V SEM BBA Study Material

ADVANCED FINANCIAL MANAGEMENT

CONTENTS:

Chapter – 1 INVESTMENT DECISIONS AND RISK ANALYSIS

RISK: Risk refers to the variations in the actual returns arising from a project or machinery on its economic life, in relation to the estimated return as forecast at the time of initial investment (time '0'). Greater the variation between estimated and actual returns, greater will be the degree of riskiness and vice versa.

Uncertainty: Uncertainty refers to a situation where the outcome is not certain or is unknown. Uncertainty cannot be quantified whereas risk can be quantified based on the likelihood of future outcomes.

Causes of Risk:

1. Wrong method of investment
2. Wrong timing of investment
3. Wrong quantity of investment
4. Interest rate risk
5. Nature of investment instruments
6. Nature of industry in which Co. is operating
7. Creditworthiness of the issuer
8. Maturity period of the investment
9. Terms of lending
10. National & International factors
11. Natural calamities etc.

Types and sources of Risk in capital Budgeting

Risks in a project are many. It is possible to identify three separate and distinct types of risk in any project.

1) **Stand – alone risk**: it is measured by the variability of expected returns of the project.
2) **Portfolio risk**: A firm can be viewed as portfolio of projects having as certain degree of risk. When new project added to the existing portfolio of project the risk profile the firm will alter. The degree of the change in the risk depend on the covariance of return from the new project and the return from the existing portfolio of the projects. If the return from the new project is negatively correlated with the return from portfolio, the risk of the firm will be further diversified away.
3) **Market or beta risk:** It is measured by the effect of the project on the beta of the firm. The market risk for a project is difficult to estimate.

Stand alone risk is the risk of a project when the project is considered in isolation. Corporate risk is the projects risks to the risk of the firm. Market risk is systematic risk. The market risk is the most important risk because of the direct influence it has on stock prices.

Sources of risk: The sources of risks are

1. Project – specific risk
2. Competitive or Competition risk
3. Industry – specific risk
4. International risk
5. Market risk

1. **Project – specific risk**: The sources of this risk could be traced to something quite specificto the project. Managerial deficiencies or error in estimation of cash flows or discount rate may lead to a situation of actual cash flows realised being less than that projected.
2. **Competitive risk or Competition risk:** unanticipated actions of a firm's competitors willmaterially affect the cash flows expected from a project. Because of this the actual cash flows from a project will be less.
3. Industry – specific risk: It could be again grouped into technological risk, commodity risk and legal risk. All these risks will affect the earnings and cash flows of the project. The changes in technology affect all the firms not capable of adapting themselves to emerging new technology.The best example is the case of firms manufacturing motor cycles with two strokes engines. When technological innovations replaced the two stroke engines by the four stroke engines those firms which could not adapt to new technology had to shut down their operations. Commodity risk is the risk arising from the effect of price – changes on goods produced and marketed. Legal risk arises from changes in laws and regulations applicable to the industry to which the firm belongs. The best example is the imposition of service tax on apartments by the Government of India when the total number of apartments built by a firm engaged in that industry exceeds a prescribed limit. Similarly changes in Import – Export policy of the Government of India have led to the closure of some firms or sickness of some firms.
4. **International Risk:** these types of risks are faced by firms whose business consists mainlyof exports or those who procure their main raw material from international markets. For example, rupee – dollar crisis affected the software and BPOs because it drastically reduced their profitability. Another best example is that of the textile units in Tirupur in Tamilnadu, exporting

their major part of the garments produced. Rupee gaining and dollar Weakening reduced their competitiveness in the global markets. The surging Crude oil prices coupled with the governments delay in taking decision on pricing of petro products eroded the profitability of oil marketing Companies in public sector like Hindustan Petroleum Corporation Limited. Another example is the impact of US sub prime crisis on certain segments of Indian economy.

The changes in international political scenario also affect the operations of certain firms.

5. **Market Risk:** Factors like inflation, changes in interest rates, and changing general economic conditions affect all firms and all industries.

Techniques used for incorporation of risk factor in capital budgeting decisions

A. Risk Adjusted Discount Rate

The basis of this approach is that there should be adequate reward in the form of return to firms which decide to execute risky business projects. Man by nature is risk-averse and tries to avoid risk. To motivate firms to take up risky projects returns expected from the project shall have to be adequate, keeping in view the expectations of the investors. Therefore risk premium need to be incorporated in discount rate in the evaluation of risky project proposals.

Therefore the discount rate for appraisal of projects has two components.

Those components are

1. Risk – free rate and risk premium

Risk Adjusted Discount rate = Risk free rate + Risk premium

Risk free rate is computed based on the return on government securities.

Risk premium is the additional return that investors require as compensation for assuming the additional risk associated with the project to be taken up for execution.

The more uncertain the returns of the project the higher the risk.Higher the risk greater the premium. Therefore, risk adjusted Discount rate is a composite rate of risk free rate and risk premium of the project.

Example: An investment will have an initial outlay of Rs 100,000. It is expected to generate cash inflows as under:

Year	Cash in flows
1	40,000
2	50,000
3	15,000
4	30,000

Risk free rate of interest is 10%. Risk premium is 10% (the risk characterising the project)

(a) compute the NPV using risk free rate

(b) Compute NPV using risk – adjusted discount rate

Solutions = (a) using risk – free rate

Year	Cash flows (inflows) Rs	PV Factor at 10%	PV of Cash flows (in flows)
1	40,000	0.909	36,360
2	50,000	0.826	41,300
3	15,000	0.751	11,265
4	30,000	0.683	20,490
	PV of cash in flows		1,09,415

	Less:PV of Cash outflows		1,00,000
	NPV		9,415

(b) Using risk adjusted discount rate = 10% +10%

Year	**Cash in flows Rs**	**PV factor at 20%**	**PV of cash inflows**

1	40,000	0.833	33,320
2	50,000	0.694	34,700
3	15,000	0.579	8,685
4	30,000	0.482	14,460
	PV of Cash in flows		91,165
	Less: PV of Cash out flows		100,000
	NPV		(8,835)

The project would be acceptable when no allowance is made for risk.

But it will not be acceptable if risk premium is added to the risk free rate. It moves from positive NPV to negative NPV.

If the firm were to use the internal rate of return, then the project would be accepted when IRR is greater than the risk – adjusted discount rate.

Evaluation of Risk – adjusted discount rate:

Advantages:

1. It is simple and easy to understand.
2. Risk premium takes care of the risk element in future cash flows.
3. It satisfies the businessmen who are risk – averse.

Limitations:

1. There are no objective bases of arriving at the risk premium. In this process the premium rates computed become arbitrary.
2. The assumption that investors are risk – averse may not be true in respect of certain investors who are willing to take risks. To such investors, as the level of risk increases, the discount rate would be reduced.
3. Cash flows are not adapted to incorporate the risk adjustment for net cash in flows.

B. Certainty Equivalent:

Under this method the risking uncertain, expected future cash flows are converted into cash

flows with certainty. Here we multiply uncertain future cash flows by the certainty – equivalent coefficient to convert uncertain cash flows into certain cash flows. The certainty equivalent coefficient is also known as the risk – adjustment factor. Risk adjustment factor is normally denoted by αt **(Alpha).** It is the ratio of certain net cash flow to risky net cash flow

Certainty Equivalent (Alpha) =

Certain(Risk-free) Cash flow/ Risky Cash flow

The discount factor to be used is the risk free rate of interest. Certainty equivalent coefficient is between 0 and 1. This risk – adjustment factor varies inversely with risk. If risk is high a lower value is used for risk adjustment. If risk is low a higher coefficient of certainty equivalent is used.

Illustration (Example)

A project costs Rs 50,000. It is expected to generate cash inflows as under

Year	Cash in flows	Certainty Equivalent
1	32,000	0.9
2	27,000	0.6
3	20,000	0.5
4	10,000	0.3

Risk – free discount rate is 10% compute NPV

.
.
.

Year	Uncertain cash in flows	C E	Certain cash flows	PV Factor at 10%	PV of certain cash inflows
1	32,000	0.9	28,800	0.909	26,179
2	27,000	0.6	16,200	0.826	13,381
3	20,000	0.5	10,000	0.751	7,510
4	10,000	0.3	3,000	0.683	2,049

Answer:

		PV of certain cash in Flows			49,119
		Less:Initial cash out lay			50,000
		NPV			(881) negative

The project has a negative NPV.
Therefore, it is rejected.

If IRR is used the rate of discount at which NPV is equal to zero is computed and then compared with the minimum (required) risk free rate. If IRR is greater than specified minimum risk free rate, the project is accepted, otherwise rejected.

Evaluation:

It recognises risk. Recognition of risk by risk – adjustment factor facilitates the conversion of risky cash flows into certain cash flows. But there are chances of being inconsistent in the procedure employed from one project to another.

When forecasts pass through many layers of management, original forecasts may become highly conservative.

Because of high conservation in this process only good projects are likely to be cleared when this method is employed.

Certainty – equivalent approach is considered to be theoretically superior to the risk – adjusted discount rate.

C. Sensitivity Analysis:

There are many variables like sales, cost of sales, investments, tax rates etc which affect the NPV and IRR of a project. Analysing the change in the project's NPV or IRR on account of a given change in one of the variables is called Sensitivity Analysis. It is a technique that shows the change in NPV given a change in one of the variables that determine cash flows of a project. It measures the sensitivity of NPV of a project in respect to a change in one of the input variables of NPV.

The reliability of the NPV depends on the reliability of cash flows. If fore casts go wrong on account of changes in assumed economic environments, reliability of NPV & IRR is lost. Therefore, forecasts are made under different economic conditions viz pessimistic, expected and optimistic. NPV is arrived at for all the three assumptions.

Following **steps** are involved in Sensitivity analysis:

1. Identification of variables that influence the NPV & IRR of the project.
2. Examining and defining the mathematical relationship between the variables.
3. Analysis of the effect of the change in each of the variables on the NPV of the project.

Advantages of Sensitivity Analysis:

1. Identifies the variables and their relationships
2. It assesses the strength or weakness of a given project
3. It hints the need for further task.

Limitations:

1. It studies the impact of one variable at a time.
2. It is merely indicative providing no remedy.

Example: A company has two mutually exclusive projects under consideration viz project A &project B.

Each project requires an initial cash outlay of Rs 3,00,000 and has an effective life of 10 years. The company's cost of capital is 12%. The following forecast of cash flows are made by the management.

Economic	Project A	Project B
Environment	Annual cash inflows	Annual cash in flows
Pessimistic	65,000	25,000
Expected	75,000	75,000
Optimistic	90,000	1,00,000

What is the NPV of the project?

Which project should the management consider?

Given PVIFA (p.v. factor)= 5.650

Answer / Solutions

NPV of project A

Economic	Project	PVIF A	PV of cash in flows	NPV
Environment	cash inflows	at 12% 10 years		After reducing 3,00,000 outlay
Pessimistic	65,000	5.650	3,67,250	67,250
Expected	75,000	5.650	4,23,750	1,23,750
Optimistic	90,000	5.650	5,08,500	2,08,500

NPV of Project B

Pessimistic	25,000	5.650	1,41,250	(1,58,750)
Expected	75,000	5.650	4,23,750	1,23,750
Optimistic	1,00,000	5.650	5,65,000	2,65,000

Decision

1. Under pessimistic conditions project A gives a positive NPV of Rs 67,250 and Project B has a negative NPV of Rs 1,58,750 Project A is accepted.
2. Under expected conditions, both gave some positive NPV of Rs 1,23,000. Any one of two may be accepted.
3. Under optimistic conditions Project B has a higher NPV of Rs 2,65,000 compared to that of A's NPV of Rs 2,08,500.
4. Difference between optimistic and pessimistic NPV for Project A is Rs 1,41,250 and for Project B the difference is Rs 4,23,750.
5. Project B is risky compared to Project A because the NPV range is of large differences.

Statistical Techniques:

Statistical techniques use analytical tools for assessing risks of investments.

Probability Distribution Approach:

When we incorporate the chances of occurrences of various economic environments computed NPV becomes more reliable. The chances of occurrences are expressed in the form of probability. Probability is the likelihood of occurrence of a particular economic environment. After assigning probabilities to future cash flows expected net present value is computed.

Illustration: A company has identified a project with an initial cash outlay of Rs 50,000.

Year 1		**Year 2**		**Year 3**	
Cash in flow	*Probability*	*Cash in flow*	*Probability*	*Cash in flow*	*Probability*
15,000	0.2	20,000	0.3	25,000	0.4
18,000	0.1	15,000	0.2	20,000	0.3
35,000	0.4	15,000	0.2	20,000	0.3
32,000	0.3	30,000	0.2	45,000	0.1

Thefollowing distribution of cash flow is given below for the life of the project of 3 years.

Discount rate is 10%

Year 1

= 15,000 x 0.2 + 18,000 x 0.1 + 35,000 x 0.4 + 32,000 x

0.300 3,000 + 1,800 + 14,000 + 9,600 = 28,400

Year 2

20,000 x 0.3 + 15,000 x 0.2 + 30,000 x 0.3 + 30,000 x 0.2

= 6,000 + 3,000 + 9,000 + 6,000 = 24,000

Year 3

25,000 x 0.4 + 20,000 x 0.3 + 40,000 x 0.2 + 5,000 x

0.1 = 10,000 + 6,000 + 8,000 + 4,500 = 28,500

Year	**Expected cash inflows**	**PV factor at 10%**	**PV of expected cash in flows**
1	28,400	0.909	25,816
2	24,000	0.826	19,824
3	28,500	0.751	21,403
	PV of expected cash in flows		67,043
	PV of initial cash out lay		50,000
	Expected NPV		17,043

Standard Deviation method:

If 2 projects have same cost and their NPV are also the same, standard deviations of the expected cash flows of the 2 projects may be calculated to judge the comparative risk of the projects. The project with higher S.D. is said to be more risky.

QUESTION.

The probability distributions of 2 projects and their NPV are given below:

PROJECT A		PROJECT B	
NPV	PROB.	NPV	PROB.
5000	0.2	0	0.1
7500	0.7	7500	0.7
10000	0.1	15000	0.2

You need to calculate the standard deviation and co-efficient of variation
For each project. Which project do you prefer and why?
SOLUTION
:
Project A

NPVs			Probability	
	d = x-mean			
x	x	d *d	f	f*(d*d)
5000	-2500	6250000	0.2	1250000
7500	0	0	0.7	0
10000	2500	6250000	0.1	625000
22500				1875000

mean of x is 22500/3= 7500

S.D. = square root of f*(d*d)= square root of 1875000 = 1369.31

Project B

NPVs			Probability	
	d = x-mean			
x	x	d *d	f	f*(d*d)
0	-7500	56250000	0.1	5625000
7500	0	0	0.7	0
15000	7500	56250000	0.2	11250000
22500				16875000

mean of x is 22500/3= 7500

S.D. = square root of f*(d*d)= square root of 16875000 = 4,107.919

Project B is more risky as it has higher S.D.

Co-efficient of variation = S.D./Mean *100
Project A 18.26
Project B 54.77

Variance:

A study of dispersion of cash flows of projects will help the management in assessing the risk associated with the investment proposal. Dispersion is computed by variance or standard deviation. Variance measures the deviation of each possible cash flow from the expected. Square root of variance is standard deviation.

DECISION TREE approach:

Many project decisions are complex investment decisions. Such complex investment decisions involve a sequence of decisions over time. Decisions tree can handle the sequential decisions of complex investment proposals. The decision of taking up an investment project is broken into different stages. At each stage the proposal is examined to decide whether to go ahead or not. The multi – stages approach can be handled effectively with the help of decision trees. A decision tree presents graphically the relationship between a present decision and future events, future decisions and the consequences of such decisions.

Evaluation of Decision tree approach:

1. It portrays inter – related, sequential and critical multi-dimensional elements of major project decisions.
2. Adequate attention is given to the critical aspects in an investment decision which spread over a time sequence.
3. Complex projects involve huge out lay and hence risky. There is the need to define and evaluate scientifically the complex managerial problems arising out of the sequence of interrelated decisions with consequential outcomes of high risk. It is effectively answered by decision tree approach.
4. Structuring a complex project decision with many sequential investment decisions demands effective project risk management. This is possible only with the help of an analytical tool like decision tree approach.
5. Able to eliminate unprofitable outcomes and helps in arriving at optimum decision stages in time sequence.

Question : Mr Wise is considering an investment proposal of Rs 20000. The expected return during the life of the investment are as under:

Year 1

Event	Cash Inflow	Probability
1	8,000	0.3
2	12,000	0.5
3	10,000	0.2

	8000		12000		10000	
	Cash Inflow	Probability	Cash Inflow	Probability	Cash Inflow	Probability
1	15000	0.2	20000	0.1	25000	0.2
2	20000	0.6	30000	0.8	40000	0.5
3	25000	0.2	40000	0.1	60000	0.3

Year 2

Using 10% as cost of Capital, advice about the acceptability of the proposal

Solution:

DECISION TREE

Cash outflow 2,00,000

Year 1 CF &Prob	**Year 2 CF &Prob**	**Path**	**NPV of CFs**	**Joint Prob = Yr 1 Prob * Yr 2 Prob**	**Expected NPV = NPV * JtPob**
	15000	1	-338	0.06	-20.28
	0.2				
80000	20000	2	3792	0.18	682.56
0.3	0.6				
	25000	3	7922	0.06	475.32
	0.2				
	20000	4	7428	0.05	371.4
	0.1				
12000	30000	5	15688	0.4	6275.2
0.5	0.8				
	40000	6	23948	0.05	1197.4
	0.1				
	25000	7	9740	0.04	389.6
	0.2				
10000	40000	8	22130	0.1	2213

0.2	0.5					
	60000	9	38650	0.06		2319
	0.3					**13903.2**

As the proposal yields a NPV of Rs 13,903.20 at a disc of 10% p.a., the proposal can be accepted.

Working Note:

	Year 1		Year 2		10% Present Value		NPV (total PV – 20,000)	
Alternatives	Cash flows	Disc factor	Cash flows	Disc factor	Year 1	Year 2	Total PV	NPV
1	8000	0.909	15000	0.826	7272	12390	19662	-338
2	8000	0.909	20000	0.826	7272	16520	23792	3792
3	8000	0.909	25000	0.826	7272	20650	27922	7922
b. 1	12000	0.909	20000	0.826	10908	16520	24428	7428
2	12000	0.909	30000	0.826	10908	24780	35688	15688
3	12000	0.909	40000	0.826	10908	33040	43948	23948
c. 1	10000	0.909	25000	0.826	9090	20650	29740	9740
2	10000	0.909	40000	0.826	9090	33040	42130	22130
3	10000	0.909	60000	0.826	9090	49560	58650	38650

CHAPTER -2 SOURCES OF CAPITAL

The required capital (finance) can be classified into two categories, eg Long term finance (fixed capital), and short –term finance (Working capital).

Long term finance is required to purchase fixed assets (like plant and machinery, land and building, furniture, vehicles etc.). These fixed assets are purchased with the objective of using for a long period more than five years; hence, investment on these assets is called fixed capital or long –term capital. On the other hand, short term finances are required to carry out day –to day operations.

Financial markets can be classified on the basis of ownership security:

--- Owned capital includes share capital, retained earnings, surpluses etc

---Borrowed Funds includes debentures, bank loans, public deposits etc.

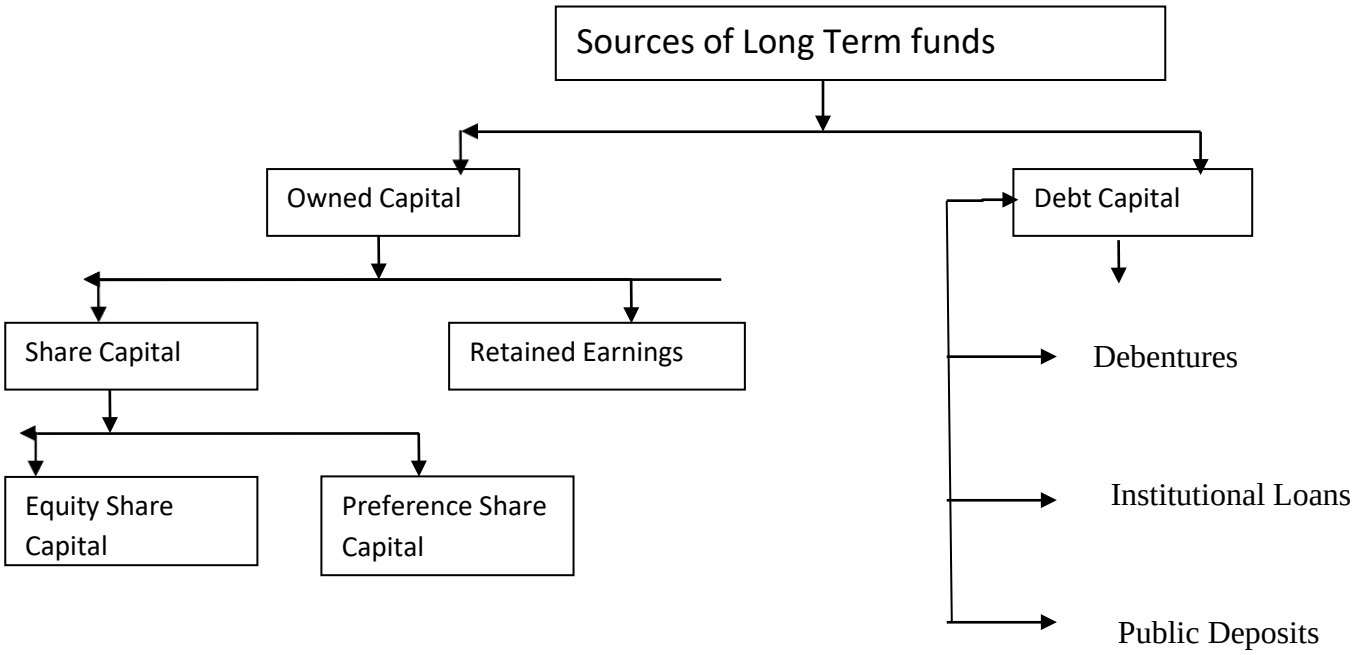
The Finance manager, while raising funds needs to keep in mind the costs and benefits of raising finance and the period for which the finance is needed. Finance manager needs to mix balanced debt and equity source.

1. Long term Sources of Finance: Long –term funds are needed for a period above five years. These funds are invested on fixed assets like plant and machinery, land and building, furniture etc, which are the main requirements of a business concern.

Long –term sources of finances of company may be broadly categorized into two:

1. Ownership capital: Ownership capital is that capital raised from the owners of the company or the company raises finance by issue of ownership securities. The ownership capital is again divided into:
a) Share capital, b) retained earnings

2. Debt capital: Debt capital is the capital which is raised from outsiders of the company , they may be creditors public etc.



Types Of Security Financing:

A firm may raise the required capital from two sources:

1. Ownership Securities (Share Capital)

2. Creditorship Securities (Debt Capital)

Ownership Securities: Ownership Securities are those securities which were bought by owners of the company. i.e The person who buys these securities becomes the owner of the company . Hence these securities are referred to as ownership securities, also known as capital stock.

SHARE: A share is a small unit of capital of a company. In other words share capital of a company is divided into number of equal parts that is known as share. According to section 2(46) of the Companies Act, 1956, defines share as " A share is the share in the share capital of the company".

KINDS OF SHARE:

According to Companies Act, there are two types of shares--- Preference shares and Equity shares.

Equity Share capital

Equity means “Equal” . Equity share is a share that gives equal rights to holders. Equity shareholders have to share the reward and risk associated with ownership of the company. It is also known as Ordinary Share Capital. Equity shareholders are the owners of the company who have control over the working of the company. They are paid dividend at the rate recommended by the Board of Directors (BODs). The dividend rate depends on the profits, more profits more dividends and vice-versa. If there are no profits, no dividends will be payable. But some companies pay dividends even if the company has no profits to maintain dividend stability. The amount required to pay dividends will be transferred from the general reserve account. The equity shareholders take more risk when compared to preference shareholders.

Features of Equity Shares:

The following are the features of Equity Shares:

1. Permanent Capital: An equity source is the main long –term or permanent source of finance. They can be redeemed or refunded only at the time of liquidation that too the residue left after meeting all the obligations. In other words there is no agreement between the equity shareholder and company regarding the refund of capital.

2. Residual Claim to income: Equity shareholders have a residual claim to the income of a company. Residual claim means income leftover after paying all outsider claims. The residual income is also known as earnings available to equity shareholders, which is equal to the profit after tax minus preference dividend. But the total residual income may or may not be paid as dividends, since the BODs have the right to decide the portion of earnings available to the shareholders that will be paid as dividends.

3. Residual Claim to Assets: Equity shareholders have a residual claim on the firms assets. In the event of liquidation of a firm , the assets are used first to settle the claims of outside creditors and preference shareholders , if anything is left that is equity shareholder’s residue.

4. Voting rights: Equity shareholders as the real owners of the company, have voting rights, in appointing Directors and Auditors of the company, participate and vote in annual general meeting, which helps to control the company. BODs have the control power because the major decisions are taken by BODs.

5. Pre- emptive Right: Equity shareholders have pre-emptive right, which means they have a legal right to buy new issues, before offering to the public. Section 81 of the Companies Act, 1956, puts the company under the legal compulsion to offer new shares to the existing

shareholders before offering to the public. Pre-emptive right is the option given to the shareholders to buy a specified number of shares at a given price.

6. limited liability: This is the prime feature of equity share. Although, equity shareholders are the owners of the company, their liability is limited to the extent to the investment in the shares.

Types of Equity Shares:

1. Sweat Equity Shares: The companies (Amendment) Act, 1999, has inserted a new section79A,that allows issue of Sweat Equity shares. Sweat equity share is defined as "equity shares issued at discount or for consideration other than cash for providing know-how or making available rights in the nature of intellectual property rights or value additions by whatever name called". Issue of sweat equity by listed company should be according to SEBI guidelines.

2. Par Value of shares: Unlike bonds, which always have a par value, equity stock may be sold with par value or without par value. Par value means the nominal value of a share in the Memorandum of Association established for legal purposes. The par value decided by promoters of first directors of company may be issued at par, at premium or at discount price to the public.

3. No- par value shares: These types of shares are without par value. In this arrangement, MOA specifies the number of shares and not the price. They will be issued to the public at the stated price decided by the BODs. Payment of dividend on these types of shares is in rupees per share.

In India Company law does not allow the Indian companies to issue no- par value of shares. But in America and Canada, no par value shares are more popular.

2. Preference Share Capital:

Preference share capital gives certain privileges to its holders on the equity shareholders. Preference shareholders have privileges in two ways:

a. A preferential privilege in payment of a fixed dividend. The fixed dividend may be in the form of fixed rate or fixed amount per share, and

b) Preferential right as to repayment of capital in case of liquidation or winding up of the company.

Preference share capital is a hybrid form of long term finance, since it has the features of equity and debentures. Preference share resembles equity in the following ways:

1. Preference dividends are payable only after tax profits (PAT),

2. Payment of preference dividend depends on the discretion of BODs.

3. Preference dividend is not a tax deductible payment.

4. Irredeemable preference shares are long term in nature.

Preference share resembles Debenture capital in the following ways:

1. It carries a fixed rate of dividend

2. It has prior claim on assets like debenture capital.

3. It normally does not have voting rights,

4. It is redeemable in nature.

5. It does not have right to share residual profits.

Sources of Internal Finance:

The Internal sources of finance are:

A. Retained Earnings: Retained are an important source of internal financing of well established companies. Retained earnings are the portion of earnings available to the equity shareholders, which are ploughed back in the company. In other words, a part of earnings available to equity shareholders that are retained for future investment. It is an accumulation of profits by a firm for financing developmental programmes.Hence the process of accumulating company profits regularly and their utilization in the business is known as retained earnings

Retained earnings may be used for expansion programs of the company, replacement of obsolete assets , modernization of plant and equipment , redemption of preference shares or debentures , loans etc.

Factors Influencing Retained Earnings:

1. Earnings capacity of a company: Ploughing back of profits arises only when the company has sufficient profits. Larger the earnings, larger the ploughing back of profits.

2. Type of dividend policy: Ploughing back of profits depends on the dividend policy of a firm. In other words, retained earnings depends on the dividend policy adopted by the top management with regard to distribution of earnings company which intended to retain more earnings , need to follow a conservative dividend policy. i.e. the shareholders who are dependent on regular income, expect more dividends i.e less retained earnings.

3. Taxation Policy of the Government: Earnings available to shareholders are the profits after taxes minus preference shareholder's dividend. When there is high tax rate , it leads to less profits after tax and less retained earnings and vice-versa.

4. Profitable Investment Opportunities: A firm has more profitable investment opportunities wants to retain profits for financing of that investment and vice-versa.

5. Other Factors: Apart from other factors, the following will also affect retained earnings:

a. Top management attitude and philosophy,'

b. Custom of the industry.

c. Economic and social environment of the country.

d. Industry life cycle.

CREDITORSHIP SECURITIES:

Creditorship securities are those securities which are raised to creditors for raising finance. Such securities are debentures or Bonds. The amount raised to issue debentures/bonds is known as debt capital. Debenture and Bond Capital is one of the cheapest sources of long term finance. A debenture or bonds are an acknowledgement given by the firm for having received a sum as debt.

Debenture and bond are issued by a corporate concern to raise long term capital, but there is difference between them. The term bond refers to a security that is secured by tangible assets of a corporate and debentures are not secured.

Debentures: The term debenture is derived from the Latin word 'Debere' which means to be a debtor. Companies Act ,1956, defines debenture as including debenture stock , bonds and other security of a company, whether constituting a charge on the assets of the company or not" . In other words "debenture is an instrument issued by the company under its common seal acknowledging a debt and setting forth the terms under which they are issued and are to be paid". A person who buys debentures is the debenture holder and creditor of the company. Debenture can be priced in the same manner as a share.

Features of Debentures:

1. Fixed rate of Interest: In general debentures are issued at a fixed rate of interest, but they may also be issued at a floating rate of interest or at zero rate of interest. The rate of interest is on the face value of the debentures that will be paid out annually or semi- annually. The interest payable on debentures is tax deductible.

2. Maturity: The debenture capital is the cheapest source of long term finance, but it should be repaid after a specific period. The period for which the debentures are issued or the period after which the debenture capital is repaid is known as maturity period. The maturity period may vary from 1 to 20years. in India non- convertible debentures are redeemed after 7-10 years.

3. Redemption: Debentures can be repaid either in installment –wise or lump sum. If it is repaid in one lump sum , it can be done by creation of debenture redemption reserve . It is compulsory for all debentures whose maturity period exceeds 18months the company should create debenture redemption reserve(DRR)

4. Call and Put option: Debenture may have "call" option, which gives the right to buy to issuing company at a certain price before the maturity period. The buyback price may be more than the face value of debenture generally 5%, which is known as premium on redemption. Debenture may also have "put" option which gives the right to the debenture holder to seek redemption at specified times and at predecided price.

5. Debenture Indenture: A debenture indenture is a legal document, which specifies the rights of both the issuing company and debenture holder. The debenture indenture includes descriptions of the amount and timing of the interest and principal amount payments. The indenture gives the responsibility to the trustee to protect the interest of the debenture holders by fulfilling all the stated descriptions.

6. Security interest: Debenture may be either secured or unsecured. In india most of the debenture are secured debentures. A secured debenture is a debenture which is secured by a charge on the company's immovable assets and a floating charge on other assets.

7. Convertibility: Companies can also issue convertible debentures. It is the debenture that is convertible into equity shares at the option of the debenture holder. The conversion ratio and the period during which conversion can be affected are specified at the time of issue of debentures.

Distinction between Equity Share and Debenture

Points	Equity share	Debentures
Nature of security	Ownership security	Creditorship security
Form of return	Dividend	Interest
Rate of return	Not fixed	Fixed
Refund of principal amount	May be refunded at the time of liquidation	Refunded at the end of maturity
Voting rights	Have voting rights	No voting rights
Exemption of return from tax	Not exempted from tax(dividend is paid after payment of tax	Exempted from tax(interest is paid before payment of tax)

Claim on assets and income	Equity holder does not have claim on assets and income	Debenture holders have claim on assets and income.

Source of Term Loan:

Apart from equity shares , preference shares, retained earnings and debentures, there is another source of finance that is term loans. The term of loan may be medium –term and long term . Medium term loans are the loans raised for the period ranging from one to five years and long term loans are raided for a period above five yearsshort term loans can be raised from commercial banks and medium and long term loans can be raised from specialized financial institution.

Term loans are sources of long term debt. Generally, they are raised for long –term investments like expansion, modernization and diversification. This long term financing is also known as project financing.

Features of Term Loans:

1. Currency: Term loans can be either domestic or in foreign currency. In India many financial institutions give rupee loans as well as foreign currency loans, but majority loans are in the form of domestic currency.

2. Maturity: There are two types of financial institutions that provide term loans , they are special financial institutions and commercial banks. The maturity period of loans granted by financial institutes range between 6-10years, whereas commercial bank advances maturity period range between 3-5years.

3. Negotiated: The term loans are the result of negotiations between the loan applicant and the lenders. The negotiations may be on the interest and principal amount payment etc. Hence the term loans are private placements.

4. Security: Term loans are 100% secured loans. Here the security is the assets which is financed by the term loans. They are known as prime security. Other present and future assets of the company serve as the collateral security.

5. Restrictive covenants: Restrictive covenants are the conditions imposed by the lender to protect his/her interest .in other words the lender dictates what the borrower should do and should not do in managing the operations of the company.

Chapter- 3 Capital structure and Firm Value

Capital Structure: A business can raise long – term finance in the form of two principle sources, they are (i) Equity and (ii) Debt. Business can raise the total capital required by opting equity source or debt source or both. The term capital structure refers to the mix of equity and debt. Capital structure indicates the following equation:

Capital Structure = Long term debt + preferred stock + Net worth

OR

Capital Structure =Total Assets – Currents Assets.

Optimum Capital structure

The level of debt equity proportion where market value of share is maximum and cost of capital is minimum.

Features:

- Profitability
- Solvency
- Flexibility
- Conservatism
- Control

Determinants of Capital structure

- Financial leverege or trading on equity
- Flexibility
- Control
- Growth and stability of sales
- Cost of capital
- Debt servicing ability
- Nature and size of firm
- Requirement of investors

- Cost of floatation
- Asset structure
- Corporate tax rate
- Period of finance
- Purpose of finance
- Legal requirements

Capital Structure Theories

There are different views on how the capital structure influences value of the firm. Some argued that other things being equal increase in financial leverage (debt) increases value of the firm.(Relevant Theory), some other opinion that there is no relationship between capital structure and value of the firm (Irrelevant Theory) and some other believe that use of debt in capital structure has positive effect on value of the firm upto a certain level and have negative effect thereafter (Neutral Theory).

The total capital structure theories may be divided into relevant and irrelevant theories.

The following are the main theories / Approaches of capital structure.

1. Net income theory Approach (Relevant)

2. Net operating income Approach (Irrelevant)

3. Modigliani and Miller Approach (Irrelevant)

4. Traditional Approach (Neutral)

ASSUMPTIONS OF CAPITAL STRUCTURE THEORIES.

To study the relationship between capital structures (use of debt) and value of the firm , the following assumptions are generally made.

(i) Firm uses only two sources of funds perceptual riskless debt and equity.
(ii) There are no corporate income or personal tax.
(iii) The dividend payout ratio is 100% (There are no retained earnings).
(iv) The firms total assets are given and do not change(Investment decision is assumed to be constant).
(v) The fims total financing remains constant.(Total capital is same , but proportion of debt and equity may be changed).
(vi) The firms operating profit are not expected to grow.

(vii) The business risk is remained constant and is independent of capital structure and financial risk.

(viii) All investors have the same subject probability distribution of the expected EBIT for the given firm.

(ix) The firm has perceptual life.

NET INCOME APPROACH

This approach has been developed by Durand . It is a relevant theory. According to this approach , capital structure decision is relevant to the valuation of the firm . In other words , a change in debt proportion in capital structure will lead to a corresponding change in cost of capital as well as total value of firm. When there is increase in value of the firm , the market value of equity share price will also increase.

Assumptions:

Net income approach is based on the following assumptions:

(i) There are no corporate taxes

(ii) Cost of debt is less than the cost of equity

(iii) Use of debt in capital structure does not change the risk perception of investors

(iv) Cost of debt and cost of equity remains constant.

Problem No 1:

Sai Ltd company expects operating profit (EBIT) of Rs 100000 . The company has raised 12 % debentures of Rs 300000. The company's equity cost is 13 % . Determine value of the firm and cost of capital.

EBIT	100000
Less : debentures (300000 x 12%)	36000
Net Income	64000

Value of the firm

Market value of equity (NI / Ke) = 492307.69

64000/0.13

Add: Market value of debt = 300000

= 792307.69

Calculation of cost of capital .

Ke = (EBIT / V)100

= (100000 / 792307.69)100

= 12.62%

NET OPERATING INCOME (NOI) APPROACH.

This is another approach, which has been suggested by Durand .it is just opposite to the net income approach. According to this approach the capital structure decisions of a firm is irrelevant. It says that any change in debt proportion in capital structure (leverage) will not lead to any change in the total value of the capital. They are independent of the financial leverage.

ASSUMPTIONS:

NOI approach is based on the following assumptions

(i) Overall Cost of capital remains unchanged for all degrees of leverage.
(ii) The market capitalizes the total value of the firm as a whole and no importance is given for split of value of firm between debt and equity.
(iii) The market value of equity is residue.(i.e total value of firm minus market value of debt).
(iv) The use of debt funds increases the received risk of equity investors.
(v) Cost of debt remains constant.
(vi) There are no corporate taxes.

Problem 2

ABC Co.Ltd expects an operating income of Rs 100000. The company has 12% debt of Rs 300000. The company's overall cost of capital is 13%. Calculate the total value of the firm and the equity capitalization rate.

Solution:

Value of the Firm = EBIT/Ke

= 100000/0.13

=769230.77

Market value of equity = V – D

= 769230.77- 300000

=469230.77

Cost of equity / Equity capitalization rate (ke)

$$Ke = \frac{EBIT - I}{V - D}$$

$$= \frac{10000 - 36000}{469230.77} \times 100$$

= 13.64%

MODIGLIANI – MILLER APPROACH (MM HYPOTHESIS)

This approach was developed by Professor Franco Modigliani and Mertan Miller . in their classic contribution on capital structure which has been called the most influential finance article ever written in economics.

MM Approach is identical to the NOI approach. In other words the total value of the firm is independent of its capital structure. However there is a basic difference between NOI and MM approach. The NOI approach is purely definitional, which does not provide operational justification for irrelevance of the capital structure in the valuation of the firm. On the other hand, MM approaches supports the NOI approach in behavioral justification for the independence of the cost of capital and value of the firm at any level of degree of leverage.

Assumptions:

MM approach is based on the following assumptions

Perfect Capital market is a capital market where,

- Information is available at free of cost
- The same information is available for all investors
- Securities are indefinitely divisible
- Investors are free to buy or sell securities
- There is no transaction cost
- There are no bankruptcy cost

ARBITRAGE PROCESS

The term arbitrage refers to an act of buying an asset or security in one market at lower price and selling it in another market at higher price. As a result of such action (buying and selling) equilibrium is restored in market price of asset or security in different markets. Arbitrage process exists where the price of security or asset is unequal in the markets. The arbitrage process involves purchase of assets or security whose prices are lower(undervalued securities) and sale of assets or securities whose prices are higher in market where prices are equilibrium . Arbitrage process is a balancing operation.

Problems 3

Two firms A and B are identical in all respects except leverage in capital structure. A ltd has 10% Rs 300000debentures. Both the firms have same EBIT of Rs 50000. The equity capitalization rate of A Ltd is 16% and B Ltd is 12.5%.You are required to calculate the total value of the each firm , and show arbitrage process assuming and investor holds 10% of the outstanding shares of the A Ltd.(Levered firm).

Solution:

Calculation of the Value of the firm

Particulars	A Ltd	B Ltd
EBIT	50000	50000
Less : Interest on debentures. 300000 x 10%	30000	-
Net Income	20000	50000
Value of the firm :		
Market value of equity = NI / Ke	125000	400000
Market value of debt	300000	-
Value of the firm	425000	400000

The above table indicates that A Ltd value is higher than the B Ltd's value due to use of leverage in capital structure.

Arbitrage Process: In the problem there is a need to show the arbitrage process, so there is a need to use three steps.

Step1
Investors current position in A Ltd with 10% investment:

- Investment on equity shares (125000x 10%) = 12500
- Dividend Income (20000x10%) = 2000

Step 2
Investor position in Firm B Ltd with 10% investment (savings in investment)

-
- **Total Funds available**
  Own funds (By sale in A Ld) = 12500

ADD : Borrowed funds = 30000
(300000 x 10%) 42500

- **Investment with 10%**
  B Ltd value 400000
  Investment outlay is (400000x10%) = Rs40000
- Rs 40000 investment include Rs 30000 borrowed funds + Rs 10000 own funds
- Savings in investment = total funds available – investment in firm B Ltd
  = 42500 – 40000
  = Rs 2500

Step 3 Investor position in firm B ltd if total funds available invested (increase in dividend income calculation)

- Investment of total funds = Rs 42500
- Total income 50000 x 42500 = Rs 5312.5
  400000

Dividend Income = Total Income – Interest on personal borrowings
=5312.5- (30000 x10%)
=2312.5

Increase in dividend income is **Rs 312.5**

Therefore investor is benefitted by selling shares in firm A Ltd and buying shares at B Ltd by use of personnel leverage .

Limitations of MM Approach

As we have read in the above that arbitrage process provides operational justification to the MM approach . The arbitrage process depends on the perfect capital market assumptions. But all the assumptions are not realistic , so arbitrage process become only theoretical approach.

- **Investor inability to borrow funds on same restrictions on the conditions and terms as corporate can:** General Financial institution put additional terms and conditions for the individual investors .hence, it may not be possible to raise funds on the same terms and conditions as firms can.
- **Personal leverage is not substitute for corporate leverage:** MM approach assumes that personal leverage is perfect substitute for corporate leverage. The perceived risk exposure in corporate leverage is less when compared to personal leverage because the

liability of an investor is limited to the proportionate shareholdings in case the company is forced to liquidation, on the other hand the risk is unlimited in personal leverage, and his /her personal assets are liable to use for payment of borrowed funds.

- **Existence of transaction costs:** Investor cannot buy and sell securities at free of cost. There exists transaction cost .the effect of existence of transaction costs, made investor to realize less amount than the actual market value. It will lead to invest a large amount in order to earn same return.
- **Institutional Restrictions:**Institutional restrictions does not allow the smooth operation of arbitrage process. Generally institutional investors eg, insurance companies, mutual funds, commercial banks etc are not allowed to raise personal leverage .Hence , for this type of institutional investors it will not possible to switch from leverage to unlevered and vise versa.

TRDITIONAL APPROACH

This Traditional approach was given by Soloman. In the preceding approaches of capital structure we have discussed that the Net Income approach and Net Operating Income (NOI) approaches represent two extreme views with regard to the relation between leverage (use of debt) and value of the firms, and cost of capital. According to NI approach , use of debt in capital structure affects both cost of capital and total value of firm , on the other hand NOI approach suggest that the use of debt in capital structure is irrelevant to the value of the firm and cost of capital. Another approach given by MM supports the NOI approach , but validity of MM approach is doubtful due to the imperfect assumptions.

Traditional approach is a mid way between the NI and NOI approaches. It is also known as "Intermediate Approach". Traditional approach partly takes some feature of Ni approach and NOI approach.

Chapter 4 DIVIDEND POLICY AND FIRM VALUE

Dividend is "that part of profit distributed among share holders which includes normal rate of interest plus a return for the risk assumed".

A firms dividend policy affects both the long term financing and the wealth of the shareholders.

Forms of Dividend:

- Cash Dividend: Most companies pay the dividends in cash sometimes cash dividend may be supplemented by a stock dividend A company should have enough cash in its bank account when cash dividends are declared. The cash account and the reserves account of a company will be reduced when cash dividend is paid.

- Stock Dividend: A Stock dividend represents a distribution of shares in lieu of or in addition to the cash dividend to the existing share holders in proportion to the no of shares held by them. This has the effect of increasing the number of outstanding shares of the company

Dividend Decisions:

Dividend decision is one of the decisions of financial management. It decides the proportion of equity earnings to be paid to equity shareholders by way of dividends and the remaining proportion of net earnings are retained in the firm for reinvestment purpose. In terms of proportion of net earning that are distributed as dividends to equity shareholders, financial manager must keep in mind that the firms objective is to maximize shareholders wealth. Therefore dividend payout ratio should be based on the majority of investors preferences for dividends or capital gains. Payment of dividend has two opposing effects

- It increases dividend there by stock price rise and
- It reduces the funds available for investment,which will reduce the expected growth rate, there by stock prices declines. Therefore , the firms optimal dividend policy must strike a balance between current dividends and retained earnings.

Occasion in which scrip dividend is declared

- There are sufficient earnings but cash position is weak – in such cases, the dividends can be declared but payment can be made only on a future date.
- When the company follows a regular dividend policy without immediate realisation or payment of the dividend in cash.
- When the company is unable to go for stock dividend since it has a low or normal eps for the payment of dividend.

Bond Dividend:Here the company issues its own bonds to the share holders carrying a specified rate of interest equal to the dividend due to them. This is almost similar to the scrip dividend except that here the postponement of the dividend is for a long period of time and hence for this long period, they offer interest the maturity of the scrip is lower than the maturity of the bond.

This is also declared when the co has sufficient earnings but a weak liquidity position.

Property Dividend**:**Here the co pays the dividend in the form of assets or properties and not in the form of cash or credit instruments. The assets or properties include:-

- Goods manufactured
- Goods in excess
- Goods which are low useless to the co.

Dividend Policy:

Refers to the guidelines for the declaration and management of dividend and retained earnings of the company.

"it refers to the attitude of the management concerning how much of the profit should be distributed as dividend, and when and how it shall be distributed". The mgmt should decide all these within the framework specified.

Determinants of dividend policy:

- **Payout ratio**: determines the percentage of profits to be distributed as dividend and what % to be kept as retained earnings. Payout ratio can be kept at high normal or low basis. In high payout ratio, major portion is declared as dividend and only a less amount is kept as reserves and vice versa if a low payout ratio is maintained. if our payout ratio is normal earnings are equally distributed as dividend and reserve of the shareholders prefer instant

earnings, then a high payout is fixed and if the share holders prefer a maximisation wealth, a lower payout ratio is fixed.

- **Stability of dividend:-** Dividend policy of a company may be:
- Constant fixed DPS in this policy the same amount of declared for all the years and changes in earnings do not affect the amount of dividends.
- Constant dividend payout ratio: here the portion of earnings declared as dividend will be the same. Dividend per share varies in direct proportion with the EPS.
- Constant dividend per share and extra dividend: the company declares constant dividend per year every year plus extra dividend for earnings beyond a certain prefixed limit.
- No Immediate Dividend: here the actual payment of dividend of any year can be postponed to a future date by the issue of scrip or bond dividend.
- Regular stock dividend: Here stock dividend is declared instead of cash dividend.
- Irregular dividend: this case, the company is not having a regular dividend policy and dividend may vary from year to year.

- **Relevance Theories:**
  According to this relevance theory dividend decision affects value of a firm. Thus it is called as relevance theory. The advocates of this theory include Myron Gordon, John Lintner, James Walter and Richardson. According to them, dividend decidion will affect value of firm as well as stock price. High dividend payout ratio increases value of a firm, on the other hand low dividend payout ratio decreases firm value. Because payment of dividend is a positive information to investors about firm profitability. Therefore a firm which is interested to maximize shareholders wealth has to declare high dividend payout ratio.
  There are two prime theories tat opinion dividends has positive impact on value of firm is Walters model and Gordon's Model.

Walter's Model

James E Walter has proposed a model of share valuation that supports that the view dividend policy of an enterprise has a bearing on value enterprise. The model is based on

- Return on investment or internal rate of return and
- Cost of capital or rate of return.
  An enterprise optimal dividend policy is determined based on the relationship between internal rate of return and cost of capital.

Assumptions :

Walter's model is based on the following assumptions:

All profitable investments are financed through retained earnings .(Internal Financing) i.e external sources of funds like debt or fresh equity capital are not issued.

1. The firms return on investment and cost of capital are constant.
2. All earning are either distributed as dividends or reinvested internally immediately
3. The firm has infinite life.

Walter has given the following formula for determing the market price or value of a share:

$$P = \frac{D + \frac{R}{K_0}(E - D)}{K_o}$$

Where
P= price per equity share
D= Dividends per share
E= Earnings per share
R= rate of return
Ko= cost of capital

Problem 1
ABC Ltd has capitalization rate is 10% . It earnings per share is Rs 20. The Co. declares Rs 10 as dividends you are required to calculate share price assuming 20% returns on investment.

Solution:

$$P = \frac{D + \frac{R}{K_0}(E - D)}{K_o}$$

$$= \frac{\text{Rs } 10 + \frac{0.20}{0.10}(\text{Rs } 20 - \text{Rs } 10)}{0.10}$$

= Rs 300

GORDONS'S MODEL
This is another popular model which argue that dividends are relevant , and dividend decision of a firm affects its value. It was proposed by Gordon Myron . According to

this model a firm's share price is dependent on dividend payout ratio. This model uses stock valuation using dividend capitalization approach.
Assumptions

Gordon's Model is based on the following assumptions:

- The firm is an all equity firm and it has no debt,
- All investment projects are financed by exclusively retained earnings .in other words no external financing is available.
- The rate of return on firms investment is constant.
- The cost of capital of the firm remains constant and it is greater than growth rate.
- There are no corporate taxes.

Gordon's Market value share is determined by the following formula.

$$P=\frac{E(1-B)}{Ko- b.r}$$

Where ,
P= price per share
E = earnings per share
B = retention ratio
Ko= capitalization rate
R= rate of return

Problem no 2
A firm has given the following information and requested you to determine share price
Earnings per share = Rs 10
Retention ratio= 40%
Capitalization ratio = 15%
Return on investment = 14%

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

$$= \frac{Rs\ 10(1-0.4)}{0.15- 0.056}$$

= Rs 63.83

Irrelevance Theory:

Miller and Modigliani (MM) are the principle proponents of the dividend irrelevance theory. They maintain that dividend policy has no effect on the market price of share and the value of the firm. Value of firm is determined by its basic earning power and its business risk. In other words , they argued that the value of the firm depends solely on its earning power and is not influenced by the manner in which it splits its earning between dividends and retained earnings.

Assumptions:

MM hypothesis is based on the following assumptions:

- There are no taxes , and there no differences in tax rates applicable to capital gains and dividend.
- A firm has fixed investment policy
- There is no risk, since uncertainty does not exist. In other words , investors are able to forecast future price a shares and dividends with certainty and one discount rate is appropriate for all of securities at all times.

MM have proved their argument in the following way
Firm value when dividends paid

- Market price of share at the end of period 1: The market price per share in the beginning of the period is equal to the present value of dividends paid at the end of the period plus market price of share at the end of the period

$$P1 = Po\,(1+k) - D1$$

(1) Amount required to be raised from outside by issue of new shares:

$$\Delta nP1 = I - (E - nD1)$$

$$=$$

(3) No. of additional shares to be issued

$$\Delta n = \frac{\Delta nP1}{P1}$$

(2) Value of the firm

$$Np0 = \frac{(n+\Delta n)P1-I+E}{1+Ke}$$

Where ,

Po = Market price per share at period 0.
D1 = Dividend per share at the end of period 1
P1 = market price per share at the end of period 1
K= discount rate applicable to the risk less to which the firm belongs to (cost of equity capital).

Problem No 3:
ABC Co. Ltd belongs to a risk class for which the approximate capitalization rate is 10% . It currently has an outstanding 30000 shares, which are selling in market at Rs 80.the company is expecting a net income of Rs 400000 and it has a profitable investment(project)proposed that costs Rs 600000.the company is interesting to declare a dividend of Rs 4 per share at the end of financial year. Show that under MM hypothesis the payment of dividend does not affect the value of the firm.

(A) Value of company when dividends are paid:

(i) Calculation of share price at the end of year 1.

P1 = Po (1+Ke)- D1
= Rs80(1+0.10)-Rs4
= Rs 80(1.10) -4
= Rs 84

(ii) Amount required to be raised from outside by issue of new shares:

Δ nP1= Rs 600000 - (Rs 400000 - (30000x4)
= Rs 320000

(iii) No. of additional shares to be issued

$$\Delta n = \frac{\Delta nP1}{}$$

$$= \frac{P1}{320000}$$
$$84$$
$$= 3809.52$$

(iv) Value of firm:

$$nPo = \frac{(n+\Delta n)\, p1 - I + E}{1+ Ke}$$

$$= \frac{(30000 +3809.52)\, 84 - 600000 +400000}{(1+ 0.10)}$$

$$= \frac{2640000}{1.10}$$

$$= 2400000$$

(B) Value of Firm at the end of year 1

(i) Price per share at the end of year 1

$$\text{Rs } 80 = \frac{P1}{1.10}$$

$$= \text{Rs } 88$$

(ii) Amount required to be raised by issue of shares

$$\Delta np1 = (600000-400000)$$

$$= \text{Rs } 200000$$

(iii) No. of new shares to be issued

$$= \frac{200000}{88}$$

$$= 2272.7272$$

(iv) Value of the firm

$$= \frac{(30000 + 2272.7272)\ \text{Rs } 88 - 600000 + 400000}{1+0.10}$$

$$= 2400000$$

Chapter 5COST OF CAPITAL

Cost of capital is defined as the minimum rate of return that a company must earn in order to keep its value in tact. It is also called hurdle rate .Its is denoted by K0.it is the weighted average cost of various sources of finance used by a firm. The capital used by the firm may be in the form of debt ,preference capital equity capital and retained earnings. A decision to invest in a firm depends on the cost of capital of a firm.

Significance of cost of capital:

1. Useful in capital budgeting decisions

2.Determination of capital structure decisions

3.Evaluating financial performance.

4. Taking financial decisions.

Cost of capital is divided into the following:

a. Cost of debt(kd)

b. Cost of preference(kp)

c .Cost of retained earnings (kr)

d. Cost of equity(ke)

1.Cost of debt: It is the amount to be compensated to the money lender by considering the opportunity cost.costof debt in turn is divided into cost of short term debt and cost of long term debt.Cost of long term debt can be further divided into cost of irredeemable and cost of redeemable debt.

a.***cost of short term debt***= **R (1-t)**

where R=rate of interest

t= Tax rate

b.***cost of irredeemable debt*** =**I/S(1-t)(after tax)**

where I= amount of interest

S= issue price after adjusting premium,discount and floatation cost if any

T= tax rate.

c.***cost of redeemable debt*****=[I(1-t)+(r-s)/n]/(r+s)/2(after tax)**

wherei= amount of interest

t=tax rate

s= issue price

r= redemption price

n= no of years

- **For before tax (1-t)must be ignored in both the formulae.**

2. Cost of preference: It is s a function of dividend expected by its investors. cost of preference can be divided into cost of redeemable and cost of irredeemable preference.

a.cost of irredeemable preference=**D/S**

where D= amount of dividend

S= issue price after adjusting premium, discount and floatation costs if any.

b.cost of redeemable preference**=[D+(r-s)/n](r+s)/2**

where D= amount of dividend

r= redemption price

s= issue price

n= number of years.

3.Cost of retained earnings: This is defined as the opportunity cost of dividend foregone by the share holders.

Kr=**ke(1-t)(1-b)**

Where ke=cost of equity

T=tax rate

B= brockerage.

4.Cost of equity It is the minimam rate of return that a company must earn in order to keep the market value of the shares unchanged.There are different approaches to calculate ke namely

1.dividend price approach

2.dividend growth approach

3.Earnings yield approach.

1.Dividend price approach:According to this approach,ke is defined as the discount rate that equates the present value of expected future dividend per share with the net proceeds or market price of a share.

Ke=**D/NP (fresh issue) or D/MP(existing issue)**

w here D= dividend per share

NP=net proceeds per share

MP=market price per share.

2.Dividend price and growth approach When the dividend of a firm are expected to grow ata constant rate and the dividend pay out ratio is also constant,this method may be used to compute the cost of equity capital.

Ke**=[D/NP]+G(fresh issue) or [D/MP]+G(existing issue)**

Where D=D0(1+G)

Where D= expected dividend/future dividend

D0= current dividend

G= growth rate.

3.Earnings yield approach:According to this method,ke is the discount ate that equates the present value of expected future earnings per share with the net proceeds or market price of a share.

Ke= **EPS/NP (fresh issue) or EPS/MP(existing issue)**

EPS=earnings per share

NP= net proceeds

MP= market price

WEIGHTED AVERAGE COST OF CAPITAL(WACC): This is also known as overall cost of capital or composite cost of capital. It is the aggregate of cost of individual sources of finance.By calculating the weighted average of the individual sources,the overall cot of capital can be computed.The weights may be given using book values or market values.It is denoted by ko.

Ko=**sum of XW/sum of W**

Q: Sushmita ltd has the following capital structure :

Equity shares(20000 share) 40,00,000

10% preference shares 10,00,000

14% debentures 30,00,000

The shares of the company sells for Rs.20.It is expected that the company will pay a dividend of Rs.2 per share next year which will grow at a rate of 7%.Tax rate is 50%.

a. Compute the weighted average cost of capital

SOLUTION:

For the existing capital structure:

Ke=[D/ MP]+G

=[2/20]+0.07

=0.17 or 17%

Kd=I/S(1-t)

I= 30,00.000*14%=4,20,000

S=30,00,000

t= 0.5

=4,20,000/30,00,000(1-0.5)

=0.07 0r 7%

Kp=D/NP

D=10,00,000*10%=1,00,000

NP=10,00,000

=100000/10,00,000

=0.1 or 10%.

Sources	Amount	W	Cost(X)	WX
Equity	40,00,000	0.5	0.17	0.085
Prefererence	10,00,000	0.125	0.1	0.0125
Debentures	30,00,000	0.375	0.07	0.02625

WACC=Total of WX/Total of W

= 0.1235/1

= 0.1235 or 12.35%

CHAPTER 6 – WORKING CAPITAL MANAGEMENT

Working capital

Introduction

Working Capital Management is concerned with the problems that arise in attempting to manage the Current Assets, the Current Liabilities and the inter-relationship that exists between them. The term Current Assets refers to those Assets which in the ordinary course of business can be, or will be, converted into Cash within one year without undergoing a diminution in value and without disrupting the operations of the firm. The Major Current Assets are Cash, Marketable Securities, Accounts Receivables and Inventory.
Current Liabilities are those Liabilities, which are intended at their inception, to be paid in the ordinary course of business, within a year out of the current assets or the earnings of the concern .The basic Current Liabilities are Accounts Payable, Bills Payable, Bank Overdraft and outstanding expense.*The goal of Working* Capital Management is to manage the firm's Assets and Liabilities in such a way that a satisfactory level of working capital is maintained. This is so because if the firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy.

Working capital = Current assets – Current liabilities

Concept of working capital

Working capital may be regarded as lifeblood of a business. Its effective provision can do much to ensure the success of a business, while its inefficient management can lead not only to loss of profits but also to the ultimate downfall of a promising concern. The cost increased by organization due to wrong planning of working capital is immeasurable. A study of working capital is of major importance to internal and external analysis because of its close relationship with the current day-to-day operations of a business.

Definition

“Working capital is the difference between the inflow and outflow of funds. In other words, it is the net cash flow. It is defined as the excess of current assets over current liabilities and provision”.

Scope of working capital

The field of working capital comprising of capital management, inventory management, receivable, cash and work in progress system. Analysis of financial performance with

reference to working capital with the help of tables, ratios and graphs and suggestions for improving working capital procedures and capacity utilization system of the firm.

Need for working capital

The need for working capital or current assets cannot be over emphasized. Given the objectives of financial decision making to maximize the shareholder's wealth, it is necessary to generate sufficient profits. The extent to which profits can be earned will naturally depend, among other things, upon the magnitude of the sales. A successful sales programmer is in other words, necessary for earning profits by any business enterprise. However, sales do not convert into cash instantly; there is invariably a time lag between the sale of goods and the receipt of cash. There is, therefore, a need for working capital in the form of current assets to deal with the problem arising out of the lack of immediate realization of cash against goods sold. Therefore, sufficient working capital is necessary to sustain sales activity.

Different types of working capital

- **Gross working capital**: Gross working capital is the amount of funds invested in the various components of current assts.
- **Net working capital**: The net working capital is the difference between current assets and current liabilities. The concept of net working capital enables a firm to determine how much amount is left for operational requirements.
- **Negative working capital**: Negative working capital emerges when current liabilities exceed current assets. Such situation is not absolutely theoretical, and occurs when a firm is nearing a crisis of some magnitude.
- **Permanent working capital**: Permanent working capital is that amount of capital which must be in cash or current assets for continuing the activities of business. It also shows the minimum amount of all current assets that is required at all times to ensure a minimum level of uninterrupted business operations.
- **Variable working capital:** Sometime, it may possible that we have to pay fixed liabilities, at that time we need working capital which is more than permanent working capital, then this excess amount will be temporary working capital. In normal working of business, we don't need such capital.

Factors affecting working capital or Determinants of working capital

- **Nature of business:** The working capital requirements of an enterprise basically depend upon the nature of its business. A trading concern, for instance, requires large amount of working capital for investment in stocks, receivables and cash etc. It requires less investment in fixed assets. A business where the proportion of cost of raw material to be consumed to total cost of production is high, the amount of working capital required is large, shipbuilding for instance.

- **Size of the business:** The amount of working capital needed depends upon the scale of operation of the business. The larger the size of the business unit, generally the larger is the requirement of working capital and vice versa.

- **Production cycle:**The term production cycle refers to the time involved in the manufacture of goods. It covers the time span between the procurement of the raw materials and the completion of the manufacturing process leading to the production of goods. The longer the time span of production cycle, the larger will be the funds tied up and therefore the larger the working capital needed and vice versa.

- **Seasonality of Operation:** Firms which have marked seasonality in their operations usually have highly fluctuating working capital requirement. For example, consider firm manufacturing air conditioners. The sale of air conditioners reaches the peak during summer months and drops sharply during winter season. The working capital need of such a firm is likely to increase considerably in summer months and decrease significantly during winter period. On the other hand , a firm manufacturing consumer goods like soaps , oil , tooth pastes etc. which have fairly even sale round the year , tends to have a stable working capital need.

- **Business cycle:**Business cycles affect the requirement of working capital. At times, when the prices are going up and boom conditions prevail, the tendency is to pile up a large stock of materials and to maintain a large stock of finished goods with an expectation to earn more profits. The other type of business cycle, i.e. depression involves in locking up of a big amount in working capital as the inventories remain unsold and book debts uncollected.

- **Production policy**: A firm marked by pronounced seasonal fluctuation in its sale may pursue a production policy which may reduce the sharp variations in working capital requirements. For example a manufacturer of air conditioners may maintain steady production throughout the year rather than intensify the production activity during the

peak business season. Such decision may dampen the fluctuations in working capital requirements.

- **Credit policy:**The level of the working capital is also determined by the credit policy, as the firm's credit policy determines the amount of receivables. If the firm has a liberal credit policy, then the firm needs high working capital and the firm needs low working capital if the company's credit policy does not allow it to extend credit to the buyers.

- **Growth and expansion of business**: Growing concerns require more working capital than those which are static. It is logical to expect larger amount of working capital in a growing concern to meet its growing needs of funds for its expansion and/or diversification programmers though it varies with economic conditions and corporate practices.

- **Profit Appropriation**: Some firms enjoy dominant position in the market due to quality product or good marketing. On the other hand, a firm facing extremely tough competition may earn low margins of profits. A high net profit margin contributes towards working capital provided it is earned in cash. The working capital requirement will be estimated on how the cash available is used rightfully. The contribution towards working capital is affected by the way in which profits are appropriated and therefore it is affected by taxation, depreciation, reserve policy, etc.

- **Dividend policy**: There is a well-established relationship between dividend and working capital in companies where conservative dividend policy is followed. The changes in working capital position bring about an adjustment in the dividend policy.

- **Price level changes**: The financial manager should also anticipate the effect of price level changes on working capital requirements of the firm. Generally, rising price levels will require higher amount of working capital since to maintain the same level of current assets, higher investment will be required. The effects of rising price levels will be different for different firms depending upon their price policies, nature of the product, ability to pass on the increase to the customer, etc

- **Operation efficiency**: The operating efficiency of the management is also important determinants of the level of working capital. A firm enjoying operating efficiency can eliminate wastage and use its resources efficiently and thereby reduce its working capital needs considerably.

- **Operating cycle:** operating cycle refers to the length of time necessary to complete the following cycle of events:

    - Conversion of cash into inventory.

    - Conversion of inventory into receivables.

- Conversion of receivables into cash.

  If the operating cycle is lengthy then the working capital requirement will be more and vice versa.

- **Market Conditions:** When competition is keen, larger inventory of finished goods is required to promptly serve the customers who may not be inclined to wait because other manufacturers are ready to meet their needs. Further generous credit terms may have to be offered to attract customers in highly competitive market. Thus, working capital needs tend to be high because of greater investment in finished goods inventory and accounts receivable.
  If the market is strong and competition is weak, a firm can manage with smaller inventory of finished goods because customers can be served with delay.

- **Conditions of Supply**: The inventory of raw material, spares and stores depends on the conditions of supply. If supply is prompt and adequate, the firm can manage with small inventories. However if the supply is unpredictable and scant then the firm , to ensure continuity of production , would have to acquire stocks as and when they are available and carry large inventories on an average . A similar policy may have to be followed when the raw material is available only seasonally and production operations are carried out round the year.

Advantage of adequate working capital

Adequate Working capital is very essential to maintain the smooth running of the business. No business can run successfully without an adequate amount of working capital.

- **Solvency of the business:** Adequate working capital helps in maintaining the solvency of the business by providing uninterrupted of production.

- **Goodwill:** Sufficient amount of working capital enables a firm to make prompt payments and maintain the goodwill.

- **Easy loan:** Adequate working capital leads to high solvency and credit standing can arrange loans from banks and other on easy and favorable terms.

- **Cash discount:** Adequate working capital also enables a concern to avail cash discounts on the purchases and hence reduces cost.

- **Regular supply of material:** Sufficient working capital ensures regular supply of raw material and continuous production.

- **Regular payment of salaries and other day to day commitments:**

It leads to the satisfaction of the employees and raises the morale of its employees, increases their efficiency, reduces wastage and costs and enhances production and profits.

- **Exploitation of favorable market condition:** If a firm is having adequate working capital then it can exploit the favorable market conditions such as purchasing its requirements in bulk when the prices are lower and holdings its inventories for higher prices.
- **Ability to face crises**: A concern can face the situation during the depression.
- **Quick and regular return on investments**: Sufficient working capital enables a concern to pay quick and regular of dividends to its investors and gains confidence of the investors and can raise more funds in future.
- **High morale**: Adequate working capital brings an environment of securities, confidence, high morale which results in overall efficiency in a business.

Disadvantage of inadequate working capital

Inadequate amount of working capital may create a lot of financial problems in business. Sometimes, inadequate working capital may be the major causes for closing down the business organization. Due to shortage of working capital, raw materials cannot be purchased on time and payment of labor and other expenses cannot be made on time. The disadvantages suffered by a firm with insufficient working capital are as follows:

1. The firm is unable to take advantages of new opportunities or adapt to change.
2. Trade discounts are lost. A firm with sufficient working capital is able to finance larger stocks and can therefore place large orders.
3. Cash discounts are lost.
4. Some firms will try to persuade their debtors to pay early.
5. The advantages of being able to offer a credit line to customers are forgone.
6. Financial reputation is lost due to non-payment of trade creditors on time.

Disadvantage of excessive working capital

1. Excessive working capital means ideal funds which earn no profit for the firm and business cannot earn the required rate of return on its investments.

2. Redundant working capital leads to unnecessary purchasing and accumulation of inventories. Thus chances of inventory mishandling, waste, theft and losses increase.

3. Excessive working capital implies excessive debtors and defective credit policy which causes higher incidence of bad debts.

4. It may reduce the overall efficiency of the business.

5. If a firm is having excessive working capital then the relations with banks and other financial institution may not be maintained.

6. Due to lower rate of return n investments, the values of shares may also fall.

7. The redundant working capital gives rise to speculative transactions

Working capital management

Introduction

Decisions relating to working capital and short term financing are referred to as working capital management. These involve managing the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses.

Definition

The process of managing activities and processes related to working capital. This level of management serves as a check and balances system to ensure that the amount of cash flowing into the business is enough to sustain the company's operations. This is an ongoing process that must be evaluated using the current level of assets and liabilities. Working capital management may involve implementing short-term decisions that may or may not carry over from one earnings period to the next.

Objective of working capital management

Working capital management involves the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash.

Principles of working capital management

- **Principle of risk variation**: Risk here refers to the inability of a firm to maintain sufficient current assets to pay for its obligation. If working capital is varied relative to sales, the amount of risk that a firm assumes is also varied, and the opportunity for gain or loss is increased. As a firm assumes more risk, the opportunity for gain or loss increases. As the level of working capital relative to sales decreases, the degree of risk increases.

- **Principle of cost of capital:** This principle emphasizes the different sources of finance, for each source has a different cost of capital. It should be remembered that the cost of capital moves inversely with risk. Thus, additional risk capital results in the decline in the cost of capital.

- **Principal of Equity Position**: according to this principle, the amount of working capital invested in component should be adequately justified by a firm's equity position. Every rupee invested in the working capital should contribute to the new worth of the firm.

- **Principle of Maturity of Payment:** A company should make every effort to relate maturities of payment to its flow of internally generated fund. There should be the least disparity between the maturities of a firm

Sources of working capital

- **Loans from financial institutions**: The option is normally ruled out because financial institutions do not provide finance for working capital requirements. Further, this facility is not available to all companies, for small companies, this option is not practical.

- **Floating on debentures:** The probability of a successful floatation of debentures seems to be rather meager. In the Indian capital market, floating of debenture has still to gain popularity. Debenture issue of companies in private sector not associated with certain reputed and well-known groups generally fail to attract investors to invest their funds in companies.

- **Accepting public deposits:** The next alternative is public deposits. The issue of tapping public deposits ids directly related to the image of the company seeking to invite public deposits. But the problem of low profitability in many industries is very common.

- **Issue of shares**: With a view to financing additional working capital needs, issue of additional shares could be one way to raise the equity base. Indian company find themselves in a bad shape in this context too. Low profit margin as well as lack of knowledge about the company makes the success of a capital issue very dim.

- **Raising funds by internal financing:** Raising equity by operational profits poses problems for many companies, because prices of their end products are controlled and do not permit companies to earn profits sufficient to pay reasonable dividend and retain profits to cover margin money requirements to finance additional working assets.

Components of working capital

The interaction between current assets and current liabilities is therefore the main theme of the theory of working capital management. The term current assets refers to these assets which in the ordinary course of business can be or will be turned into cash within one year without undergoing a diminution in value and without disrupting the operating of the firm. The major components are

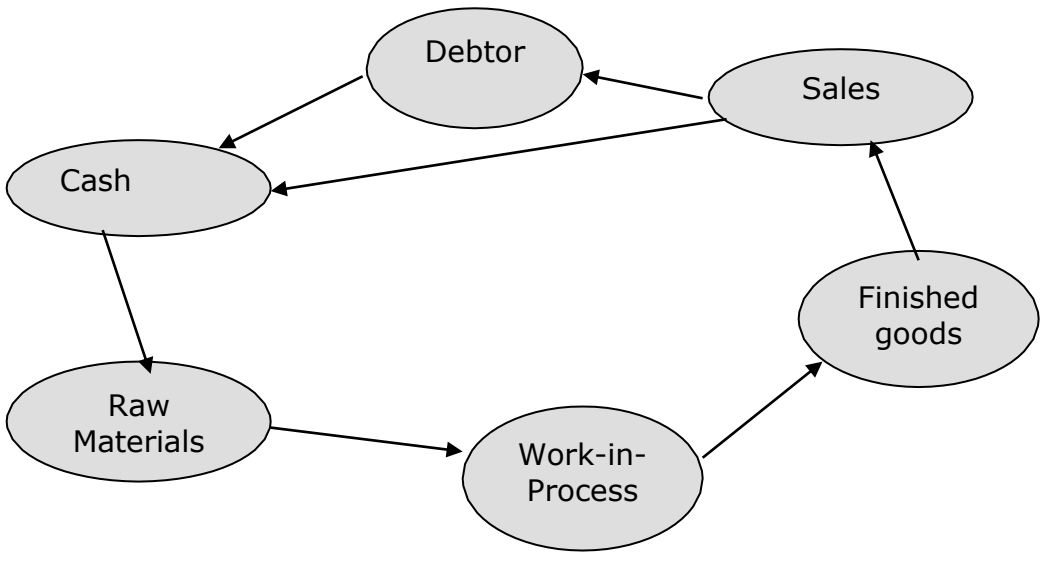
- Current Assets

- Current Liabilities

Current assets	**Current liabilities**
Cash in hand and Bank balance	Bank Overdraft
Bills Receivable	Bills Payable or Account Payable
Sundry Debtors	Sundry Creditors
Short term Loans and Advances	Short term Loans, Advances and Deposits
Temporary Investments of Surplus Funds	Dividends Payable
Prepaid Expenses	Provision for Taxation
Accrued Incomes	Accrued or Outstanding Expenses
Inventories of Stock as: Raw Materials Work in Process Stores and Spaces Finished Goods	

Operating cycle

Operating cycle is the time that elapses in conversion of raw materials into cash



Important formula and format

Statement of working capital estimation

Particulars	*Amount (Rs.)*	*Amount (Rs.)*
A. Estimation of Current Assets:	XXX	
i) Raw materials	XXX	
ii) Work-in-process	XXX	
Raw materials (full cost) XX	XXX	
Direct labour (to the extent of completed stage) XX	XXX	
Overheads (to the extent of completed stage) XX		
iii) Finished goods inventory		
iv) Debtors		
v). Cash balance required		
Total Current Assets		**XXX**
B. Estimation of Current Liabilities:	XXX	
i) Creditors		
ii) Expenses	XXX	
Overheads XX		
Labour XX		
Total Current Liabilities		XXX
C. Working Capital (A-B)		XXX
Add: Contingency (Percentage on working capital i.e. C)		XXX
D. Working Capital Required		XXXX

Components of working capital management

1	INVENTORY MANAGEMENT
2	CASH MANAGEMENT
3	RECEIVABLES MANAGEMENT

Inventory management

Meaning: Inventory management is one of the components of working capital management. It refers to stock, raw material, components, spares or working progress maintained in an organization to have continuous production and sales. More than 60% of the working capital will be normally being invested in the inventory. Hence, management of inventory has gained considerable recognition in the subject of financial management.

Objects of inventory management

- To provide continuous supply of raw materials to carry out uninterrupted production.
- To reduce the wastage and to avoid loss of pilferage, breakage and deterioration.
- To exploit the opportunities available and to reduce the cost of purchase.
- To introduce scientific inventory management technique.
- To provide right material at right time, from right sources and at right prices.
- To meet the demand for goods of ultimate consumers on time.
- To avoid excess and inadequate storing of material.

Tools or Techniques of inventory management

- **Fixation of levels:** It is a tool through which the inventories are maintained by fixing different levels namely; Maximum level, Re-order level, Minimum level and Danger level. Fixation levels are made by considering different factors viz., nature of raw material, cost, availability, lead time, storage space and cost etc.
- **Maximum level:** It is a level set for materials beyond which it should not be stored. Materials stored beyond maximum level create several financial and managerial problems to the firm.

Maximum stock level = Re-order level + Re-ordering quality – (Minimum consumption x Minimum Re-order Period)

- **Re-order level**: Re-order is that level fixed for the materials to indicate the urgency of procuring them from the market. Once the material reaches this level, stores controller places his request to purchase the materials. So that he can maintain storage items to maximum level.

  Re-order level = Maximum consumption x Maximum Re-order period

- **Minimum level:** it is level at which stores controller takes immediate action in procuring of materials. Any negligence on the part of the in-charge of stores may lead to stoppage of production.

  Minimum stock level = Re-order level – (Normal consumption x Normal Re-order period)

- **Danger level:** it is the level beyond which storage of material should not fall. It also indicates the necessity to arrange for quick purchase of materials.

  Danger level = Average consumption x Maximum Re-order period for emergency purchases

- **ABC analysis:** under this method, classifications are being made by grading the materials as AB and C. Grade A materials are costly high in value but less in number and are supervised and controller closely. Grade C materials are cheap in value but more in quality and least attention are given. Grade B materials are moderate in value and moderate number of such items are maintained with moderate control.

- **Economic order quantity**: is that quantity of materials to be ordered where it will have minimum order placing and carrying cost. Carrying cost refers to the cost of capital, cost of storage, insurance cost and cost of spoilage.

- **Perpetual inventory system:** it is also referred as continuous stock checking. Under this system, different registers are maintained for materials, entries are made as and when the materials are received and issued. The physical verification of materials is conducted throughout the year. Hence it is identified as a costly technique of inventory control.

- **VED analysis:** it is the most suitable method for automobile industries specially to maintain spare parts. All the parts are classified into

  - **Vital:** for manufacturing of a product will be closely monitored.

  - **Essential**: materials that are essential, but its level of stocks is moderately low.

- **Desirable**: components may or may not be maintained.

- **FSN analysis:** under this method, materials are grouped according to the movements.
    - **Fast moving items:** are stored in large quantity and a close watch on the movement of such items is kept.
    - **Slow moving items**: are not frequently needed by the production department hence moderate supervision will be maintained.
    - **Nonmoving items:** are rarely required by the production department. Hence a small stock is kept with less importance.

- **Periodical inventory valuation**: under this method inventory valuation with checking will be carried out at different intervals, generally twice or thrice in a year. During this period of checking normal functioning of the organization will be closed for one or two days and complete stock valuation will be done.

Economic order quantity (EOQ)

EOQ: The inventory control tool that determines optimum order at which inventory cost is minimum.

Assumptions:

- Demand for the product is constant and uniform throughout the period.
- Lead time (time from ordering to receipt) is constant.
- Price per unit of product is constant.
- Inventory holding cost is based on average inventory.
- Ordering costs are constant, and
- All demand for the product will be satisfied (no back orders are allowed).

  EOQ = $\sqrt{2AO/CC}$

  Where: A = Annual usage

  O = Ordering cost per order

  CC = Annual carrying cost per unit

  CC = Price per unit x Carrying cost per unit in percentage

- The above simple formula will not be sufficient to determine EOQ when more complex cost equations are involved.

Cash management

Meaning: Cash is the most liquid asset that a business owns. In includes money, cheque, money orders and bank drafts. Cash management means ensuring that the cash held by a concern is neither excessive nor inadequate, but sufficient for meeting its requirement. In short it means planning and control of cash.

Objectives of cash management

- **To make cash payments:** objective of holding is to meet the various types of expenditure to be incurred in the business operations. The firm should remain liquid to meet the obligations.
- **To maintain minimum cash reserve**: in the process of meeting obligations on time, the firm should not unnecessarily maintain heavy cash reserves. Excess cash balance should be made productive.

Motives of holding cash

1. **Transaction motive** – for the day to day transactions relating to purchases, payment, expenses, dividend etc.
2. **Precautionary motive** – for meeting unforeseen contingencies.
3. **Speculative motive-** for investing in profitable opportunities as and when they arise.

Importance of cash management

Cash management assumes more importance than other current assets because cash is the most significant and the least productive asset that the firm holds. It is significant because it is used to pay firm obligations. However, cash is unproductive and as such, the aim of cash management is to maintain adequate cash position to keep the firm sufficiently liquid to use excess cash in some profitable way. Management of cash is also important because it is difficult to predict cash flows accurately and that there is no perfect coincidence between inflow and outflows of cash.

Cash budget

Cash budget is an estimate of cash receipts and disbursements during a future period of time. It precedes various budgets like materials budgets and research and development budget.
"The cash budget is an analysis of flow of cash in a business over a future, short or long period of time. It is a forecast of expected cash intake and outlay".

Illustration 2

From the following, prepare a cash budget for the months January to April.

Months	Sales	Purchases	Wages	Manf. Expenses	Adm. Expenses	Selling expense
Nov	30,000	15,000	3000	1150	1060	500
Dec	35,000	20,000	3200	1225	1040	550
Jan	25,000	15,000	2500	990	1100	600
Feb	30,000	20,000	3000	1050	1150	620
Mar	35,000	22,500	2400	1100	1220	570
Apr	40,000	25,000	2600	1200	1180	710

Additional information

1. Credit allowed to customer is 2 months.
2. Dividend of 10,000 is paid in April
3. A plant is purchased on 15th of January for 5000. A building is purchased on 1st of March and the payments are to be made in monthly installments of Rs. 2000
4. Creditors are allowing a credit of 2 months.
5. Wages to be paid on the 1st of next month.
6. Lag in payment of other expenses is 1 month.
7. Cash in hand on 1st January is 15,000.

Solution

Cash budget				
Details	**Jan**	**Feb**	**Mar**	**Apr**
Opening balance	15,000	18,985	28,795	30,975
Cash Rec from debtors	30,000	35,000	25,000	30,000
TOTAL	**45,000**	**53,985**	**53,795**	**60,975**
Payment to creditors	15,000	20,000	15,000	20,000
Wages	3,200	2,500	3,000	2,400
Manf. Exp	1,225	990	1050	1100
Adm. Expenses	1040	1100	1150	1220
Selling expenses	550	600	620	570
Payment of dividend				10,000
Purchase of plant	5000			
Installment of building			2000	2000
TOTAL	**26,015**	**25,190**	**22,820**	**37,290**
Closing balance	**18,985**	**28,795**	**30,975**	**23,685**

Receivables management

Meaning of receivables: Receivables represent amounts owed to the firm as a result of sale of goods or services in the ordinary course of business. These are claims against its customers and form part of its current assets. Receivables are also known as account receivables, trade receivables, customer receivables or book debts. The receivables are carried for the customers. The period of credit and extent of receivables depends upon the credit policy followed by the firm. The purpose of maintaining or investing in receivables is to meet competition, and to increase the sales and profits.

Account receivable management

Account receivable is a permanent investment and is an above rolling account. The finance manager has to determine the level of this account suitably so that there will be easy flow of working capital. All this, viz, maintenance of debtors at optimum level, the degree of credit, sales to be made, making the debtors turn fast, involves, the "account receivable management".

Determinants of account receivables.

- **Credit Sales Volumes:** In order to increase the profit and push sales, many firms will have "Credit Sales". Higher the volume of credit sales, higher will be accounts receivable. The level of credit sales will also be determined by the custom that exists in that business. If the business needs the credit sales to push the product, it becomes inevitable that the firm has to adopt credit policy on a large scale.

- **Credit Policies:** Another important factor which determines the volume of "Accounts Receivable" is credit policy of the firm. By "Credit policy" we mean the policy adopted to extend credit sales which include (1) The time period allowed to collect the debts, (2) The types of discounts allowed. (3) The assessment of customer's creditworthiness, (4) Collections policy etc. The credit policy varies also with the changes in the economy.
- **Business Terms:** The volume of accounts receivable also depends on the terms and conditions relating to credit sales. These conditions include
    - The time period allowed to pay back the purchase price
    - The types of discounts allowed.

    Time Period: The time period allowed to clear the trade debt by the customers determines the volume of accounts receivable. Longer the period allowed, higher will be the credit sales and rise in size of the accounts receivable.

Discount: There are three categories of discounts allowed by the traders to customers, viz..,

- Trade discount,
- Cash discount, and
- Quantity discount.

- **Competition:** Another factor which governs the size of the accounts receivable is competition. It a firm is having a competitive environment, it will have liberal credit policy arid this increases the size to the accounts receivable. They compete with the object of pushing sales and easy credit terms become inevitable. When the firms severely compete, the credit policy will be so liberal that all and sundry purchase the products on credit.

- **Location:** Location of business unit also contributes for the size of accounts receivable. If the business firms are located in far off places, they are forced to adopt a credit policy which attracts the customer. If the product is exclusive, location will not be a problem and customer development will be good.
- **New Products:** When the new products are introduced, the firm has to extend the liberal credit policy till such time the product catches the market and even afterwards the policy has to continue to maintain customers. This naturally increases the size of accounts receivable.

Questions

2 marks:

1. What is working capital?
2. What is Gross/Net Working Capital?
3. Mention the Components of working Capital?
4. What is EOQ?
5. What is ABC analysis?
6. What is VED analysis?
7. What is cash/inventory/receivables Management?(any one can be asked)

8/15 Marks:

1. Determinants of Working Capital
2. Objectives of cash/inventory/receivable management(any one can be asked)
3. Techniques/tools/methods of inventory control
4. Importance of cash/inventory/receivable management(any one can be asked)
5. Motives of holding Cash
6. Benefits of adequate Working capital
7. Dangers of inadequate working capital
8. Disadvantages of excess working capital.