saransh

Last Mile Referencer for

FINANCIAL MANAGEMENT

The Institute of Chartered Accountants of India

(Setup by an Act of Parliament)

Board of Studies (Academic)

Saransh - Last Mile Referencer for Financial Management

PREFACE

BOS (Academic), the student wing of the Institute, does not leave any stone unturned in providing best-in-class services to its students. It imparts quality academic education through its value added study materials, wherein concepts are explained in lucid language. Illustrations and Test Your Knowledge Questions contained therein facilitate enhanced understanding and application of concepts learnt. Booklet on MCQs & Case Scenarios contain a rich bank of MCQs and Case Scenarios to hone the analytical skills of students, by applying the concepts learnt in problem solving. Revision Test Papers contain updates and Q & A to help students update themselves with the latest developments before each examination and revise the concepts and provisions by solving questions contained therein. Suggested Answers containing the ideal manner of answering questions set at examination also helps students revise for the forthcoming examination. Mock Test Papers help students assess their level of preparedness before each examination. BoS (Academic) also conducts live virtual classes through eminent faculty for its students across the length and breadth of the country.

To reach out to its students, the BoS (Academic) has also been publishing subject-specific capsules in its monthly Students' Journal "The Chartered Accountant Student" since the year 2017 for facilitating effective revision of concepts dealt with in different topics of each subject at the Foundation, Intermediate and Final levels of the chartered accountancy course. Each issue of the journal includes a capsule relating to specific topic(s) in one subject at each of the three levels. In these capsules, the concepts and provisions are presented in attractive colours in the form of tables, diagrams and flow charts for facilitating easy retention and quick revision of topics.

The BoS (Academic) is now coming out with a comprehensive booklet "Saransh-Last Mile Referencer for Financial Management" wherein the significant concepts dealt with across topics Financial Management are captured by way of diagrams, flow charts and tables. To sustain and grow their financial standing, organisation across the world essentially required managers who are competent in various domains of finance. One of the fundamental domains of finance, financial management deals with the function relating to how much and which assets are to be acquired, how to raise capital to acquire the assets and what is to be done to maximize the shareholder's wealth. Financial management comprises the processes of planning and controlling subsystems of funds.

A study in financial management will help the students to understand the functions of financial managers, providing with an overview of broad issues and problems that financial managers face in various commercial domains of our economy. This subject introduces various concepts and theories relating to finance, which are fundamental to the methodologies and proficiencies offered as aids to understand, identify and solve the problems of financial managers. Study of financial management will help the Chartered Accountancy students to develop an acumen, so as to grow competencies in financing decision, investment decision, dividend decision and working capital management. This booklet, thus, consolidate all significant Financial Management at one place, thus, capturing the key points in these subjects. This would help the reader grasp the essence of the subject as a whole and would also serve as a ready reckoner.

Happy Reading!

Message of Key ICAI Office Bearers

CA. Aniket S. Talati
President, ICAI

In order to equip students with a robust foundation of knowledge, skills, and professional values, the Board of Studies (Academic) has been actively engaged in various initiatives to cater to their learning requirements. In continuation to the earlier publications, namely, Accounting, Auditing & Cost Management and Strategic Decision Making in this series of **Saransh — Last Mile Referencer**, publications for these subjects, Financial Management, Strategic Management and Company Law have been added. It presents a concise summary of essential concepts from each chapter, which not only serves as a handy guide for students but also assists Members in their professional pursuits.

CA. Ranjeet Kumar Agarwal
Vice President, ICAI

ICAI consistently strives to provide exceptional educational content that empowers students in their pursuit of goals. **Saransh — Last Mile Referencer** is a meticulously crafted compilation of booklets, each dedicated to a specific subject of the Chartered Accountancy Course. These concise capsules serve as a valuable tool for revision of concepts before examinations in each subject. Whether you are a CA student or a Member, this series of booklets will serve as a referencer.

CA. Vishal Doshi
Chairman, Board of Studies (Academic)

We are thrilled to introduce the next round of **Saransh — Last Mile Referencer**, an invaluable resource for students aspiring to embark on the esteemed path of becoming a Chartered Accountant. These booklets encapsulate the vital topics of the CA curriculum across Intermediate, and Final levels. Presented in a condensed format, they effectively convey the concepts and provisions through tables, diagrams, and flow charts, making them an indispensable tool for anyone pursuing a career in this field.

CA. Dayaniwas Sharma
Vice-Chairman, Board of Studies (Academic)

For years, the Board has served as the guiding force and mentor to countless aspiring CA students, offering support in meeting their evolving learning needs. The **Saransh — Last Mile Referencer** booklets are an exciting addition to our esteemed collection of insightful books. These invaluable referencers provide indispensable guidance for students pursuing the Chartered Accountancy Course. The booklets in concise form will foster active learning and strengthening students' comprehension and confidence in the subjects.

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Financial Management

SCOPE AND OBJECTIVES OF FINANCIAL MANAGEMENT

Chapter Overview

FINANCIAL MANAGEMENT

Scope and Objectives of Financial Management

Role and functions of Chief Finance Officer (CFO)

Profit Maximisation *vis-a vis* Wealth Maximisation

Relations of Financial Management with other disciplines of accounting

Meaning of Financial Management

Financial management comprises the forecasting, planning, organizing, directing, co-ordinating and controlling of all activities relating to acquisition and application of the financial resources of an undertaking in keeping with its financial objective.

Two Basic Aspects of Financial Management

There are two basic aspects of financial management viz., procurement of funds and an effective use of these funds to achieve business objectives.

Procurement of funds

Aspects of Financial Management

Utilization of Funds
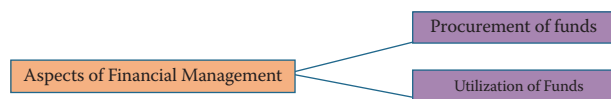
Finance functions/ finance decision

Value of a firm will depend on various finance functions/decisions. It can be expressed as

V = f (I,F,D).

The finance functions are divided into long term and short term functions/decisions

Investment Decisions (I)

Long term Finance Function Decisions

Dividend Decisions(D)

Financing Decisions (F)
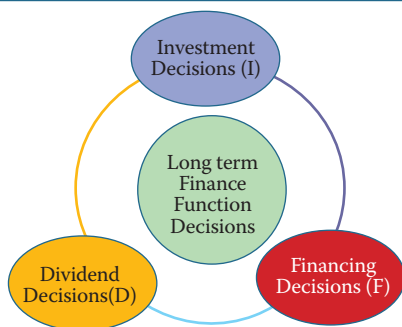
Short- term Finance Decisions/Function	Working capital Management (WCM)

Scope of Financial Management

Determination of size of the enterprise and determination of rate of growth.

Determining the composition of assets of the enterprise.

Determining the mix of enterprise's financing i.e., consideration of level of debt to equity, etc. and short term functions/decisions

Analysis, planning and control of financial affairs of the enterprise.

Procurement of Funds

Since funds can be obtained from different sources, therefore their procurement is always considered as a complex problem by business concerns. Some of the sources for funds for a business enterprise are:

Debentures and Bonds

Owner's Funds

Hire Purchases & Leasing

Commercial Banks (Short, Medium & Long)

Angel Financing

Venture Capital
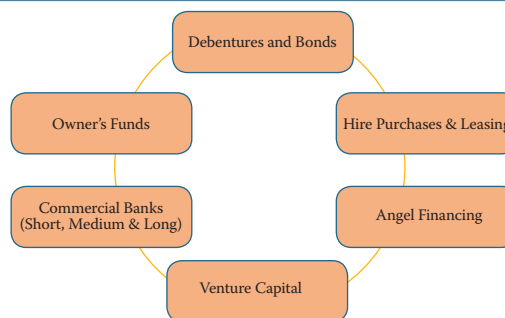
Effective Utilisation of Funds

The Finance Manager has to point out situations where the funds are being kept idle or where proper use of funds is not being made. All the funds are procured at a certain cost and after entailing a certain amount of risk.

Utilization for Fixed Assets

Utilization for Working Capital
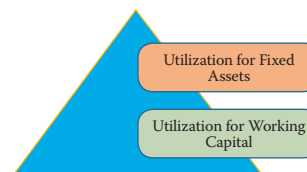
Evolution of Financial Management

The evolution of financial management is divided into three phases. Financial Management evolved as a separate field of study at the beginning of the century. The three stages of its evolution are

Stages of Evolution of Financial Management

| Traditional Phase | Transitional Phase | Modern Phase |

Objectives of Financial Management

Profit Maximisation

Wealth / Value maximisation

How do we measure the value/wealth of a firm?

Stockholders hire managers to run their firms for them......

Managers set aside their interest and maximise stock prices...

Stockholders wealth is maximised...

Firm value is maximised....

Societal wealth is maximised...

Value of a firm (V) = Number of Shares (N) × Market price of shares (MP)

Or

V = Value of equity (V_e) + Value of debt (V_d)

Three Important Decisions for Achievement of Wealth Maximisation

Investment Decisions

Financing Decisions

Dividend Decisions

Conflict between Profit versus Value maxi-misation Principle

As a normal tendency, the management may pursue its own personal goals (profit maximization). But in an organization where there is a significant outside participation (shareholding, lenders etc.), the management may not be able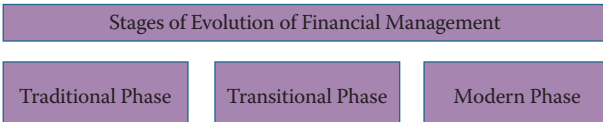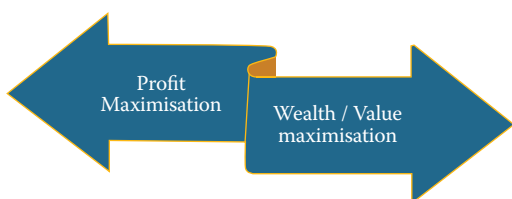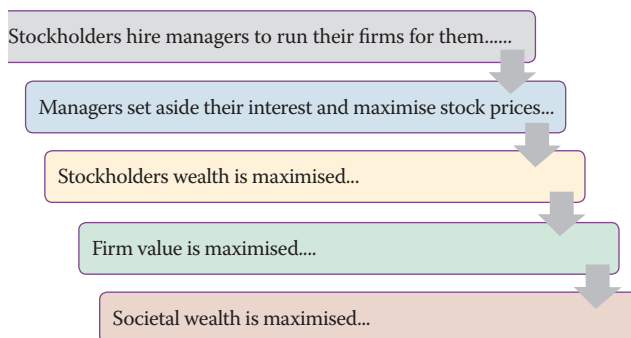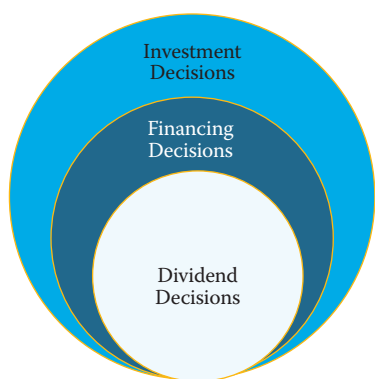 to exclusively pursue its personal goals due to the constant supervision of the various stakeholders of the company-employees, creditors, customers, government, etc.

The below table highlights some of the advantages and disadvantages of both profit maximisation and wealth maximization goals

Goal	Objective	Advantages	Disadvantages
Profit Maximization	Large amount of profits	(i) Easy to calculate profits (ii) Easy to determine the link between financial decisions and profits.	(i) Emphasizes the short term gains (ii) Ignores risk or uncertainty (iii) Ignores the timing of returns (iv) Requires immediate resources.
Shareholders Wealth Maximisation	Highest market value of shares	(i) Emphasizes the long term gains (ii) Recognises risk or uncertainty (iii) Recognises the timing of returns (iv) Considers shareholders' return.	(i) Offers no clear relationship between financial decisions and share price. (ii) Can lead to management anxiety and frustration.

Role of Finance executive in today's World vis-a-vis in the past

Today, the role of chief financial officer, or CFO, is no longer confined to accounting, financial reporting and risk management. Some of the key differences that highlight the changing role of a CFO are as follows

What a CFO used to do?	What a CFO now does?
Budgeting	Budgeting
Forecasting	Forecasting
Accounting	Managing M & As
Treasury (cash management)	Profitability analysis (for example, by customer or product)
Preparing internal financial reports for management.	Pricing analysis
Preparing quarterly, annual filings for investors.	Decisions about outsourcing
Tax filing	Overseeing the IT function.
Tracking accounts payable and accounts receivable.	Overseeing the HR function.
Travel and entertainment expense management.	Strategic planning (sometimes overseeing this function).
	Regulatory compliance.
	Risk management.

Relationship of financial management with related disciplines

Financial management is not a totally independent area. It draws heavily on related disciplines and areas of study namely economics, accounting, production, marketing and quantitative methods. Even though these disciplines are inter-related, there are key differences among them.

Financial Management and Accounting:	Treatment of Funds	In accounting, the measurement of funds is based on the accrual principle.
		The treatment of funds in financial management is based on cash flows.

	Decision – making	Chief focus of an accountant is to collect data and present the data.
		The financial manager's primary responsibility relates to financial planning, controlling and decision making.

Financial Management and Other Related Disciplines

Financial management also draws on other related disciplines such as marketing, production and quantitative methods apart from accounting. For instance, financial managers should consider the impact of new product development and promotion plans made in the marketing area since their plans will require capital outlays and have an impact on the projected cash flows.

TYPES OF FINANCING

Chapter Overview

Sources of Finance

Equity Share Capital	Preference Share Capital	Retained Earnings	Debentures/ Bonds	Loans from Financial Institution	Others
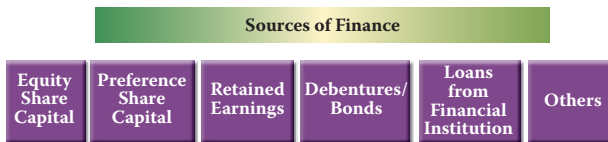
Classification of Financial Sources

There are mainly two ways of classifying various financial sources (i) Based on basic Sources (ii) Based on Maturity of repayment period

Sources of Finance based on Basic Sources

Based on basic sources of finance, types of financing can be classified as
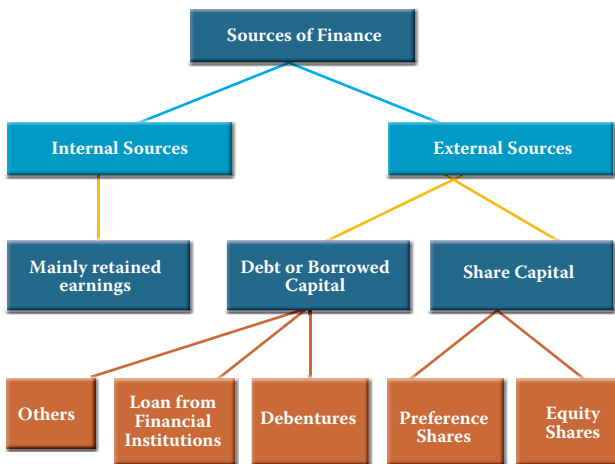
Sources of Finance based on Maturity of Payment

Sources of finance based on maturity of payment can be classified as

Sources of Finance

Long-term

1. Share capital or Equity shares
2. Preference shares
3. Retained earnings
4. Debentures/Bonds of different types
5. Loans from financial institutions
6. Loans from State Financial Corporations
7. Loans from commercial banks
8. Venture capital funding
9. Asset securitisation
10. International financing like Euro-issues, Foreign currency loans

Medium-term

1. Preference shares
2. Debentures/Bonds
3. Public deposits/fixed deposits for duration of three years
4. Medium term loans from Commercial banks, Financial Institutions, State Financial Corporations
5. Lease financing/Hire-Purchase financing
6. External commercial borrowings
7. Euro-issues
8. Foreign Currency bonds

Short-term

1. Trade credit
2. Accrued expenses and deferred income
3. Short term loans like Working Capital Loans from Commercial banks
4. Fixed deposits for a period of 1 year or less
5. Advances received from customers
6. Various short-term provisions

Owner's Capital or Equity Capital:

A public limited company may raise funds from promoters or from the investing public by way of owner's capital or equity capital by issuing ordinary equity shares.

Preference Share Capital:

These are a special kind of shares; the holders of such shares enjoy priority, both as regards to the payment of a fixed amount of dividend and also towards repayment of capital on winding up of the company.

Debt Securitisation:

> Securitization is a process in which illiquid assets are pooled into marketable securities that can be sold to investors. The process leads to the creation of financial instruments that represent ownership interest in, or are secured by a segregated income producing asset or pool of assets.

Lease Financing:

> Leasing is a general contract between the owner and user of the asset over a specified period of time. The asset is purchased initially by the lessor (leasing company) and thereafter leased to the user (lessee company) which pays a specified rent at periodical intervals.

Short term Sources of Finance:

> There are various sources available to meet short-term needs of finance. The different sources are as shown alongside.

Pie chart showing: Bank Advances, Trade Credit, Accrued Expenses & Deferred Income, Advances from Customers, Commercial Paper, Treasury Bills, Certificates of Deposit.

FINANCIAL ANALYSIS AND PLANNING - RATIO ANALYSIS

Chapter Overview

RATIO ANALYSIS

- Types of Ratio
  - * Liquidity Ratio/Short term Solvency Ratio
  - * Leverages Ratio/Long term Solvency Ratios
  - *Activity Ratio/Efficiency Ratios/Performance
  - *Profitability Ratios
- Application of Ratio Analysis in dicision making
- Relation of financial manegment with other disciplines of accounting.

Types of Ratios
- Liquidity Ratios*/ Short-term Solvency Ratios
- Leverage Ratios/ Long term Solvency Ratios
  - Capital Structure Ratios
  - Coverage Ratios
- Activity Ratios/ Efficiency Ratios/ Performance Ratios/ Turnover Ratios*
- Profitability Ratios
  - Related to Sales
  - Related to overall Return on Investment (Assets/ Capital Employed/ Equity)
  - Required for analysis from Owner's point of view
  - Related to Market/ Valuation/ Investors

Ratio and its Types

> Ratio analysis is a comparison of different numbers from the balance sheet, income statement, and cash flow statement against the figures of previous years, other companies, the industry, or even the economy in general for the purpose of financial analysis. Types of the Ratios is as given alongside.

Summary of Ratios

> Summary of the ratios has been tabulated as under:

Ratio	Formulae	Comments
Liquidity Ratio		
Current Ratio	$\dfrac{\text{Current Assets}}{\text{Current Liabilities}}$	A simple measure that estimates whether the business can pay short term debts. Ideal ratio is 2 : 1.
Quick Ratio	$\dfrac{\text{Quick Assets}}{\text{Current Liabilities}}$	It measures the ability to meet current debt immediately. Ideal ratio is 1 : 1.
Cash Ratio	$\dfrac{(\text{Cash and Bank Balances} + \text{Marketable Securities})}{\text{Current Liabilities}}$	It measures absolute liquidity of the business.

Basic Defense Interval Ratio	$$\frac{(\text{Cash and Bank Balances} + \text{Marketable Securities})}{\text{Operating Expenses} - \text{No. of days}}$$	It measures the ability of the business to meet regular cash expenditures.
Net Working Capital Ratio	Current Assets – Current Liabilities	It is a measure of cash flow to determine the ability of business to survive financial crisis.
Capital Structure Ratio		
Equity Ratio	$$\frac{\text{Shareholders' Equity}}{\text{Capital Employed}}$$	It indicates owner's fund in companies to total fund invested.
Debt Ratio	$$\frac{\text{Total Outside Liablilities}}{\text{Total Debt} + \text{Net Worth}}$$	It is an indicator of use of outside funds.
Debt to equity Ratio	$$\frac{\text{Total Outside Liabilities}}{\text{Shareholders' Equity}}$$	It indicates the composition of capital structure in terms of debt and equity.
Debt to Total assets Ratio	$$\frac{\text{Total Outside Liabilities}}{\text{Total Assets}}$$	It measures how much of total assets is financed by the debt.
Capital Gearing Ratio	$$\frac{(\text{Preference Share Capital} + \text{Debentures} + \text{Other Borrowed Funds})}{(\text{Equity Share Capital} + \text{Reserves \& Surplus} - \text{Losses})}$$	It shows the proportion of fixed interest bearing capital to equity shareholders' fund. It also signifies the advantage of financial leverage to the equity shareholder.
Proprietary Ratio	$$\frac{\text{Prorietary Fund}}{\text{Total Assets}}$$	It measures the proportion of total assets financed by shareholders.
Coverage Ratios		
Debt Service Coverage Ratio (DSCR)	$$\frac{\text{Earnings available for debt service}}{\text{Interest} + \text{Instalments}}$$	It measures the ability to meet the commitment of various debt services like interest, installment etc. Ideal ratio is 2:1.
Interest Coverage Ratio	$$\frac{\text{EBIT}}{\text{Interest}}$$	It measures the ability of the business to meet interest. Ideal ratio is > 1.
Preference Dividend Coverage Ratio	$$\frac{\text{Net Profit/Earning after taxes (EAT)}}{\text{Preference dividend liability}}$$	It measures the ability to pay the preference shareholders' dividend. Ideal ratio is > 1.
Fixed Charges Coverage Ratio	$$\frac{\text{EBIT} + \text{Depreciation}}{\text{Interest} + \dfrac{\text{Re-payment of loan}}{1 - \text{tax rate}}}$$	This ratio shows how many times the cash flow before interest and taxes covers all fixed financing charges. The ideal ratio is > 1.
Activity Ratio/ Efficiency Ratio/ Performance Ratio/ Turnover Ratio		
Total Asset Turnover Ratio	$$\frac{\text{Sales/COGS}}{\text{Average Total Assets}}$$	A measure of total asset utilisation. It helps to answer the question - What sales are being generated by each rupee's worth of assets invested in the business?
Fixed Assets Turnover Ratio	$$\frac{\text{Sales/COGS}}{\text{Fixed Assets}}$$	This ratio is about fixed asset capacity. A reducing sales or profit being generated from each rupee invested in fixed assets may indicate overcapacity or poorer-performing equipment.
Capital Turnover Ratio	$$\frac{\text{Sales/COGS}}{\text{Net Assets}}$$	This indicates the firm's ability to generate sales per rupee of long term investment.
Working Capital Turnover Ratio	$$\frac{\text{Sales/COGS}}{\text{Working Capital}}$$	It measures the efficiency of the firm to use working capital.
Inventory Turnover Ratio	$$\frac{\text{COGS/Sales}}{\text{Average Inventory}}$$	It measures the efficiency of the firm to manage its inventory.
Debtors Turnover Ratio	$$\frac{\text{Credit Sales}}{\text{Average Accounts Receivable}}$$	It measures the efficiency at which firm is managing its receivables.

Receivables (Debtors') Velocity	$\dfrac{\text{Average Accounts Receivable}}{\text{Average Daily Credit Sales}}$	It measures the velocity of collection of receivables.
Payables Turnover Ratio	$\dfrac{\text{Annual Net Credit Purchases}}{\text{Average Accounts Payables}}$	It measures the velocity of payables payment.

Profitability Ratios based on Sales		
Gross Profit Ratio	$\dfrac{\text{Gross Profit}}{\text{Sales}} \times 100$	This ratio tells us something about the business's ability consistently to control its production costs or to manage the margins it makes on products it buys and sells.
Net Profit Ratio	$\dfrac{\text{Net Profit}}{\text{Sales}} \times 100$	It measures the relationship between net profit and sales of the business.
Operating Profit Ratio	$\dfrac{\text{Operating Profit}}{\text{Sales}} \times 100$	It measures operating performance of business.

Expenses Ratio		
Cost of Goods Sold (COGS) Ratio	$\dfrac{\text{COGS}}{\text{Sales}} \times 100$	It measures portion of a particular expenses in comparison to sales.
Operating Expenses Ratio	$\dfrac{\text{Administrative exp.} + \text{Selling \& Distribution OH}}{\text{Sales}} \times 100$	
Operating Ratio	$\dfrac{\text{COGS + Operating Expenses}}{\text{Sales}} \times 100$	
Financial Expenses Ratio	$\dfrac{\text{Financial Expenses}}{\text{Sales}} \times 100$	

Profitability Ratios related to Overall Return on Assets/ Investments		
Return on Investment (ROI)	$\dfrac{\text{Return/ Profit / Earnings}}{\text{Investments}} \times 100$	It measures overall return of the business on investment/ equity funds/ capital employed/ assets.
Return on Assets (ROA)	$\dfrac{\text{Net Profit after taxes}}{\text{Average Total Assets}} \times 100$	It measures net profit per rupee of average total assets/ average tangible assets/ average fixed assets.
Return on Capital Employed ROCE (Pre-tax)	$\dfrac{\text{EBIT}}{\text{Capital Employed}} \times 100$	It measures overall earnings (either pre-tax or post tax) on total capital employed.

Users and Objective of Financial Analysis : A Bird's Eye view

Financial Statement analysis is useful to various shareholders to obtain the derived information about the firm.

S.No.	Users	Objectives	Ratios used in general
1.	Shareholders	Being owners of the organisation they are interested to know about profitability and growth of the organization	• Mainly Profitability Ratio [In particular Earning per share (EPS), Dividend per share (DPS), Price Earnings (P/E), Dividend Payout ratio (DP)]
2.	Investors	They are interested to know overall financial health of the organisation particularly future perspective of the organisations.	• Profitability Ratios • Capital structure Ratios • Solvency Ratios • Turnover Ratios
3.	Lenders	They will keep an eye on the safety perspective of their money lended to the organisation	• Coverage Ratios • Solvency Ratios • Turnover Ratios • Profitability Ratios

4.	Creditors	They are interested to know liability position of the organisation particularly in short term. Creditors would like to know whether the organisation will be able to pay the amount on due date.	• Liquidity Ratios • Short term solvency Ratios/ Liquidity Ratios
5.	Employees	They will be interested to know the overall financial wealth of the organisation and compare it with competitor company.	• Liquidity Ratios • Long terms solvency Ratios • Profitability Ratios • Return of investment
6.	Regulator / Government	They will analyse the financial statements to determine taxations and other details payable to the government.	Profitability Ratios
7.	Managers:-		
	(a) Production Managers	They are interested to know various data regarding input output, production quantities etc.	• Input output Ratio • Raw material consumption.
	(b) Sales Managers	Data related to quantities of sales for various years, other associated figures and produced future sales figure will be an area of interest for them.	• Turnover ratios (basically receivable turnover ratio) • Expenses Ratios
	(c) Financial Manager	They are interested to know various ratios for their future predictions of financial requirement.	• Profitability Ratios (particularly related to Return on investment) • Turnover ratios • Capital Structure Ratios
	Chief Executive/ General Manager	They will try to find the entire perspective of the company, starting from Sales, Finance, Inventory, Human resources, Production etc.	• All Ratios
8.	Different Industry		
	(a) Telecom		• Ratio related to 'call' • Revenue and expenses per customer
	(b) Bank	Finance Manager /Analyst will calculate ratios of their company and compare it with Industry norms.	• Loan to deposit Ratios • Operating expenses and income ratios
	(c) Hotel		• Room occupancy ratio • Bed occupancy Ratios
	(d) Transport		• Passenger -kilometre • Operating cost - per passenger kilometre.

COST OF CAPITAL

Points of Discussion
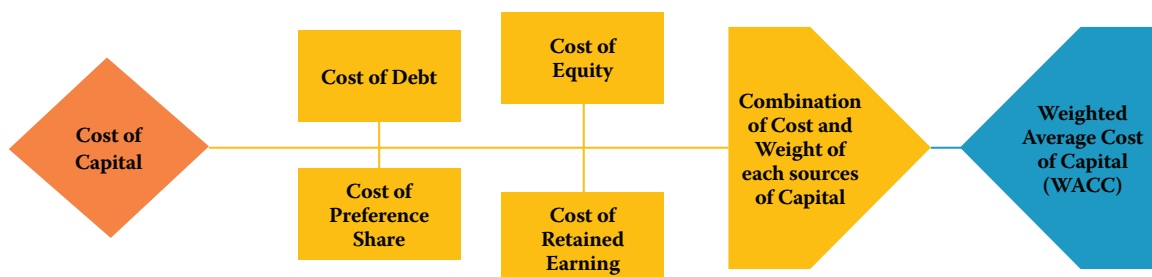
Meaning of Cost of Capital

Cost of Capital	• **Return expected by the providers of capital** (i.e. shareholders, lenders and the debt-holders)

Significance of Cost of Capital

- Evaluation of investment options
- Financing Decision
- Designing of optimum credit policy

Determination of Cost of Capital

Cost is **not** the amount which the **company plans to pay** or actually pays, **rather** it is the **expectation of stakeholders**

TO CALCULATE COST

Identify various cash flows

Like:
- **Inflow of amount received at the beginning.**
- **Outflow of payment of interest, dividend, redemption amount etc.**
- **Inflow of tax benefit on interest or Outflow of payment of dividend tax.**

THEREAFTER, use trial & error method to arrive at a rate where **present value of outflows** is **equal to present value of inflows** which is basically **IRR**.

Cost of LONG-TERM DEBT (K_d)

Long-term Debt	• Do **not confers ownership** to the providers of finance. • Debt providers do **not participate in the affairs** of the company. • They **get charge on the profit** before taxes in the form of interest

Cost of long term Debt
- Cost of Irredeemable Debt
- Cost of Redeemable Debt

"Every problem is a gift—without problems we would not grow."

- Anthony Robbins

Cost of Irredeemable Debentures

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

Where,

K_d	=	Cost of debt after tax
I	=	Annual interest payment
NP	=	Net proceeds of debentures* (new debentures) or Current market price (existing debentures)
t	=	Tax rate

*Net proceeds means issue price less issue expenses or floatation cost

Cost of Redeemable Debentures

Using Approximation method

$$^{\#}K_d = \frac{I(1-t)+\dfrac{(RV-NP)}{n}}{\dfrac{(RV+NP)}{2}}$$

Where,

I	=	Interest payment
NP	=	Net proceeds (new) or Current market price (existing)
RV	=	Redemption value of debentures
t	=	Tax rate applicable to the company
n	=	Remaining life of debentures

#This formula is used where only interest on debt is tax deductible. Sometime, debts are issued at discount and/ or redeemed at a premium. If such discount on issue and/ or premium on redemption are tax deductible, the following formula can be used:

$$K_d = \frac{I+\dfrac{(RV-NP)}{n}}{\dfrac{(RV+NP)}{2}}(1-t)$$

Using Present value method [Yield to maturity (YTM) approach]

YTM- An internal rate of return at which current price of a debt equals to the present value of all cash-flows.
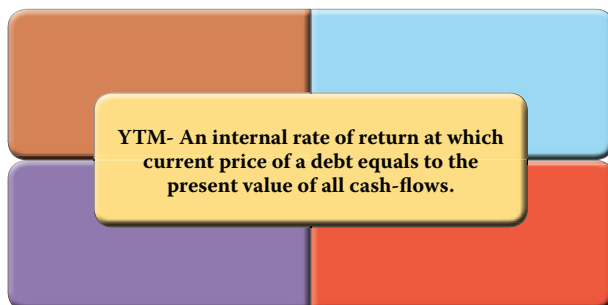
STEPS TO CALCULATE RELEVANT CASH FLOWS

Step-1: Identify the cash flows.

Step-2: Calculate NPVs of cash flows as identified above using two discount rates.

Step-3: Calculate IRR
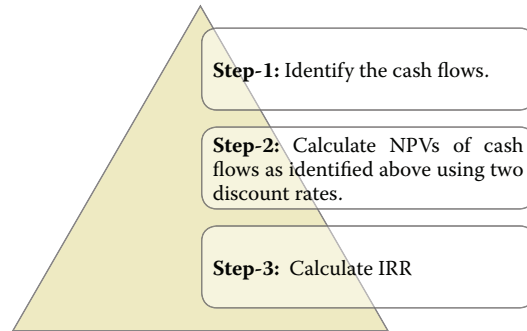
Step-1: Identify the cash flows.

The relevant cash flows are as follows:

Year	Cash flows
0	Net proceeds in case of new issue/ Current market price in case of existing debt (NP or P_0)
1 to n	Interest net of tax [I(1-t)]
n	Redemption value (RV)

Step-2: Calculate NPVs of cash flows as identified above using **two discount rates** (guessing) to get each a positive NPV (lower rate) and a negative NPV (higher rate).

Step-3: Calculate IRR.

$$IRR = L + \frac{NPV_L}{NPV_L-NPV_H}(H-L)$$

[Here, H and L stands for higher discount rate and lower discount rate respectively. It is to be noted that **higher the difference between H and L, lower the accuracy of answer.**]

Example: A company issued 10,000, 10% debentures of ₹100 each on 01.04.2021 to be matured on 01.04.2026. The company wants to know the current cost of its existing debt if the market price of the debentures is ₹80, considering 35% tax rate.

Step-1: Identification of relevant cash flows

Year	Cash flows
0	Current market price (P_0) = ₹80
1 to 5	Interest net of tax [I(1-t)] = 10% of ₹100 (1-0.35) = ₹6.5
5	Redemption value (RV) = Face value i.e. ₹100

Step- 2: Calculation of NPVs at two discount rates

Year	Cash flows (₹)	Discount factor @ 10% (L)	Present Value (₹)	Discount factor @ 15% (H)	Present Value (₹)
0	80	1.000	(80.00)	1.000	(80.00)
1 to 5	6.5	3.791	24.64	3.352	21.79
5	100	0.621	62.10	0.497	49.70
NPV			+6.74		-8.51

Step- 3: Calculation of IRR

$$IRR = L + \frac{NPV_L}{NPV_L-NPV_H}(H-L) = 10\% + \frac{6.74}{6.74-(-8.51)}(15\%-10\%)=12.21\%$$

Amortisation of Bond

A bond **may** be **amortised every year** i.e., principal is repaid every year rather than at maturity.	In such a situation, the **principal** will **go down** with annual payments and interest will be computed on the outstanding amount.	**Cash flows** will be **uneven**.

$$\text{Value of Bond } V_B = \frac{C_1}{(1+K_d)^1} + \frac{C_2}{(1+K_d)^2} + ... + \frac{C_n}{(1+K_d)^n}$$

$$V_B = \sum_{t=1}^{n} \frac{C_t}{(1+K_d)^t}$$

Cost of Convertible Debentures

Option to either get the debentures redeemed into **cash or** get specified numbers of company's **shares**.

While determining redemption value, it is assumed that all the debenture holders will **choose the option which has the higher value i.e. beneficial to the holder.**

Cost of PREFERENCE SHARE CAPITAL (K_p)

Preference Share Capital	• Paid **dividend** at a **specified rate** on face value. • Dividend treated as an **appropriation of** after-tax **profit**. • Does **not reduce** the **tax** liability of the company.

Cost of Preference Share Capital
- Cost of Irredeemable Preference Share Capital
- Cost of Redeemable Preference Share Capital
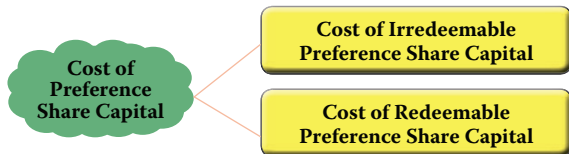
Cost of Irredeemable Preference Shares

$$K_p = \frac{PD}{P_0}$$

Where,

PD = Annual preference dividend

P_0 = Net proceeds$ from issue of preference shares

$Net proceeds means issue price less issue expenses or floatation cost

Cost of Redeemable Preference Shares

$$K_p = \frac{PD + \dfrac{(RV - NP)}{n}}{\dfrac{(RV + NP)}{2}}$$

Where,

PD = Annual preference dividend

RV = Redemption value of preference shares

NP = Net proceeds from issue of preference shares

n = Remaining life of preference shares

Cost of EQUITY SHARE CAPITAL (K_e)

Equity Share Capital	• It is the **expectation of equity** shareholders. • **Value is performance** divided by expectations. • **Performance means amount paid by company to investors**, like interest, dividend, redemption price etc. which is **uncertain in case of equity.**

Methods to compute Cost of Equity Share Capital
- Dividend Price Approach
- Earning Price Approach
- Growth Approach
- Realized Yield Approach
- Capital Asset Pricing Model (CAPM)
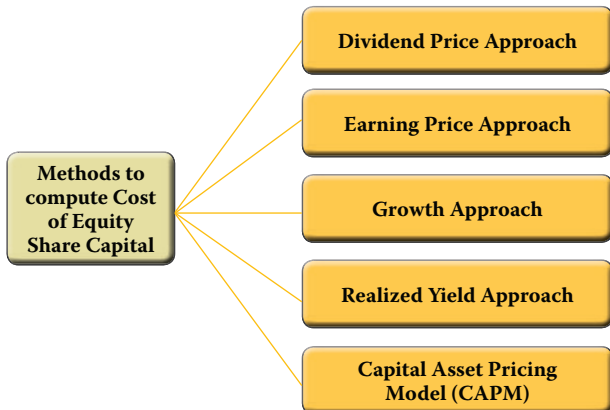
Dividend Price Approach

This approach **assumes** that the **dividend** per share is expected to remain **constant** forever.

$$K_e = \frac{D}{P_0}$$

Where,

D = Expected dividend (also written as D_1)

P_0 = Market price of equity (ex- dividend)

Earnings Price Approach

This approach **co-relate the earnings** of the company **with** the **market price** of its share.

$$K_e = \frac{E}{P}$$

Where,

E = Current earnings per share

P = Market price per share

Growth Approach or Gordon's Model

Rate of **dividend growth** remains **constant**. **Earnings, dividends and equity share price** all **grow** at the **same rate**.

$$K_e = \frac{D_1}{P_0} + g$$

Where,

D₁ = [D₀ (1+ g)] i.e. next expected dividend
D_1 = $[D_0 (1+g)]$ i.e. next expected dividend
P_0 = Current Market price per share
g = Constant Growth Rate of Dividend

In case of newly issued equity shares where **floatation cost is incurred,**

$$K_e = \frac{D_1}{P_0 - F} + g$$

Where,

F = Flotation cost per share

Example: A company has paid dividend of ₹1 per share (of face value of ₹10 each) last year and it is expected to grow @ 10% every year. The market price of share is ₹55.

$$K_e = \frac{D_1}{P_0} + g = \frac{₹1(1+0.1)}{₹55} + 0.1 = 0.12 \text{ or } 12\%$$

Estimation of Growth Rate

Estimation of Growth Rate

Average Method   Gordon's Growth Model
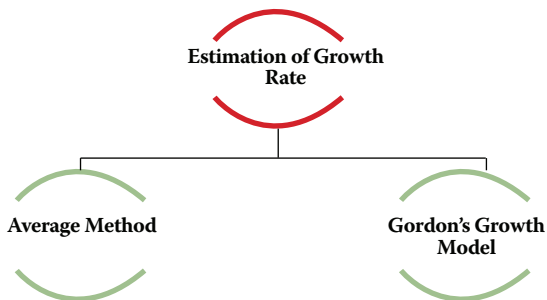
(i) Average Method

$$\text{Current Dividend } (D_0) = D_n(1+g)^n$$
or
$$\text{Growth rate} = \sqrt[n]{\frac{D_0}{D_n}} - 1$$

Where,

D_0 = Current dividend,
D_n = Dividend in n years ago

Other ways:

Step-I • Divide D_0 by D_n, find out the result, then refer the FVIF table.

Step-II • Find out the result found at Step-I in corresponding year's row.

Step-III • See the interest rate for the corresponding column. This is the growth rate.

Example: The current dividend (D_0) is ₹16.10 and the dividend 5 year ago was ₹10. The growth rate in the dividend can found out as follows:

Step-I: Divide D_0 by D_n i.e. ₹16.10 ÷ ₹10 = 1.61
Step-II: Find out the result found at Step-I i.e. 1.61 in corresponding year's row i.e. 5th year.
Step-III: See the interest rate for the corresponding column which is 10%. Therefore, growth rate (g) is 10%.

(ii) Gordon's Growth Model

This model attempts to **derive** a **future growth rate**.

Growth (g) = b × r

Where,

b = earnings retention rate*
r = rate of return on fund invested

*Proportion of earnings available to equity shareholders which is not distributed as dividend.

Realised Yield Approach

Average rate of **return realised** in the **past** few years historically **regarded** as **'expected return'** in future.
Computes **cost** of **equity based on** the **past records** of dividends actually realised.

Example: Mr. X had purchased a share of ABC Limited for ₹1,000 and received dividend for five years @ 10%. At the end of the fifth year, he sold the share for ₹1,128. The cost of equity as per realised yield approach would be as follows:
It would be the discount rate which equates the present value of the dividends received in the past five years plus the present value of sale price of ₹1,128 to the purchase price of ₹1,000.
The discount rate which equalises these two is 12% (approx..)

Year	Dividend (₹)	Sale Proceeds (₹)	Discount Factor @ 12%	Present Value (₹)
1	100	-	0.893	89.3
2	100	-	0.797	79.7
3	100	-	0.712	71.2
4	100	-	0.636	63.6
5	100	-	0.567	56.7
6	Beginning	1,128	0.567	639.576
				1,000.076

Capital Asset Pricing Model (CAPM) Approach

Diversifiable or Unsystematic risk (related with the company's performance) can be eliminated by an investor through diversification.

However, **non-diversifiable or systematic risk (macro-economic or market specific risk)** is the risk which **cannot be eliminated**; thus, a business should be concerned as per CAPM method, solely with non-diversifiable risk.

Cost of Equity under CAPM = Risk free rate + Risk premium
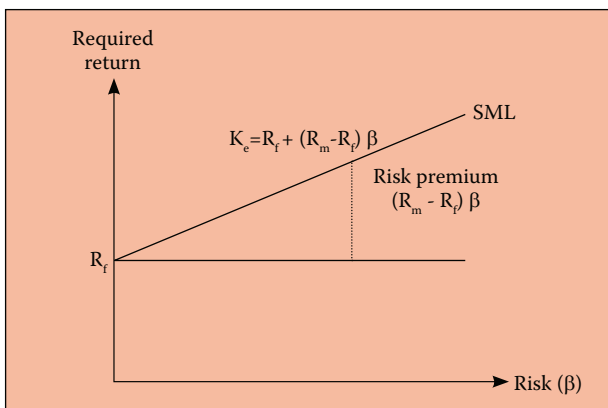
$$K_e = R_f + \beta(R_m - R_f)$$

Where,

K_e	=	Cost of equity capital
R_f	=	Risk free rate of return
β	=	Beta coefficient (represents systematic risk)
R_m	=	Rate of return on market portfolio
$(R_m - R_f)$	=	Market risk premium

Risk Return relationship of various securities

Example: The risk-free rate of return equals 10%. The company's beta equals 1.75 and the return on the market portfolio equals to 15%. Thus, the cost of equity capital of the company would be:

$K_e = R_f + \beta(R_m - R_f)$
$K_e = 0.10 + 1.75(0.15 - 0.10) = 0.1875$ or 18.75%

Cost of Retained Earnings (Kr)

Retained Earnings	• It is the **opportunity cost of dividends foregone by shareholders.**

Formulas used for calculation of cost of retained earnings are same as formulas used for calculation of cost of equity.

Dividend Price method: $K_r = \dfrac{D}{P}$

Earning Price method: $K_r = \dfrac{EPS}{P}$

Growth method: $K_r = \dfrac{D_1}{P_0} + g$

For K_e : P = net proceeds realized i.e. issue price less floatation cost. But for K_r : P = current market price. However, sometimes issue price may also be used ignoring Floatation cost.

Weighted Average Cost Of Capital (WACC)

WACC	• A company makes a mix of various sources of finance. • **Cost** of total capital will be equal to **WACC** of **individual sources** of finance.

Steps to calculate WACC:

Step 1	• **Calculate** the **total capital** from all the sources of capital. • Eg. Long-term debt capital + Pref. Share Capital + Equity Share Capital + Retained Earnings
Step 2	• **Calculate** the **proportion** (or %) of each source of capital to the total capital. • [Equity Share Capital (for example)/Total Capital (as calculated in Step1 above)]
Step 3	• **Multiply** the **proportion** as calculated in Step 2 above **with** the respective **cost of capital**. • (K_e × Proportion (%) of equity share capital (for example) calculated in Step 2 above)
Step 4	• **Aggregate** the **cost of capital** as calculated in Step 3 above. **This is the WACC**. • ($K_e + K_d + K_p + K_s$ as calculated in Step 3 above)

Choice of Weights

Book Value (BV)

Operationally **easy and convenient.**

Reserves such as share premium and retained profits are **included in the BV of equity.**

Market Value (MV)

More correct and **represent** a firm's **capital structure**.

Preferable to use **MV** weights for the **equity**.

Reserves such as share premium and retained profits are **ignored** as they are in effect incorporated into the value of equity.

No separate MV for retained earnings.

Example: The capital structure of the company is as under:

	(₹)
10% Debentures with 10 years maturity (₹100 per debenture)	5,00,000
5% Preference shares with 10 years maturity (₹100 per share)	5,00,000
Equity shares (₹10 per share)	10,00,000
	20,00,000

The market prices of these securities are:

Debentures	₹105 per debenture
Preference shares	₹110 per preference share
Equity shares	₹24 per equity share

After tax Cost of Capital: Equity = 10%, Debt = 6.89% and Preference shares = 4.08%

The WACC applying BV and MV would be as follows:

(a) Calculation of WACC using BV weights

Source of capital	Book Value	Weights	After tax cost of capital	WACC (K_o)
	(₹)	(a)	(b)	(c) = (a)×(b)
10% Debentures	5,00,000	0.25	0.0689	0.01723
5% Preference shares	5,00,000	0.25	0.0408	0.0102
Equity shares	10,00,000	0.50	0.10	0.05000
	20,00,000	**1.00**		**0.07743**

WACC (K_o) = 0.07743 or 7.74%

(b) Calculation of WACC using MV weights

Source of capital	Market Value	Weights	After tax cost of capital	WACC (K_o)
	(₹)	(a)	(b)	(c) = (a)×(b)
10% Debentures (₹105× 5,000)	5,25,000	0.151	0.0689	0.0104
5% Preference shares (₹110× 5,000)	5,50,000	0.158	0.0408	0.0064
Equity shares (₹24× 1,00,000)	24,00,000	0.691	0.10	0.0691
	34,75,000	**1.000**		**0.0859**

WACC (K_o) = 0.0859 or 8.59%

FINANCING DECISIONS-CAPITAL STRUCTURE

Chapter Overview

```
Capital Structure
Decision
```

Capital Structure Theories
- Net Income (NI) Approach
- Traditional Approach
- Net Operating Income (NOI) Approach
- Modigliani- Miller (MM) Approach
- Trade-off Theory
- Pecking Order Theory

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Capital Structure
Decision

EBIT- EPS Analysis
```
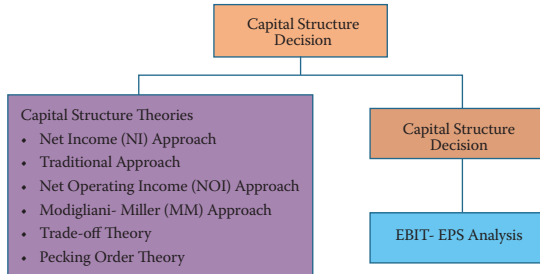
Capital Structure decision refers to deciding the forms of financing (which sources to be tapped); their actual requirements (amount to be funded) and their relative proportions (mix) in total capitalisation.

```
Capital Budgeting Decision ──▶ Replacement
                             ──▶ Modernisation
                             ──▶ Expansion
                             ──▶ Diversification

Need to Raise Funds ──▶ Internal funds
                    ──▶ Debt
                    ──▶ External equity

Capital Structure Decision

Existing Capital Structure ──▶ Desired Debt Equity Mix ◀── Payout Policy

Effect of Return          Effect of Risk

Effect of Cost of Capital ──▶ Optimum Cpital Structure

Value of the Firm
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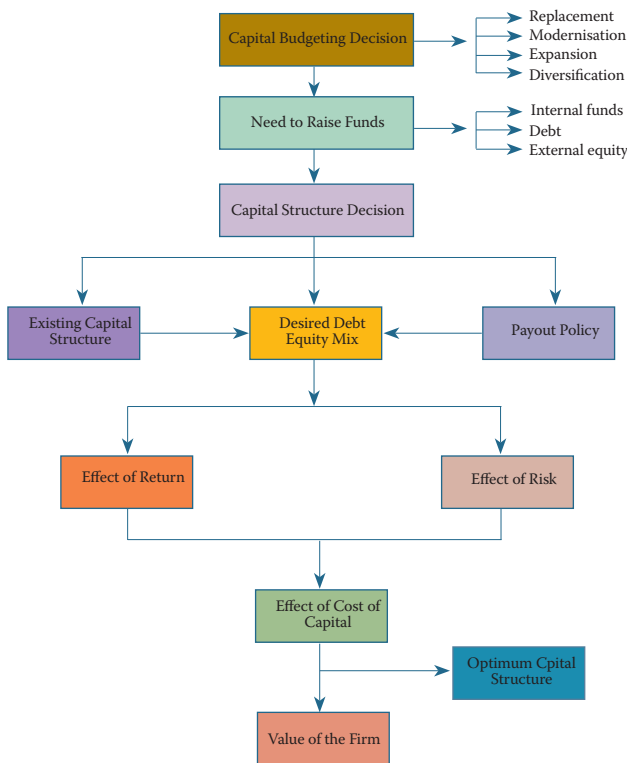
Capital Structure Theories

The following approaches explain the relationship between cost of capital, capital structure and value of the firm

```
Capital Structure Theories
├─ Capital Structure Relevance Theory
│   ├─ Net Income (NI) Approach
│   └─ Traditional Approach
└─ Capital Structure Irrelevance Theory
    ├─ Net Operating Income (NOI) Approach
    └─ Modigliani and Miller (MM) Approach
```

Net Income (NI) Approach

According to this approach, capital structure decision is relevant to the value of the firm. An increase in financial leverage will lead to decline in the weighted average cost of capital (WACC), while the value of the firm as well as market price of ordinary share will increase. Conversely, a decrease in the leverage will cause an increase in the overall cost of capital and a consequent decline in the value as well as market price of equity shares

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

V = Market Value of Equity + Market Value of Debt

$$\text{Overall cost of capital} = \frac{EBIT}{\text{Value of the Form}}$$

Traditional Approach

This approach favours that as a result of financial leverage up to some point, cost of capital comes down and value of firm increases. However, beyond that point, reverse trends emerge. The principle implication of this approach is that the cost of capital is dependent on the capital structure and there is an optimal capital structure which minimises cost of capital.

Net Operating Income Approach (NOI)

Any change in the leverage will not lead to any change in the total value of the firm and the market price of shares, as the 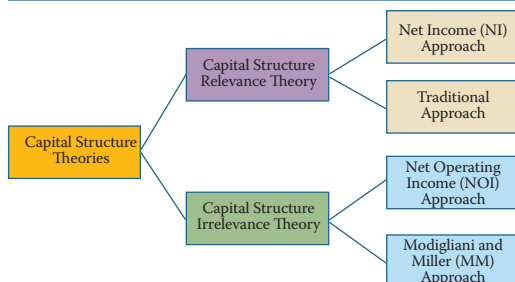overall cost of capital is independent of the degree of leverage. As a result, the division between debt and equity is irrelevant.

As per this approach, an increase in the use of debt which is apparently cheaper is offset by an increase in the equity capitalisation rate. This happens because equity investors seek higher compensation as they are opposed to greater risk due to the existence of fixed return securities in the capital structure.

$$V = \frac{NOI}{K_O}$$

Where,

V	= Value of the firm
NOI	= Net operating Income
K_o	= Cost of Capital

Modigliani-Miller Approach (MM)

The NOI approach is definitional or conceptual and lacks behavioral significance. It does not provide operational justification for irrelevance of capital structure. However, Modigliani-Miller approach provides behavioral justification for constant overall cost of capital and therefore, total value of the firm. This approach indicates that the capital structure is irrelevant because of the arbitrage process which will correct any imbalance i.e. expectations will change and a stage will be reached where arbitrage is not possible.

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Modigliani-Miller (MM) Approach
├─ MM Approach -1958: without tax
└─ MM Approach- 1963: with tax
```
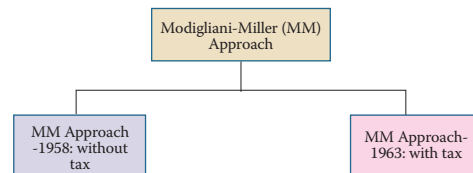
The Trade-off Theory:

The trade-off theory of capital structure refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits.
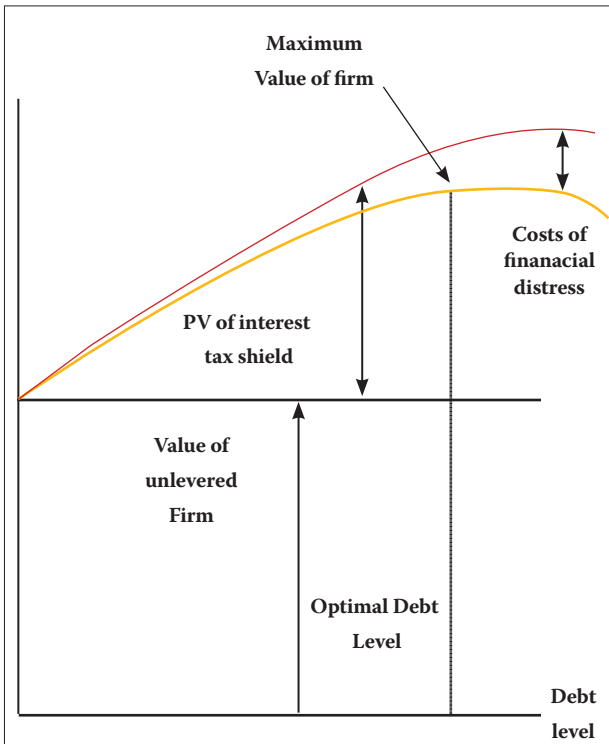
Pecking order theory

This theory is based on Asymmetric information, which refers to a situation in which different parties have different information.

- **Trade- off Theory**
  - Debt
  - Equity

- **Pecking Order Theory**
  - Internal Financing
  - Debt
  - Equity
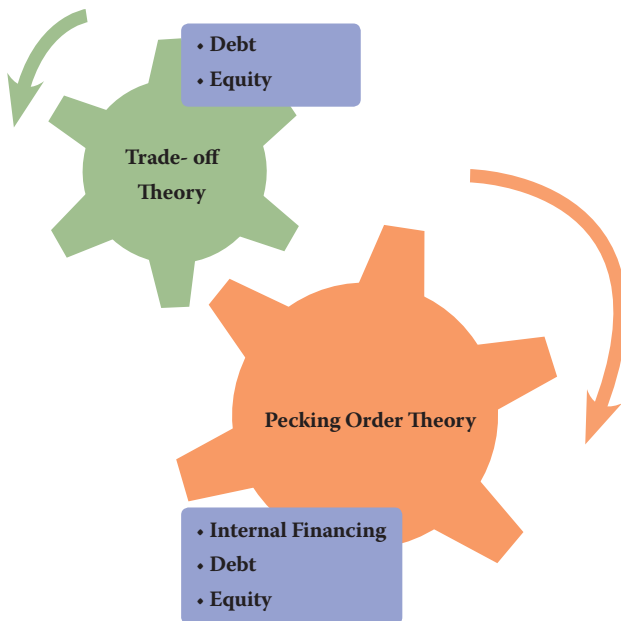
EBIT-EPS Analysis

The basic objective of financial management is to design an appropriate capital structure which can provide the highest earnings per share (EPS) over the company's expected range of earnings before interest and taxes (EBIT).

EPS measures a company's performance for the shareholders. The level of EBIT varies from year to year and represents the success of a company's operations.

However, The EPS criterion ignores the risk dimension as well as it is more of a performance measure.

$$\frac{(EBIT-I_1)\ (1-t)}{E_1} = \frac{(EBIT-I_2)\ (1-t)}{E_2}$$

Where,

EBIT	=	Indifference point
E_1	=	Number of equity shares in Alternative 1
E_2	=	Number of equity shares in Alternative 2
I_1	=	Interest charges in Alternative 1
I_2	=	Interest charges in Alternative 2
T	=	Tax-rate
Alternative 1	=	All equity finance
Alternative 2	=	Debt-equity finance

Over- Capitalisation	• It is a situation where a firm has more capital than it needs or in other words assets are worth less than its issued share capital, and earnings are insufficient to pay dividend and interest.

Under Capitalisation	• It is just reverse of over-capitalisation. It is a state, when its actual capitalisation is lower than its proper capitalisation as warranted by its earning capacity.

FINANCING DECISIONS- LEVERAGES

Chapter Overview

Analysis of Leverage

Business and Financial Risk

Types of Leverage
(i) Operating Leverage
(ii) Financial Leverages
(iii) Combined Leverages
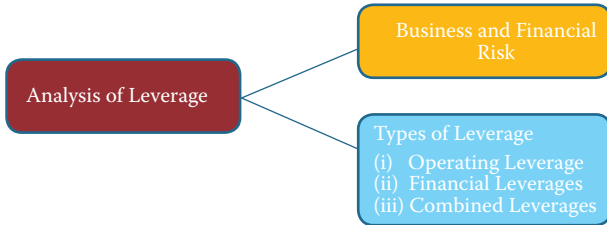
In financial analysis, leverage represents the influence of one financial variable over some other related financial variable. These financial variables may be costs, output, sales revenue, Earnings Before Interest and Tax (EBIT), Earning per share (EPS) etc.

Business Risk and Financial Risk

Risk facing the common shareholders is of two types, namely business risk and financial risk. Therefore, the risk faced by common shareholders is a function of these two risks, i.e. (Business Risk, Financial Risk).

Business Risk

- It refers to the risk associated with the firm's operations. It is the uncertainty about the future operating income (EBIT), i.e. how well can the operating incomes be predicted?

Financial Risk

- It refers to the additional risk placed on the firm's shareholders as a result of debt use i.e. the additional risk a shareholder bears when a company uses debt in addition to equity financing.

Types of Leverage

There are three commonly used measures of leverage in financial analysis. These are

Combined Leverage

Financial Leverage

Operating Leverage
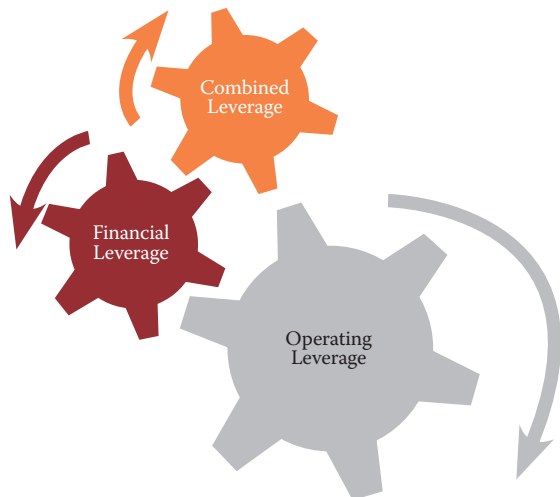
Chart Showing Operating Leverage, Financial Leverage and Combined Leverage

Profitability Statement			
Sales	xxx		
Less: **Variable Cost**	(xxx)		
Contribution	xxx	Operating Leverage	Combined Leverage
Less: **Fixed Cost**	(xxx)		
Operating Profit/ EBIT	xxx		
Less: **Interest**	(xxx)	Financial Leverage	
Earnings Before Tax (EBT)	xxx		
Less: **Tax**	(xxx)		
Profit After Tax (PAT)	xxx		
Less: **Pref. Dividend (if any)**	(xxx)		
Net Earnings available to equity shareholders/ PAT	xxx		
No. Equity shares (N)			
Earnings per Share (EPS) = (PAT ÷ N)			

Operating Leverage

Operating leverage (OL) maybe defined as the employment of an asset with a fixed cost in the hope that sufficient revenue will be generated to cover all the fixed and variable costs.

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}}$$

$$\text{Degree of Operating Leverage (DOL)} = \frac{\% \text{ change in EBIT}}{\% \text{ change in Sales}}$$

Positive and Negative Operating Leverage

Operating Leverage and EBIT

Negative

Operating at Lower than break-even point

EBIT= -Ve

Infinite/ Undefined

Operating at break-even point

EBIT = 0

Positive

Operating at a Higher Level than break-even point

EBIT = +Ve
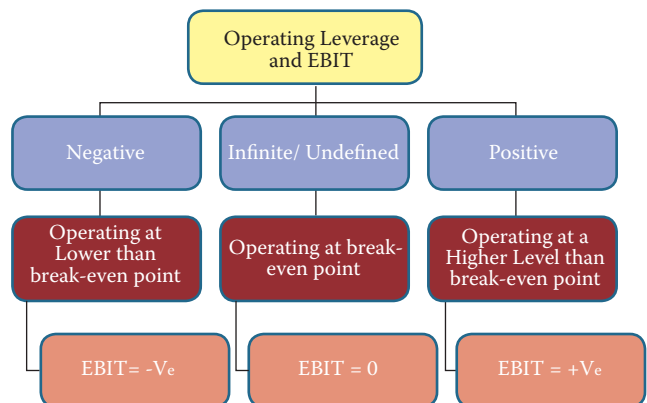
Financial Leverage

Financial leverage (FL) maybe defined as 'the use of funds with a fixed cost in order to increase earnings per share.' In other words, it is the use of company funds on which it pays a limited return.

$$\text{Financial leverage} = \frac{\text{EBIT}}{\text{EBT}}$$

$$\text{Degree of Financial Leverage (DFL)} = \frac{\%\ \text{change in EPS}}{\%\ \text{change in EBIT}}$$

Combined Leverage

Combined leverage
- It maybe defined as the potential use of fixed costs, both operating and financial, which magnifies the effect of sales volume change on the earning per share of the firm.

Degree of Combined Leverage = DOL X DFL

$$\text{Degree of Combined Leverage (DCL)} = \frac{\%\ \text{change in EPS}}{\%\ \text{change in Sales}}$$

Positive and Negative Financial Leverage:

Financial Leverage

- Positive
  - EBIT level is more than Fixed Financial Charge
    - EPS: will change in the same direction as EBIT
- Infinite/ Undefined
  - Operating at Financial break even point
    - No Profit no Loss
- Negative
  - EBIT level is less than Fixed Financial Charge
    - EPS : Negative

Financial Leverage as 'Trading on Equity'
- Financial leverage indicates the use of funds with fixed cost like long term debts and preference share capital along with equity share capital which is known as trading on equity. When the quantity of fixed cost fund is relatively high in comparison to equity capital, it is said that the firm is "trading on equity".

Financial Leverage as a 'Double edged Sword'
- On one hand when cost of 'fixed cost fund' is less than the return on investment financial leverage will help to increase return on equity and EPS. However, when cost of debt is more than the return it will affect return of equity and EPS unfavourably. This is why financial leverage is known as "double edged sword".

INVESTMENT DECISIONS

Chapter Overview

Investment Decisions

- Types of Investment Decisions
- Basic Principles for measuring Project Cash Flows
- Capital Budgeting in special cases

Capital Budgeting Techniques:
- Pay-back period
- Accounting Rate of Return (ARR)
- Net Present Value (NPV)
- Profitability Index (NI)
- Internal Rate of Return (IRR)
- Modified Internal Rate of Return (MIRR)
- Discounted Pay-back period
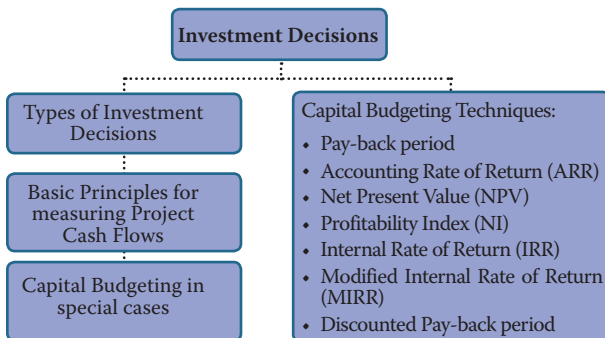
Capital Budgeting involves
- Identification of investment projects that are strategic to business overall objectives;
- Estimating and evaluating post-tax incremental cash flows for each of the investment proposals; and
- Selection of an investment proposal that maximizes the return to the investors

Capital Budgeting Process

Planning → Evaluation → Selection → Implementation → Control → Review

Chapter Overview

Generally, capital investment decisions are classified in two ways. One way is to classify them on the basis of firm's existence. Another way is to classify them on the basis of decision situation.
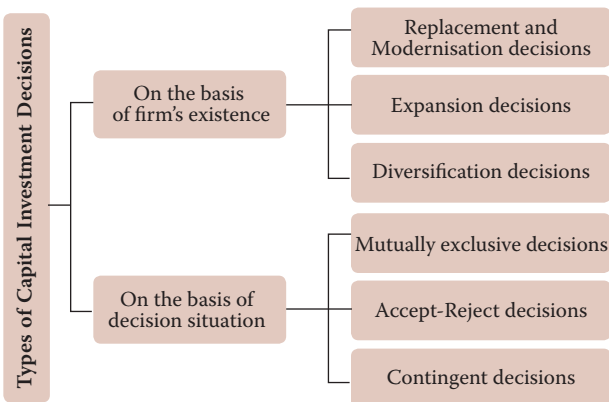
Estimation of Project Cash Flows

Capital Budgeting analysis considers only incremental cash flows from an investment likely to result due to acceptance of any project. Therefore, one of the most important tasks in capital budgeting is estimating future cash flows for a project.

Calculating Cash Flows

Particulars	No Depreciation is Charged	Depreciation is Charged
	(₹ Crore)	(₹ Crore)
Total Sales	***	***
Less: Cost of Goods Sold	***	***
	***	***
Less: Depreciation	–	***
Profit before tax	***	***
Tax @ 30%	***	***
Profit after Tax	***	***
Add: Depreciation*	–	***
Cash Flow	***	***

* Being non-cash expenditure, depreciation has been added back while calculating the cash flow.

Statement showing the calculation of Cash Inflow after Tax (CFAT)

| Sl. no.		(₹)
1	Total Sales Units	xxx
2	Selling Price per unit	xxx
3.	Total Sales [1 × 2]	xxx
4.	Less: Variable Cost	xxx
5.	Contribution [3 - 4]	xxx

6.	Less: Fixed Cost	
	(a) Fixed Cash Cost	xxx
	(b) Depreciation	xxx
7.	Earning Before Tax [6 - 7]	xxx
8.	Less: Tax	xxx
9.	Earning After Tax [7-8]	xxx
10.	Add: Depreciation	xxx
11.	Cash Inflow After Tax (CFAT) [9 +10]	xxx

Capital Budgeting Techniques

In order to maximise the return to the shareholders of a company, it is important that the best or most profitable investment projects are selected as the results for making a bad long-term investment decision can be both financially and strategically devastating, particular care needs to be taken with investment project selection and evaluation.

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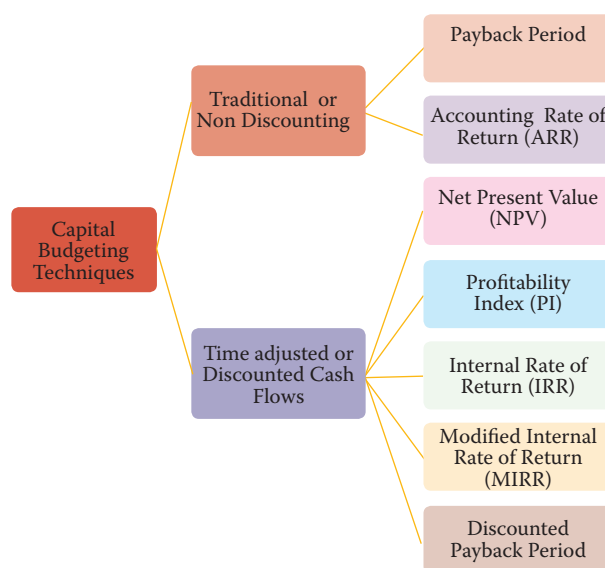
Payback Period

The payback period of an investment is the length of time required for the cumulative total net cash flows from the investment to equal the total initial cash outlay.

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

Accounting (Book) Rate of Return (ARR)

The accounting rate of return of an investment measures the average annual net income of the project (incremental income) as a percentage of the investment.

Accounting rate of return = $\dfrac{\text{Average annual net income}}{\text{Investment}}$ x 100

Profitability Index (PI) = $\dfrac{\text{Sum of discounted cash inflows}}{\text{Initial cash outlay or Total discounted cash outflow (as the case maybe)}}$

Net Present Value Technique (NPV)

The net present value technique is a discounted cash flow method that considers the time value of money in evaluating capital investments.

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

Where,

C = Cash flow of various years
K = discount rate
N = Life of the project
I = Investment

Profitability Index /Desirability Factor/ Present Value Index Method (PI)

In comparing alternative proposal of comparing, we have to compare a number of proposals each involving different amounts of cash inflows. One of the methods of comparing such proposals is to work out what is known as the 'Desirability factor', or 'Profitability index' or 'Present Value Index Method'.

Decision Rule

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

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

Internal Rate of Return Method (IRR)

Internal rate of return for an investment proposal is the discount rate that equates the present value of the expected net cash flows with the initial cash outflow.

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

Where,

LR = Lower Rate

HR = Higher Rate

Summary of Decision criteria of Capital Budgeting techniques

Techniques		For Independent Project	For Mutually Exclusive Projects
Non-Discounted	Pay Back	(i) When Payback period ≤ Maximum Acceptable Payback period: **Accepted** (ii) When Payback period ≥ Maximum Acceptable Payback period: **Rejected**	Project with least Payback period should be selected
	Accounting Rate of Return (ARR)	(i) When ARR ≥ Minimum Acceptable Rate of Return: **Accepted** (ii) When ARR ≤ Minimum Acceptable Rate of Return: **Rejected**	Project with the maximum ARR should be selected.
Discounted	Net Present Value (NPV)	(i) When NPV > 0: **Accepted** (ii) When NPV < 0: **Rejected**	Project with the highest positive NPV should be selected
	Profitability Index(PI)	(i) When PI > 1: **Accepted** (ii) When PI < 1: **Rejected**	When Net Present Value is same, project with Highest PI should be selected
	Internal Rate of Return (IRR)	(i) When IRR > K: **Accepted** (ii) When IRR < K: **Rejected**	Project with the maximum IRR should be selected

RISK ANALYSIS IN CAPITAL BUDGETING

Points of Discussion

- Risk and Uncertainty in capital budgeting
- Sources of risks
- Consideration of risks and uncertainities in capital budgeting
- Techniques used for Analysis of Risks
- Advantages and Limitations of Risk Analysis Techniques
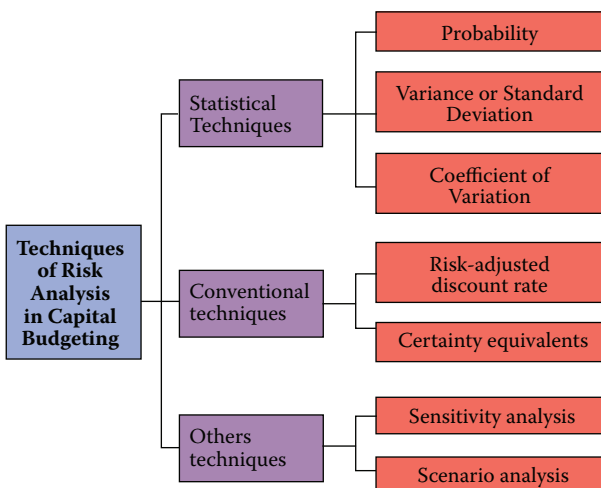
Risk & Uncertainty and its Measurement

RISK	• Risk is the variability of possible outcomes from the expected one. • Uncertainty is a situation when probability of cash flows are unknown • Risk is measured by the Variance or Standard Deviation (SD). SD is a commonly used tool which measures the dispersion of possible outcomes around the mean.

Sources of Risk

Project-specific risk	Company-specific risk	Industry-specific risk	Market risk

Competition risk	Risk due to Economic conditions	International risk

Techniques of Risk Analysis

Techniques of Risk Analysis in Capital Budgeting
- Statistical Techniques
  - Probability
  - Variance or Standard Deviation
  - Coefficient of Variation
- Conventional techniques
  - Risk-adjusted discount rate
  - Certainty equivalents
- Others techniques
  - Sensitivity analysis
  - Scenario analysis

Statistical Technique: • PROBABILITY

Probability is a measure about the chances that an event will occur.

Event certain to occur
- Probability = 1

No Chance of happening an event
- Probability = **0**

Expected cash flows are assigned a probability factor (Pi) and net cash flows are calculated.

$$E(R)/ENCF = \sum_{i=1}^{n} NCF_i \times P_i$$

Where,

E (R)/ENCF	=	Expected Cash flows
P_i	=	Probability of Cash flow
NCF_i	=	Cash flows

> "Risk-taking is an inevitable ingredient in investing, and in life, but never take a risk you do not have to take."
>
> **- Peter Bernstein**

Example:

Expectation	Cash Flows (₹) (2)	Probability (3)	Expected cash flow (2×3) (₹)
Best guess	3,00,000	0.3	3,00,000×0.3 = 90,000
High guess	2,00,000	0.6	2,00,000×0.6 =1,20,000
Low guess	1,20,000	0.1	1,20,000×0.1 =12,000
Expected Net cash flow (ENCF)			2,22,000

Statistical Technique:
- VARIANCE

It measures the degree of dispersion between numbers in a data set from its average.

Variance is calculated as below:

$$\sigma^2 = \sum_{j=1}^{n} \left(NCF_J - ENCF\right)^2 P_j$$

Where, σ^2 = variance in net cash flow;
P = probability and ENCF = expected net cash flow.

Variance measures the uncertainty of a value from its average. Thus, variance helps an organization to understand the level of risk it might face on investing in a project.

A variance value of ZERO would indicate that the cash flows that would be generated over the life of the project would be same.

A LARGE variance indicates that there will be a large variability between the cash flows of the different years.

A SMALL variance would indicate that the cash flows would be somewhat stable throughout the life of the project.

Statistical Technique:
- THE COEFFICIENT OF VARIATION

The Coefficient of Variation calculates the risk borne for every percent of expected return.

It is calculated as below:

$$\text{Coefficient of variation} = \frac{\text{Standard Deviation}}{\text{Expected Return}/\text{Expected Cash Flow}}$$

It enables to calculate the risk borne for every unit of estimated return from a particular investment.

The investment with lower ratio of standard deviation to expected return, provides a better risk – return trade off.

For selection between two projects, a project which has a lower Coefficient of Variation is selected.

Conventional Technique:
- RISK ADJUSTED DISCOUNT RATE (RADR)

A risk adjusted discount rate is a sum of risk free rate and risk premium.

Risk free rate **+** Risk premium **=** Risks adjusted discount rate

Risk free rate

The rate of return on Investments that bear no risk. For e.g., Government securities yield a return of 6 % and bear no risk. In such case, 6 % is the risk-free rate.

Risk Premium

The rate of return over and above the risk-free rate, expected by the Investors as a reward for bearing extra risk. For high risk project, the risk premium will be high and for low risk projects, the risk premium would be lower.

The required rate of return includes compensation for delay in consumption plus compensation for inflation equal to risk free rate of return, plus compensation for any kind of risk taken.

If the risk is higher than risk involved in a similar kind of project, discount rate is adjusted upward in order to compensate this additional risk borne.

It is calculated as below:

$$NPV = \sum_{t=0}^{n} \frac{NCF}{(1+k)^t} - I$$

Where, NCF_t = Net cash flow; K = Risk adjusted discount rate; I = Initial Investment

Advantages And Limitations Of Risk-Adjusted Discount Rate

ADVANTAGES of RADR
- It is easy to understand.
- It incorporates risk premium in the discounting factor.

LIMITATIONS of RADR
- Difficulty in finding risk premium and risk-adjusted discount rate.
- Though NPV can be calculated but it is not possible to calculate Standard Deviation of a given project.

Conventional Technique:
- CERTAINTY EQUIVALENT (CE)

To deal with risks in a capital budgeting, risky future cash flows are expressed in terms of the certain cashflows as their equivalent. Decision maker would be indifferent between the risky amount and the (lower) riskless amount considered to be its equivalent.

STEPS in the Certainty Equivalent (CE) Method

Step-1
- Remove risks by substituting equivalent certain cash flows from risky cash flows
- Multiply each risky cash flow by the appropriate α_t value (CE coefficient)

Step-2
- Discounted value of cash flow is obtained by applying risk less rate of interest

Step-3
- Capital budgeting methods are applied except in case of IRR method
- IRR is compared with risk free rate of interest rather than the firm's required rate of return

CE Coefficient (α_t) is calculated as below:

$$\text{CE Coefficient } (\alpha_t) = \frac{\text{Certain cash flow}}{\text{Risky or expected cash flow}_t}$$

Certainty Equivalent Coefficients transform expected values of uncertain flows into their Certainty Equivalents.

Calculation is made as below:

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

Where,

NCF_t = the forecasts of net cash flow for year 't' without risk-adjustment

α_t = the risk-adjustment factor or the certainly equivalent coefficient.

K_f = risk-free rate assumed to be constant for all periods.

I = amount of initial Investment.

The value of Certainty Equivalent Coefficient lies between 0 & 1.

Certainty Equivalent Coefficient 1 indicates that the cash flow is certain or managements are risk neutral.

In industrial situation, cash flows are generally uncertain and managements are usually risk averse.

Advantages and Disadvantages of CE Method

ADVANTAGES of CE Method
- Simple and easy to understand and apply.
- It can easily be calculated for different risk levels applicable to different cash flows.

DISADVANTAGES of CE Method
- CEs are subjective and vary as per each individual's estimate.
- CEs are decided by the management based on their perception of risk. However, the risk perception of the shareholders who are the money lenders for the project is ignored.

Risk-Adjusted Discount Rate Vs. Certainty-Equivalent

2. Each year's Certainty Equivalent Coefficient is based on level of risk impacting its cash flow.

3. Despite its soundness, it is not preferable like Risk Adjusted Discount Rate Method.

1. Certainty Equivalent Method is superior to Risk Adjusted Discount Rate Method as it does not assume that risk increases with time at constant rate.

Risk-adjusted Discount Rate Vs. Certainty-Equivalent

4. It is difficult to specify a series of Certainty Equivalent Coefficients but simple to adjust discount rates.

Other Technique:
- SENSITIVITY ANALYSIS

Sensitivity Analysis → A modeling technique used in Capital Budgeting decisions to study the impact of changes in the variables on the outcome of the project.

As per CIMA terminology," A modeling and risk assessment procedure in which changes are made to significant variables in order to determine the effect of these changes on the planned outcome. Particular attention is thereafter paid to variables identifies as being of special significance"

In Sensitivity Analysis, the project outcome is studied after taking into change in only one variable.

The more sensitive is the NPV, the more critical is the variable.

It is a way of finding impact in the project's NPV (or IRR) for a given change in one of the variables.
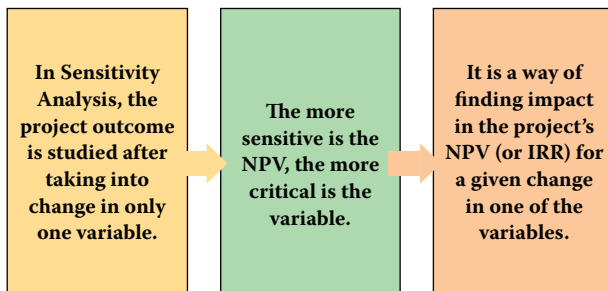
Steps involved in Sensitivity Analysis

Step-1 — Finding variables, which have an influence on the NPV (or IRR) of the project

Step-2 — Establishing mathematical relationship between the variables.

Step-3 — Analysis the effect of the change in each of the variables on the NPV (or IRR) of the project.
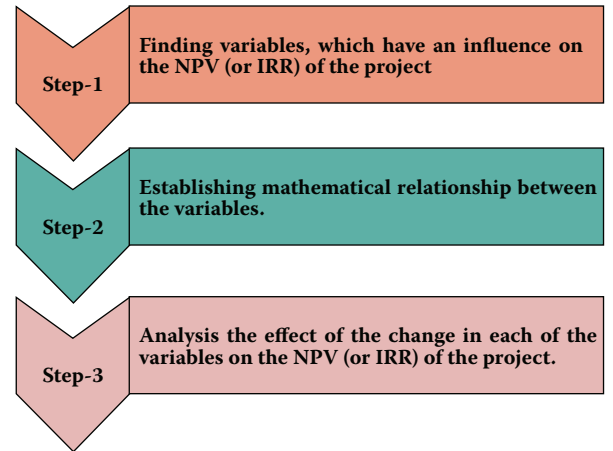
Advantages and Disadvantages of Sensitivity Analysis

ADVANTAGES of Sensitivity Analysis
- **Critical Issues:** This analysis identifies critical factors that impinge on a project's success or failure.
- **Simplicity:** It is a simple technique.

DISADVANTAGES of Sensitivity Analysis
- **Assumption of Independence:** This analysis assumes that all variables are independent i.e. they are not related to each other, which is unlikely in real life.
- **Ignore probability:** This analysis does not look to the probability of changes in the variables.

Other Technique:
- SCENARIO ANALYSIS

Scenario Analysis → This analysis brings in the probabilities of changes in key variables and also allows us to change more than one variable at a time.

Although sensitivity analysis is probably the most widely used risk analysis technique, it does have limitations.

Therefore, we need to extend sensitivity analysis to deal with the probability distributions of the inputs.

In addition, it would be useful to vary more than one variable at a time so we could see the combined effects of changes in the variables.

Scenario analysis provides answer to these situations of extensions.

Examining Risk of Investment through Scenario Analysis

Scenario analysis begins with base case or most likely set of values for the input variables.	→	Then, go for worst case scenario (low unit sales, low sale price, high variable cost and so on) and best case scenario.	→	Alternatively scenarios analysis is possible where some factors are changed positively and some factors are changed negatively.	→	In a nutshell Scenario analysis examine the risk of investment, to analyse the impact of alternative combinations of variables, on the project's NPV (or IRR).

Sensitivity Analysis Vs. Scenario Analysis

Sensitivity Analysis Vs Scenario Analysis

SENSITIVITY analysis calculates the impact of the change of a single input variable on the outcome of the project viz., NPV or IRR. The sensitivity analysis thus enables to identify that single critical variable that can impact the outcome in a huge way and the range of outcomes of the project given the change in the input variable.

SCENARIO analysis, on the other hand, is based on a scenario. The scenario may be recession or a boom wherein depending on the scenario, all input variables change. Scenario Analysis calculates the outcome of the project considering this scenario where the variables have changed simultaneously.

DIVIDEND DECISIONS

Points of Discussion

- Meaning of Dividend and its significance
- Forms of Dividend
- Determinants of Dividend Decisions
- Theories of Dividend
- Meaning, Advantages and Limitations of Stock split

Meaning of Dividend and its Significance

Dividend is the part of profit after tax which is distributed to the shareholders of the company.

Profit after tax
- Distributed — Dividend
- Retained — Retained Earnings

Significance of Dividend policy

Long Term Financing Decision:

Equity can be raised externally through issue of equity shares or can be generated internally through retained earnings. But retained earnings are preferable because they do not involve floatation costs.

Whether to retain or distribute the profit forms the basis of the Dividend decision. Since payment of cash dividend reduces the amount of funds necessary to finance profitable investment opportunities thereby restricting it to find other avenues of finance.

The decision is based on the following

- Whether the organization has opportunities in hand to invest the amount of profits, if retained?
- Whether the return on such investment (ROI) will be higher than the expectations of shareholders i.e. K_e?
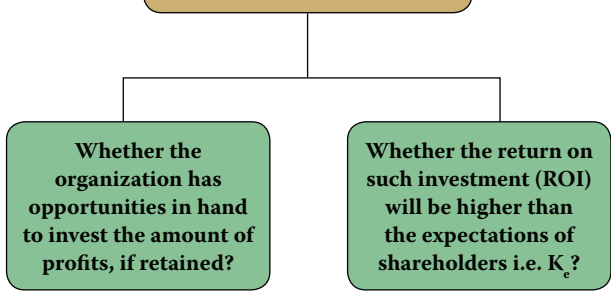
Wealth Maximization Decision:

Because of market imperfections and uncertainty, shareholders give higher value to near dividends than future dividends and capital gains.

Payment of dividends influences the market price of the share. Higher dividends increase value of shares and low dividends decrease it.

When the firm increases retained earnings, shareholders' dividends decrease and consequently market price is affected.

Use of retained earnings to finance profitable investments increases future earnings per share.

On the other hand, increase in dividends may cause the firm to forego investment opportunities for lack of funds and thereby decrease the future earnings per share.

Thus, management should develop a dividend policy which divides net earnings into dividends and retained earnings in an optimum way so as to achieve the objective of wealth maximization for shareholders.

Such policy will be influenced by investment opportunities available to the firm and value of dividends as against capital gains to shareholders.

Forms of Dividend

Forms of dividend

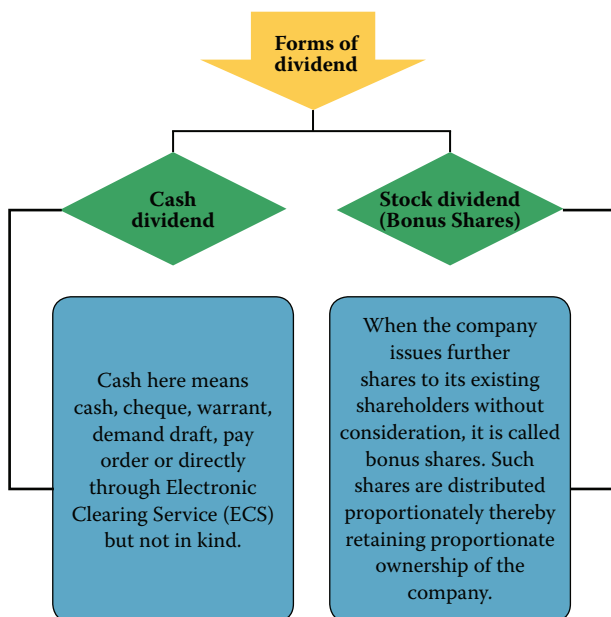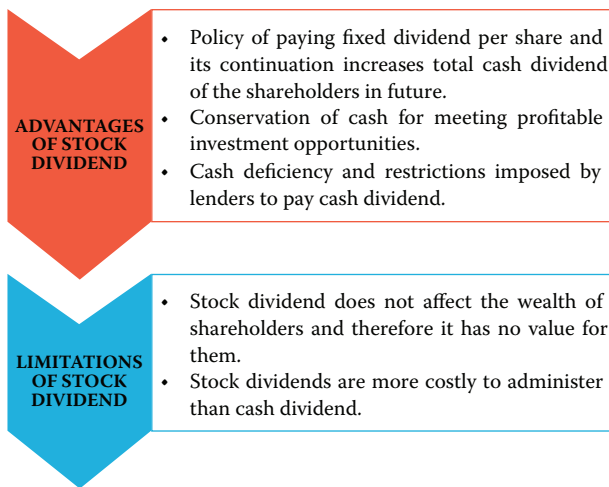**Cash dividend**

Cash here means cash, cheque, warrant, demand draft, pay order or directly through Electronic Clearing Service (ECS) but not in kind.

Stock dividend (Bonus Shares)

When the company issues further shares to its existing shareholders without consideration, it is called bonus shares. Such shares are distributed proportionately thereby retaining proportionate ownership of the company.

Advantages and Limitations of Stock Dividend

ADVANTAGES OF STOCK DIVIDEND

- Policy of paying fixed dividend per share and its continuation increases total cash dividend of the shareholders in future.
- Conservation of cash for meeting profitable investment opportunities.
- Cash deficiency and restrictions imposed by lenders to pay cash dividend.

LIMITATIONS OF STOCK DIVIDEND

- Stock dividend does not affect the wealth of shareholders and therefore it has no value for them.
- Stock dividends are more costly to administer than cash dividend.

Determinants of Dividend Decisions

Factors affecting Dividend Decision

- Availability of funds
- Cost of capital
- Capital structure
- Stock price
- Investment opportunities in hand
- Internal rate of return
- Trend of industry
- Expectation of shareholders
- Legal constraints
- Taxation

Practical Considerations in Dividend Policy

A discussion on internal financing ultimately turns to practical considerations which determine the dividend policy of a company.

The formulation of dividend policy depends upon answers to the questions:

Whether there should be a stable pattern of dividends over the years.

Whether the company should treat each dividend decision completely independent.

Theories of Dividend

Theories of Dividend

Irrelevance Theory (Dividend is ireevelant)	Relevance Theory (Dividend is relevant)	Other Models

M.M. Approach	Walter's Model	Gordon's Model	Dividend Discount Model (DDM)	Graham & Dodd's Model	Linter's Model

Dividend's Irrelevance Theory
- MODIGLIANI and MILLER (M.M) HYPOTHESIS

According to MM hypothesis, market value of equity shares depends solely on its earning power and is not influenced by the manner in which its earnings are split between dividends and retained earnings.

Market value of equity shares is not affected by dividend size.

Assumptions of MM Hypothesis:

Perfect capital markets	No taxes or no tax discrimi-nation	Fixed investment policy	No floatation or transaction cost	Risk of uncertainty does not exist

Price of shares is calculated as below:

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

Where,

P_0 = Price in the beginning of the period.

P_1 = Price at the end of the period.
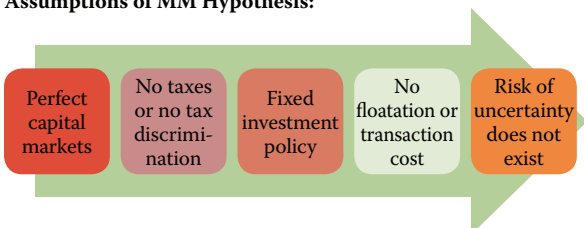
D_1 = Dividend at the end of the period.

K_e = Cost of equity/ rate of capitalization/ discount rate.

As per MM hypothesis, the value of firm will remain unchanged due to dividend decision.

This can be computed with the help of the following formula:

$$V_f \text{ or } nP_0 = \frac{(n + \Delta n)P_1 - I + E}{(1 + K_e)}$$

Where,

V_f = Value of firm in the beginning of the period

n = number of shares in the beginning of the period

Δn = number of shares issued to raise the funds required

I = Amount required for investment

E = total earnings during the period

Advantages and Limitations of MM Hypothesis

ADVANTAGES of MM Hypothesis
- This model is logically consistent.
- It provides a satisfactory framework on dividend policy with the concept of Arbitrage process.

LIMITATIONS of MM Hypothesis
- Validity of various assumptions is questionable.
- This model may not be valid under uncertainty.

Dividend's relevance Theory
- WALTER'S MODEL

As per Walter's Model, in the long run, share prices reflect only the present value of expected dividends. Retentions influence stock prices only through their effect on further dividends.

As per Walter's Model, two factors which influence the market price of a share are (i) Dividend per share and (ii) Relationship between IRR and Ke.

The relationship between dividend and share price based on Walter's formula is shown below:

$$\text{Market Price (P)} = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

Where,

P = Market Price of the share.

E = Earnings per share.

D = Dividend per share.

K_e = Cost of equity/ rate of capitalization/ discount rate.

r = Internal rate of return/ return on investment

Assumptions of Walter's Model

All investment proposals are financed through retained earnings only.	'r' rate of return & 'K$_e$' cost of capital are constant.	Perfect capital markets.	No taxes or no tax discrimination between dividend and capital gain.	No floatation or transaction cost.	The firm has perpetual life.

Conclusion of Walter's Model

Company	Condition of r vs K$_e$	Correlation between Size of Dividend and Market Price of share	Optimum dividend payout ratio
Growth	r > K$_e$	Negative	Zero
Constant	r = K$_e$	No correlation	Every payout ratio is optimum
Decline	r < K$_e$	Positive	100%

Growth Company:
- Company is able to invest/utilize the fund in a better manner. Shareholders can accept low dividend because their value of share would be higher.

Decline Company:
- Company is not in a position to cover the cost of capital; shareholders would prefer a higher dividend to utilize their funds in more profitable opportunities.

Advantages and Limitations of Walter's Model

ADVANTAGES of Walter's Model
- Simple to understand and easy to compute.
- It can envisage different possible market prices in different situations and considers internal rate of return, market capitalisation rate and dividend payout ratio in the determination of market value of shares.

LIMITATIONS of Walter's Model
- The formula does not consider all the factors affecting dividend policy and share prices.
- Determination of market capitalisation rate is difficult.
- The formula ignores such factors as taxation, various legal and contractual obligations, management policy and attitude towards dividend policy and so on.

Dividend's relevance Theory
- GORDON'S MODEL

According to Gordon's model, when IRR is greater than cost of capital, the price per share increases and dividend pay-out decreases. On the other hand when IRR is lower than the cost of capital, the price per share decreases and dividend pay-out increases.

The following formula is used by Gordon to find out price per share:

$$P_0 = \frac{E_1(1-b)}{K_e - br}$$

Where,

P$_0$	=	Price per share
E$_1$	=	Earnings per share
b	=	Retention ratio; (1 - b = Payout ratio)
K$_e$	=	Cost of capital
r	=	IRR and br = Growth rate (g)

Assumptions of Gordon's Model

Firm is an all equity firm i.e. no debt.	IRR will remain constant.	Ke will remains constant.	Retention ratio (b), once decide upon, is constant.	Growth rate (g = br) is also constant.	K$_e$ > g	Investment proposals are financed through retained earnings only.
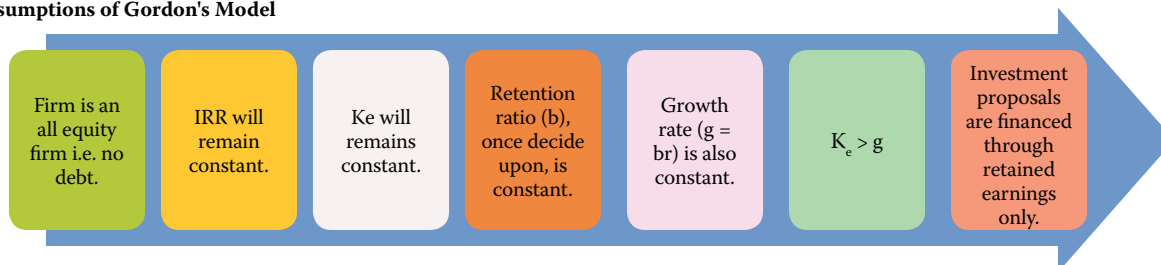
Conclusion of Gordon's Model

Company	Condition of r vs Ke	Optimum dividend payout ratio
Growth	r > Ke	Zero
Constant	r = Ke	There is no optimum ratio
Declining	r < Ke	100%

The "Bird-in-Hand" Theory

Myron Gordon revised his dividend model and considered the risk and uncertainty in his model.

Bird-in-hand theory of Gordon has two arguments

Investors are risk averse

Investors put a premium on certain return and discount on uncertain return
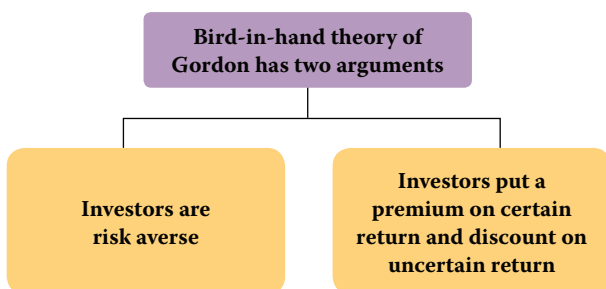
Gordon argues that what is available at present is preferable to what may be available in the future. As investors are rational, they want to avoid risk and uncertainty. They would prefer to pay a higher price for shares on which current dividends are paid. Conversely, they would discount the value of shares of a firm which postpones dividends. The discount rate would vary with the retention rate.

Relationship between Dividend and Share Price on the basis of Gordon's formula

Market price per share $(P_0) = \left[\dfrac{D_0(1+g)}{K_e - g}\right]$

Where,

P_0 = Market price per share (ex-dividend)

D_0 = Current year dividend

g = Constant annual growth rate of dividends

K_e = Cost of equity capital (expected rate of return).

Advantages and Limitations of Gordon's Model

ADVANTAGES of Gordon's Model
- A useful heuristic model that relates the present stock price to the present value of its future cash flows.
- Easy to understand.

LIMITATIONS of Gordon's Model
- Model depends on projections about company growth rate and future capitalization rates of the remaining cash flows, which may be difficult to calculate accurately.
- The true intrinsic value of a stock is difficult to determine realistically.

**Other Models** • DIVIDEND DISCOUNT MODEL (DDM)

It is a financial model that values shares at the discounted value of the future dividend payments. Under this model, the price of a share will be traded is calculated by the PV of all expected future dividend payment discounted by an appropriate risk- adjusted rate. The dividend discount model price is the intrinsic value of the stock.

Intrinsic value = **Sum of PV of future cash flows**

Intrinsic value = **Sum of PV of Dividends** + **PV of Stock Sale Price**

Stock Intrinsic Value $= \dfrac{D_1}{(1+K_e)^1} + \dfrac{D_2}{(1+K_e)^2} + ... + \dfrac{D_n}{(1+K_e)^n} + \dfrac{RV_n}{(1+K_e)^n}$

Dividend Discount Model (Possible situation)

Dividend Discount Model (Possible situation)

Zero Growth — **Constant Growth** — **Variable Growth**
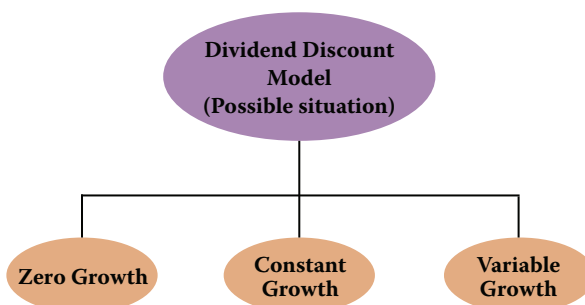
Zero growth rates: It assumes all dividend paid by a stock remains same.

In this case the stock price would be equal to:

Stock's intrinsic Value $= \dfrac{\text{Annual dividend}}{\text{Requied rate of return}}$

i.e. $P_0 = \dfrac{D}{K_e}$

Where,

D = Annual dividend

K_e = Cost of capital

P_0 = Current Market price of share

Constant Growth Rate (Gordon's Growth Model): It assumes constant growth of dividend.

The relationship between dividend and share price on the basis of Gordon's formula is:

Market price per share (P) = $\dfrac{D_0(1+g)}{K_e - g}$

Where,

P	=	Market price per share (ex-dividend)
D_0	=	current year dividend
g	=	growth rate of dividends
K_e	=	cost of equity capital/ expected rate of return

Notes:

g	=	b × r
b	=	proportion of retained earnings or (1- dividend payout ratio)

Variable growth rate: Variable-growth rate models (multi-stage growth models) can take many forms, even assuming the growth rate is different for every year.

However, the most common form is one that assumes 3 different rates of growth: an initial high rate of growth, a transition to slower growth, and lastly, a sustainable, steady rate of growth.

Basically, the constant-growth rate model is extended, with each phase of growth calculated using the constant-growth method, but using 3 different growth rates of the 3 phases.

The present values of each stage are added together to derive the intrinsic value of the stock.

Sometimes, even the capitalization rate, or the required rate of return, may be varied if changes in the rate are projected.

Other Models • GRAHAM & DODD's MODEL

The stock market places considerably more weight on dividends than on retained earnings.

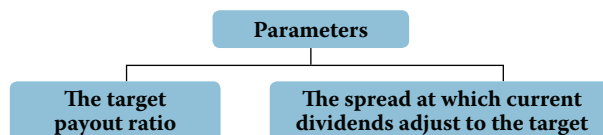The formula is given below:

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

Where,

P	=	Market price per share
D	=	Dividend per share
E	=	Earnings per share
m	=	a multiplier

Other Models • LINTER's MODEL

Under Linter's model, the current year's dividend is dependent on current year's earnings and last year's dividend.
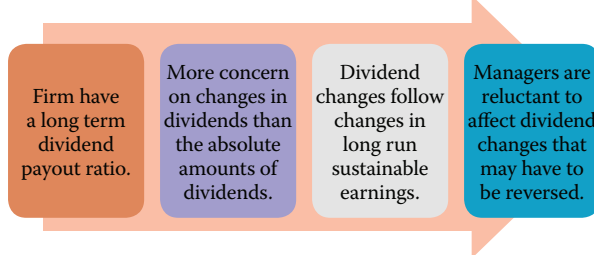
Parameters

The target payout ratio	The spread at which current dividends adjust to the target

The formula is given below:

D_1 = $D_0 + [(EPS \times Target\ payout) - D_0] \times Af$

Where,

D_1	=	Dividend in year 1
D_0	=	Dividend in year 0 (last year dividend)
EPS	=	Earnings per share
Af	=	Adjustment factor or Speed of adjustment

The following are the assumptions of Linter's Model:

Firm have a long term dividend payout ratio.	More concern on changes in dividends than the absolute amounts of dividends.	Dividend changes follow changes in long run sustainable earnings.	Managers are reluctant to affect dividend changes that may have to be reversed.

Criticism of Linter's Model

CRITICISM of Linter's Model

Does not offer a market price for the shares	Adjustment factor is an arbitrary number and not based on any scientific criterion or method
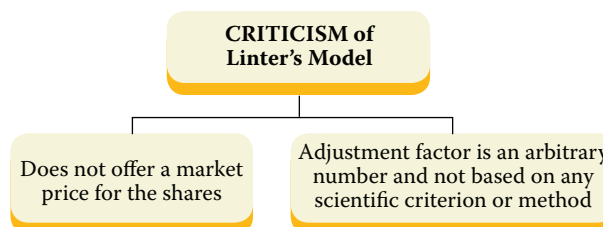
Stock Splits

Stock Splits	Splitting one share into many, say, one share of ₹500 into 5 shares of ₹100

Advantages and Limitations of Stock Splits
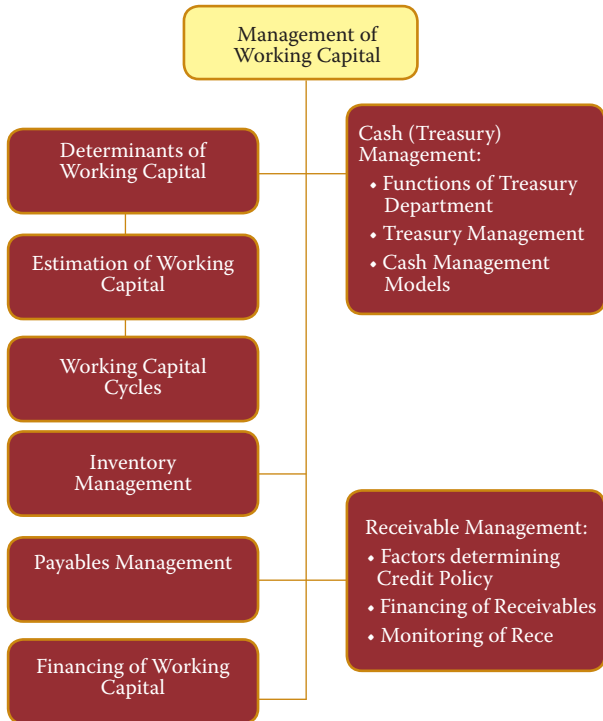
ADVANTAGES of Stock Splits
- Makes the share affordable to small investors.
- Number of shares may increase the number of shareholders.

LIMITATIONS of Stock Splits
- Additional expenditure need to be incurred on the process of stock split.
- Low share price may attract speculators or short term investors, which are generally not preferred by any company.
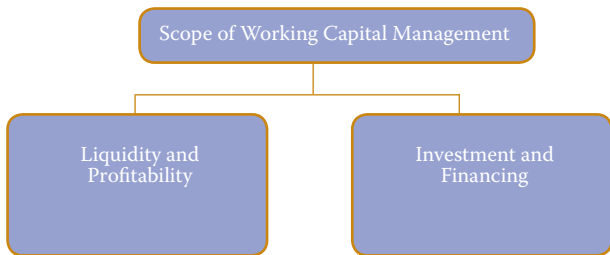
MANAGEMENT OF WORKING CAPITAL

Chapter Overview

Management of Working Capital

- Determinants of Working Capital
- Estimation of Working Capital
- Working Capital Cycles
- Inventory Management
- Payables Management
- Financing of Working Capital

Cash (Treasury) Management:
- Functions of Treasury Department
- Treasury Management
- Cash Management Models

Receivable Management:
- Factors determining Credit Policy
- Financing of Receivables
- Monitoring of Rece

Working Capital: In accounting term working capital is the difference between the current assets and current liabilities.

Working Capital = Current Assets – Current Liabilities

Scope of Working Capital Management

Scope of Working Capital Management
- Liquidity and Profitability
- Investment and Financing

Liquidity vs Profitability: The trade-off between the components of working capital can be summarised as follows:

Component of Working Capital	Advantages of higher side (Profitability)	Trade-off (between Profitability and Liquidity)	Advantages of lower side (Liquidity)
Inventory	Fewer stock-outs increase the profitability.	Use techniques like EOQ, JIT etc. to carry optimum level of inventory.	Lower inventory requires less capital but endangered stock-out and loss of goodwill.

| **Receivables** | Higher Credit period attract customers and increase revenue | Evaluate the credit policy; use the services of debt management (factoring) agencies. | Cash sales provide liquidity but fails to boost sales and revenue |
Pre-payment of expenses	Reduces uncertainty and profitable in inflationary environment.	Cost-benefit analysis required	Improves or maintains liquidity.
Cash and Cash equivalents	Payables are honoured in time, improves the goodwill and helpful in getting future discounts.	Cash budgets and other cash management techniques can be used	Cash can be invested in some other investment avenues
Payables and Expenses	Capital can be used in some other investment avenues	Evaluate the credit policy and related cost.	Payables are honoured in time, improves the goodwill and helpful in getting future discounts.

Investment and Financing

Investment in working capital is concerned with the level of investment in the current assets.

Financing decision concerned with the arrangement of funds to finance the working capital.

Approaches of Working Capital investment
- Aggressive
- Moderate
- Conservative

Aggressive
- Here investment in working capital is kept at minimal investment in current assets which means the entity does hold lower level of inventory, follow strict credit policy, keeps less cash balance etc.

Conservative
- In this approach organisation use to invest high capital in current assets. Organisations use to keep inventory level higher, follows liberal credit policies, and cash balance as high as to meet any current liabilities immediately.

Moderate
- This approach is in between the above two approaches. Under this approach a balance between the risk and return is maintained to gain more by using the funds in very efficient manner.
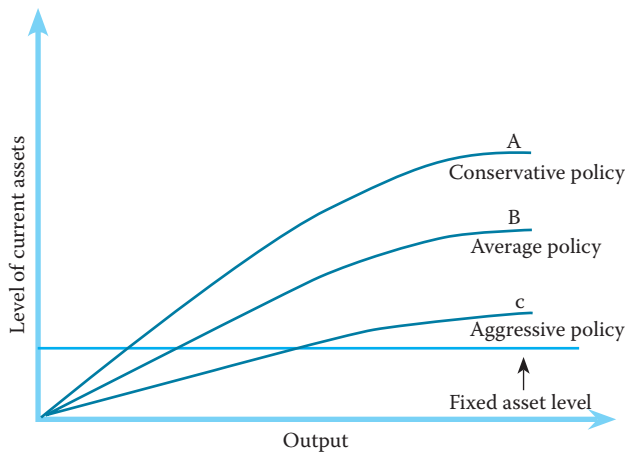
Operating/ Working Capital Cycle: Working Capital cycle indicates the length of time between a company's paying for materials, entering into stock and receiving the cash from sales of finished goods.

Working Capital Cycle
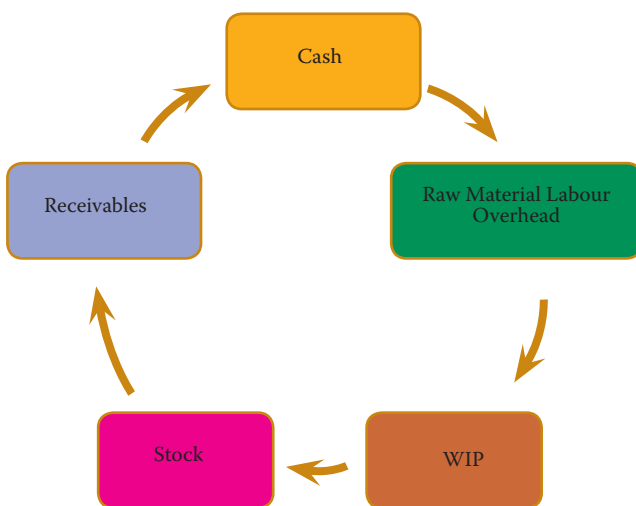
In the form of an equation, the operating cycle process can be expressed as follows:

Operating Cycle = R + W + F + D − C

Where,

R = **Raw material storage period**

W = **Work-in-progress holding period**

F = **Finished goods storage period**

D = **Receivables (Debtors) collection period.**

C = **Credit period allowed by suppliers (Creditors).**

The various components of Operating Cycle may be calculated as shown below

(1)	Raw Material Storage Period	=	$\dfrac{\text{Avereage stock of Raw material}}{\text{Average Cost of Raw material Consumption per day}}$
(2)	Work-in-Progress holding period	=	$\dfrac{\text{Avg Work-in-progress inventory}}{\text{Average Cost of Production per day}}$
(3)	Finished Goods storage period	=	$\dfrac{\text{Average stock of finished goods}}{\text{Average Cost of Goods Sold per day}}$
(4)	Receivables (Debtors) collection period	=	$\dfrac{\text{Average Receivables}}{\text{Average Credit Sales per day}}$
(5)	Credit period allowed by suppliers (Creditors)	=	$\dfrac{\text{Average Payables}}{\text{Average Credit Purchases per day}}$

Estimation of Amount of Different Components of Current Assets and Current Liabilities

(i) Raw Materials Inventory:

$$\frac{\text{Estimated Production (units)}}{\text{12 months / 365 days *}} \times \text{Estimated Cost per unit} \times \text{Average raw material storage period}$$

(ii) Work-in-Progress Inventory:

$$\frac{\text{Estimated Production (units)}}{\text{12 months / 365 days *}} \times \text{Estimated WIP cost per unit} \times \text{Average W-I-P holding period}$$

(iii) Finished Goods:

$$\frac{\text{Estimated Production (units)}}{\text{12 months / 365 days *}} \times \text{Estimated Cost of production per unit} \times \text{Average storage period}$$

(iv) Receivables (Debtors):

$$\frac{\text{Estimated Credit Sales unit}}{\text{12 months / 365 days *}} \times \text{Cost of sales (excluding depreciation) per unit} \times \text{Average collection period}$$

(v) Cash and Cash equivalents: Minimum desired Cash and Bank balance to be maintained

(vi) Trade Payables (Creditors):

$$\frac{\text{Estimated credit purchase}}{\text{12 months / 365 days *}} \times \text{Credit period allowed by suppliers}$$

(vii) Direct Wages:

$$\frac{\text{Estimated labour hours x wages rate per hour}}{\text{12 months / 365 days *}} \times \text{Average time lag in payment of wages}$$

(viii) Overheads (other than depreciation and amortization):

$$\frac{\text{Estimated Overheads}}{\text{12 months / 360 days *}} \times \text{Average time lag in payment of overheads}$$

Number of days in a year may be taken as 365 or 360 days.

Estimation of Working Capital Requirements

		Amount	Amount	Amount
I.	**Current Assets:**			
	Inventories:			
	- Raw Materials	---		
	- Work-in-process	---		
	- Finished goods	---	---	
	Receivables:			
	- Trade debtors	---		
	- Bills	---	---	
	Minimum Cash Balance		---	
	Gross Working Capital		---	---
II.	Current Liabilities:			
	Trade Payables		---	
	Bills Payables		---	
	Wages Payables		---	
	Payables for overheads		---	---
III.	**Excess of Current Assets over Current Liabilities [I – II]**			---
IV.	Add: Safety Margin			---
V.	**Net Working Capital [III + IV]**			---

MANAGEMENT OF RECEIVABLES

Approaches of Evaluation of Credit Policies

There are basically two methods of evaluating the credit policies to be adopted by a Company – Total Approach and Incremental Approach. The formats for the two approaches are given as under:

Statement showing the Evaluation of Credit Policies (based on Total Approach)

Particulars	Present Policy	Proposed Policy I	Proposed Policy II	Proposed Policy III
	₹	₹	₹	₹
A. Expected Profit:				
(a) Credit Sales	....	....	…..........	....
(b) Total Cost other than Bad Debts and Cash Discount				
(i) Variable Costs	....	....	…..........	....
(ii) Fixed Costs	....	....	…..........	....
	....	....	....	....
(c) Bad Debts	....	....	…..........	....
(d) Cash discount				

Particulars			
(e) Expected Net Profit before Tax (a-b-c-d)	....	....	....	....
(f) *Less:* Tax	....	....	....	....
(g) Expected Profit after Tax	....	....	....	....
B. Opportunity Cost of Investments in Receivables locked up in Collection Period	....	....	....	....
Net Benefits (A – B)	....	....	....	....

Statement showing the Evaluation of Credit Policies (based on Incremental Approach)

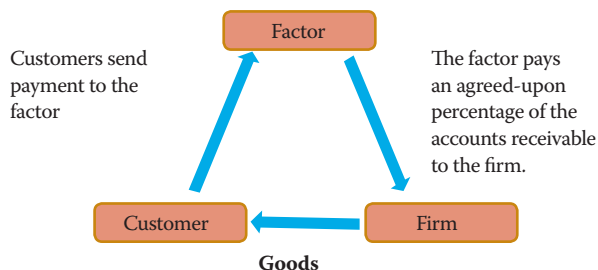| Particulars	Present Policy days	Proposed Policy I days	Proposed Policy II days	Proposed Policy III days
	₹	₹	₹	₹
A. Incremental Expected Profit:				
Credit Sales	....	....	…..........	....
(a) Incremental Credit Sales	....	....	…..........	....
(b) Less: Incremental Costs of Credit Sales				
(i) Variable Costs	....	....	…..........	....
(ii) Fixed Costs	....	....	…..........	....
(c) Incremental Bad Debt Losses	....	....	…..........	....
(d) Incremental Cash Discount	....	....	…..........	....
(e) Incremental Expected Profit (a-b-c-d)	....	....	…..........	....
(f) Less: Tax	....	....	…..........	....
(g) Incremental Expected Profit after Tax	....	....	…..........	....
	....	....	…..........	....
B. Required Return on Incremental Investments:				
(a) Cost of Credit Sales	....	....	…..........	....
(b) Collection Period (in days)	....	....	…..........	....

(c) Investment in Receivable (a x b/365 or 360)	……….	………….	………...	……….
(d) Incremental Investment in Receivables	……….	………….	………...	……….
(e) Required Rate of Return (in %)	……….	………….	………...	……….
(f) Required Return on Incremental Investments (d x e)	……….	………….	………...	……….
Incremental Net Benefits (A – B)	……….	………….	………...	……….

Financing of Receivables

(i) Pledging: This refers to the use of a firm's receivable to secure a short term loan.

(ii) Factoring: This refers to outright sale of accounts receivables to a factor or a financial agency.

Customers send payment to the factor

The factor pays an agreed-upon percentage of the accounts receivable to the firm.

Goods

The basic format of evaluating factoring proposal is given as under:

Statement showing the Evaluation of Factoring Proposal

	Particulars	₹
A.	**Annual Savings (Benefit) on taking Factoring Service**	
	Cost of Credit Administration saved	………...
	Bad Debts avoided	…………
	Interest saved due to reduction in Average collection period (Wherever applicable)	…………
	[Cost of Annual Credit Sales × Rate of Interest × (Present Collection Period – New Collection Period)/360* days]	
	Total	………...
B.	**Annual Cost of Factoring to the Firm:**	
	Factoring Commission [Annual credit Sales × % of Commission (or calculated annually)]	………...
	Interest Charged by Factor on advance (or calculated annually)	………...
	[Amount available for advance or (Annual Credit Sales – Factoring Commission – Factoring Reserve)] × $[\dfrac{\text{Collection Period (days)}}{360*} \times \text{Rate of Interest}]$	
	Total	………...
C.	**Net Annual Benefits/Cost of Factoring to the Firm:**	………...
	Rate of Effective Cost of Factoring to the Firm $= \dfrac{\text{Net Annual cost of Factoring}}{\text{Amount available for advance}} \times 100$ or $\dfrac{\text{Net annual Cost of Factoring}}{\text{Advances to be paid}} \times 100$	
	Advances to be paid = (Amount available for advance – Interest deducted by factor)	

साransh

Last Mile Referencer for

FINANCIAL MANAGEMENT

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