, production and selling activities.

(v) *Creation of goodwill with customers :* Meeting the demand of customers in time even in case of errors in forecasted demand creates goodwill and loyalty on part of customers.

(vi) *Enjoying advantage of price fluctuation :* The firm purchases and stores materials during favourable economic environmental conditions so that cost of material input is minimised.

6.10.2.2 Techniques of Inventory Management

Effective inventory management requires an effective control over inventories. The techniques of inventory management can be described as follows.

(i) Determination of Economic Order Quality (EOQ) :

An economic order quantity is the number of units per order to be purchased that will result in the lowest total of order costs and carrying costs of a year's supply of the product. Such a quantity seeks to balance the cost of inventory acquisition against the cost of investory possession. The formula for calculating EOQ is as follows.

$$Q = \sqrt{\frac{2U \times P}{S}}$$

Where

Q = EOQ

U = Quantity or units purchased in a year (month)

P = Cost of placing an order

S = Annual (monthly) cost of storage of one unit

Illustration :

Find out the EOQ from the following particulars

Annual usage 6000 units

Cost of material per unit Rs. 20 ,

Cost of placing and receiving one order Rs, 60

Annual carrying cost of one unit : 10% of inventory value

Solution :

$$EOQ = \sqrt{\frac{2U \times P}{S}}$$

where

U = Units purchased in a year i.e. 600 units

P = Cost of placing one order i.e. Rs. 60

S = Annual storage cost of one unit i.e. $= Rs.\frac{20 \times 10}{100}$

$$\therefore EOQ = \sqrt{\frac{2 \times 6000 \times 60}{2}} = 600 \text{ Units.}$$

(ii) *Determination of Re-order Point :*

In case of inventory management system, one important question is "when should an order for the purchase of an item should be placed so that the concern does not run out of goods." The answer to this question is provided by the re-order point. The reorder point is the level of inventory at which the store-keeper should initiate the purchase requisition for the purchase of inventory in the amount of the economic order quantity. In designing a re-order point, Lead time, Usage rate and Minimum Stock level are to be considered properly.

(iii) *ABC Analysis :*

ABC system measures the importance of value of each item of inventories. The highest valued items are classified as 'A' inventory and would demand maximum control and monitoring. The lowest valued inventory items are classified as 'C' inventory and require least control and monitoring. Class 'B' inventory requires control and monitoring, which falls between the above two categories. The ABC

system is also known as control by importance and exception because the most important inventory items are reviewed maximum number of times.

(iv) *Inventory Turnover Ratios :*

These ratios are calculated to minimise the investment in inventories. Turnover ratio can be calculated regarding each item of inventory on the basis of the following formula :

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of goods consumed / sold during the period}}{\text{Average inventory held during the period}}$$

(v) *Just In Time (JIT) Inventory System :*

JIT Inventory System means all inventories whether of raw materials, work-in-process and finished goods are received in time. In other words, raw materials are received just in time to go into production, manufactured parts are completed just in time to be assembled into products and products are completed 'just in time' to be shipped to customers,

(vi) *Stock Level of the firm :*

The inventory held and used by the firm is the stock level. If at any point the stock level of firm is less than the Re-order level of the firm, then an order must be placed with the supplier of order size equal to EOQ. If stock level is greater than Re-order level then it means idle money is invested in stock and some part of it should be liquidated. No new order is placed in this case.

6.10.3 Management of Accounts Receivable

Accounts receivable constitute a significant portion of the total current assets of the business—generally a position next after inventories. They are a direct consequence of 'trade credit' which has become an essential marketing tool in modern business. The objectives of maintaining debtors can be identified as follows.

(a) *Achieving growth in sales and profits* : If a firm allows credit sales, it will usually be able to sell more goods or services than if it insists on immediate cost payment. Similarly, additional sales normally results in higher profits for the firm.

(b) *Meeting Competition :* To survive in the competitive market, firms have to establish credit policies similar to those of competitors.

Extension of credit involves cost and risk. Management should weigh benefits for taking the risk against cost.

6.10.3.1 Cost of Maintaining Receivables or Debtors

Credit sales and hence maintenance of debtors involve certain costs. They are :

(a) Cost of financing debtors;

(b) Collection costs;

(c) Delinquency costs, and

(d) Default costs.

Cost of financing debtors : Debtors tie up a portion of firm's financial resources. The resources may be financed from one of the following three sources :

(i) Share capital

(ii) Debt capital, and

(iii) Retained earnings

Collection Costs : These costs are those which have to be incurred in connection with collection of credit sales.

Delinquency cost: When payment is not received on time in respect of debtors, the costs involved are known as delinquency costs which include the following :

(a) Cost of financing the debtors for the extended period,

(b) Cost of additional steps to collect the over-due debtors.

Default cost : When overdue debtors cannot be collected in spite of serious efforts, a firm may be forced to write off the claim. Default cost is, therefore, in the nature of bad debt loss on debtors account.

6.10.3.2 Factors Affecting Size or Level of Debtors

The size of debtors or receivables of a firm is determined by its :

(a) Level of sales;

(b) Credit terms, and

(c) Collection Policy.

The most important factor in determining the volume of debtors is the level of credit sales. Other things remaining constant, more credit sales mean more debtors and vice versa.

6.10.3.3 Credit Conditions

Credit conditions or credit terms of a firm comprises :

(a) Credit period

(b) Cash discount

(c) Cash discount period

(d) Beginning of credit period.

Credit Period : The term credit period refers to the time duration for which credit is extended to the customers. It is generally expressed in terms of "net days". Credit period usually varies from 14 days to 60 days. For example, a firm allows 60 days of credit and no cash discount to facilitate early payments then the credit terms of the firm are stated as 'net 60'.

Cash Discount : Most firms offer cash discount to their customers for encouraging them to pay their dues before the expiry of the credit period. The terms of cash discount indicate the rate of discount as well as the period for which the discount has been offered.

Cash Discount Period : The period for which cash discount is available to the customers is known as cash discount period. Cash discount period gives an opportunity for the customers to take advantage of the cash discount. As credit policy induces increased sales, cash discount induces speedy collections, thus decreasing the credit period and blockage of funds in the form of receivables. However, there should be a trade off between cost of offering cash discount to customers and increase in receivable collections.

Beginning of the Credit Period : Beginning of the credit period is mentioned on the invoice for the purchase. Both the cash discount period and net credit period are measured from the invoice date.

Illustration :

A firm is considering pushing up its sales by extending credit facilities to the following categories of customers :

(a) Customers with a 10% risk of non-payment, and

(b) Customers with a 30% risk of non-payment.

The incremental sales expected in case of category (a) are Rs. 40,000 while in case of category (b) they are Rs. 50,000.

The cost of production and selling costs are 60% of sales while the collection costs amount to 5% of sales in case of category (a) and 10% of sales in case of category (b).

You are required to advise the firm about extending credit facilities to each of the above categories of customers.

Solution :

(a) Extending credit facilities with 10% risk of non-payment.

		Rs.
Incremental sales		40,000
Less loss in collection 10%		4,000
Net sales realised		36,000
Less Production & selling costs		
	Rs.	
(60% of sales)	24,000	
Collection costs	2,000	26,000
Incremental Income		10,000

b) Extending credit facilities with 30% risk of non-payment.

		Rs.
Incremental sales		50,000
Less loss in collection 30%		15,000
Net sales realised		35,000
Less Production & selling costs		
	Rs.	
(60% of sales)	30,000	
Collection costs	5,000	35,000
Incremental Income		NIL

Thus the firm does not stand to gain or loss on account of extending credit to customers with 30% risk of non-payment. The firm should accept credit facilities to customers with a 10% risk of non-payment.

6.11 Exercise

A. Short-answer type questions

1. What is working capital?
2. Define negative working capital.
3. What is conservative working capital?
4. Define EOQ.
5. Give the full name of JIT.
6. Define credit period.
7. What is delingency costs?
8. Define default costs.
9. What is Inventories?
10. Define Re-order point.

B. Long-answer type questions

1. Distinguish between (a) Positive and Negative Working Capital (b) Conservative and Aggressive Work Capital Policy.
2. Explain the significance of working capital management.

3. State the factors which determine working capital requirements.
4. What are the motives for holding cash?
5. Explain different cash management models :
6. What are the significance of inventories?
7. State in brief the techniques of inventory management.
8. What are the different costs of maintaining receivables?

6.12 References

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Unit 7 ❑ Capital Budgeting Decisions of the Firm

Structure

7.1 Introduction

The firm invests funds in plants, equipments and other long-lived assets. These investment decisions are also known as capital expenditure decisions or capital budgeting decisions. Investment decision means designing and carrying through a systematic programme for investing fund in long-term or fixed assets of the firm. It is essentially a continuous function. Fixed assets do not have perpetual lives—they are to be replaced after the expiry of their useful lives for continuity of firm's operation. Under certain situations, replacement may be desirable even before the expiry of useful life of an asset. Besides replacements, a firm has to invest in new projects. With the growth of the firm, fixed assets are expanded. In view of all these, a keen watchfulness and a positive awareness for making investments in long-term

assets is essential at all times. The present unit deals with these investment decisions of the firm.

7.2 Meaning of Capital Expenditure

According to E. L. Kohler capital expenditure means "an expenditure intended to benefit future periods, in contrast to a revenue expenditure, which benefits a current period: an addition to a capital asset." One of the popular and simple definitions would be to define it as the expenditure made in capital assets from which benefits are expected to accrue for more than one operating cycle or one accounting year. The benefits may be in the form of reduced cost, increased revenue, simplification of production process, increased revenue, simplification of production process, customer satisfaction and the like. Therefore, capital expenditure decisions involve a current outlay or a series of outlays over a period of time in return for an anticipated flow of future benefits.

7.3 Objectives

These are a number of objectives which necessitate investment in fixed assets of a firm. Certain specific objectives in relation to investment decisions can be stated as under.

(a) Cost reduction

(b) Improvement of quality of products and creation of new demand.

(c) Expansion

(d) Diversification for survival particularly in competitive environment.

(e) Improvements of efficiency.

(f) Meeting satisfaction of customers.

(g) Achievement of other social objectives.

It may be mentioned that discovery and development of good investment proposals usually require sustained management effort. So encouragement of an imaginative search for such opportunities is an important part of the programme.

7.4 Types of Investment Decisions

Various decisions can be classified into two groups viz,

(i) When only one proposal is under consideration. This is known as accept-reject decision. In this case, all investment proposals are independent of each other;

judged against a particular investment criterion management have to decide whether each of them qualifies for selection or not.

(ii) When a number of alternatives are competing for selection. These are known as the mutually exclusive proposals. Here it is necessary to rank all the alternatives in order of prefitability to judge not only whether an opportunity judge not only whether an opportunity is acceptable but also whether it is more or less desirable than an alternative opportunity. These are known as ranking decisions.

7.5 Methods of Project Evaluation

The different methods of project evaluation are as follows.

(a) Comparative Cost

(b) Return on Investment

(c) Pay Back Methods

(d) Discounted Cash Flow.

For the purpose of evaluation certain financial factors are very much needed while at the same time other non-financial factors should not be lost sight of. The principal factors are :

(i) Original cost of the project

(ii) Expected life of the project

(iii) The phasing of the expenditure under the project

(iv) The income from the project

(v) The impact of the project on organisation as a whole

(vi) Additional working capital requirement.

The different methods of project evaluation can be explained as follows.

7.5.1 Comparative Cost

In case of this method, the original cost of alternative investments is compared and the investment that will show the minimum cost will be prepared. This technique of evaluation is applied particularly when a firm is running short of fund so that costly projects even when otherwise more profitable cannot be selected. Further, when the output and life of each alternative investment is the same, this method of evaluation may be applied.

7.5.2 Return on Investment

This is an accounting method. It takes into account the rate of return likely to be obtained from the project. Under this method, the investment that will give the highest rate of return will be normally selected. Some firms may fix up a cut-off or required rate of return and investments which will not show this rate will be automatically excluded from consideration. This method is very simple to understand and easy to calculate. But the principal limitation of this method is that it is based upon accounting income rather than cash flows and it does not take into consideration the timing of cash inflows and outflows.

7.5.3 Pay Back Methods

The more popular methods under this category are :

(a) Pay Back Period and

(b) Pay Back Profitability.

Both of them are based on the concept of net cash flows rather than accounting profit. (For concept of NCF, see section 7.5.4).

7.5.3.1 Pay Back Period

In order to avoid different limitation of the Return on Investment method and to recognise that recovery of the original investment is the important factor in appraising a project, Pay Back Period method is introduced. This method is nothing but an application of break-even concept to investment. It is the period required for the savings in costs or net cash flow after tax but before depreciation to recover the cost of investment. When net cash flow accrues at even rate Pay Back Period will be calculated as follows :

$$\text{Pay Back Period} = \frac{\text{Cost of the investment}}{\text{Net cash flow or savings per year}}$$

Under this method the best project would be that which has the shortest Pay Back Period. This method is simple to understand and operate. It considers risks and takes into consideration the liquidity aspect by working on the assumption that projects with a short pay-off period are better investment propositions than those with long pay-off periods. But if the net cash flows from a project accure at an uneven rate, calculation of pay back period becomes comparatively difficullt because it cannot be found straightway by applying the conventional formula.

When a project's cash flows are not equal, but vary from year to year, that is they are of non-conventional nature, the calculation of pay back period takes a cumulative form of annual cash inflows. In such a situation, Pay Back Period is calculated by the process of cumulating cash inflows till the time when cumulative cash inflows become equal to the original investment outlay.

Illustration :

A project requires an investment of Rs. 10,000. Its estimated annual cash inflows have been given below :

Years	Annual Cash Inflows	Cumulative
	Rs.	Rs.
1	2500	2500
2	3500	6000
3	4000	*10000
4	5000	15000
5	3000	18000

Thus Rs. 10,000 is recovered fully in 3rd year, hence, paybackperiod is 3 years.

7.5.3.2 Pay Back Profitability

This is a variation of Pay Back Period Method. It considers total net cash flow remaining after recovering cost of investment. So here project is selected on the basis of profitability after the pay-off period. It can be calculated in the following manners.

Pay Back Profitability = Annual Net Cash Flow (Wroking Life—Pay Back Period)

Alternatively,

Pay Back Profitability = Total Net Cash Flow—Initial Investment.

When the net cash flows are expected at even rate, the first formula is used ; in other cases, the second formula is used.

7.5.4 Discounted Cash Flow

Like Pay Back Methods, discounted cash flow use cash flow rather than profit. In case of investment decision we are concerned with the whole life of the decision. But profit is measured only in case of incomplete period or shorter period. Further, the difference between profit flows and cash flows, in the context of the investment

decision, is represented by non-cash expenses charged against revenue in arriving at profit. Depreciation is an example on the point. Depreciation does not represent cash outflow. It is merely a book entry, an allocation of expired cost. Net cash flows are therefore, profit after tax but before depreciation. Cash flows include (a) all outlays on acquiring the assets including working capital, if any, and (b) cash inflows or net cash flows i.e. after-tax-profit plus depreciation.

The discounted cash flow method can be further sub-divided into :

(i) Net Present Value Method, and

(ii) Internal Rate of Return or Yield Method.

7.5.4.1 Net Present Value Method

The calculation of net present value (NPV) of projects is one of the most commonly used sophisticated capital budgeting techniques. This method is also known as Excess Present Value or Net Gain Method. This definition of net present value can be given below :

NPV = Total Present Value of Future Cash Inflows — Initial Investment.

The total present value of future cash inflows is calculated with the help of the following algebraic formula.

$$P = \frac{S}{(1+i)^n}$$

where

P = Present value of a future sum of money

S = Future value of a sum of money

i = Rate of Interest

n = No of years

Based on the above equation, the present value factors tables have been prepared. In these tables, the present value of Re. 1 at different rates of interest have been given : The second type of P. V. tables provide us the cumulative amount of Re. 1 for a given rate of interest. If the annual cash inflows are of even nature, the compound P.V. factor should be used and if it is of uneven nature, the simple P. V. factor should be applied. If the NPV is in positive the project should be accepted. If it is in negative, it should be rejected. In mutually exclusive projects, the project with higher NPV should be preferred.

lustration :

Cost of a Project Rs. 5,000

Estimated life 2 years

The firm's cost of capital 10%

The estimated cash inflows from the project are Rs. 2800 p.a.

Calculate NPV :

Solution :

Here cash inflows are even. So NPV will be as follows :

Total Present Value = Rs. 2800 × 1.813 =	Rs. 5272
Less Cost of the Project	Rs. 5000
NPV	Rs. 272

Therefore, project should be accepted.

lustration :

S Co. is considering to purchase a machine. Two machines A and B are available each costing Rs. 50,000. Net cash flows are expected to be as follows :

	Cash Flow	
Year	Machine A	Machine B
1	15,000	5,000
2	20,000	15,000
3	25,000	20,000
4	15,000	30,000
5	10,000	20,000

Evaluate the two alternatives according to their NPV. A discount rate of 10% is be used.

Calculation of Present Value of Cash Inflows.

Year	$\frac{1}{(1+0.1)^n}$ Discount Excess at 10%	Machine A		Machine B	
		Cash Flow Rs.	P.V. Rs.	Cash Flow Rs.	P.V. Rs.
1	.909	15,000	13,635	5,000	4,545
2	.826	20,000	16,520	15,000	12,390
3	.751	25,000	18,775	20,000	15,020
4	.683	15,000	10,245	30,000	20,490
5	.621	10,000	6,210	20,000	12,420
		85,000	65,385	90,000	64,865

Net Present Value = Total Present Value - Initial investment

Machine A : Rs. 65,385 - Rs. 50,000 = Rs. 15,385

Machine B : Rs. 64,865 - Rs. 50,000 = Rs. 14,865

From the above it can be said that Machine A would be preferred as the NPV of Machine A is more than that of Machine B.

7.5.4.2 Internal Rate of Return or Yield Method

Like the present value method, the Internal Rate of Return (IRR) method also considers the time value of money by discounting the annual cash inflows. But present value method can be applied only when the discount rate is known to us. It is usually the rate of return that the project earns. It may be defined as the discount rate (r) which equates the aggregate present value of the net cash inflows with the aggregate present value of each outflows of a project.

If the cash inflows are uniform each year then the computation of IRR involves the following two steps :

(i) Calculate Present Value (P.V) Factor by applying the following formula :

$$\text{P.V.Factors} = \frac{\text{Initial Investment}}{\text{Annual Cash Inflow}}$$

(ii) Locate the factor calculated in (i) in the Compound Present Value Table on the line corresponding to the life span of investment in years. The interest rate of the line of that factors will be the required IRR.

It is to be mentioned that the P.V. of cash inflows at this computed rate must be equal to the present value of each outflows.

Illustration :

A project costs Rs. 10,000 and is expected to generate cash inflows of Rs. 1,750 annually for 10 years. Its salvage value is nil. Calculate its IRR.

Solution :

P. V. Factor = Investment ÷ Annual Cash Inflow

= Rs. 10,000 ÷ 1,750 = 5.714

Locating this factor in the compound P. V. table on the line corresponding to the 10th year, we find that this factor is most close to the factor in the table at 12%. Hence, the approximate rate of return is 12%.

As the factor given in the table is less than the factor computed above, actual rate will be a bit less than 12%. It can be calculated as, by applying interpolation technique, as follows :

$$IRR = r_1 + \frac{V_1 - V}{V_1 - V_2}(r_2 - r_1)$$

Where,

r_1 = lower rate of return

r_2 = higher rate of return

V_1 = P. V. factor at lower rate of return

V_2 = P. V. factor at higher rate of return

V= P. V. factor for which IRR is to be interpolated.

Thus,

$$IRR = 10\% + \frac{6.145 - 5.714}{6.145 - 5.650} \times (12\% - 10\%)$$

or, IRR = 11.74%

In case of uneven cash inflows, the computation of IRR involves a trial and error system and the process of calculating the exact rate of return under this condition is relatively complicated. In such a case, to reduce the number of trial runs the first trial rate should be carefully selected. When the net cash flow is not too uneven, a rough glide to aid the selection of first trial rate may be arrived at as follows :

$$\frac{\text{Average excess cash flows over cost of investment}}{\text{Average Investment}} \times 100$$

7.5 Terminal Value Method

This is one of the criteria of Discounted Cash Flow and is less often used than NPV and IRR. This technique involves re-investing all the project's future net cash flows at an assumed re-investment rate and calculating the terminal value of net cash flows at the end of the life of the project. If the net cash flows have a higher terminal value than does the outlay, the project is accepted and vice versa. If the same rates are used, the Net Present Value and Terminal Value techniques are likely to give identical decisions in all types of investment decisions.

7.6 Discounted Pay Back Period

This system takes into consideration the time value of money by combining payback with discounted cash flow. Normally, the net present values are added cumulatively from the start of the project until the sum becomes'positive. The

discounting rate used to arrive at the present values or net cash flows ordinarily the cost of capital. The main benefit of this method is that it takes into account unlike the traditional payback method, the usual requirement to make some return on an investment.

7.8 Exercise

A. Short-answer type questions

1. What is capital expenditure?
2. What is Return on Investment?
3. Define Payback Period
4. Define Pay Back Profitability.
5. What is Net Cash Flow?
6. Define N.P.V.
7. Define IRR.
8. What is Terminal Value?
9. What is Discounted Pay Back Period?

B. Long-answer type questions

1. Explain different types of investment decision.
2. What are the different methods of project evaluation?
3. Distinguish between NPV and IRR.
4. What are the advantages of Pay Back period?
5. Distinguish between Pay Back Period and Pay Back Profitability.

7.9 References

- Bhabatosh Banerjee, *Financial Policy and Management Accounting,* The Prentice Hall of India.
- M. Y. Khan and P. K. Jain, *Financial Management : Text, Problems and* Cases, Tata McGraw Hill.
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Unit 8 ❑ Dividend Decisions

Structure

8.1 Introduction

Payment of dividend to the shareholders is one of the major decision-areas of financial management. A firm has to choose between distribution of profits to the shareholders and ploughing them back into the business. The final choice would, however, depend upon the effect of the decision on maximisation on the value of the firm or that of its shares. In case of dividend decisions, a number of factors are taken into consideration. The present unit focuses on the dividend decision of the firm. It makes an attempt to highlight the different aspects of dividend policy including some dividend theories.

8.2 Classification of Dividends

Dividends can be classified according to :

(a) sources from which they are paid;

(b) medium in which they are paid; and

(c) regularity with which they are paid.

According to sources, dividend can be classified according to sources from which they are paid, such as

(i) retained earnings; and

(ii) current profit.

According to medium dividend can be sub-divided into two, such as—

(i) cash dividend; and

(ii) share dividend by way of bonus share.

On the basis of regularily dividend may be of two types such as—

(i) cash dividend; and

(ii) share dividend by way of bonus share.

On the basis of regularity dividend may be of two types, such as

(i) interim dividend; and

(ii) annual dividend.

Section 205 of the Indian Companies Act, 1956 provides that no dividend shall be paid or declared except out of profit :

(i) for that year, or

(ii) of any previous year, or

(iii) out of both, or

(iv) out of moneys provided by the State Government or Central Government for the payment of dividend in accordance with any guarantee given.

8.3 Factors Influencing Dividend Policy

The various factors which influence dividend policy are as follows

(a) Uncertainty of future income

When future earnings are unpredictable and uncertain to a great extent, then the firms may adopt stringent dividend policy.

(b) Legal constraints

The Indian Company's Act, which governs the corporate system of our country, restricts the companies to pay their dividends from their operating profits only.

(c) Liquidity position

Good liquidity position implies easy payment of dividend receipts together with the investments in profitable ventures. Lack of funds may have direct bearing on dividend payments like reduced dividend or no dividend.

(d) Ownership control

The ownership factor may set certain limitations to dividend payments and thus influence the dividend payments even in case of high earnings.

(e) Inflation

Inflation may have an influence on the dividend policy of the firm. With rising policies, funds generated by providing depreciation on the basis of historical cost of the asset fall short of their replacement costs when replacement becomes due.

(f) Age and size of the firm

New entrant firms in the market give small or no dividends at all. With time as the firm establishes itself, it gives more value to its shareholders.

(g) Growth in the profit level of the firm

If profitability of firms increases, the paying capacity of the firm also increases. The firm is in much better condition to pay its dividends and make profitable investments.

(h) Tax position

Difference in tax position of different shareholders generates difference in investor preference. Investors falling under high tax bracket prefer future dividends or capital gain value while investors falling under low tax bracket prefer current income in the form of dividend receipts.

(i) Other factors

Imperfect market condition, divisibility of firms, rate of growth also affect the dividend policy of the firm.

8.4 Dividend Theories

Dividend decision of the firm is one of the important areas of financial management. The most crucial point is to determine the amount of profits to be distributed to the shareholders by way of dividends. From shareholders point of view, payment of cash dividend is generally welcome whereas firm-needs are also taken into account in shaping the dividend policy. Therefore, formulation of a dividend policy brings into focus the retention policy of the firm and vice versa. Retention, policy and dividend policy are competitive and conflicting. Higher the amount of dividend means lower the amount of retention. On the other hand, higher the amount of retention means lower the amount of dividend payment. The objective of dividend

distribution is to maximise the value of the firm measured in terms of market price of its shares. In case of dividend payment and share valuation, there are different theories, of which the noteable ones are :

(a) Traditional Approach

(b) Walter's Model

(c) Gordon's Model, a

(d) Modigliani and Miller Hypothesis

8.4.1 Traditional Approach

This theory has been introduced by B. Graham and D. L. Dodd. According to this theory stock market places considerably more weight on dividends than on retained earnings. According to Graham and Dodd, the stock market is overwhelmingly in favour of liberal dividends as against niggardly dividends. Their view is expressed in the following valuation model.

$$P = m\left(D + \frac{E}{3}\right)$$

Where P = Market price per share

D = Dividend per share

E = Earnings per share

m = a multiplier.

We know that E = D + R

Where R = Retained earnings

Pulling the value of E in the above valuation model. We get,

$$P = m\left(D + \frac{D+R}{3}\right)$$

$$= m\frac{4D}{3} + \frac{mR}{3}$$

The weights provided by Graham and Dodd are based on their subjective judgments and not derived from objective, empirical analysis.

8.4.2 Walter' Model

According to Walter, the choice of a dividend policy almost always affects the value of the firm. The dividend policy should be determined solely by the profitability of investments. Walter model is based on the following *assumptions*.

(a) Retained earnings are the only source of financing. No debt or share capital is to be issued.

(b) The entire earnings are either reinvested internally or distributed by way of dividends.

(c) The firm has a very long or perpetual life.

(d) The internal rate of return (r) and the cost of capital (k) are constant.

(e) Beginning earnings per share (E) and dividends per share (D) are also constant.

One of the formulae given by Walter for calculating market price for share is :

$$P = \frac{D + (E - D)\frac{r}{k}}{k}$$

Where P = Market price per eighty share

D = Dividend per share

E = Earnings per share

k = Cost of capital

r = return on investment.

Walter's views on the optimal dividend pay-out ratio may be summed up as follows :

(a) When $r > k$

P will be maximum when D = 0 as P increases as pay-out ratio declines.

(b) When $r < k$

P increases as dividend pay-out ratio increases i.e., P will be maximum when pay-out ratio is 100%.

(c) When $r = k$

P is insensitive to the pay-out ratio. There is no one optimum dividend policy—one dividend policy is as good as the other.

Illustration :

Earnings per share (E) = Rs. 10

Cost of capital (k) =10%

Assumed rate of return on investment (r) :

(i) 15%, (ii) 10% and (iii) 8% respectively.

Dividend pay-out ratios are 0%, 50%, 75% and 100%, calculate the market price per share.

when r > k	when r = k	when r < k
(a) If D = 0	(a) If D = 0	(a) If D = 0
$P = \frac{D+(E-D)\frac{r}{k}}{k}$	$P = \frac{D+(E-D)\frac{r}{k}}{k}$	$P = \frac{D+(E-D)\frac{r}{k}}{k}$
$= \frac{0+1.5(10-0)}{.10}$	$= \frac{0+1(10-0)}{.10}$	$= \frac{0+.8(10-0)}{.10}$
= Rs. 150	= Rs. 100	= Rs. 80
(b) If D = Rs. 5	(b) If D = Rs. 5	(b) If D = Rs. 5
$P = \frac{5+1.5(10-5)}{.10}$	$P = \frac{5+1(10-5)}{.10}$	$P = \frac{5+.8(10-5)}{.10}$
= Rs. 125	= Rs. 100	= Rs. 90
(c) If D = Rs. 7.50	(c) If D = Rs. 7.5	(c) If D = Rs. 7.5
$P = \frac{7.50+1.5(10-7.5)}{.10}$	$P = \frac{7.50+1(10-7.50)}{.10}$	$P = \frac{7.50+8.8(10-7.50)}{.10}$
= Rs. 112.50	= Rs. 100	= Rs. 95
(d) If D = Rs. 10	(d) If D = Rs. 10	(d) If D = Rs. 10
$P = \frac{10+1.5(10-10)}{.10}$	$P = \frac{10+1(10-10)}{.10}$	$P = \frac{10+.8(10-10)}{.10}$
= Rs. 100	= Rs. 100	= Rs. 100

So the firm should retain all earnings when r > k and should distribute them entirely when r < k and would remain indifferent when r = k.

8.4.3 Gordon's Model

Gordon contends that dividend payment has an impact on share valuation of the firm. Dividends are relevance under this model. This model is based on certain assumptions. The *assumptions* are :

(a) The firm is an all-equity firms. Retained earnings are used for financing acceptable investment opportunities.

(b) The internal rate of return (r) is constant.

(c) The cost of capital (k) is constant.

(d) No corporate tax exists.

(e) The firm has an infinite or perpetual life.

(f) The retention ratio (b) is constant, So the growth rate, g = br, is also constant.

(g) Cost of capital (k) is greater than the growth rate (br) i.e., k > br = g.

According to Gordon the value of the share of the firm is determined on the basis of the following formula :

$$P = \frac{E(1-b)}{k-br}$$

Where, P = Market price per share

E = Earnings per share

b = Retention ratio

k = Cost of Capital

br = Growth rate in r

r = Rate of return on investment.

Gordon's model in relation to dividend policy may be expressed as follows :

(i) When r > k, the firm should distribute lesser dividend and retain higher amount from earnings.

(ii) In case of r = k, the market value per share is not affected by the dividend policy of the firm.

Shareholders can neither gain nor loss by any change in the firm's dividend policy and the market value of shares must remain unchanged.

(iii) When r < k, the value per share, P, decreases with the increase in retention ratio, b. That is, P increases with increase in pay-out ratio.

Illustration :

Cost of capital (k) = 15%

Earnings per share (E) = Rs. 4

Assumed rate of return on investment (r) :

(i) 20%, (ii) 15% and (iii) 8% respectively.

Determine the value per share assuming that dividend payment per share is Rs. 0.75 or Rs. 0.50.

Solution :

r > k Growth firm	r = k Normal firm	r < k Declining firm
r = 20% k = 15% E = Rs. 4.00 If b = 0.25 $P = \frac{(0.75)4}{0.15-(0.25)(0.20)}$ = Rs. 30.00 If b = Rs. 0.5 $P = \frac{(0.5)\times 4}{0.15-(0.5)(0.20)}$ = Rs. 40.00	r = 15% k = 15% E = Rs. 4.00 If b = 0.25 $P = \frac{(0.75)4}{0.15-(0.25)(0.15)}$ = Rs. 26.67 If b = Rs. 0.5 $P = \frac{(0.5)4}{0.15-(0.5)(0.15)}$ = Rs. 26.67	r = 10% k = 15% E = Rs. 4.00 If b = 0.25 $P = \frac{(0.75)4}{0.15-(0.25)(0.10)}$ = Rs. 24.00 If b = Rs. 0.5 $P = \frac{(0.5)4}{0.15-(0.5)(0.10)}$ = Rs. 20.00

Implications :

In case of r > k, the price per share increases as the dividend pay-out ratio decreases.

In case of r = k, the price per share remains unchanged in respons to variations in the dividend pay-out ratio.

In case of r < k, the price per share increases as the dividend pay-out ratio increases.

8.4.4 Modigliani—Miller (M-M) Hypothesis

M-M have advanced the view that the value of a firm depends solely on its earnings power and is not influenced by the manner in which its earnigns are split between dividends and retained earnings. The view is referred to as the dividend irrelevance theorem. M-M's theory of irrelevance of dividends is based on the follo ing *assumptions* :

(i) The firm operates in perfect capital market

(ii) All investors are rational.

(iii) The investment policy of the firm is fixed

(iv) Corporate tax does not exist

(v) All investors are perfectly certain regarding the future investment programmes and future profits of all firms. M-M drop this assumption later.

8.4.4.1 Proof of M-M Hypothesis

According to M-M, the market price of a share at the beginning of a period is defiaed as equal to the present value of the dividend paid at the end of the period plus the market price at the end of the period. Thus—

$$P_0 = \frac{1}{(1+k)}(D_1 + P_1) \qquad \text{.....(1)}$$

where, P_0 = Market price per share at time 0

D_1 = Dividend per share at time 1

P_1 = Market price per share at time 1

k = Cost of capital

when there is no external financing, the value of the firm (V) means the number of shares (n) times the price of each share (P_0). Thus—

$$V = nP_0 = \frac{n(D_1 + P_1)}{1+k} \qquad \text{.....(2)}$$

If new shares (m) are to be issued to finance investment programme of the 1 at a price of P_1, the value of the firm at time 0 will be :

$$V = nP_0 = \frac{n(D_1 + P_1) + mP_1 - mP_1}{(1+k)}$$

$$= \frac{nD_1 + nP_1) + mP_1 - mP_1}{(1+k)}$$

$$= \frac{nD_1 + (n+m)P_1 - mP_1}{(1+k)} \qquad \text{.....(3)}$$

The total amount of new shares issued is :

$$mP_1 = I - (E - nD_1) \qquad \text{.....(4)}$$

Where, I = total new investments during period 1

E = earnings of the firm for the period

Putting the value of mP_1 in equation No. (3) we get

$$nP_0 = \frac{nD_1 + (n+m)P_1 - (I - E - nD_1)}{1+k}$$

$$= \frac{nD_1 + (n+m)P_1 - I + E - nD_1}{1+k}$$

$$= \frac{(n+m)P_1 - I + E}{1+k} \qquad \text{.....(5)}$$

Therefore, it is clear from the above that the firm is independent of its dividend policy. This is because D_1 does not appear directly in the expression and because (u + m) P I, E and K are assumed 10 be independent of D_1

8.4.4.2 Criticisum of M-M Hypothesis

M-M assumed a perfect capital market but this assumption does not usually hold good in many countries. This is more so in developing countries like India.

The assumption with regard to taxation is not realistic. In practice, taxes do exist and there is tax differential between dividends and retained earnings or between dividends and capital gains.

The validity of M-M hypothesis is also doubtful under conditions of uncertainty. It may be recalled that, according to M-M, dividend policy is as irrelevant under conditions of uncertainty as it is when perfect certainty is assumed. According to M-M, when two firms are identical in respect of business risk, prospective future earnings and investment policies, the market prices of their shares must be the same. But a countrary view is held by many. According to them, dividends are relevant under conditions of uncertainty as payment of the same resolves uncertainty in the minds of the investors. Therefore, they prefer dividends to capital gains. Naturally, contention of M-M in this respect too does not appear to be tenable.

Illustration :

A company has a cost of the equity capital of 10%, the current market value of the firm is Rs. 20 lakhs @ Rs. 20 per share. Assumed values for new investment (I), earnings (E) and dividends (D) at the end of the year are Rs. 6,80,000, Rs. 1,50,000 and Re. 1 per share respectively. Show the dividend irrelevance theory of M-M.

Solution :

(i) Market price per share at the end of the year :

$$P_0 = \frac{D_1 + P_1}{1+k}$$

or, $P_1 = P_0(1+k) - D_1$

Here, $k = .10$

$$n = \frac{\text{Rs. } 20,00,000}{\text{Rs. } 20} = 1,00,000$$

P_0 = Rs. 20

D_1 = Re. 1

So, P_1 = Rs. 20 (1.10) – 1

= Rs. 21

(ii) We know that the amount required for new financing is I - (E - nD)

Thus, Rs. 6,80,000 - (Rs. 1,50,000 - Rs. 1,00,000)

= Rs. 6,30,000

(iii) Number of shares (m) to be issued :

$$m = \frac{\text{Rs. } 6,30,000}{\text{Rs. } 21} = 30,000 \text{ shares}$$

(iv) Value of the firm (v) :

$$v = \frac{(n+m)P_1 - I + E}{1+k}$$

or, $$v = \frac{(1,00,000+30,000)21 - 6,80,000 + 1,50,000}{1.10}$$

or, v = Rs. 20,00,000

In order to show that the dividend policy is irrelevant, the value of the firm can be calculated when no dividend is paid.

(i) $P_1 = P_0 (I + k)$

= Rs. 20 (1.10) = Rs. 22

(ii) Amount required for new financing :

$I (E - nD_1)$

= Rs. 6,80,000 – 1,50,000

= Rs. 5,30,000

(iii) Number of shares (m) to be issued :

$$m = \frac{\text{Rs. } 5,30,000}{\text{Rs. } 22} \text{ shares.}$$

(iv) Value of the firm (v) :

$$v = \frac{(n+m)P_1 - I + E}{1+k}$$

$$= \frac{\left(1,00,000 + \frac{5,30,000}{22}\right)22 - 6,80,000 + 1,50,000}{1.10}$$

= Rs. 20,00,000

Therefore, value of the firm will be the same as before. The dividend payment does not affect the value of the firm.

8.5 Exercise

A. Short-answer type questions

1. What is interim dividend?
2. What are the assumptions of Walter's model?
3. What are the assumptions of Gordon's model?
4. What is annual dividend?
5. What are the sources of dividend payment?

B. Long answer type questions

1. How dividends can be classified?
2. State the factors which affect dividend policy of a firm.
3. Explain traditional approach of dividend theory.
4. Critically examine the dividend irrelevance theory of M-M.
5. How far do you agree with the proposition that dividends are irrelevant?

8.6 References

- Bhabatosh Banerjee, *Financial Policy and Management Accounting*, Prentice Hall of India.
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Unit 9 ❑ Financial Management of sick enterprises

Structure

9.1 Introduction

Industrial sickness is growing at an alarming rate and has been a cause of considerable concern to the government, financial institutions, and banks. Industrial sickness does not occur overnight but develops gradually over time. A firm which is becoming sick shows symptoms that trouble lies ahead of it. A prudent banker will take measures to safeguard his interest before the unit becomes finally sick.

This unit is concerned with the financial management of sick units.

9.2 Meaning of sickness

The words bankruptcy, failure, sickness etc. are very often used interchangeably. The term 'bankruptcy' has been used in most of the studies carried out in the USA. It refers to those firms that were legally bankrupt and were either placed in receivership or had been granted the right to reorganise under the provisions of the National Bankruptcy Act in the USA. In many cases, failure has been regarded as synonymous with bankruptcy. The term failure refers to either default in payment of bond interest or non-payment of dividend on preference shares. Legally, the term failure means the inability of the firm to pay its debts. However, failure may be temporary liquidity embarrassment. In reality, bankruptcy is only the culmination of failure.

India appears to have coined her own terminology of 'Industrial sickness or 'corporate sickness'. According to Oxford Dictionary, the term sickness means 'disease' or act of 'being ill' : The first attempt to define a sick industrial unit was made in the year 1962 by the Committee on Rationalisation of Returns in respect of small-scale industrial advances. The Committee defined sick unit as one whose accounts were chronically irregular and required a study to evolve a nursing programme and a close follow-up. Later on in 1975, State Bank of India Study Team on sick units defined a sick unit as "a unit which fails to generate internal surplus on continuing basis and depends for its survival on frequent infusion of external funds."

According to the Reserve Bank of India, a small scale industrial unit is considered as sick when (a) any of its borrowal accounts has become a doubtful advance i.e., a period exceeding 2.5 years and (b) there is erosion in the net worth due to accumulated cash losses to the extent of 50 per cent or more of its peak net worth during the preceding two accounting years.

9.3 Causes of sickness

The causes of sickness of an industrial unit can be classified into three categories (i) Internal factors, e.g., family feuds, mismanagement, labour unrest, faulty production, faulty marketing programme, etc.

(ii) Environmental factors, e.g., dearth of raw materials, power cut, change in Government politices, etc.

(iii) Premeditated frauds perpetrated or dishonest attitude of management, unscrupulous sales and purchase practices, diversion of funds etc.

According to a study conducted by RBI, the share of various causes in industrial sickness has been found as follows :

Causes	Percentage of share in sickness
Mismanagement and managerial deficiencies	52%
Faulty planning and other technical drawbacks	14%
Market Recession	23%
Shortage of Inputs	9%
Labour Trouble/Unrest	2%
	100%

Source : The Management Accountant, December, 1983, p.523.

9.4 Symptoms of sickness

Sickness does not occur overnight. It develops gradually over time. A firm which is becoming sick shows symptoms which indicate that trouble lies ahead of it. Some of the commom symptoms are :

(i) Continuous cash losses
(ii) Delay or default in payment to suppliers
(iii) manipulation in stock statements, accumulation of finished goods stock
(iv) Irregularity in the bank account
(v) Decline in capacity utilisation
(vi) Lay-off or retrenchment of workers
(vii) Unexplained delay in submission of periodical statements to the banker
(viii) Plant or product obsolescence
(ix) Closure of the factory
(x) Low turnover of assets
(xi) Extension of according period
(xii) Poor maintenance of Plant and Machinery
(xiii) Non-payment of statutory dues—such as provident funds, taxes etc.
(xiv) Inability to take trade discount
(xv) Decline in the price of equity shares and debentures
(xvi) Incapacity or death of the key-persons
(xvii) Frequent issue of post-dated cheques
(xviii) Excessive turnover of personal.

9.5 Prediction of sickness

Can sickness be predicted? Various studies have been done to predict sickness. These studies adopted mainly two types of analysis : Univariate analysis and multivariate analysis.

Univariate Analysis :

In case of univariate analysis an attempt is made to predict sickness on the basis of single financial ratios. The studies of Ramser and Foster (1931), Fitzpatrick (1932), Winakor and Raymond (1935), Merwin (1942), Moore, Akkinson and Seiden

(1961), Beaver (1967) etc. are notable in this regard. Here the emphasis was placed on individual signals of impending problems. But ratio analysis presented in that fashion is susceptible to faulty interpretation and is potentially confusing.

Multivariate Analysis :

Univariate analysis examinees financial ratios individually but does not assess the joint predictive power of various combinations of ratios. Multivariate analysis, on the other hand, seeks to predict industrial sickness using a methodology that considers the combined influence of several variables. The multivariat technique commonly used in predicting business failure or sickness is the technique of multiple discriminant analysis. This is a statistical technique. Out of many studies, the work of Altman (1968) is notable in this regard.

9.6 Stages of sickness

Generally an industrial unit passes through different stages before becoming a sick unit. The stages are :

(a) Healthy stage :

In case of this stage, all functional areas of an unit work efficiently. The unit makes profit and its debt equity ratio becomes satisfactory. The net worth becomes positive and current ratio is more than 1.

(b) Tilt towards sickness :

The unit is said to have a tilt towards sickness when its profits start declining and losses are projected in the years to come.

(c) Incipient sickness :

Under this stage the unit has incurred a cash loss in the previous year and expected to suffer a cash loss in the current year also. The current ratio and debt equity ratio will deteriorate under this stage.

(d) Sickness :

Here all functional areas of the unit become inefficient. The unit suffered a cash loss in the previous year. It expects to repeat the same performance in the the current and the next years.

9.7 Revival of a Sick Unit

When an industrial unit is identified as sick, a viability study should be conducted to asses whether the unit can be revived within a reasonable period. If the

viability study suggests that the unit can be rehabilitated, asuitable plan for rehabilitation must be formulated. If the viability study indicates that the unit is "better dead than alive," steps must be taken to liquidate it expeditiously. A viability study generally covers market analysis, production or technical analysis, finance, personal and organisation and environment.

The revival programme normally includes the following :

(a) Settlement with creditors

(b) Provision of additional capital

(c) Divestment and disposal

(d) Reformulation of Product-Market strategy

(e) Modernisation of plant and machinery

(f) Reduction in manpower

(g) Strict control over cash

(h) Improvement in Managerial system

(i) Workers' participation in management

(j) Change of management.

From time to time, the government has announced various measures for facilitating the revival of sick units. The important ones have been the soft loan scheme, fiscal concessions, policy guidelines on sick units of 1980, Industrial Reconstruction Bank of India Act 1984 and Sick Industrial Companies (Special Provisions) Act, 1985.

A review done in the mid-eighties recommanded that the existing institutional arrangements for rehabilitation of sick units seemed to suffer from several inadequacies such as : (i) lack of effective co-ordination among the multiple agencies and regulations dealing with sick industrial units, (ii) time-consuming and delatory procedures, and (iii) half-hearted endeavours. With a view to removing these difficulties, the Sick Industrial Companies (Special Provisions) Act, 1985 was passed. In accordance with this Act, two bodies have been set up : (i) Board for Industrial and Financial Reconstruction and (ii) Appellate Authority for Industrial and Financial Reconstruction. The Board for Industrial and Financial Reconstruction (BIFR) started functioning with headquarters in Delhi from 12th January. 1987. The Board has wide-ranging powers with regard to sick industrial companies including their revival, change or take-over of management, reconstruction, etc.

9.8 Exercise

A. Short-answer type questions

1. Define a sick unit.
2. What is univariate analysis?
3. What is multivariate analysis?
4. Mention two symptoms of sickness.
5. What is failure?

B. Long answer type questions

1. What are the symptoms of sickness?
2. Mention different stages of sickness?
3. What are the causes of industrial sickness?
4. How do you predict sickness?
5. Explain the revival procedures of sick units.

9.9 References

- Bhabatosh Banerjee, *Financial Policy and Management Accounting*, Press Pvt. Ltd., 1999, Chapter 6.
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- S. S. Srivastava, and R. A. Yadav, *Management and Monitoring of Industrial Sickness*, Concept Publishing Company, 1986, New Delhi.

Unit 10 ❑ Portfolio Management

Structure

10.1 Introduction

In decisions, concerning investment in securities, an investor may be an individual or a firm. The individual or the firm wants to get answers to the different questions Which shares are to be selected and why? How much should be invested in each type? How can one minimise risk? One needs to resolve all these and similar issues with a view to maximising return and minimising risk. Modern portfolio theory helps in this regard. It is based on simple but fundamental insights into investor behaviour. These insights are put into a coherent framework for analysis and dicision-making. The present unit focuses on the portfolio management.

10.2 Meaning of Portfolio

The term portfolio means the combination of different securities that constitute the total holding of an investor. It may represent an investment in stock and shares or investments in capital projects. The investment can be done by an individual, a

company, a mutual fund or an investment banker. For making such investment decisions various factors are to be taken into consideration. They are :

(i) *Security* : Security relates to the maintenance of the capital value of the investment in nominal terms.

(ii) *Return* : Investor always expects a satisfactory return.

(iii) *Growth prospects* : The most profitable investment opportunities are likely to be observed in firms with good growth prospects.

(iv) *Risk* : Risk means the variability of the expected return from investment.

(v) *Liquidity* : It means the convertibility of investments back into cash in short notice.

10.3 Meaning of Portfolio theory

This theory highlights fundamental insights into investor's behaviour and places these insights into a coherent framework for rational analysis and decision-making so that the benefits from these decisions can be maximised and the risk is minimised. The portfolio theory is concerned with framing guidelines for building up a portfolio of projects, or a portfolio of stocks and shares. This theory is applicable in case of an individual or a firm. It helps the investor to take rational investment decision. With the help of portfolio theory the investor maximises his gain and minimises his risk. Therefore, portfolio theory shows how an investor can reach his optimal portfolio position.

10.4 Concept of Risk

Risk refers to the variability of the expected rate of return. Risk has two components :

(i) Business risk

(ii) Financial risk

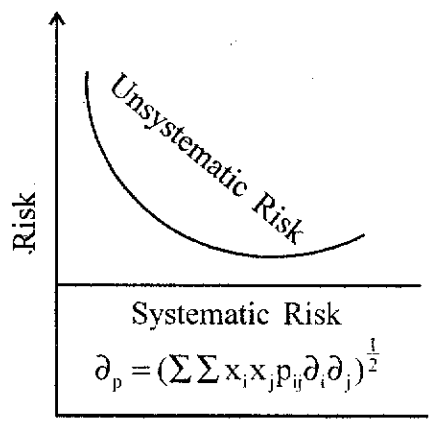
Business risk means the chance that the firm will not have the ability to complete successfully with the assets that it purchases. Operational problems are considered under business risk. On the other hand, financial risk is associated with the financial decisions of the firm. This risk essentially refers to the use of debt capital in the capital structure of the firm.

One of the objectives of the finance manager while selecting investment portfolio is to reduce risk factor. Risk consist of two parts : (i) Systematic Risk and (ii) Unsystematic Risk.

Systematic risk, is that part of the total risk that results from the tendency of stock prices to move together with the general market. It reflects fluctuations and changes of the general market. This part of the risk cannot be reduced through diversification and therefore called systematic or unavoidable risk.

Unsystematic risk is that part of the total risk that arises from the uncertainties which are unique to individual securities. Such a risk is diversifiable if large number of securities are combined to form a well diversified investment portfolio.

The basic distinction between systematic and unsystematic risk is that the former is non-diversifiable and cannot be reduced, while the later is diversifiable and can be reduced. Two types of risk can be shown with the helps of the follow diagram.



From the above diagram, it can be said that unsystematic risk goes on decreasing with increase in number of securities in the investment portfolio while the systematic risk ramains constant at all levels.

10.5 Expected Return on a Portfolio

The expected return on a portfolio is simply the weighted arithmatic average of the expected returns on the assets constituting the portfolio. For instance, if a portfolio consists of two securities, the expected return will be :

$\bar{R}_p = x_1\bar{R}_1 + (1-x_1)\bar{R}_2$

where,

$\bar{R}_p$ = Expected return on a portfolio

$\bar{R}_1$ = Expected return on security 1

x_1 = Proportion of portfolio invested in secucrity 1

$(1 - x_1)$ = Proportion of portfolio invested in security 2

$\bar{R}_2$ = Expected return on security 2

When a portfolio consists of n securities, the expected rate of return on the portfolio is :

$$\bar{R}_p = \sum x_i \bar{R}_i$$

where,

$\bar{R}_p$ = Expected return on portfolio

x_1 = Proportion of portfolio invested in security 1

$\bar{R}_i$ = Expected return on security i.

10.6 Riskiness of a Portfolio

This is measured by the standard deviation of the portfolio rate of return. Im case of two-asset portfolio, the riskiness is equal to :

$$\partial_p = \left[x_1^2 \partial_1^2 + x_2^2 \partial_2^2 + 2 x_1 x_2 p_{12} \partial_1 \partial_2 \right]^{\frac{1}{2}}$$

where,

∂_p = Standard deviation of the portfolio return

x_1 = Proportion of portfolio invested in security 1

∂_1 = Standard deviation of the return on security 1

x_2 = Proportion of portfolio invested in security 2

∂_2 = Standard deviation of the return on security 2

P_{12} = Coefficient of correlation between the return of securities 1 and 2 When a portfolio consists of n securities, riskiness is equal to

$$\partial_p = (\sum \sum x_i x_j p_{ij} \partial_i \partial_j)^{\frac{1}{2}}$$

Where,

∂_p = Standard deviation of portfolio return

x_i = Proportion of portfolio invested in security i

x_j = Proportion of portfolio invested in security j

P_{ij} = Coefficient of correlation between the return of securities i and j

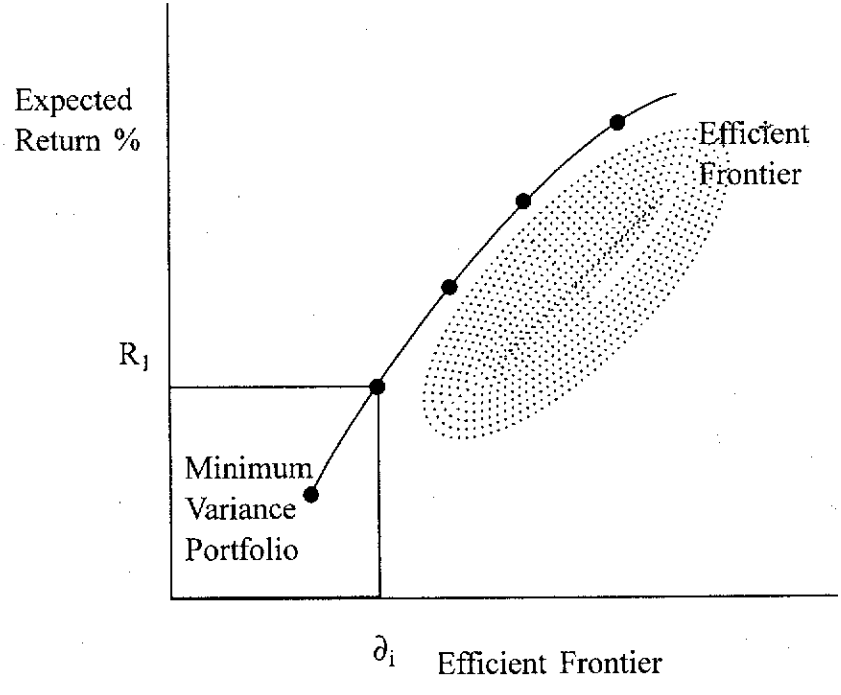
∂_i = Standard deviation of return on security i

∂_j = Standard deviation of return on security j

$P_{ij}\ \partial_i\partial_j$= Covariance of returns between securities i and j

10.7 Efficient Portfolios

If a graph is drawn to show the expected return and risk of all possible portfolios of investments, the graph will depict an egg-shaped cluster of points : A free hand curve can be drawn so that portfolios with minimum expected returns, corresponding to a given degree of risk, can be joined with portfolios with maximum expected rates of return associated with their risks. The freehand curve which joins all these dots in the graph is known as efficient frontier. Portfolios on this efficient frontier are called efficient portfolios. The efficient frontier and efficient portfolios can be shown with the help of the following graph.



10.8 Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model was developed by Sharpe and Linter in 1960. The model explains the relationship between the expected return, unavoidable risk and the valuation of securities. The greater the unavoidable risk of a security, the greater is the return expected by the investor from that security. The CAPM is based on the following assumptions :

(i) Individuals are risk-averse.

(ii) Individuals seek to maximise the expected utility of their portfolios over a single period planning horizon.

(iii) Individuals have homogeneous expectations—they have indentical subjective estimates of the means, variances and covariances among returns.

(iv) Individuals can borrow and lend freely at a riskless rate of interest.

(v) The market is perfect,

(vi) There are no taxes,

(vii) The quantity of risky securities in the market is given.

The computation of expected return or cost of equity capital according to CAPM can be done on the basis of the following equation :—

$$E(R_p) = R_f + b(K_M - R_f)$$

Where $E(R_p)$ = Expected rate of return

R_f = Risk-free return

K_M = Market return

$b = \beta$ (systematic or market risk).

Illustration :

The Beta coefficient of a company is 1.4. The company has been maintaining 8% rate of growth in dividends and earnings. The last dividend paid was Rs. 4 per share. Return on govt. securities is 10%. Return on market portfolio is 15%. The current market price of one share of the company is Rs. 36.

(i) What will be the equilibrium price per share?

(ii) Would you advice purchasing the share?

Solution :

(i) As per CAPM, expected return or cost of equity capital can be calculated as under :

$$E(R_p) = R_f + b(K_M - R_f)$$

where

$E(R_p)$ = expected rate of return

R_f = risk-free return

K_M = market return

$b = \beta$ (Systematic or market risk)

Putting the values, we get

$E(R_p) = 10 + 1.4(15\% - 10\%)$

$= 17\%$

Thus, the cost of equity capital = 17%

The equilibrium price per share can be calculated as follows :

$$K_e = \frac{D}{EP} + g$$

Where, K = Cost of equity capital

D = Expected dividend per share

EP = Equilibrium price per share

g = Growth in expected dividend

Putting the values, we get

$$.17 = \frac{4(1.08)}{EP} + 0.08$$

or, EP = Rs. 48

Therefore, the equilibrium price per share is Rs. 48.

(ii) The current market price is Rs. 36.

The equilibrium price is Rs. 48.

So the share is undervalued and it should be purchased.

10.9 Capital Market Line

The expected return from investment has a positive co-relationship with every increase in the risk level. Every investor will have a mix of risk securities and risk-free securities in his investment portfolio as per his risk preferences. Taking investors' group as a whole, the investors have selected the mix of risk-free and risky securities as per their preferences, the equilibrium will be a situation where there will be risk return trade off. The Capital Market Line represents that line on the graph where there is a risk return for trade off efficient portfolio. Any portfolio which is above the Capital Market Line is efficient and any portfolio which is below the Capital Market Line is inefficient. The equation of Capital Market Line is :

$$E(R_p) = R_f + b\partial_p$$

Where, $E(R_p)$ = expected return from the portfolio

R_f = risk free rate of return

∂p = portfolio standard deviation

$$b = \frac{\text{difference between market portfolio rate and risk free sale}}{\text{difference between market portfolio standard deviation and risk-free portfolio standard deviation}}$$

Illustration :

Portfolio	Expected return (%)	Portfolio risk (%)
X	22	14
Y	32	12
Z	21	6

The expected rate of return on market portfolio is 17% with a standard deviation of 6%. The risk-free rate is 10%. Determine efficient and inefficient portfolios.

Solution :

We know that

$E(R_p) = R_f + b\partial_p$

$R_f = 10\%; \qquad b = \frac{(17-10)}{(6-0)} = 1.667$

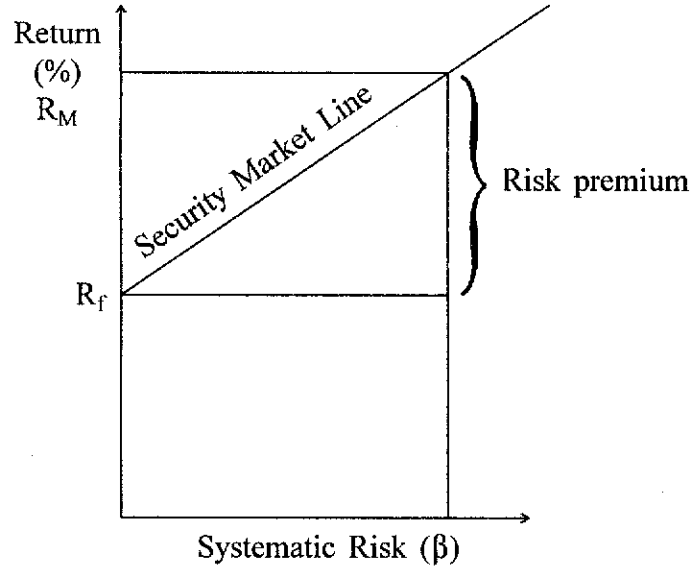
Thus, Capital Market Line (CML) equation is $E(R_p) = 10 + 1.667\ \partial_p$

Portfolio	Portfolio risk (%)	CML Equation	CML Return (%)	Actual Return (%)	Comment
X	14	(10+ 1.667 x 14)	23	22	Inefficient
Y	12	(10 + 1.667 x 12)	30	32	Efficient
Z	6	(10 + 1.667 x 6)	20	21	Efficient

If the actual return becomes higher than the CML, the portfolio is efficient and vice versa.

10.10 Security Market Line

The Security Market Line describes systematic risk and return of a well diversified investment portfolio. The relationship between risk and return is linear and is known as the Security Market Line. In case of Security Market Line, the risk includes only diversifiable market related risk. It describes risk return relationship for both efficient and inefficient portfolios. Security Market Line can be shown with the help of the following graph.



10.11 Exercise

A. Short-answer type questions

1. What is Portfolio?
2. What is Portfolio theory?
3. What is Business risk?
4. What is Financial risk?
5. What is systematic risk?
6. What is unsystematic risk?
7. What is Security Market Line?

B. Long answer type questions

1. What factors would you take into consideration in selecting a portfolio?
2. Distinguish between systematic risk and unsystematic risk.
3. Distinguish between Capital Market Line and Security Market Line.
4. State different assumptions of CAPM.
5. Explain efficient portfolio.
6. Discuss expected return on a portfolio and riskiness of a portfolio.

10.12 References

- Bhabatosh Banerjee, *financial Policy and Management Accounting,* Prenctice Hall of India.
- Frank K. Reilly, *Investment Analysis and Portfolio Management,* Hinsdale, JL, Dryden.
- J. C. Van Horne, *Financial Management and Policy,* Prentice Hall of India.
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POST-GRADUATE COURSE
Term End Examination — December, 2009
M.Com
FINANCIAL MANAGEMENT
PAPER XVIII

Time — 2 hours *Full marks— 50*
(Weightage of marks—50%)

Special credit will be given for accuracy and relevance in the answer. Marks will be deducted for incorrect spelling, untidy work and illegible handwriting. The weightage for each question lias been indicated in the margin.

Module - A
(Answer *any two* questions)

1.(a) Why does money have time value ?

(b) Explain the relationship between risk and return. 6+6½

2.(a) Discuss the factors that influence the choice of sources of finance.

(b) What are the principal components of a financial system ? 7+5½

3.(a) Why is the Cost of Capital most appropriately measured on 'after lax' basis ?

(b) The following is the capital structure of a company.

Source	**Amount** (Rs.)	**Cost** (Rs.)
Equity share		
Capital	3,00,000	15%
16% Debentures	3,50.000	10%
12% Pref. Capital	2.00.000	12%
Retained Earnings	1.50,000	15%

Calculate weighted average cost of capital. $6^{1}/_{2}+6$

4.(a) What is an 'indifference point' in the EBIT-EPS analysis ? How would you compute it ?

(b) Is there any relationship between CVP analysis and operating leverage ? Discuss with an example. $7+5\frac{1}{2}$

Module - B

(Answer *any two* questions)

5. From the following information, **compute** the operational cycle in days.

Period Covered : 365 Days.		
Average period of Credit allowed by supplier :		15 days
Average Debtors outstanding	Rs.	450-00
Total production cost :	Rs.	9.500-00
Raw Material Consumed :	Rs.	4,000-00
Total Cost of goods sold	Rs.	10,000-00
Sales during the period :	Rs.	15.500-00
Average stock maintained :		
Raw materials	Rs.	300-00
Work-in-progress	Rs.	330-00
Finished goods	Rs.	270-00

$12\frac{1}{2}$

6.(a) State the circumstances under which conflicting ranking would be given by the IRR and NPV method ?

(b) What is terminal value ? $8+4\frac{1}{2}$

7.(a) Discuss critically Gordon's Model of dividend policy and state the underlying assumptions.

(b) Discuss the legal & financial considerations in formulating dividend policy.

$8+4\frac{1}{2}$

8. Write short notes on *any two :*

(i) Business risks.

(ii) Capital budgeting and Capital rationing.

(iii) Symptoms of Sickness. $12\frac{1}{2}$

POST-GRADUATE COURSE

Term End Examination — December, 201 1

COMMERCE

Paper - XVIII

(Financial Management

Time : 2 Hours **Full Marks : 5O**

(Weightage of Marks : 80%)

Special credit will be given for accuracy and relevance in the answer. Marks will be deducted for incorrect spelling, untidy work and illegible handwriting. The weightage for each question has been indicated in the margin.

Module - I

Answer any *two* questions. $12^1/_2 \times 2 = 25$

1. a) How do you calculate the compound value of sum after 3 years ? Give an example,

   b) Explain the relationship between risk and return. $8 + 4^1/_2$

2. a) What do you mean by capital structure ?

   b) What is 'trading on equity' ? Discuss the effects of trading on equity. $4 + 8^1/_2$

3. The existing capital structure of a firm and other relevant information are given below :

   i)

Capital structure :	Rs.
Equity share capital (@ Rs. 10 each)	6,00,000
General Reserve	1,50,000
9% Debentures	4,00,000

   ii) Current dividend per share is Rs. 15 and the current market price of equity share is Rs. 10. Growth rate in dividend is 10% p. a. Corporate tax rate is 40%.

   Compute the specific cost and weighted average cost of capital. $12^1/_2$

4. What is value maximization of the firm? Why is it considered superior to other objectives? $7 + 5^1/_2$

Module - II

Answer any *two* questions. **$12\frac{1}{2} \times 2 = 25$**

5. From the following information, compute the operational cycle in days : $12\frac{1}{2}$

Period covered	365 days
Average period of credit allowed by supplier	15 days
Average debtors outstanding	Rs. 450
Raw materials consumption	Rs. 4,000
Total production cost	Rs. 9,500
Total cost of goods sold	Rs. 10,000
Sales for the year	Rs. 15,500
Value of average stock maintained :	
Raw materials	Rs. 300
Work-in- progress	Rs. 330
Finished goods	Rs. 270

6. What are the various types of investment decision ? What do you understand by (i) accept-reject decision, and (ii) ranking decision ? $8+4\frac{1}{2}$

7. a) How do you measure the expected return and risk of individual risk ?
   b) Explain briefly the basic principles of portfolio management. $8+4\frac{1}{2}$

8. a) Explain the importance of dividend decision in maximizing the value of the firm.
   b) How would you classify dividends ? $8 + 4\frac{1}{2}$