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Entire Document

Financial Management
CONTENTS Chapter 1: Introduction to Financial Management 1 Chapter 2: Time Value of Money 14 Chapter 3: Sources of Finance 34 Chapter 4:
Concept of Economic Value Added 70 Chapter 5: Risk and Return Analysis 80 Chapter 6: Cost of Capital 115
Chapter 7: Capital Structure
and Theories 146 Chapter 8: Concept of
Leverages 174 Chapter 9: Fundamentals of Capital Budgeting 185 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting 211
Chapter 11: Working Capital Management & Financing 235 Chapter 12: Receivable Management 257 Chapter 13: Inventory Management 276 Chapter 14: Cash Management 292 Chapter 15: Management of Surplus & Dividend Policy 312
1 Chapter 1:
Introduction to Financial Management Chapter 1: Introduction to Financial Management Objectives This chapter on Introduction to Financial Management covers 1. Meaning and importance of financial management 2.
Objectives and scope of the study of financial management 3.
Organisation of finance function
Introduction
It would be worthwhile to recall, what Henry Ford had once remarked: "Money is an arm or a leg. You either use it or lose it". This statement, though apparently simple, is quite meaningful. It brings home the significance of money or finance.
In the modern money-oriented economy,
finance is one of the basic foundations of all kinds of economic activities, it is the master key which provide access to all the sources for being employed in manufacturing and merchandising activities.
The Sanskrit saying "arthah sachivah" (....), which means "finance reigns supreme", speaks volumes for the significance of the finance function of an organization. It has rightly been said that, business needs money to make more money. However, it is also true that money begets more money, only when it is properly managed. Hence, efficient management of finances. In conclusion, we can say that "Finance is the backbone of every business". 1.1 Meaning
of Financial Management

Business
Finance
is that business activity which is concerned with the acquisition and conservation of
capital funds in meeting financial needs and overall objectives of business
enterprises.
According to
the Encyclopedia of Social Sciences, Corporate finance deals with the financial problems of corporate enterprises. Problems include financial aspects of the promotion of new enterprises and their administration during early development, the accounting problems connected with the distinction between capital and income, the administrative questions created by, growth and expansion, and finally the financial adjustments required for bolstering rehabilitation of a corporation which has come into financial difficulties. Management of all these is financial management. Financial management mainly involves, rising of funds and their effective utilisation with the objective of maximizing shareholders' wealth. To quote,
Joseph
and
Massie, "
Financial Management
is the operational activity of
a business that is responsible for obtaining and effectively utilising the funds necessary for efficient operations".
According to
Van Horne
and Wachowicz, "
Financial Management is concerned with
the
acquisition, financing and management of assets with some overall goal in mind."
Financial manager has to forecast expected events in business and note their financial implications. First, anticipating financial needs means estimation of funds required for investment in fixed and current assets or long-term and short-term assets. Second, acquiring financial resources-once the required amount of capital is anticipated, the next task is acquiring financial resources i.e., where and how to obtain the funds to finance the anticipated financial needs and the last one is, allocating funds in business - means allocation of available funds among the best plans of assets, which are able to maximize shareholders' wealth. Thus, the decisions of
financial management can be divided into three viz., investment, financing and dividend decision. 1.2
Objectives
of Financial Management The objectives of financial management are: Traditionally, the basic objectives of financial management have been (1) Maintenance of liquid assets and (2) Maximization of profitability of the firm. However, these days, there is a greater emphasis on (3) Shareholders' wealth maximization rather than on profit maximization.
2
Financial Management 1.
Maintenance of Liquid Assets: Financial management aims at maintenance of adequate liquid assets with the firm to meet its obligations at all times. However, investment in liquid assets has to be adequate – neither too low nor too excessive. The finance manager has to maintain a balance between liquidity and profitability. 2.
Maximization of Profit: "Profit maximization" is a term which denotes the maximum profit to be earned by an organization in a given time period. The profit maximization goal implies that the investment, financing and dividend policy decision of the enterprise should be oriented to profit
maximization.
It implies that the enterprise should select assets, projects and decisions that are profitable and reject the non-profitable ones. It is in this sense, that the term profit-maximization is used in financial management. 3.
Wealth Maximization: It is now widely and universally accepted that
the objective of the enterprise should suitable and operationally feasible.
Wealth-
maximization means maximizing the present value of a course of action (
i.e. NPV = GPC of benefits – Investment).
Any financial action which results in positive NPV creates and adds to the existing wealth of the organization.
Besides the above basic objectives, the following are the other objectives of financial management: 1.
Ensuring a fair return to shareholders. 2.
Building up reserves for growth and expansion. 3. Ensuring maximum operational efficiency by efficient and effective utilization of finance. 4. Ensuring financial discipline in the

management. 1.3
Scope of
Financial Management
Financial Management is broadly concerned with the acquisition and use of funds by a business firm.
Its scope may be defined in terms of the following questions:
Management of short-term Assets: Receivable Management Inventory Management Cash Management Principles of Working Capital Management Working Capital Policy ? ? ? ? ? ? Financial Management
Working Capital Management
Management of Long-term Funds: Capital Structure Cost Capital Sources of Long-term Funds Financial Leverage Dividend Policy ? ? ? ? ?
Management
of Long-term Assets: Capital Budgeting Operational Leverage Risk Analysis ? ? ? Management of Short-term funds: Management of short-term liabilities like creditors, bank overheads, bills payable, short-term loans Principles of Working Capital Management Working Capital Policy ? ? ? ? 1.
How large should the firm be and how fast should it grow? 2. What should be the composition of the firm's assets?
Figure 1.1: Framework of Financial Management
3 Chapter 1: Introduction to Financial Management 3.
What should be the mix of the firm's financing? 4. How should the firm analyze, plan and control its financial affairs?
The entire gamut of management efforts concerned with raising of funds at optimum cost and their effective utilization with a view to maximize the wealth of the shareholders.
Financial Management
is concerned with the efficient use of an important economic resource namely, capital funds.
As Modern Financial Management
performs several functions, it is a difficult task to identify the functional areas of modern financial management. Thus, Financial Management includes – Anticipating Financial Needs, Acquiring Financial Resources and Allocating Funds in Business (i.e., Three A's of financial management). 1.4
Finance Functions
Financial Management is indeed, the key to successful business operations. Without proper administration and effective utilization of finance, no business enterprise can utilize its potentials for growth and expansion.
Financial management is concerned with the
acquisition, financing and management of assets with some overall goals in mind.
As mentioned
in the contents of modern approach, the discussions on
financial management can be divided into three major decisions viz., (1)
Investment decision; (2) Financing decision; and (3) Dividend decision (
see Figure 1.2).
A firm takes these decisions simultaneously and continuously in the normal course of its business. Firm may not take these decisions in a sequence, but decisions have to be taken with the objective of maximizing shareholders' wealth.
Financial Decisions Investment Decision Dividend Decision Financing Decision 1. Investment Decision: It is most important than the other two decisions.
It begins with a determination of the total amount of assets needed to be held by the firm. In other words,
investment decision relates to the selection of assets, that a firm will invest funds. The required assets fall into two groups: (a) Long-term Assets (
Fixed assets: plant & machinery, land and buildings, etc.): Which
involve huge investments and
yield a return over a period of time
in future.
Investment in long-term
assets
is popularly known as "
capital budgeting".
It
may be defined as the firm's decision to invest its
current funds most efficiently in
fixed assets with an expected flow of benefits over a series of years. (
b) Short-term Assets (
Current assets: raw materials, working in process, finished goods, debtors, cash, etc.):

That
can be converted into cash within a financial year without diminution in value.
Investment in current assets is popularly termed as "working capital management".
It relates to the management of current assets. It is an important decision of a firm, as short-survival is the prerequisite for long-term success. Firms should not maintain more or less assets. More assets reduce return and there will be no risk, but having less assets is more of a risk as well as more profitable. Hence, the main aspects of working capital management are, the trade-off between risk and return. Management of working capital involves two aspects. First, determination of the amount required for the running of the business and secondly financing these assets. It is discussed in detail in the chapter on Working Capital Management. Figure 1.2: Financial Decisions
4 Financial Management 2. Financing Decision:
After estimation of the amount required and the assets that require purchasing, comes the next financing decision into the picture. Here, the financial manager is concerned with make up of the left hand side of the balance sheet.
It is related to the financing mix or capital structure or leverage and
he has to determine the proportion of debt and equity. It should be optimum finance mix, which maximizes shareholders' wealth. A proper balance will have to be struck between risk and return. Debt involves fixed cost (interest), which may help in increasing the return on equity
along with
an increase in risk. Rising of funds by issue of equity shares is one permanent source, but the shareholders expect higher rates of earnings.
The two aspects of capital structure are : capital structure theories and determination of optimum capital structure. 3. Dividend Decision: This is the third financial decision, which
relates to dividend policy. Dividend is a part of profits, that are
available for distribution, to equity shareholders. Payment of dividends should be analyzed in relation to the financial decision of a firm. There are two options available in dealing with the net profits of a firm, viz., distribution of profits as dividends to the ordinary shareholders' where, there is no need of retention of earnings or they can be retained in the firm itself if they require, for financing of any business activity. But distribution of dividends or retaining
should be determined in terms of its impact on the shareholders' wealth. The Financial manager should determine optimum dividend policy, which maximizes market value of the
share
thereby market value of the firm. Considering the factors to be considered while determining dividends is another aspect of dividend policy.
Inter-relation among Financial Decisions Although the above-discussed financial management decisions are of three different kinds, they are not independent, but are interrelated as
the underlying objective of all the three decisions is (same) maximisation of shareholders' wealth.
Investment Decision Financing Decision Dividend Decision 1. Inter-relation between "Investment and Financing Decisions": While taking the investment decision, the financial manager decides the type of asset or project that should be selected. The selection of a particular asset or project helps to determine the amount of funds required to finance the project or asset. For example, suppose the investment on fixed assets is
Rs. 10
crore and investment in current assets or working capital is
Rs. 4
crore. So the total fund required to finance the total assets is Rs. 14 crore. Once the anticipation of funds required is completed then the next decision is financing decision. Financing decision means raising the required funds by various instruments. There is a inter-relation between investment decision and financing decision, without knowing the amount of funds required and types of funds (short-term and long-term) it is not possible to raise funds. To put it in simple words, investment decision and financing decisions cannot be independent. They are dependent on each other. 2. Inter-relation between "Financing Decision and Dividend Decision": Financing decision influences and is influenced by dividend decision, since retention of profits for financing selected assets or projects, reduces the profit available to ordinary shareholders, thereby reducing dividend payout ratio. For example, in the illustration above, we have decided the amount required to finance a project is
Rs. 14
crore. If the financial manager plans to raise only Rs. 7 crore from outside and the remaining by way of retained earnings, and if the dividend decision is 100% payout ratio, then the
Figure 1.3: Inter-relationship among Financial Decisions
5 Chapter 1: Introduction to Financial Management
financial manager has to depend completely on outside sources to raise the required funds. So, dividends decision influences the financing decision. Hence, there is an interrelation between financing decision and dividend

decision. 3. Inter-relation between "Dividend Decision and Investment Decision": Dividend decision and investment decision are
interrelated because retention of profits for financing the selected assets depends on the rate of return on proposed investment and the opportunity cost of the retained profits. Profits are retained when
return on investment is higher than the opportunity cost of retained
profits and
vice-versa.
Hence, there is interrelation between investment decision and dividend decision.
The financial manager has to take an optimal joint decision after evaluating the decisions that will affect the wealth of the shareholders, if there is any negative affect on the wealth it should be rejected
and vice versa. Notes The importance of financial management
can be ascertained, after going through the following points: 1. Successful promotion: Successful promotion of a business concern depends upon efficient

the firm cannot carry on its business successfully. Therefore, sound financial planning is quite essential for the success of a business firm. 2. Smooth running: Since

expenses, proper financial administration becomes necessary for the smooth running of a business enterprise. 3. Decision making: Financial management provides scientific analysis of all facts and figures through various financial tools such as ratio analysis, Variance analysis, budgets etc. Such an analysis helps

by providing solutions to the various financial problems faced by it. 5. Measure of performance: Financial Management is considered as a yard stick to measure the performance of the firm.
The importance of Financial Management in an enterprise may very well be realized by the following words. "
Financial Management is properly viewed as an integral part of the overall management rather than as a staff specialty concerned with fund raising operation.
In
addition to raising funds, financial management is directly concerned with production, marketing and other functions within an enterprise, whenever
decision
are made about the acquisition or distribution of assets". Thus, financial management
has attained a good deal of importance in modern business. 1.5
Nature of Financial Management From the below discussion it is evident, that financial management as an academic discipline has undergone notable changes over the years, with regard to its scope and areas of coverage. At the same time, the financial manager's role also has undergone fundamental changes over the years.
Study of the changes that have taken place over the years is known as "scope of financial management." In order to have an easy understanding and better exposition to the changes, it is necessary to divide the scope into two approaches. 1. Traditional Approach: The traditional approach, which was popular in the early stage, limited the role of financial management
to raising and administering of funds needed by the corporate enterprises to meet their financial needs. It

deals with the following aspects: (a) Arrangement of funds from financial institutions.
6
Financial Management (
b)
Arrangement of funds through financial instruments like share, bonds etc. (
c)
Looking after
the legal and accounting relationship between a corporation and its sources of funds.
Thus, the
finance manager had a limited role to perform, He was expected to keep accurate financial records, prepare reports on the corporation's status and performance and manage cash in a way that the corporation was in a position to pay its bills on time.
The term "Corporation Finance" was used in place of the present term "Financial Management".
The traditional approach to the scope of the finance function evolved during the 1920s and 1930s, dominated the academic thinking during the 40s and through the early 50s. It has now been discarded as it suffers from serious limitations.
Following are the main limitations: (a) External approach: The approach
treated the subject of finance only from the view point of suppliers of funds, i.e., outsiders, viz, bankers, investors etc. It followed an outsider-looking-in approach and not the insider-
looking-out
approach, since it completely ignored the view point of those who had to take internal financing decisions. (b) Ignored routine problems:
The
subject of financial management was mainly confined to the financial problems arising during the course of incorporation, mergers etc. and the subject did not give any importance to day-to-day financial problems of the business. (
c)
Ignored non-corporate enterprise: The approach focused mainly on the financial problems of corporate enterprises. (d) Ignored working capital financing: The problems related to financing, short term or working capital was ignored
in the approach. The approach focuses mainly on the problems of long term financing. (e) No emphasis on allocation of funds: The
approach
confined financial management only to procurement of funds. It did not emphasis on allocation of funds.
The conceptual framework of the traditional treatment ignored, what Solomon aptly describes as the central issues of financial management. These are: (a) Should an enterprise commit capital funds to certain purposes? (b) Do the expected returns meet financial standard of performance? (c) How should these standards be set and what is the cost of capital funds to the enterprise? (d) How does the cost vary with the mixture of financing methods used? In the absence of the coverage of these crucial aspects, the traditional approach implied a very narrow scope for financial management.
The modern approach provides a solution to these shortcomings. 2.
Modern Approach:
According to
the modern approach, the term financial management
provides a conceptual and analytical framework for financial decision-making.
That means,
the
finance function covers both, acquisition of funds as well as their
allocation. The new approach
views the term financial management
in a broader sense. It is viewed as an integral part of
the
overall management.
The new approach is an analytical way of viewing the financial problems of a
firm. The
main contents of
the modern approach are as follows: (a)
What is the total volume of funds, an enterprise should commit? (b) What specific assets should an enterprise acquire? (
c) How should the funds required, be financed?

Thus, financial management, in the modern sense of the term, can be divided into four major decisions as functions of finance.
They are: (
a) The investment decision
7
Chapter 1: Introduction to Financial Management (
b) The financing decision (c) The dividend policy decision (d) The funds requirement decision
The functions of financial management
may be classified on the basis of Liquidity, Profitability and Management. 1.
Liquidity: It is ascertained
on the basis of three important considerations. (a) Forecasting cash flows ? i.e., matching the inflows against the cash outflows. (
b) Raising funds ? i.e., financial manager will have to ascertain the sources fro which funds may be raised and the time when these funds are needed. (
c) Managing the flow of internal funds. 2. Profitability: While ascertaining profitability, the following factors are taken into account: (
a) Cost control (b) Pricing (c) Forecasting future profits (d) Measuring cost of capital 3. Management: Asset management has assumed an important role in financial management. It includes: (a) the management of long-term funds, (b) the management of short-term funds. Apart from the main functions, mentioned above following subsidiary functions are also performed by the finance management. 1.6
Organization of the Finance Functions Like any other functional management in a firm, 'finance' is a vital functional organ of the firm. If finance function does not operate well, the whole organizational activity will be ruined. So inefficient financial management paralyses the activity of the firm. That is why every company will have a separate department to look after the financial aspects of the company.
Caution The finance function can be broadly classified into two parts: 1. Routine financial matters like, custody of cash and bank accounts, collection or loans, payment of cash etc. 2. Special financial functions like financial planning and budgeting, profit analysis, investment decisions etc. These two functions can be looked after by two executives and ultimately by the top management.
Routine matters are looked after by the "Treasurer" and special matters are managed by the "Controller of Finance". The following chart will give an idea about the finance department:
8
Financial Management
Chief Finance Officer Treasurer Controller Cash Manager Credit Manager Capital Budgeting Manager Fund Raising Manager Portfolio Manager Financial Accounting Manager Cash Accounting Manager Tax Manager Data Processing Manager Internet Auditor 1.7
Financial Goal – Profit
Maximisation vs. Wealth Maximisation The financial goal of the business now-days is the shareholders wealth maximisation rather than the profit maximisation. Though the objective of the financial management is same as the objective of the company i.e. to earn the profits but is not the sole objective of the company. It is commonly agreed that the objective of the firm\m is to maximize the wealth or value.
Profit maximisation is a term which denotes the maximum profit to be earned by an organization in a given time period. The profit maximization goal implies that the investment, financing and dividend policy decision of the enterprise should be oriented to profit maximization. The term "Profit" can be used in two senses – first, as the owner-oriented concept and the second, as the operational concept. Profit as the owner-oriented concept, refers to the amount of net profit, which goes in the form of dividend to the shareholders. Profit as the operational concept means profitability, which is an indicator of economic efficiency of the enterprise. Profitability-maximization implies that the enterprise should select assets, projects and decisions that are profitable and reject the non-profitable ones. It is in this sense, that the term profit- maximization is used in financial management.
Merits of Profit Maximization 1.
Best Criterion on Decision-Making: The goal of profit maximization is regarded as the best criterion of
decision-making as it provides a yardstick to judge the economic performance of
the enterprises. 2. Efficient Allocation of Resources: It leads to efficient allocation of scarce resources as they tend to be diverted to those uses which, in terms of profitability, are the most desirable. 3. Optimum Utilization: Optimum utilization of available resource is possible. 4. Maximum Social Welfare: It ensures maximum social welfare in the form of maximum dividend to shareholders, timely payment to creditors, higher wages, better quality and lower prices, more employment opportunities to the society and maximization of capital to the owners.
However, the profit-maximization objective suffers from several drawbacks which are as follows. 1.

Time Factor Ignored: The term 'Profit' does not speak anything about the period of profit-whether it is short-term profit or long-term profit. 2. It is Vague: The term 'Profit' is very vague. It is
not clear in what exact sense the term profit is used. Whether it is Accounting profit or Economic profit or profit after tax or profit before tax.
Figure 1.4: Organization of the Finance Function
9 Chapter 1: Introduction to Financial Management 3.
The Term 'Maximum' is also ambiguous: The term 'maximum' is also not clear. The concept of profit is also not clear. It is therefore, not possible to maximize what cannot be known. 4. It Ignores Time Value: The profit maximization objective fails to provide any idea regarding the timing of expected cash earnings. The choice of a more worthy project lies in the study of time value of future inflows of cash earnings. It ignores the fact that the rupee earned to day is more valueable than a rupee earned later. 5.
It Ignores the Risk Factor: According to economists, profit is a reward for risk and uncertainty bearing. It is also a dynamic surplus or profit is a reward for innovation. But when can the organization maximize profits? Profit -maximization objective does not make this clear.
Caselet Maximizing Profit T he
conflict between the private short-term interest of the financial intermediaries in maximizing profits and the public interest of effective financial intermediation was an important contributing factor to the making of the financial crises, Hong Kong's weathered monetary chief Joseph Yam said Monday. Speaking at the SIBOS, or SWIFT International Banking Operations Seminar, which runs from Sept. 14 to Sept. 18 in Hong Kong, Yam said there was an internal contradiction in the claim that the handsome rewards the financial intermediaries received for their innovations were justified by greater financial efficiency. The greater efficiency was shown in the higher rate of return for those with surplus money and a lower cost for those in need of money, according to the claim. But, "greater profits for financial institutions and larger bonuses for those employed in them mean, to me at least, a widening, rather than a narrowing, of the intermediation spread; in other words, lower financial efficiency," Yam said. The observed narrowing of the intermediation spread comes at the expense of, or presages, a future, possibly sharp widening that often occurs in the context of a financial crisis, Yam told the big shots at the conference.
Source: cctv.com
Wealth Maximization It is now widely and universally accepted that the objective of the enterprise should suitable and operationally feasible. Precise and clear cut and should give weightage to the time value and risk factors. Owing to the various drawbacks of the profit maximization objective, Professor Ezar Solomon rejected it as inappropriate and unsuitable and suggested the adoption of wealth-maximization objective which removes all the drawbacks of the profit maximization objective. It is also called value maximization. The value of the
firm
is represented by the market price of the company's
common stocks. The
wealth or '
net present worth' of
a course of action is the difference between gross present
worth and the
amount of capital investment required to achieve the benefits. Gross Present-worth represents the present value of expected cash benefits.
In simple words,
wealth-maximization means maximizing the present value of a course of action (
i.e. NPV = GPC of benefits – Investment).
Any financial action which results in positive NPV creates and adds to the existing wealth of the organization and the course of action which has a negative NPV, reduces the existing wealth and hence be given up. All positive actions can be adopted, as they add to the existing wealth and help in wealth-maximization.
Significance of Wealth Maximization
The company, although it-cares more for the economic welfare of the shareholders, cannot forget the others who directly or indirectly work for the overall development of the company. Thus, Wealth-Maximization takes care of: 1. Lenders or Creditors
10
Financial Management 2. Workers or Employees 3. Public or Society 4. Management or Employer

The market price of the firms stock represents the focal judgement of all market participants as to what the value of the particular firm is. It takes in to the account present & prospective future earnings per share, the timings & the risk of these earnings, the dividend policy of the firm & many other factors that bear upon the market price of the stock. Market price acts as the performance index or report card of the firms' progress. Prices in the share markets are largely affected by many factors like general economic outlook, outlook of
the particular company, technical factors & even mass psychology. This value function is given by two factors: 1. The anticipated rate if earnings per share of the company. 2. The capitalization rate.
The likely earning per share (EPS) depends on the assessment as to how
the
profitably a company is growing to operate in the future. The capitalisation rate reflects the liking of the investors for the company.
In challenging dynamic global environment planning, procurement, allocation & earning the profit & maintaining the same is itself is a challenging task.
Task
If wealth maximisation is
the objective of financial management, then how the financing, investing and dividend decisions of a company can help to attain this objective?
Case Study Bhatt Industries Basic Planning T his
case will help the reader, develop an approach to structuring a case solution. It requires a logical approach to solving a general financial problem. Bhatt Industries has been manufacturing fireworks at a small facility just outside Greensboro, North Carolina. The firm is known for the high level of quality control in its production process and is generally respected by distributors in the states, where fireworks are legalized. Its selling market is fairly well defined ; it has the capacity to produce 800,000 cases annually, with peak consumption in the summer. The firm is fairly confident, that the whole of next year's production can be sold for
Rs. 25
a case. On September 7, the company has Rs. 8,000,000 in cash. The firm has a policy against borrowing, to finance its production, a policy first established by William Bhatt, the owner of the firm. Mr. Bhatt keeps a tight rein on the firm's cash and invests any excess cash in treasury bonds, that pays a 12 per cent return and involve no risk of default. The firm's production cycle revolves around the seasonal nature of the fireworks business. Production begins right after Labour Day and runs through May. The firms sales occur in February through May ; the firm closes from June 1 to Labour Day, when its employees return to farming. During this time, Mr. Bhatt visits his grandchildren in New York and Pennsylvania. As a result of this scheduling, the firm pays all its expenses during September and in May receives, all its revenues from its distributors within 6 weeks after the 4th of July. The customers send their checks directly to Kenmy National Bank, where the money is deposited in Bhatt's account. Mr. Bhatt is the only full-time employee of his company and he and his family hold all the common stock. Thus, the company's only costs are directly related to the production of fireworks. The costs are affected by the law of variable proportions, depending on the production level. The first 100,000 cases cost Rs. 16 each; the second 100,000 cases, Rs. 17 each ; the third 100,000 cases, Rs. 18 each and the fourth 100,000 cases, Rs. 19 each ; the fifth 100,000 cases, Rs. 20 each;
the Contd...
11 Chapter 1: Introduction to Financial Management sixth 100,000 cases, Rs 21
each. As an example, the total of 200,000 cases would be Rs. 1,600,000 plus Rs. 1,700,000 or
Rs. 3,300,000.
BHATT INDUSTRIES - INCOME STATEMENT (August 31, fiscal year just ended) Rs. Revenues from operations 50,00,000 Revenues from interest on government bonds 9,20,000 Total revenues 59,20,000 Operating expenses 40,50,000 Earnings before taxes 18,70,000 Taxes 9,48,400 Net income after taxes 9,21,600 Bhatt Industries is a corporation and pays a 30 per cent tax on income, because of the paperwork involved. Mr. Bhatt invests his excess cash on September 6 in one year treasury bonds. He does not invest for shorter periods. Questions 1. How does this level affect long-term prospects of wealth maximization? 2. What should be the level of production to maximize the profit? 1.8
Summary ?
Corporate
finance
is
the activity concerned with planning, raising, controlling and administering of
the funds used in the
business. ?
Corporation is an association of many persons who contribute money or money's worth to a common stock and employs it in business, and who share profit and loss

arising from the business equally. ?
Financial Management is concerned with the
acquisition, financing and management of assets with some overall goal in mind. ?
The scope of financial
management can be
studied under two approaches. ?
In the traditional approach, the role of financial management is
limited
to fund
raising and administering needed, by the corporate enterprises to meet their financial needs. ?
The scope of modern approach covers both, procurement of funds as well as their allocation. ? Investment decision relates to the selection of assets, that a firm will invest
funds. ?
Financing Decision relates
to the financing mix or capital structure or leverage and
he has to determine the proportion of debt and equity. 1.9
Keywords
Corporation: It is an association of two or more persons who contribute money or money's worth to a common stock and employs it in business, and who share profit and loss equally.
Business Finance: It
is that business activity which is concerned with the acquisition and conservation of capital funds in meeting financial needs and overall objectives of business
enterprises.
Financial Management: It
is
the
operational activity of a business that is responsible for obtaining and effectively utilising the funds necessary for efficient operations.
Corporate Finance: Corporate
finance
is
the activity concerned with planning, raising, controlling and administering of
the funds used in the business.
12
Financial Management
Investment
Decision: Investment decision is related with the selection of assets, that a firm will
invert.
Financing Decision: It is related to the financing mix or capital structure or leverage and the determination of the proportion of debt and equity.
Dividend:
Dividend is a part of profits that are available for distribution to
shareholders.
Wealth Maximization: It is maximizing the present value of a course of action (
i.e. NPV = GPC of benefits - Investment). 1.10
Self Assessment 1. Fill in the blanks: (
a) Business Finance is wider than the ..... . (b) ..... Finance deals with the company form of business. (c)
Modern Financial Management is concerned with proper ....., ..., and ..... of funds effectively. (
d) 6A's of financial management are ....., ..., ..., ..., ... and ..... . (e)
Maximization of ..... is the main goal of financial management. (f) ..... and ..... maximization are the goals of financial management. (
g) Profit maximisation ignores ..... . 2. State whether the following statements are true or false: (a) Men, Money, Machine, Materials, Methods, Minutes and Management are the 7 M's of management. (b)
Traditional concept of finance was limited to acquisition of funds. (
c)

Investment decision, financing decision, dividend decision are the decisions of finance. (d) There is no relation among finance decisions. (e) Profit maximisation is suitable for sole proprietorship concerns. (
f)
Having basic knowledge of economics is necessary for a financial manager. (
g) The job of a financial manager is confined to raising and effective utilisation of funds. 1.11 Review Questions 1. ' Finance is considered to be the blood of the enterprise'. Justify. 2.
Analyse the changing scenario of financial management in India. 3.
You are the finance manager of a firm & asked to organise all the financial decisions of the firm. Elucidate the ways in which you will do it. 4. "
Financial Management is properly viewed as an integral part of the overall management rather than as a staff specialty concerned with fund raising
operation." Comment. 5. In your opinion, which one do you suggest,
wealth
maximisation or profit maximisation? Why? 6. Investment, financing & dividend decisions are all interrelated. Comment. 7. Analyse the ways in which the financial management has undergone a sea change over the years. 8. "
The profit maximisation is not an operationally feasible criterion." Do you agree?
Justify.
13
Chapter 1: Introduction to Financial Management 9. "..... Finance has changed .....from a field that was concerned primarily with the procurement of funds to one, that includes the management assets, the allocation of capital and valuation of the firm" Elucidate. 10.
Assuming wealth maximization to be the objective of financial management, show how the financing, investment and dividend decisions of a company can help to attain this objective. 11.
Elucidate the role of the financial manager in India. 12. Taking the practical example of any company, analyse the ways how the investment, financing & dividend decisions are interrelated?
Answers: Self Assessment 1. (a) Corporate finance, (b) Corporate, (c) anticipation, acquiring, allocation, (d) anticipation, acquiring, allocation, administering, analysis, accounting, (e) Shareholders wealth (f) Profit, Wealth (g) Time value of money 2. (a) True (b) True (c) True (d) False (e) True (f) True (g) True 1.12
Further Readings
Books
Sudhindra Bhat,
Financial Management, New Delhi, Excel Books, 2008. Van Horne, J.C. and Wachowicz, Jr, J.M., Fundamentals of Financial Management, New Delhi, Prentice Hall of India Pvt. Ltd., 1996, p. 2.
Chandra, P., Financial Management - Theory and Practice, New Delhi, Tata McGraw Hill Publishing Company Ltd., 2002, p. 3.
14
Financial Management
Chapter 2: Time Value of Money Objectives This chapter on Time Value of Money covers 1.
Time value of money 2.
Various valuation concepts 3. Various values based on different valuation concepts 4.
Different valuation models concerned with different securities
Introduction It has been explained in the preceding unit that maximization of the shareholder's
wealth is the basic objective of the finance manager of a firm. This requires him to take appropriate decisions on financing, investment and dividends.
While taking these decisions, the finance manager must keep the
concept of economic value added and
time factor in mind. Example: 1. When interest on funds raised, will have to be paid. 2. When return on investment will be received. 3. Whether it will be received on a consistent basis or otherwise etc. All this requires that the finance manager knows about the various valuation concepts, viz., Compound Value Concept, Annuity Concept, Present Value Concept etc. All these concepts are basically based
upon the fact that, money has
time value. 2.1
Concept of
Time Value of Money "Money has time value" means that the value of money changes
over a period of time.
The value of a
rupee, today is different from what it will be, say, after one year. 2.1.1

Factors Contributing to the
Time Value of Money
Money has a time value because of the following reasons: 1. Individuals generally prefer current consumption to future
consumption. 2.
An investor can profitably employ a rupee received today, to give him a higher value to be received tomorrow or after a certain period
of time. 3.
In an inflationary economy, the money received today, has more purchasing power than money to be received in future. 4. '
A bird in hand is worth two in the bush' : This statement implies that, people consider a rupee today, worth more than a rupee in the future, say, after a year. This is because of the uncertainty connected with the
future. Thus, the fundamental principle behind the concept of
time value of money is
that, a sum of money received today, is worth more than
if the same is received after
some time.
Example: If an individual is given an alternative either to receive
Rs. 10,000 now or after six months; he will prefer
Rs. 10,000
now.
This may be because,
today, he may be in
a position to purchase more goods with this money than what he is going to get for the same amount after six months.
15
Chapter 2:
Time Value of Money
Time
value of money or time preference of money is
one of the central ideas in finance. It becomes important and is of vital consideration in decision making. This will be clear with the following examples.
Example: 1. A project needs an initial investment of
Rs. 1,00,000. It
is expected to give a return of Rs. 20,000
p.a.

the cash inflows at the desired rate of interest is at least equal to the initial investment of
Rs. 1,00,000. 2. A firm has to choose between two projects. One involves an outlay of
Rs. 10
crore with a return of 12% from the first year onwards, for ten years. The other requires an investment of
Rs. 10
crore with a return of 14% p.a. for 15 years commencing with the beginning of the sixth year of the project. In order to make a choice between these two projects, it is necessary to compare the cash outflows and the cash inflows resulting from the project. In order to make a meaningful comparison, it is necessary that the two variables are strictly comparable. This is possible only when the time element is incorporated in the relevant calculations.
The above examples reflect the need of comparing the cash flows arising at different points of time in decision-making.
2.1.2
Valuation Concepts or Techniques The
time value of money implies that: 1. a person will have to pay in future more, for
a rupee received today

and 2.
a person may
accept less today, for a rupee to be received in
the future.
Caution
The above statements relate to two different concepts: 1. Compound Value Concept 2. Discounting or Present Value Concept 2.1.3 Compound Value Concept In
this concept,
the interest earned on the initial principal amount
becomes a part of
the principal at the end of a compounding period.
Illustration 1: Rs. 1,000 invested at 10% is
compounded annually for three years, Calculate the compounded value after three years. Solution:
Amount
at the end of 1st year will be: 1,100 [1000 × 110/100 = 1,100] Amount at the end of 2nd year will be: 1,210 [1100 × 110/100 = 1,210]
Amount at the end of 3rd year
will be: 1,331 [1210 × 110/100 = 1,331] This compounding process will continue for an indefinite time period.
Compounding of Interest over 'N' years:
The compounding of Interest can be calculated by the following equation. A = P (1 + i) n

In which,
A = Amount at the end of period 'n'. P = Principal at the beginning of the period. i = Interest rate. N = Number of years.
By taking into consideration, the above illustration we get A = P (1 + i) n A = 1000 (1 + .10) 3 A = 1,331 Computation by this formula can also become very time consuming if the number of years increase, say 10, 20 or more. In such cases to save upon the computational efforts, Compound Value table* can be used. The table gives the compound value of
Re. 1,
after 'n' years for a wide range of combination of 'i' and 'n'. For instance, the above illustration gives the compound value of
Re. 1
at 10% p.a. at the end of 3 years as 1.331, hence, the compound value of
Rs. 1000 will amount
to: 10001 × 331 =
Rs. 1331
Multiple Compounding Periods
Interest can be compounded, even more than once a year.
For calculating the multiple value above, logic can be extended. For instance, in case of Semi-annual compounding, interest is paid twice a year but at half the annual rate.
Similarly in case of quarterly compounding, interest rate effectively is 1/4th of the annual rate and there are four quarter years.
Formula: A = (1 + i/m) m×n Where, A = Amount after a period. P = Amount in the beginning of the period. i = Interest rate. M = Number of times per year compounding is made. n = Number of years for which compounding is to be done.
Future Value of Series of Cash Flows So far we have considered only the future value of a single payment
made at time zero.
The transactions in real life are not limited to one. An investor investing money in installments may wish to know the value of his savings after 'n' years.
Illustration 2: Mr. Manoj invests
Rs. 500, Rs. 1,000,
Rs. 1,500, Rs. 2,000 and Rs. 2,500
at the end of each year.
Calculate the compound value at the end of 5 years, compounded annually, when the interest charged is 5% p.a.

Solution: Statement of the Compound Value End of
year Amount deposited (Rs.) Number of years compounded Compounded Interest Factor from Future

Value (2) × (4) (Rs.) 1 2 3 4 5 1 2 3 4 5 500 1,000 1,500 2,000 2,500 4 3 2 1 0 1.216 1.158 1.103 1.050 1.000 608.00 1158.00 1,654.50 2,100.00 2,500.00
Amount at the end of the 5th Year Rs. 8020.50 It may be noted here, that we are making use of the Compound interest formula for each payment separately. For instance,
Rs. 500
put at the end of the first year, compounds for four years, and has a future value of
Rs. 608
at 5% interest [Rs. 500 (1 + 0.05) 4]. Similarly, Rs. 1,000 deposited at n = 2 compounds for 3 years, amounts to

Compound Sum of an Annuity An annuity is a stream of equal annual cash flows. Annuities involve calculations based upon the regular periodic contribution or receipt of a fixed sum of money. Illustration 3:
Mr. Ramesh deposits Rs. 2,000 at the end of every year for 45 years
in his saving account, paying 5% interest compounded annually. Determine the sum of money, he will have at the end of the 5th year. Solution: End of Year Amount Deposited (Rs.) Number of Years compounded Compounded Interest factor Future Sum (Rs.) 1 2 3 4 5 1 2 3 4 5 2,000 2,000 2,000 2,000 2,000 4 3 2 1 0 1.216 1.158 1.103 1.050 1.000 2,432 2,316 2,206 2,100 2,000 Amount at the end of 5th Year
Rs. 11,054 Finding the common factor of
Rs. 2,000 = Rs. 2,000 (1.216 +1.158 +1.103+1.050 +1.000) = Rs. 2,000 (5.527) = Rs. 11,054 Figure 2.1: Graphic Illustration of Compounding Values
18
Financial Management
The above illustration depicts that in order to find the sum of the annuity, the annual amount must be multiplied by the sum of the appropriate compound interest factors. Such calculations are available for a wide range of I and n. To find the answer to the annuity question of illustration 3 we are required to look for the 5% column and the row for the five years and multiply the factor by annuity amount of
Rs. 2000.
From the table we find that the sum of annuity of Re. 1 deposited at the of each year for 5 years is 5.526(IF). Thus, when multiplied by
Rs. 2,000 annuity (A) we find the total sum as
Rs. 11,054. Symbolically S n =
IF × A Where, A = is the value of annuity. IF = represents the appropriate factor for the sum of the annuity of Re.1. S n = represents the compound sum of annuity.
Annuity tables are great innovations in the field of investment
banking as they guide the depositors and investors as to what sum amount (X) paid for number of years, n, will accumulate to, at a stated rate of compound interest. Illustration 4: Find the compound value of annuity, when three equal yearly payments of
Rs. 25,000
are deposited into an account, that yields 7% compound interest. Solution: The Annuity Table gives the compound value as 3,215, when Re.1 is paid every year for 3 years at 7%. Thus, the compounded value of annuity of Rs. 2,000 is: S n = IF × A S n = 3.215 × 2000 S n = 6,430 2.2 Discounting or Present Value Concept The concept of present value is the exact opposite of that of a sum of money or series of payments, while
in case of present value concept, we estimate the present worth or a future payment/instalment or series of payment adjusted for the time value of money. The basis of present value approach is that, the
opportunity cost exist for money lying idle. That is to say, that interest can be earned on the money. This return is termed as 'discounting rate'. Given a positive rate of interest, the present value of the future Rupee will always be lower. The technique for finding the present value is termed as 'discounting'. Present value after 'n' Years: Formula: ( ) n A PV = 1+
i
Where,
PV = Principal amount the investor is willing to forego at present. i = Interest rate. A = Amount at the end of
the period 'n'. N = Number of years. With this formula, we can directly calculate the amount, any depositor would be willing to sacrifice at present, with a time preference rate or discount rate of x%.
19

of Money Example:
If Mr. X, depositor, expects to get Rs. 100
after one year, at the rate of 10%, the amount he will have to forego at present can be
calculated as follows: ( )
n A PV = 1+i ( ) 100
PV= =Rs. 90.90 1+.10 Similarly, the present value of an amount of inflow at the end of 'n' years can be computed.
Present Value of a Series of Cash Flows In a business situation, it is very natural that returns received by a firm
are spread over a number of years. An investment made now may fetch returns a
certain time period. Every businessman will like to know
whether it is worthwhile to invest or forego a certain sum now, in anticipating of returns he
expects to
earn over a number of years.
In order to take this decision he needs to equate the total anticipated future returns, to the present sum he is going to sacrifice.
The estimate of the present value of future series of returns, the present value of each expected inflow will be calculated.
The present value of series of cash flows can be represented by the following: ( ) ( ) ( ) ( ) 1 2 3 n 1 2 3 n
C C C C PV = + + + 1+i 1+i 1+i 1+i ( ) å n t n T=1 C PV= 1+i Where, PV = Sum of individual present values of each cash flow : C 1 , C 2 , C 3 .....
C n =
Cash flows after period 1,2,3.....n. i = Discounting rate. However, a project may involve a series of cash inflows and outflows. The computation of the present value of inflows by the above equation is a tedious problem. Illustration 5: Given the time value of money as 10% (i.e. the discounting factor), you are required to find out the
present value of future cash inflows that will be received over the next four years. Year Cash flows (Rs.) 1 1,000 2 2,000 3 3,000 4 4,000 Solution: Year Cash
flows Present Value Factor at 10% Present Value 1 2 3 4(2×3) 1 2 3 4 1,000 2,000 3,000 4,000 0.909 0.826 0.751 0.683 909 1,652 2,253 2,732
Present value of series of Cash flows 7,546
20 Financial Management Present value of an Annuity:
In the above case there was a mixed stream of cash inflows. An individual or depositor
may receive only constant returns over a number of years.
This implies that, the cash flows are equal in amount. To find out the present value of annuity either, we can find the present value of each cash flow or use the annuity table. The annuity table gives the present value of an annuity of Re. 1 for interest rate 'r' over number of years 'n'. Illustration 6: Calculate the present value of annuity of Rs. 500 received annually for four years, when the discounting factor is 10%. Solution: Present Value of Annuity of Rs. 500 Year Cash flows Present Value Factor at 10% Present Value 1 2 3 4(2×3) 1 2 3 4 500 500 500 500 0.909 0.827 0.751 0.683 3,170 454.50 413.50 375.50 341.50 Present value of series of Cash flows 1,585.00 This basically means to add up the Present Value Factors and multiply with Rs. 500. i.e. 3,170 × 500 = Rs. 1,585. Formula for calculation of the present value of an annuity can be derived from the formula for calculating the present value of a series of cash flows: PVA n = ( ) ( ) ( ) ( ) 1 2 3 n 1 2 3 n C C C
C + + + 1+i 1+i 1+i 1+i = ( ) ( ) ( ) ( ) 1 2 3 n 1 1 1 1 C + + + 1+i 1+i 1+i 1+i æ ö ç ÷ è ø = ( ) n n t=1 Ct
C 1+i æ ö ç ÷ è ø å Where, PVA n =
Present value of an annuity having a duration of 'n' periods. A = value of single instalment. i = Rate of interest. However, as stated earlier, a more practical method of computing the present value would be to multiply the annual instalment with the present value factor. PVA n = A × ADF Where ADF denotes Annuity Discount Factor. The
PVA n
in the above example can be calculated as 500 × 3.170 = Rs. 1,585. The Figure of 3,170 has been picked up directly from the Annuity Table for present value.
21
Chapter 2: Time Value of Money Notes Find out the present value of an annuity of Rs. 5,000 over 3 years when discounted at 5%. PVA n = A × ADF = 5000 × 2.773 = 13,865
Present Value of a Perpetual Annuity: A person may like to find out the present value of his investment, in case he is going to get a constant return year after year. An annuity of this kind which
goes on for ever is called a 'perpetuity'. The present value of a
perpetual annuity can be ascertained by simply dividing 'A' by interest or discount rate 'I', symbolically represented as A/ i. 2.3

Calculation of the Compound Growth Rate Compound growth rate can be calculated with the following formula: gr = V o (1 + r) n = V n where, gr = Growth rate in percentage.
V o =
Variable for which the growth rate is needed (i.e., sales, revenue, dividend at the end of year '0'). V n = Variable value (amount) at the end of year 'n'. (1 + r) n = Growth rate. Illustration 7: From the following dividend data of a company, calculate compound rate of growth for period (1998-2003). Solution: 21 (1 + r) 5 = 31 (1 + r) 5 = 31 / 21 = 1.476 Note: See the compound value one rupee Table for 5 years (total years - one year) till you find the closest value to the compound factor, after finding the closest value, see first above it to get the growth rate.
Compounded/Future Value of Series of Cash Flows (Annuity) Illustration 8: Mr. Bhat deposits each year
Rs. 5000, Rs. 10000, Rs. 15000, Rs. 20000 and Rs. 25000
in his savings bank account for 5 years at the interest rate of 6 per cent. He wants to know his future value of deposits at the end of 5 years.
Solution: CV n = 5000(1 + 0.06) 4 + 10000(1 + 0.06) 3 + 15000(1 + 0.06) 2 + 20000(1 + 0.06) 1 + 25000(1 + 0.06) 0 CV 5 = 5000(1.262) + 10000(1.191) + 15000(1.124) + 20000(1.050) + 25000(1.00) = 6310 + 11910 + 16860 + 21000 + 25000 = Rs. 81,080

CV can also be calculated in the following ways: Year Amount paid (Rs.) No. of years compounded Compound interest factor Future value (
Rs.) (1) (2) (3) (4) (5) = (2) × (4) 1 2 3 4 5 5000 10,000 15,000 20,000 25,000 4 3 2 1 0 1.262 1.191 1.124 1.05 1.00 6,310 11,910 16,860 21,000 25,000
TOTAL 81,080
Compound Value of Annuity (Even Cash Flows) Illustration 9:
Mr. Ram
deposits Rs. 500 at the end of every year, for 6 years
at 6 per cent
interest. Determine Ram's money value at end of 6 years. Solution: FV n = P 1 (1+I) n–1 +
P 2 (1+I) n–2 + ... P n-1 (1+I)+P n–n FV 6 = 500(1 + 0.06) 5 + 500(1 + 0.06) 4 + 500(1 + 0.06) 3 + 500(1 + 0.06) 2 + 500(1 + 0.06) 1 + 500 (1 + 0.06) 0 = 500(1.338) + 500(1.262) + 500(1.19) + 500(1.124) + 500(1.060) + 500(1.00) = 669 + 631 + 595.5 + 562 + 530 + 500 = Rs. 3487.5 By using table format Year Amount Paid (Rs.)
No. of years compounded Compound interest factor Future value (
Rs.) 1 2 3 4 5 6 500 500 500 500 500 500 5 4 3 2 1 0 1.338 1.262 1.191 1.124 1.06 1.00 669.00 631.00 595.50 562.00 530.00 500.00 TOTAL 3,487.50 Short-cut formula ( ) n n 1+I –1 CV = P I é ù ê ú ê ú ë û
Where, P = Fixed periodic cash flow I = Interest rate n = Duration of the amount ( ) n 1+
I –1 I = (FVIFA I.n) (
FVIFA In) =
Future value for interest factor annuity at 'I' interest and for 'n' years.
CV 6 = 500 ( ) 6 1+0.06 –1 0.06 = 500 [6.975] = Rs. 3487.50
Note: See the compound value of annuity table of one rate for 6 years at 6 per cent interest.

Compound
Value of Annuity Due Illustration 10: Suppose you deposit Rs. 2500
at the beginning of every year for 6 years
in a saving bank account at 6 per cent
compound interest. What is your money value at the end of the 6 years.
Solution: CV 6 = 2500 ( ) 6 1+0.06 1 0.06
é ù - ê ú ê ú ë û (1+0.06) = 2500(6.975) (1+0.06) = Rs. 18,483.75
Through
the Table Format Year Cash outflow (Rs.) No. of times compounded Compound factor Compound value (
Rs.) 1 2 3 4 5 6 2500 2500 2500 2500 2500 2500 6 5 4 3 2 1 1.419 1.338 1.262 1.191 1.124 1.06 3,547.50 3,345.00 3,155.00 2,977.50 2,810.00 2,650.00
TOTAL 18,485.00 2.3.1
Doubling Period Doubling period is the time required, to double the amount invested at a given rate of interest. For example, if you deposit Rs. 10,000 at 6 per cent interest, and it takes 12 years to double the amount. (See compound value for one rupee Table at 6 per cent till you finds the closest value to 2). Doubling period can be computed by adopting two rules, namely: 1. Rule of 72: To get doubling period 72 is divided by interest rate. Doubling period (
D p) = 72 ? I Where, I = Interest rate. D p = Doubling period in years. Illustration 11:

If you deposit Rs. 500 today at 10 per cent rate of interest, in how many years will this amount double? Solution: D p = 72 ? I = 72 ? 10 = 7.2 years (approx.) 2. Rule of 69: Rule of 72 may not give the exact doubling period, but rule of 69 gives a more accurate doubling period. The formula to calculate the doubling period is:
D p = 0.35 + 69 / I
Illustration 12:
Take the above problem as it is and calculate doubling period. Solution:
D p = 0.35 + 69 / 10 = 7.25 years.
24 Financial Management 2.3.2
Effective Rate of Interest in Case of Doubling Period Sometimes investors may have doubts as to what is the effective interest rate applicable, if a financial institute pays double amount at the end of a given number of years. Effective rate of interest can be defined by using the following formula. (a) In case of rule of 72 ERI = 72 per cent Doubling period (D p) where, ERI = Effective rate of interest. D p = Doubling period. Illustration 13: A financial institute has come with an offer to the public, where the institute pays double the amount invested in the institute by the end of 8 years. Mr. A, who is interested to make a deposit, wants to know the affective rate of interest that will be given by the institute. Calculate. Solution: ERI = 72 ÷ D p = 72 ÷ 8 years = 9 per cent (b) In case of rule of 69 p 69 ERI = +0.35 D Take the above example 69 ERI = +0.35 8 years = 8.98 per cent or 9 per cent
Present Value Illustration 14: An investor wants to find the present value of Rs. 40,000, due 3 years. His interest rate is 10 per cent. Solution: PV = FV 3 3 1 1
I æ ö ç ÷ è ø + = Rs. 40,000 ( ) 3 1 1 0.10 æ ö ç ÷ + è ø = Rs. 40,000 [0.751] = Rs. 30,040
Note: Present value of one rupee Table at 3 years for the rate of 10 per cent. Present Value of a Series of Cash Flows Illustration 15: From the following information, calculate the present value at 10 per cent interest rate. Year 0 1 2 3 4 5 Cash inflow (
Rs.) 2,000 3,000 4,000 5,000 4,500 5,500
25 Chapter 2: Time Value of Money Solution: PV = ( ) ( ) ( ) ( ) ( ) ( ) 0 1 2 3 4 5 2000 3000 4000 5000 4500 5500 1 .10 1 0.10 1 0.10 1 0.10 1 0.10 + + + + + + + + + + + = 2000 + 2727 + 3304 + 3755 + 3073.5 + 3415.5 = Rs. 18.275
Present value can also be calculated by the following way: Years Cash inflow (
Rs.) PV Factor 10 per cent Present value (Rs.) 0 1 2 3 4 5 2000 3000 4000 5000 4500 5500 1.00 0.909 0.826 0.751 0.683 0.621 2000.0 2727.0 3304.0 3755.0 3073.5 3415.5
Total present value 18275.0 (c) Present Value of Even Cash Flows (Annuity) Present Value of Deferred Annuity PVA n = ( ) ( ) ( ) ( ) 1 2 n 1 2 n-1 n CIF CIF CIF CIF + +... + 1+I 1+I 1+I 1+I ( ) ( ) ( ) n 1.
n n 1 CIF
PVIFA 1 1 I æ ö - = ç ÷ + è ø 1+I CIF
or
Where, PVA = Present value of annuity. I = Discounting factor or interest rate. CIF = Cash inflows. n = Duration of the annuity. Illustration 16: Mr. Bhat wishes to determine the PV of the annuity consisting of cash flows of
Rs. 40,000
per annum for 6 years. The rate of interest he can earn from this investment is 10 per cent. Solution: =
Rs. 40,000 × PVIFA I.n = Rs. 4000 × 4.355 = Rs. 17,420
Note: See present value of annuity table for 6 year at 10 per cent. Alternate way to Find Present Value
Years Cash inflow (Rs.) PV Factor 10 per cent Present value (
Rs.) 1 2 3 4 5 6 4000 4000 4000 4000 4000 4000 0.91 0.826 0.751 0.683 0.621 0.564 3640 3304.0 3004.0 2732.0 2484.0 2256.0 PV of Annuity 17,420
26
Financial Management Alternate Way Years Cash inflow (Rs.) PV factor at 10 per cent PV (Rs.) 1 to 6 4000 4.355 17,420
Present value of Annuity Due PVA n = CIF (FVIF I – n) (1 + I) or PVA n = CIF ( ) ( ) -n 1– 1+I 1+I I æ ö ç ÷ è ø Illustration 17: Mr. Bhat has to receive Rs. 500
at the beginning of each year, for 4 years. Calculate personal value of annuity due, assuming 10 per cent rate of interest. Solution: PVA 4 = Rs. 500 (3.170) × (1.10) = Rs. 1743.0 Alternatively Years Cash inflow (Rs.) PV Factor at 10 per cent Present value (Rs.) 1 2 3 4 500 500 500 500 1.00 0.909 0.826 0.751 500.0 454.5 413.0 375.5 PV of Annuity 1743.0 2.3.3 Effective vs Nominal Rate The nominal rate of interest or rate of interest per year is equal. Effective and nominal rate are equal only when the compounding is done yearly once, but there will be a difference, that is, effective rate is greater than the nominal rate for shorter compounding periods.
Effective rate of interest can be calculated with the following formula. m I ERI = 1+ –1 m
æ ö ç ÷ è ø
Where, I = Nominal rate of interest. m = Frequency of compounding
per year. Illustration 18: Mr. X deposited Rs. 1000 in a bank at 10 per cent of the rate of interest with quarterly compounding. He wants to know the effective rate of interest. Solution: ERI = 4 0.10 1+ –1 4

æ ö ç ÷ è ø = 1.1038 – 1 = 0.1038 or 10.38 per cent. 2.3.4
Sinking Fund Factor The financial manager may need to estimate the amount of annual payments so as to accumulate a predetermined amount after a future date, to purchase assets or to pay a liability. The following formula is useful to calculate the annual payment.
27
Chapter 2: Time Value of Money ( ) p n n I A =FVA 1+I -1 æ ö ç ÷ è ø Where, A p = Annual payment. VA n =
Future value after 'n' years. I = Interest rate. ( ) I.n n I =FVIFA 1+I 1 æ ö ç ÷ - è ø Illustration 19: The finance manager of a company wants to buy an asset costing Rs. 1,00,000 at the end of 10 years. He requests to find out the annual payment required, if his savings earn an interest rate of 12 per cent per annum. Solution:
A p = 1,00,000 ( ) 10 0.12 1+0.12 1 æ ö ç ÷ - è ø = 1,00,000 (0.12 or 2 / 2.1058) = Rs. 5698.5 A p = 12%.10y 1 1,00,000× FVIFA = 1,00,000 × 1 17,548 = Rs. 5698.65
Present Value of Perpetuity Perpetuity is an annuity of infinite duration. It may be expressed as:
PV ? = CIF × PVIFA I? Where, PV ? =
Present value of a perpetuity. CIF = Constant annual cash inflow. PVIFA I.? = PV interest factor for a perpetuity. PV ? = CIF / I Illustration 20: Mr. Bhat an investor, expects a perpetual amount of
Rs. 1000
annually from his investment. What is his present value of this perpetuity if the interest rate is 8 per cent?
Solution: PV ? = CIF/
I = 1000/0.08 = Rs. 12,500
28 Financial Management Caselet Interest Rates Most Effective way to Control Inflation By Mr. P. Chidambaram F inance minister P Chidambaram on Tuesday said there is scope for deposit rates and interest rates to drop. "Interest rate is the most effective way to contain inflation especially when there are such huge capital inflows," the minister said. According to latest figures, inflation has been hovering at over 4%. Huge capital inflows also continue to pose a challenge to monetary management, as Chidambaram said in the Budget. The minister's remarks come soon after his meeting with public sector banks after which most of them had gone in for rate cuts. A cut in the interest rate will boost consumption further by making loans cheaper. He however pointed out that interest rates are in the domain of the Reserve Bank of India (RBI), which keeps a track on them. The main mandate of the RBI is to maintain price stability and to ensure that growth is not affected, Chidambaram said while addressing a post Budget meeting with the Confederation of Indian Industries (CII). This is the view of the government and it has communicated it to the RBI privately, he said. To another question, the minister said he has already impressed upon banks that they must provide more consumer loans to individuals to buy durables and non-durables. He has been pushing banks to lend more to the retail sector and hope they will do so adding that some banks are already responding. Making a case for dis-investment the minister also said there is scope for stake sales in state-run firms as pointed out in the Budget. While 44 such companies have already been listed and more can be done, he said. Meanwhile Chidambaram also said the government aims to target a growth of or close to 9%. Inflation has been targeted at near or 4% level. In this regard the Budget has also tried keeping the growth story intact by leaving more money in the pockets of the consumers, increasing government spending and through fiscal stimulus. He also said that there would be no rollback of the Budget announcements but some inadvertent errors may be looked into. Source: financialexpress.com 2.3.5
Loan Amortisation
Loan is an amount raised from outsiders at an interest and repayable at a specified period (lump sum) or in installments. The repayment of loan is known as amortisation. A financial manager may take a loan and he may interested to know the amount of equal instalment to be paid every year to repay the complete loan amount including interest. Instalment can be calculated with the following formula: L I = ( ) ( ) n
A n I 1 I P 1 I –1 æ ö + ç ÷ + è ø or L I = P A ÷ PVIFA n . I Where, L I = Loan installment. P A = Principal amount. I = Interest rate. n = Loan repayment period. PVIFA n.I =
PV interest factors at loan repayment period at a specified interest rate.
29
Chapter 2: Time Value of Money Illustration 21: ABC Company took a loan of Rs. 10,00,000
lakh for an expansion program from IDBI at 7 per cent interest per year. The amount has to be repaid in 6 equal annual installments. Calculate the per instalment amount. Solution: L I = 10,00,000 ? ? ? ? ? ? ? ? ? ? ? ? ? 6 6 0.06 1 0.06 1 0.06 –1 or L I = 10,00,000 ÷ PVIFA 7%. 6y = 10,00,000 ÷ 4.769 = Rs. 2,09,687.56 Present Value of Growing Annuity Growing annuity means the
cash flow that grows at a constant rate for a specified period of time.
In others, the cash flow grows at a component rate. Steps involved in calculation: 1. Calculate the series of cash flows. 2. Convert the series of cash flows into present values at a given discount factor. 3. Add all the present values, of series of cash flows to get total PV of a growing annuity.
Formula ( ) ( ) ( ) ( ) æ ö ç ÷ ç ÷ ç ÷ è ø n n A 1+g 1– 1+I CIF PVG = 1+g 1–g Where, PVG A =

PV of growing annuity. CIF = Cash inflows. g = Growth rate. I = Discount factor. n = Duration of the annuity.
Illustration 22: XYZ real estate agency has rented one of their apartment for 5 years at an annual rent of
Rs. 6,00,000
with the stipulation that, rent will increase by 5 per cent every year. If the agency's required rate at return is 14 per cent. What is the PV of expected (annuity) rent?
Solution: Step 1: Calculate on Series of Annual Rent Year Amount of rent (Rs.) 1. 6,00,000 2. 6,00,000 × (1 + 0.05) = 6,30,000 3. 6,30,000 × (1 + 0.05) = 6,61,500 4. 6,61,500 × (1 + 0.05) = 6,94,575 5. 6,94,575 × (1 + 0.05) = 7,29,303.75
30 Financial Management Step 2: Calculate Present Values
Years Cash inflow (Rs.)
Discounting Rate 14 per cent Present value (Rs.) 1 2 3 4 5 600,000 630,000 661,500 694,575 729,303.75 0.877 0.769 0.675 0.592 0.519 526200.0 484470.0 446512.5 411188.4 378508.6 Total PV of Annuity 22,46,879.55 Shorter Discounting Periods Generally cash flows are discounted once a year, but
sometimes cash flows have to be discounted less than one (year) time, like, semi-annually, quarterly, monthly or daily. The general formula used for calculating the PV in the case of shorter discounting period is:
m×n n 1 PV=CIF 1+I/m æ ö ç ÷ è ø
Where, PV = Present value. CIF n =
Cash inflow after 'n' year. m = No. of times per year discounting is done. I = Discount rate (
annual). Illustration 23: Mr. A expected to receive
Rs.1,00,000
at the end of 4 years. His required rate of return is 12 per cent and he wants to know PV of
Rs. 1,00,000 with quarterly discounting. Solution: PV = 1,00,000 æ ö ç ÷ è ø 4×4 1 1+0.12/4 = 1,00,000 × PVIF 3per cent 4y = 1,00,000 × 0.623 = Rs. 62,300 Task ABC Company has Rs. 10, 00,000, 8
per cent debentures redeemable after 5 years. The company plans to redeem debentures by establishing sinking fund, where company can earn 10 per cent interest p.a. What annual payment must the firm make to ensure, that the needed amount is available on the required date?
31
Chapter 2: Time Value
of Money Case Study Comparing Mortgage
Alternatives T he application of the time value of money principles can help you make decisions on loan alternatives. This exercise requires you to compare three mortgage alternatives using various combinations and points. Points on a mortgage refer to a payment that is made upfront to secure the loan. A single point is a payment of one per cent of the amount of the total mortgage loan. If you were borrowing Rs. 200,000 a single point would require an upfront payment of
Rs. 2,000.
When you are evaluating alternative mortgages, you may be able to obtain a lower rate by making an upfront payment. This comparison will not include an after-tax comparison. When taxes are considered, the effective costs are affected by interest paid and the amortization of points on the loan. This analysis will require you to compare only before-tax costs. Zeal.com allows you to compare the effective costs on alternative mortgages. You are considering three alternatives for a
Rs. 250,000
mortgage. Assume that the mortgage will start in December, 2006. The mortgage company is offering you a 6% rate on a 30-year mortgage with no points. If you pay 1.25 points, they are willing to offer you the mortgage at 5.875%. If you pay 2 points, they are willing to offer you the mortgage at 5.75%. Questions 1. What are the mortgage payments under the three alternatives? 2. Which alternative has the lowest effective cost? 3. Can you explain how the effective rate is being calculated? 2.4
Summary ? Time value of money
means that the value of money changes over a time. ? It is
the
sum of money received today is worth more than
if the same is received after
some
time. ? In
compound value concept,
the interest earned on the initial principal amount
becomes a part of
the principal at the end of a compounding period. ?
Interest

can be compounded even more than once a year. ?
An investor investing money in installments may wish to know the value of his savings after 'n' years.
This is called future value of series of cash flows. ? In
case of present value concept, we estimate the present worth adjusted for the
time value of money. 2.5
Keywords

money
changes over a
period
of time.
Compound Interest: When interest is added to the principal, so that from that moment on, the interest that has been added also itself earns interest. Compound Value:
The interest earned on the initial principal
becomes a part of
the principal at the end of a compounding period.
Interest: It is a fee paid on borrowed assets. It is the price paid for the use of borrowed money.
Cash Flow: It is the movement of cash into or out of a business, a project, or a financial product. It is usually measured during a specified, finite period of time
Annuity: It is a
stream of equal annual cash flows.
32
Financial Management
Present Value: In case of present value concept, we estimate the present worth of a future payment/instalment or series of payment adjusted for the time value of money. 2.6
Self Assessment
State whether the following statements are
true or false: 1.
Current consumption is one of the reasons for time preference of money. 2. Compound value and future value both, are same. 3.
Effective rate of interest is more than the nominal rate of interest in single period compounding. 4. Rule 73 is one of the rules of doubling period. 5.
Cost of capital interest rate requires rate of return and discounting rate factor, all are used for calculating of PV of cash flows. 6. Compound growth rate formula is
V o (1 + r) = V n . 7. A series of unequal cash flows are called Annuity. 8.
There are two rules available to find out double period. 9. 0.35 + 69/
I
is the formula used to calculate present value of perpetuity. 10.
Cash flows are divided with interest (per cent) rate to calculate future value of perpetuity. 11.
The nominal rate of interest is equal. 12. Loan payment is called amortization. 2.7
Review Questions 1.
Mr. X deposited Rs. 1,00,000 in a savings bank account today, at 5 per cent simple interest for a period of 5 years. What is his accumulated interest? 2. Mr. X invested Rs. 40,000 today, for a period of 5 years. Calculate the future value if his required rate of returns is 10 per cent. 3. Suppose you deposit Rs. 1,00,000 with an investment company, which pays 10 per cent
interest with semi annual compounding. What is the total deposit amount at the end of 5 years? 4.
Mr. A deposits at the end of each year
Rs. 2000, Rs. 3000, Rs. 4000, Rs. 5000
and Rs. 6000
for the consequent 5 years respectively. He wants to know his series of deposits value at the end of 5 years with 6 per cent rate of compound interest. 5. "
Time value of money is helpful in capital budget." Explain. 6.
Assume you have been depositing each year for 5 years, the deposit amount of

Rs. 100, Rs. 200, Rs. 300, Rs. 400 and Rs. 500
respectively. Calculate your deposits value if you get 7 per cent compound interest and assume you have deposited in the beginning of each year. 7. If you invest Rs. 500 today, at a compound interest of 9 per cent, what will be its future value after 60 years? 8. Explain the meaning and importance of valuation concept. How does valuation concept help in decision making? 9.
Ramesh deposits
Rs. 20,00,000 in a bank account that pays 8 per cent
interest. How much can he withdraw annually for a period of 10 years. 10. Mrs. X
deposits Rs. 5000 at the end
of each year, at 8 per cent
per year. What amount will she receive at the end of 6
years? 11. A company has raised a loan of
Rs. 50
lakhs from an industrial finance bank at 9 per cent p.a.
The amount has to be paid back in 5 equal installments. Calculate the instalment amount.

 12. ABC Company has Rs. 10,00,000, 8
per cent debentures redeemable after 5 years. The company plans to redeem debentures by establishing sinking fund, where company can earn 10 per cent interest p.a. What annual payment must the firm make to ensure, that the needed amount is available on the required date? 13. "Cash flows of different years in absolute terms are incomparable." Discuss. 14. From the following information, calculate the present value if the cost of capital is 10 per cent. Year 0 1 2 3 4 5 6 Cash flow (
Rs.) 250 400 700 900 1000 1100 1400 15. "
A rational human being has a time preference for money". Give reasons.
Answers: Self Assessment 1. T 2. T 3. F 4. F 5. T 6. F 7. F 8. T 9. F 10. F 11. T 12. T 2.8
Further Readings
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 Objectives This chapter on Sources of Finance covers 1.
Different sources of finance available to management, both internal and external 2. Advantages and disadvantages of the different sources of funds 3. Factors governing the choice between different sources of funds 4.
Leasing as a source of finance Introduction
Sourcing money may be
done for a variety of reasons. Traditional areas of need may be for capital asset acquirement - new machinery or the construction of a new building or depot. The development of new products can be enormously costly and
here again capital may be required. Normally, such developments are financed internally, whereas capital for the acquisition of machinery may come from external sources. In this day and age of tight liquidity, many organisations have to look for short term capital in the way of overdraft or loans in order to provide a cash flow cushion. Interest rates can vary from organisation to organisation and also according to purpose. In the present days there exist several sources of finance. Keeping in view the type of requirement the finance sources are chosen. Find below various types of finance source. 3.1 Short-term Source of
Finance Sources of short-term funds have to be used (exclusively) for meeting the working capital requirements only and not
for
financing fixed assets and for meeting the margin money for working capital loans. The various sources of short-term financing are as follows: 3.1.1
Trade Credit
Trade credit refers to the credit extended by the supplier
of goods
or services to his/her customer in the normal course of business.

Trade credit occupies very important position in short-term financing due to the competition. Almost all the traders and manufacturers are required to extend credit facility (a portion), without which there is no possibility of staying back in the business. Trade credit
is a spontaneous source of finance that arises in the normal business transactions of the firm without specific negotiations (
automatic source of finance). In order to get this source of finance, the buyer should have acceptable and dependable credit worthiness and reputation in the market. Trade credit generally extended in the format open account or bills of exchange. Open account is the form of trade credit, where
supplier sends goods to the buyer for the payment to be received in future as per terms of the sales invoice.
As such trade credit constitutes a very important source of finance; it represents 25 per cent to 50 per cent of the total short-term sources for financing working capital requirements. Getting trade credit may be easy to the well-established or well-reputed firm, but for a new or the firm with financial problems will generally face problem in getting trade credit. Generally suppliers look for earning record, liquidity position and payment record which is extending credit. Building confidence in suppliers is possible only when the buyer discussing his/her financial condition future plans and payment record. Trade credit involves some benefits and costs. Advantages of Trade Credit The main advantages are: 1. Easy availability when compared to other sources of finance (except financially weak companies). 2. Flexibility is another benefit,
as the credit increases with the growth of the firm'
s sales. 3. Informality as we have already seen that it is an automatic finance.
35
Chapter 3: Sources of
Finance The above discussion on trade credit reveals two things. One,
cost of trade credit is very high beyond the cash discount period,
company should not have cash discount for prompt payment and Second, if the company is not able to avail cash discount it should pay only at the end of last day of credit period, even if it can delay by one or two days, it does not affect the credit standing. 3.1.2
Accruals Accrued expenses are those expenses which the company owes to the other persons or organisations, but not yet due and not yet paid the amount. In other words, accruals
represent a liability that a firm has to pay for the services
or goods, which it has already received. It is spontaneous and interest-free sources of financing. Salaries, wages, interest and taxes are the major constituents of accruals. Salaries and wages are usually paid on monthly and weekly basis respectively. The amounts of salaries and wages have owed but not yet paid and shown them as accrued salaries and wages on the balance sheet at the end of financial year.
Longer the time lag in payment of these expenses, the greater is the amount of funds provided by the employees. Similarly, interest and tax are other accruals, as source of short-term finance.
Tax will be paid on earnings. Income tax is paid to the government on quarterly basis and some other taxes may be payable half-yearly or annually. Amount of taxes due as on the date of the balance sheet but not paid till then and they are showed as accrued taxes on the balance sheet. Like taxes, interest is paid periodically in the year but the funds are used continuously by a firm. All other such items of expenses can be used as a source of short-term finance but shown on the balance sheet. The amount of accrual varies with the level of activities of a firm. When the level of activity expands, accruals increase, they automatically act as a source of finance.
Accruals are treated as "cost free" source or finance, since it does not involve any payment of interest. But in actual terms, it may not be true, since payment of salaries and wages is determined by provisions of law and industry practice. Similarly, tax payment governed by laws and delay in payment of tax leads to pay penalty. Hence, a firm must be noted that use of accruals as a source of working capital or it may not be possible to delay in payment of these items of expenses. 3.1.3
Deferred Income Deferred incomes are incomes received in advance by the firm for supply of goods or services in future period. These income receipts increase the firm's liquidity and constitute an important source of short-term source finance. These payments are not showed as revenue till the supply of goods or services, but showed in the balance sheet as income received in advance.
Advance payment can be demanded by only firms having monopoly power, great demand for its products and services and if the firm is manufacturing a special product on a special order. 3.1.4
Commercial
Papers (CPs)

Commercial paper represents a short-term unsecured promissory note issued by firms that have a fairly high credit (standing) rating. It was first introduced in USA and it was an important money market instruments. In India, Reserve Bank of India introduced CP on the recommendations of the Vaghul Working Group on money market. CP is a source of short-term finance to only large firms with sound financial position.

Features of CP 1. The maturity period of CP ranges from 15 to 365 day (but in India it ranges between 91 to 180 days). 2. It is sold at a discount from its face value and redeemed at its face value. 3. Return on CP is the difference between par value and redeemable value. 4. It may be sold directly to investors or indirectly (through) dealers. 5. There is no developed secondary market for CP.

Eligibility Criteria for Issuing CP CP is unsecured promissory note, the issue of CP is being regulated by the Reserve Bank of India. RBI has laid down the following conditions to determine the eligibility of a company that wishes to raise funds through the issue of CPs. 1. The Tangible Net worth (TNW) of the company, as per latest audited balance sheet should not be less than Rs. 4 crore. 2. The company should have been sanctioned as a fund based limit for bank(s) finance and/or the All India Financial Institutions. 3. Company can issue CPs amounting to 75% of the permitted bank (working capital limit) credit. 4. Company's CPs receives a minimum rating of (P2 from CRISIL, A-2 form ICRA, etc.). 5. The minimum size of each CP is Rs. 5 lakhs or multiples thereof. 6. The size of any single issue should not be less than Rs. 1 crore. 7. The CP is in the form of usance promissory note negotiable by endorsement and delivery. Advantages of CP 1. It is an alternative source of finance and proves to be helpful during the period of tight bank credit. 2. It is a cheaper source of short-term finance when compared to the bank credit.

Disadvantages of CP 1. It is available only for large and financially sound companies. 2. It cannot be redeemed before the maturity date. 3.1.5

Public Deposits Public deposits or term deposits are in the nature of unsecured deposits, have been solicited by the firms (both large and small) from general public primarily for the purpose of financing their working capital requirements.

Notes Regulations Fixed deposits accepted by companies are governed by the Companies (Acceptance of Deposits) Amendment Rules, 1978. The main features of this regulation are: 1. A firm cannot issue public deposits for more than 25 per cent of its share capital and free reserves. 2. The public deposits can be issued for a period ranging from a minimum 6 months to maximum 3 years. Public deposits for a period of three months, however, can as well be issued, but only for an amount up to 10% of the company's share capital and free reserves. Maximum period of 5 years is allowed for Non-banking Financial Corporation (NBFCs). 3. The company that had raised funds by way of issue of public deposits is required to set aside, a deposit and/or investment, by the 30th April each year an amount equal to 10 per cent of the maturity deposits by the 31st March of the next year. The amount, so set aside can be used only for repairing the amount of deposits. 4. Finally, a company's and accepting the public deposits is required to disclose some true, fair, vital and relevant facts in regards to its financial position and performance.

Advantages of public deposit can be studied from two different views. 1. Company point of view (a) Simple procedure involved in issuing public deposits. (b) No restrictive covenants are involved. (c) No security is offered against public deposits. (d) Cheaper (post-tax cost is fairly reasonable). 2. Investors point of view (a) Higher interest rates when compared to other investment avenues. (b) Short maturity period.

Disadvantages These also can be studied from two different points: 1. Company point of view (a) Limited amount of funds can be raised. (b) Funds available only for a short period. 2. Investor point of view (a) Risk since there is no security against PD. (b) Income received (interest) is taxable. 3.1.6

Inter-corporate Deposits (ICDs) A deposit made by one firm with another firm is known as Inter-corporate Deposits (ICDs). Generally, these deposits are usually made for a period up to six months. Such deposits may be of three types: 1.

Call Deposits: Deposits are expected to be payable on call. In other words, whenever its repayment is demanded on just one days notice. But, in actual practice, the lender has to wait for at least 2 or 3 days to get back the amount. Inter corporate deposits generally have 12 per cent interest per annum. 2. Three Months Deposits: These deposits are more popular among companies for investing the surplus funds. The borrower takes this type of deposits for tiding over a short-term
cash inadequacy. The interest rate on these types of deposits is around 14 per cent per annum. 3. Six Months Deposits: Generally, the inter-corporate deposits are made for a maximum period of six months. These types of deposits are usually given to 'A' category borrowers only and they carry an interest rate of around 16% per annum.
Features of ICDs 1. There are no legal regulations, which make an ICD transaction very convenient. 2. Inter-corporate deposits are given and taken in secrecy. 3. Inter-corporate deposits are given based on borrower's financial sound, but in practice lender lends money based on personal contacts.
38
Financial Management 3.1.7
Commercial Banks Commercial banks are the major source of working capital finance to industries and commerce. Granting loan to business is one of their primary functions. Getting bank loan is not an easy task since the lending bank office may ask number of questions about the prospective borrower's financial position and its plans for the future. At the same time bank will want to monitor of the borrower's business progress. But there is a good side to this that is borrower's share price tends to rise, because investor know that convince banks is very difficult.
Forms of Bank Finance Banks provide different types of tailored made loans that are suitable for specific needs of a firm. The different types of forms of loans are: (1) Loans, (2)
Overdrafts, (3) Cash credits, (4) Purchase or discounting of bills and (5) Letter of Credit. 1. Loans: Loan in an advance is lump sum
given to borrower against some security. Loan amount is paid to the applicant in the form of cash or by credit to his/her account. In practice the loan amount is paid to the customer by crediting his/her account. Interest will be charged on the entire loan amount from the date the loan is sanctioned.
Borrower can repay the loan either in lump sum or in installments depending on conditions. If the loan is repayable in installment basis interest will be calculated on quarterly and on reduced balances. Generally, working capital loans will be granted for one-year period. 2.
Overdrafts: Overdraft facility is an agreement between
the borrower and the banker, where
the borrower is allowed to withdraw funds in excess of the balance in his/her current accounts up to a certain limit during a specified period.
It is flexible from the borrower 's point of view because the borrower can withdraw and repay the cash whenever he/she wants within the given stipulations. Interest is charged on daily over drawn balances and not on the overdraft limit given by the bank. But bank charges some minimum charges. 3. Cash Credit: It is the most popular source of working capital finance in India. A cash credit facility is an arrangement where a bank permits a borrower to withdraw money up to a sanctioned credit limit against tangible security or guarantees. Borrower does not require to withdraw the total sanctioned credit at a time, rather, he can withdraw according to his/her requirements and he can also repay the surplus cash in his cash credit account. Interest is chargeable on actually used amount and there is no commitment charge. Cash credit is a flexible source of working capital from borrower's point of view. 4.
Purchasing or Discounting

documentary or clean bill. Once the bill is accepted by the purchaser, then the drawer (seller) of the bill can go to bank for discount or sale. The credit worthiness of the drawer (seller) is satisfactory, then bank purchases or discounts the bill and reduces funds by way of crediting to customers account. The credited amount will be less than the bill amount. At the end of maturity period

discounted and dishonored by the drawee, then the customer (seller) is liable to pay the bill amount and any other expenses incurred to bank. 5. Letter of Credit [L/C]: There are two non-fund based sources of working capital, viz., Letter of Credits (L/Cs) and Bank Guarantees (B/Gs). These are also known as quasi-credit facilities, due to non-payment of amount immediately. A Letter of Credit (L/C) is a written document issued by the Buyer's Banker (BB) at the request of the buyer's, in favour of the seller, where by the Buyers Banker gives an undertaking to the seller, that the bank pay the obligations of its customer up to a specified amount, if the customer fails to pay the value of goods purchased. It helps to bank's customer to obtain credit from the seller (supplier), which is possible by assurance of the payment. Thereby, it allows the supplier to extend credit, since the risk of non-payment is transferred to the BB. Letter of credit facility is available from bank only for the companies that are financially sound and Bank charges the customer for providing this facility. Security Required in Bank Finance No doubt bank finance is most important source of working capital finances. But getting bank finance without giving adequate security is impossible. In how many modes the borrower can give security?
39 Chapter 3: Sources of Finance

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The following are the modes of security required by a bank: 1. Hypothecation: Under this arrangement, the loan applicant is provided money against the security of movable property, usually inventories. The owner/loan applicant does not transfer the

possession of the property to the bank. Hypothecation is in the nature of floating charge.
It

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is merely a charge against property for the amount of debt.

This type of security is accepted for granting credit, only to the first class customers with highest integrity. In other words, they do not grant credit to new customer and low class customers with hypothecation. If the borrower fails to honour the

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dues to the bank, the banker may realize his due by sale of the goods hypothecated. 2. Pledge: Under this arrangement, the

loan applicant/

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borrower is required to transfer the physical possession of the goods/property to the bank as security.

As per section 172 of the Indian Contract Act, pledge is a bailment of goods, as a security, for payment of a debt, or performance of a promise, against some advances. Transfer of possession of goods is a precondition for pledge. Once the goods are shifted to the lender or bank, he is expected to take reasonable care of goods pledged with him. The lender has a

100%	MATCHING BLOCK 13/151	SA	GE Fundamentals of Financial Management Combin ... (D143725429)

right of lien and can retain the possession of goods

pledged unless the debt (including interest and expenses) is cleared. If the borrower defaults in paying his dues, the bank has the right to sell goods pledged unless the debt (including interest and expenses) is cleared. If the borrower defaults in paying his dues, the bank has the right to sell goods and recover the dues. But this should be done only after giving due notice to the borrower. 3. Mortgage: Apart from

bank. If the borrower fails to pay dues,

is given as security and it can recover its dues. Caselet Commercial Banks' Credit Offtake Growth A ccording to scheduled banks' statement of position released by the Reserve Bank of India on Wednesday, the credit offtake of country's scheduled commercial banks (including regional rural banks) increased marginally 0.84% or Rs 22,423.30 crore between February 27, 2009 and March 13, 2009. The credit offtake of these banks was Rs 26,90,513.45 crore as on March 13, 2009 as against Rs 22,77,639.51 crore as on March 14, 2008 – a 18.12% rise on year-on-year basis. The banks' credit offtake as on February 27, 2009 was Rs 26,68,090.18 crore. The bank loans rose by Rs 21,307 crore in the two weeks ended February 27, 2009, raising outstanding advances to Rs 26,68,090 crore. Non-food credit rose by Rs 19,945 crore in the two weeks ended February 27,2009, while food credit increased by Rs 1,362 crore. Credit rose by 18.35% or by Rs 4,13,330 crore in the 12 months through February 27,2009. In the last 12 months, the food credit offtake of the state co-operative banks remained stagnant whereas that of scheduled commercial banks in the country rose by 10.10% to Rs 47,902.03 crore as on March 13, 2009. In the last two weeks, the food credit offtake of the scheduled commercial banks however decreased marginally by 1.09%. The total food credit of scheduled commercial banks as well as the state co-operative banks, outstanding as on March 13, 2009 was Rs 51307.30 crore. The demand and time deposit growth of country's scheduled commercial banks (including regional rural banks) enhanced 2% marginally by Rs 919.50 crore between February 27, 2009 and March 13, 2009. The demand and time deposits of these banks were Rs 44,842.16 crore as on March 13, 2009 as against Rs 40,590.17 crore as on March 14, 2008 – a 10.47% on year-on-year basis. The banks' demand and time deposits were Rs 43,922.66 crore as on February 27, 2009. The liabilities to the banking system including demand and time deposits from banks, and other demand and time liabilities as on March 13, 2009 were Rs 10,42,88.84 crore as against Rs 93,228.81 crore a year ago and Rs 10,23,52.06 crore as on February 27, 2009. Source: financialexpress.com

40 Financial Management 3.1.8 Factoring

Cash lubricates the wheels of trade, business and industry. Cash flow is necessary to meet commitments - statutory or otherwise. But, unfortunately for the sellers of goods and services, credit sale is the order of the day, worldwide. The most vulnerable segments are the small and medium sector enterprises. Delayed realization of the sales receivables elongates their working capital cycles. Poor bookkeeping and collection mechanisms along with inadequate and delayed institutional credit hasten their untimely sickness. In this backdrop, factoring has evolved as an innovative portfolio of complementary financial services. It is an alternative way of providing post-sales working capital finance to trade and industry, which they traditionally get from commercial banks.

Concept and Features of

Factoring Factoring is a financial service covering the financing and collection of book debts and receivables arising from credit sale of goods and services, both in the domestic as well as international market.

It aims at exonerating the supplier from the burden of complicated administrative and financial tasks involved in receivables management. From the above definition, we can derive that the main functions of a factor comprise: 1. Maintenance of sales ledgers and collection of receivables: The factor takes up the responsibility of sales ledger administration. It includes (a) Bookkeeping (b) Invoice raising (c) Follow-up and monitoring (d) Collection of receivables (e) Liasoning with clients and customers by informing them periodically about collection and outstanding (f) Maintaining a Management Information System (MIS). The service charges paid by the client to the Factor are more than offset by the host of administrative expenses saved on account of debt administration by the Factor. 2. Credit Control: A factor, as a professional, has the wherewithal for credit intelligence on customers. His staff is trained in the assessment of creditworthiness and has access to extensive information on the financial standing and credit rating of individual customers. This enables him to advise his clients accordingly. 3. Credit Protection: In "without recourse factoring", the Factor assumes credit risk. Based on the credit information of customers, the factor approves 'credit limits' on individual debtors. Thus, he provides credit insurance facility against possible losses arising from insolvency/bankruptcy - financial failure of the debtors. However, under 'recourse factoring', the client bears the credit risks. 4.

Financing of Receivables: Factor advances funds to the client to the extent of about 80% of the outstanding debts ahead of maturity. This credit input helps the client to expand his business. 5. Advisory Services: With his pool of expertise, the Factor also offers consultancy services to the clients in areas of production, finance and marketing. For example, the factors' personnel
with extensive manufacturing experience can provide guidance on workload analysis, machinery replacement programmes and other technical aspects of
clients' business. Mechanics of Factoring
By now you have understood that there are three players in a domestic factoring service viz. the Factor (who provides the services), the Client (the seller of goods/services for whom the Factor provides facilities) and the Customer (who purchases goods/services). Presently, in India, a factor can entertain with-recourse factoring services. The system of a domestic factoring is as follows: 1.
On
receiving order from the buyer (Customer), the seller (the Client) approaches the Factor for establishing factoring relationship. The seller furnishes information about his business, his banker and credit facilities availed, turnover-size, names and addresses of regular customers, their bankers; average outstanding invoices, the last few years' financial statements, range of factoring service required etc. 2.
Based on the information supplied by client and additional information collected from other sources, the factor decides the coverage of factoring services to be provided. 3. Factor checks the credit credentials and approves the buyers. For each approved buyer, a credit limit and the period up to which credit can be given are fixed. Factor fixes limits to the client aggregating individual limits to buyers.
 4.
Client sells the goods/services to the buyers. 5. Client notifies in the invoice, a direction to the customer to pay the invoice value to the factor. 6. Client assigns the debt in favour of the factor. The invoice is sent to the Factor along with receipted delivery challans. The invoice is accounted for in the buyer's account in the sales ledger maintained by the Factor. 7. The factor provides credit to the client to the entitled extent say 80% of invoice value, retaining a margin of 20%. 8. The factor sends the notice of assignment/copy of invoice to the buyer. 9. The factor periodically sends details of collections and outstanding dues to the client and customer. 10.
On the expiry of the agreed credit period, the buyer makes the payment of the invoice to the Factor. Then the Factor pays to the seller the margin money retained after recovery of interest and other charges. 11. If the customer does not pay, the Factor takes recourse to the client under recourse factoring.
Types of Factoring Depending on the arrangement between the Factor and the Client, factoring can be of six different types: 1. Full Factoring: This is also called "without recourse factoring" or "old-line factoring." This classical form of factoring is most comprehensive and includes services such as maintenance of sales ledger, collection of receivables, credit control, credit protection and financing of receivables. Here the Factor approves the customers for credit risks based on his credit worthiness. Factor assumes the debt risk (within the approved limit). The client is totally absolved of his responsibilities as the invoice representing the receivables/trade debts are assigned to the factor on a 'without recourse' basis up to a specified limit only. Client is free to exceed limit at his risk. But this 'non-recourse' aspect is only towards financial inability of the debtors. Because,
if payment is withheld for reasons of dispute regarding quality, quantity, counter-claim etc., recourse will be available to the Factor against
the client.
Corresponding to the types of services provided, the Factor's charges include the following: (a) Charge for rendering sales ledger administration and debt collection (b) Premium for taking risk of debt-default (c) Interest on funds provided to client from date of drawing to maturity date of the invoice. 2. Recourse Factoring: Under this factoring, all the facilities of full factoring except that of credit protection are available to the client. Thus the factor assumes no credit risks. Hence, it may not approve customers or fix credit limits. It acts merely as a collection agent of the supplier besides providing finance and maintaining sales ledger. Accordingly, Factor's charges are limited to charges for sales ledger administration and debt collection and interest on finance provided. If the trade-debts are not realised within the agreed period, the corresponding invoice is assigned back to the client. A concept in recourse factoring is 'Refactoring Charges.' It is akin to the original factoring charges levied on all trade debts, outstanding beyond 60-90 days after due date. This situation arises when the client requests the Factor not to reassign the invoices and to continue recovery efforts, including legal proceedings. Of course, the entire cost of such recovery measures is borne by the client. 3. Maturity Factoring: This is also called 'Collection Factoring.' The Factor administers clients' sales ledger and renders debt collection service. The Factor provides administrative services. There is no 'client risk' to the factor. No financing is done ab initio. Hence no drawing limit is made available.
The amount of each invoice is made out to the client at the end of credit term or on the agreed maturity date,

after recovering factoring charges. This
maturity
date is decided upon at the commencement of the factoring agreement with reference
to the
average time taken by the client to collect a debt. This maturity date bears no relation to the date on which the debt is actually due for payment as it is
an 'estimated
date of collection.' Maturity factoring could also be without recourse or with recourse. Under without recourse maturity factoring, the Factor, irrespective of its collection, pays the client. If a customer becomes insolvent, the client can produce proof of
42
Financial Management
insolvency and claim from the Factor. The Factor's fee will include charges for debt administration, premium for risk of default and interest on funds outlay. Under with recourse maturity
factoring, the Factor will either pay the client
on collection of invoice or on maturity date with recourse later on.
Unlike the factoring charges under without recourse, here there will be no charge relating to premium for risk of debt-default. 4. Credit Factoring: It is also known as '
Invoice Discounting.' Under this arrangement, the Factor purchases all or selected invoices of its clients at a discount. The Factor neither maintains
the sales ledger nor undertakes debt collection. It only provides finance. The client obtains liquidity by taking advance without having to commit itself to regular factoring services. The debtor (customer) is not aware that the seller (client) has availed factoring facility because there is no notice of assignment to him. Thus this is a type of undisclosed factoring or confidential factoring. Thus the special features of such an undisclosed factoring are as follows: (a) Debts are assigned to Factor but client maintains sales ledger. Customers are not notified of Factor's involvement. (b) Of course, the Factor gets a copy of the invoice, which it accounts for and
provides the client with either debt-default cover or finance or both, as desired. (c) Debt collection is organised by the client
who makes over payment of each invoice to the Factor,
if advance has been received against such invoices. (d) Factor maintains the age-wise analysis of debts of the client. (e) Factor's charges vary with the range of service provided to client. 5. Bulk factoring: It is a kind of Invoice Discounting. Under this factoring, the Factor provides finance to the client only after notification to the debtors (customers) to make payment to the Factor. The client himself undertakes sales ledger administration, credit control and collection of receivables. This arrangement runs on with-recourse basis. 6. Agency Factoring: Under this arrangement, the Factor provides prepayment facility and protection against bad debts. But the client carries out sales ledger administration, collection of receivables and credit control. Thus, it amounts to bulk factoring with additional facility of insurance against credit risk. Moreover, unlike bulk factoring, agency factoring operates on a without recourse basis.
Comparative Position: The above types of factoring show the range of factoring services offered and availed. These types are only illustrative and not exhaustive. There could be any variation of services. A comparative picture is given below.
Types of
Factoring Types of Services Sales Ledger Administration & Collection of Book Debts
Credit Control Credit Protection or Risk Absorption Finance Advisory Services Full factoring (without recourse) ? ? ? ? ? Recourse factoring ? ? X ? ? Maturity factoring ? ? ? X ? Credit factoring X X X ? (without notification) ? Bulk factoring X X X ? (without notification) ? Agency factoring X X ? (
sometimes) ? ? ? indicates availability and × indicates non-availability of facility
43 Chapter 3: Sources of Finance Caution Comparison with Bill Finance
Both Bill Financing and Factoring provide finance by discounting receivables. But they differ in some aspects. Let us discuss their dissimilarities.
Area Bill Finance Factoring 1. Approach Specific and limited to providing finance Total service approach which, inter alia, includes sales ledge administration, collection of receivables, credit control, credit protection, finance and advisory services 2.
Mode of Lending
Advance is given against Bills of Exchange Outright purchase of trade debt 3.

Registration of charges relating to company advances Registration is compulsory except with case of documents against payment There is no need of registration as the Factor is the owner of the debt 4. Principles of Transaction Bill by bill basis evaluation Total (bulk financing) and is available against unpaid and trade generated invoices 5. Existence of arrangement Known to the drawee of the bill in all cases It is unknown to the debtor (customer) only is cases of undisclosed or credit or invoice factoring 6. Treatment in Balance Sheet On balance sheet item reflected in both sides of balance sheet of the client In cases of without recourse factoring/full factoring, factoring finance is an
off-balance
sheet item 7. Security Generally additional security is provided Purchase of debt is the consideration 8.
Misuse Misuse of bill facility occurs. For example, prevalence of accommodation bill is one type of misuse Factoring provides built-in-checks to prevent and detect misuse. 3.1.9
Factoring in India The Working Group on Money Market (1986), under the Chairmanship of N Vaghul, recommended the introduction of factoring services in India to solve the financial problems of
small-scale
enterprises, arising out of delayed realisation of their receivables. The Sukhamoy Chakravarti Committee also, inter alia, had highlighted the inadequacy of institutional credit against high percentage of Open Account Sales of the small and medium scale enterprises. In 1988, the Reserve Bank of India, set up a Study Group under the Chairmanship of C S Kalyansundaram to examine the scope and need of factoring in India. Kalyansundaram Committee The Committee submitted its report in November 1989. The main recommendations/observations of the Committee are as follows: 1. Factoring service has relevance in India. 2. Factoring can play a complementary role to the existing bill financing system. 3. With considerable expertise in bill financing and with large network of branches, the commercial banks have a distinct advantage in setting up factoring services subsidiaries. Four or five such subsidiaries could be floated by banks. 4. There should be linkage between banks and factors to avoid double financing against some current asset. 5. SSI units need factoring, especially finance and credit protection services of factors. 6. Factors need to have fund raising windows like rediscounting, lines of concessional credit from banks etc. 7. Export factoring should be started concurrently with the domestic factoring. 8. Comprehensive legal framework should be developed to encourage factoring. Factored invoices should be treated on par with other negotiable instruments for initiating legal proceedings.

Accepting the Kalyansundaram Committee's report, the RBI amended the Banking Regulation Act 1949 in July 1990. It directed that domestic factoring could be undertaken by banks through specialized subsidiaries. Initially, the RBI suggested setting up four factoring subsidiaries on a zonal basis. In line were the four banks ready to provide factoring services, which were the State Bank of India in Western Region, Canara Bank in the Southern Region, Punjab National Bank in the Northern Region and Allahabad Bank in the Eastern Region. The honour of initiating factoring in India goes to the State Bank of India when it set up on February 26, 1991, in collaboration with the Small Industries Development Bank of India (SIDBI), Union Bank of India, State Bank of Saurashtra and State Bank of Indore, a new subsidiary called SBI Factors and Commercial Services Pvt. Ltd. (SBI Factors) to serve industrial and commercial units in western region. In the South, Canbank Factors Ltd. was established by Canara Bank with SIDBI and Andhra Bank as
co-promoters.
On representation by the SBI, the zonal restrictions were removed by the RBI in 1993, paving the way for these factoring companies to operate in centres outside their allotted zones. To provide further impetus to factoring, the RBI directed in February 1994 that banks could undertake factoring activity departmentally. The RBI also recommended certain other guidelines as follows: 1.
Since factoring services require special skills and adequate infrastructure, it should be undertaken only by certain select branches of banks. 2. It is like loans and advances and should be assigned 100% risk weight for Capital Adequacy Purpose. 3. The guidelines on Income Recognition, Asset Classification, Provisioning and Exposure Norms as applicable to banks will also apply for factor financing. 4. A bank's exposure through factor financing should not exceed 10% of its total advances. 5. The Factor financing should not result in double-financing client's receivables. 6.
Banks and Factors should exchange information on the client. Factors/Departments doing factoring services should intimate the bank extending working capital facility about the factoring limit of the client. Banks should issue letter of disclaimer to the Factor on book debts factored to facilitate assignment of debt. The Factor, in turn, should route the proceeds through the banks. 7. For the purpose of propagation of bill culture, it may be restricted to receivable finance availed from banks and factor finance may be excluded from the ambit of Credit Monitoring Arrangement. However, departmental factoring is yet to take off. 3.2

Long-term Sources of Financing The following are the sources of long-term working capital or long-term sources of finance: 1. Internal Financing Sources, and 2. External Financing Sources 3.2.1 Internal Financing Sources As we have classified source of finance as internal and external, this is based on the generation of finance source. A new company can raise the required long-term funds from external sources, but an undertaking, which is well established, can generate funds not only from external sources but also from internal sources. Internal source of finance is available only for firms that exist and well established. Caution The internal sources of finance are: 1. Retained earnings/ploughing back of profits,
and 2. Depreciation charges.
The following discussion gives clear view about the internal sources of finance.
45
Chapter 3:
Sources of Finance Retained Earnings/Ploughing Back
of Profits Retained earnings are an important source of internal financing of well-established companies. Retained earnings are the portion of earnings
available to equity shareholders, which are ploughed back in the company.
In other words, a part of earnings available to equity shareholders
that
are retained for future investment.
Accumulation of profits by a firm for financing developmental programmes.
Hence, the process of accumulating company profits regularly and their utilisation in the business is known as retained earnings or ploughing back of profits or internal financing or self-investment. Retained earnings are part of equity, since they are part of equity, which are sacrificed by equity shareholders. In this source of finance companies, generally retained or ploughed back about 20 per cent to 70 per cent of earnings available to equity shareholders for the purpose of financing of the growth of the company. This becomes a main source of long-term finance, when the management capitalizes profits. It is known as capitalization of profits or issue of bonus shares. Retained earnings
may be used for expansion programmes
of company, replacement of obsolete assets, modernisation of plant and equipment, redemption of preference shares or debentures, loans etc. Factors Influencing Retained Earnings
As we have read that use of internal funds as a source of finance is only for well-established companies. Retained earnings are influenced by a number of factors: 1.
Earnings Capacity of a Company: Ploughing back of profits arise only when the company has sufficient (
profits) earnings. Larger the earnings, larger the ploughing back of profits. It can be supported by Psychological Law of Consumption given by Keynes who is a famous economist. 2. Types of Dividend Policy: Ploughing back of profits depends on the dividend policy of a firm. In other words, a retained earning depends on the dividend policy adopted by the top
management (BOD's)
with regards to distribution of earnings. A company, which intended to retain more earnings, needs to follow conservative dividend policy. The retained earnings policy is also affected by the expectation of shareholders. When there is more percentage of shareholders who are in high income tax bracket, expects to retain profits. On the other hand, where the shareholders who are depend on regular income, expects more dividends, i.e., less retained earnings. 3. Taxation Policy of the Government: Earnings
available to shareholders are the profit after taxes minus preference shareholders dividend. When
there is high tax rate less profit after tax and less retained earnings and vice versa. 4. Profitable Investment Opportunities: A firm that has more profitable investment opportunities feels to retain profits for financing of that investment and vice versa. 5. Other Factors: Apart from the above-discussed factors, the following will also affect retained earnings: (a) Top management attitude and philosophy (b) Custom of the industry (c) Economic and social
environment
of the country (Prevailing) (d) Industry life cycle, etc. Advantages/Merits of Retained Earnings The advantages of retained earnings may be studied under three view points: 1.
Advantages/Merits to Company (a) Firm can raise funds easily, since there are no obligations involved with shareholders. (b) It is less costly, when compared to other sources of
long-term
finance (equity shares, preference shares, and debentures), since it does not involve flotation cost. (c) It increases credit worthiness of the company because retained earnings increases owners' equity.
46
Financial Management (

d) No dilution of control, when a company depends on retained earnings. (e) It helps to maintain stable dividend policy in the year of less or no profits, the company can use to retain earnings to pay uniform dividend. (f) It helps in improving efficiency, by the use of retained earnings to replace the depletion and obsolescence assets. (g) It enables to redeem long-term liabilities such as debentures, long-term loans, preference shares, which involve a fixed cost. (h) It acts as a cushion to absorb hazards refers to the down in the trade cycle (depression, recession, declining). 2. Advantages/Merits to Shareholders/Owners (a) It increases in the value of shares in the long-run of stable dividend policy, improvement of efficiency, credit worthiness etc. (b) Increase in the collateral value of shares, since the value of share price increased and it is accepted by the lenders as collateral security. (c) It enhances (earnings) dividends, when the retained earnings are invested in profitable investment avenues. (d) It reduces income tax burden, which is needed to be paid if dividends are declared. 3. Advantages/Merits to the Society/Nation (a) It increases the rate of capital formation, which indirectly helps to promote economic development of the nation. (b) It stimulates industrialization, by internal financing. (c) It provides employment, by establishment of more industries (profitable investment avenues). (d) It helps to increase productivity, since retained earnings used for modernization, replacement of old machineries and formulation of new companies, which help to utilize the scarcely available resources optimally. (e) It improves standard of living by providing employment, efficient use of scarce resources, and increase in productivity, producing good quality products at reasonable prices. Disadvantages/

Demerits of Retained Earnings The following are the important disadvantages of retained earnings: 1. Limited funds available by way of retained earnings. 2. Continuous retention of profits may lead to over capitalization. 3. Creation of monopolies, since retained earnings in bigger organisations helps

to grow bigger which may lead to the monopoly. 4. Loss to shareholders,

when a firm pays less dividends or no dividends due to retained earnings, shareholders may sell their shares for meeting their expenditure. 5. The management may misuse the retained earnings, which is not helpful to maximize shareholders wealth. 6. The cost of retained earnings is high, retained earnings are the dividends foregone by ordinary shareholders, which involve an opportunity cost. 7. Retained earnings leads to evasion of super profit tax, which is the revenue loss to the Government.

Depreciation Charges Depreciation is the distribution cost or the basic value of tangible capital assets, over the estimated useful life of the asset in a systematic and rational manner. In other words, depreciation is the allocation of capital expenditure to various periods over

which the capital expenditure is expected to benefit the company. For example, a machinery costing Rs. 1, 00,000, has 5 years life period with no scrap value. If the machine is depreciated based on straight line method of depreciation, the depreciation charge for a year is

Rs. 20,000 (Rs. 1, 00,000 / 5),

which is shown in profit & loss account debt side and it reduces profit by Rs. 20,000. But it is only book entry and not cash outflow. It is out of pocket cost. There is a lot of debate among academicians and business executives regarding the treatment of depreciation as source of finance. What ever may be the arguments either for or against, but one thing is clear that it is a out of pocket cost or non-cash item of expense. Hence, it is considered as

a internal source of finance. 3.2.2 External Financing Sources Share Capital

A share is a small unit of capital of a company. In other words, share capital

of a company (planned to raise) divided into number of equal parts that known is share. Section 2 (46) of the Companies Act, 1956, defines share as, "a share in the share capital of a company and includes stock, except when a distinction between stock and share is expressed or implied". It is a legal definition of share. Stock and share have different meanings. According to Section 94 (i)(c) of the Companies Act, 1956 stock means, a share, which is fully paid up. Lord Justice James Lindley gives a good definition, as "A share is that proportionate part of capital to which a member is entitled." For example, XYZ company has share capital of

Rs. 1,00,000, of Rs. 10 each. Then the capital is divided into 10,000 shares (i.e., Rs.1,00,000/Rs.10).

Shareholder is a person who buys one or more shares in the company. Kinds of Shares In our country Companies used to raise funds (before Companies Act, 1956) by issue of three types of shares, i.e., preference shares, equity (ordinary) shares, and deferred shares. But the Companies Act has limited the type of shares into two - preference shares, and equity (ordinary)

shares. Equity Shares Equity means 'equal'. Equity share is a share that gives equal right to holders. Equity shareholders have to share the reward and risk associated with ownership of company. For example, ABC Company has 10,000 equity shareholders and it has earned

Rs. 10,000

profit last year and assume it may earn a loss of

Rs. 10,000

in the next year. Here, the shareholder will get Re. 1 as profit from last year and
Re. 1
loss in the coming year's loss. It is also called as ordinary share capital.
Equity shareholders
are the owners of the company, who have control over the working of the company. They are paid dividend
at the rate recommended by Board of Directors (BoDs).
The dividend rate
depends on the profits, more profits more dividends and vice versa. If there are no profits, no dividends will be payable. But some companies pays dividends even if the company has no profits to maintain dividends stability. The amount required to pay dividends will be transferred from general reserve account. The equity shareholders take more risk when compared to preference shareholders.
Features of Equity Stock The following are the features of equity stock: 1.
Permanent Capital: An equity source is the main long-term
or permanent source of finance. They can be redeemed or refunded only at the time of liquidation that too from the residue left after meeting all the obligations.
In other words, there is no agreement between equity shareholders and the company with regard to refund of capital. Shareholders cannot sell shares to company, but he / she can sell shares in the stock market to others, if he/she wants to get back his/ her money. Hence, it is permanent source of finance for company. 2.
Residual Claim
to Income: Equity shareholders have a residual claim to the income of a company. Residual claim means the
income leftover after paying all outsider claims.
The residual income is also known as earnings available to equity shareholders, which is equal to profit after tax minus preference dividend. But the total residual income may or may not be paid as dividends, since the BoDs have the right to decide the portion of earnings available to shareholders that will
48
Financial Management
be paid as dividends. Payment of dividend depends on retention or plough back of profits. For example, if the earnings available to equity shareholders are Rs. 1,00,000, and the BoDs decide to retain 50 per cent of them, then the remaining 50
per cent (i.e., Rs.50,000)
is paid as dividends. There is no legal obligation to pay dividends even if residual income is available. 3.
Residual Claim to
Assets: Equity shareholders have a residual claim on firm's
assets. In an event of liquidation of a firm, the assets are used first to settle the claims of
outside creditors and preference shareholders, if anything left
that is equity shareholders residue.
In other words, equity shareholders have last priority on assets, hence, their capital become cushion to absorb losses on liquidation. 4.
Voting right/Right to Control:
Equity shareholders
as real owners of the company they have voting right, in appointing Directors and Auditors of the company, participate and vote in annual general meeting, which helps to control the company.
BoDs have the control power of company, because the major decisions are take by BoDs. But in actual practice majority of individual shareholders never bother to utilize the voting right, since they are scattered and they are unorganized. So the control over the company is ineffective. 5. Pre-emptive Right: Equity shareholders have pre-emptive right, which means they have legal right to buy new issues, before offering to the public. Section 81 of the Companies Act 1956, puts company under legal compulsion to offer new shares to the existing shareholders before offering to the public. The number of additional shares offered depends on
the number of shares owned in relation to the total shares outstanding
and on the issue new shares. For example, Mr. B owns four shares of a company having 200 shares of equity outstanding. Mr. B is entitled the pre-emptive right to buy 2 per cent [(4/200) 100 = 2 per cent] additional shares to be offered by the company. Pre-emptive right is the option given to the shareholders to buy a specified number of shares at a given price. The shareholder can exercise or sell in the market or leave the option partially or fully. 6.
Limited Liability: This is the prime feature of equity share. Although,
equity
shareholders are the owners of the company, their liability is limited to the extent of
the investment in the share.

Advantages/Merits of Equity Shares The advantages of equity shares can be discussed from the point of view of company and investors. 1. Advantages/Merits to Company (a) It is permanent long-term source of finance. (b) There is no repayment liability. (c) It does not create any obligation to pay dividend. (d) This capital can be issued without creating any charge over
assets of the company. (
e)
Issue of equity share capital increases the credit worthiness of
the company. 2.
Advantages/Merits to Investors (a) Equity share provides
more income (residual income). (b) Equity shares gives right to participate in the control and management of the company. (c) Capital appreciation (if share price increased when compared to purchase price). Disadvantages/Demerits of Equity Shares The advantages of equity shares can be discussed from the point of view of company and investors. 1. Disadvantages/Demerits to Company (a) High cost source of fund. (b) Involves high flotation costs.

c) Issue of additional shares dilutes control. (d) No tax advantage (dividends are not tax deductible). (e) It makes capital structure rigid. 2. Disadvantages/Demerits to Investors (a) No guarantee, and regularity in receipt of dividend. (b) No guarantee in receipt of principle amount of investment. (c) Loss of capital due to fluctuations in share prices.
Sweet Equity Shares Equity shares issued at a discount or for consideration other than cash for providing know-how or making available rights in the nature of intellectual property rights or value additions by whatever name called". Issue of sweet equity by listed company should be according to SEBI guidelines. The issue should be authorized by a special resolution passed by the company in the general meeting, which specifies the number of shares, price, and consideration, if any. Par-value Shares: Unlike bonds, which always have a par value, equity stock may be sold with par value or without par value. Par value means the nominal value of a share in the Memorandum of Association (MOA) established for legal purpose. The par value decided by promoters of first - directors of company such may be issued at par, at premium, or at a discount price to the public. No-par Value Shares: These types of shares are without par value. In this arrangement, MOA specifies the number of shares and not the price. They will be issued to the public at a stated price decided by the BoD's. Payment of dividend on this type of shares is so many rupees per share, i.e., Rs. 5 per share or Rs. 6 per share. In India, Company Law does not allow Indian companies to issue no-par value of share. But in America and Canada, no-par value shares are more popular.
Preference Share Capital
Preference share capital gives certain privileges to its holders on the equity shareholders. Preference shareholders have privileges in two ways: 1. A preferential privilege in payment of a fixed dividend. The fixed dividend may be in the form of fixed rate or fixed amount per share; and 2. Preferential right
as to repayment of capital in case of liquidation/
winding up of the company.
Preference share capital is a hybrid form of
long-term finance, since it has the features of equity and debentures. Preference share resembles equity in the following ways: 1.
Preference
dividends are payable only after tax profits (PAT). 2. Payment of preference dividend depends on the discretion of BoD's, (it is not an obligatory payment). 3.
Preference dividend is not a tax deductable payment. 4. Irredeemable preference shares are long-term in nature (they have no maturity date). Preference share capital is similar to debenture capital in the following ways: 1. It
carries a fixed rate of dividend. 2.
It has prior claim on assets like debenture capital. 3. It normally does not have voting rights. 4. It is redeemable in nature (if it is redeemable preference share). 5. It does not have right to share residual profits/assets.

Features of Preference Shares The features of preference share/capital are as follows: 1. Claim on Assets: Companies does not create any charge on assets while issue of preference shares, still preference shareholders have prior claim on assets of the company in the event of liquidation. It means before payment of ordinary shareholders, the preference shareholders are paid. 2. Claim on Income: Not only the
prior claim on assets at the time of liquidation, they also have prior claim on income or profits. Preference
dividend
must be paid in full before payment of any dividend on

the equity share capital. As preference share capital lies between debenture capital and equity share capital with regards to claim on assets and income of the company. Hence, it is called as "senior security". 3. Accumulation of Dividend: Most of the preference shares dividend is cumulative. It means that all the unpaid/arrears dividends are carried forward for the next year and paid with the current years dividend before payment of any dividend to equity shareholders. For example, company A issues 10 per cent preference shares of
Rs. 100
each, in the beginning of the financial year. The company needs to pay Rs. 10 as dividend but due to loss it was not able to pay, in this case the
Rs. 10
is carried to the next year. If there are any profits in next year the company has to pay last years dividend and the current year's dividend. Thereby the total dividend is Rs.20. 4. Redeemable: Preference share capital has limited maturity period (if issued as redeemable) after that the share capital has to be refunded. It provides flexibility in capital structure, which is beneficial to the company. 5. Fixed Rate of Dividend: Issue of
preference shares are at a fixed rate of dividend. The rate
is at par value basis.
It helps the management to avoid the provision of equal participation in earnings. The fixed dividend rate may be lower when compared to ordinary shareholders dividend. Hence, it helps the company to maximize equity shareholders wealth. But there is no legal obligation and failure to pay will not force bankruptcy. 6.
Convertible: Convertible preference shares capital has the feature of conversion of preference shareholders investment into fully or partly paid equity shares at a pre-determined ratio within a given/specified period. In
India, we have a preference share that has convertibility and cumulative features but so far no company has issued. 7. Participation in Surplus Profits: Sometimes preference share capital is in the nature of participation in surplus profits. Here, surplus profits means the amount of profits left out after payment of a fixed/stable rate of dividend to equity shareholders. Same case preference shareholders participate in surplus assets in the event of liquidation. Share of surplus assets arises only when the company goes to liquidation by court order (when assets value is greater than the liabilities value) to protect public interest. 8.
Voting Rights: Generally preference shareholders do not have voting rights, so they
can not control working of company, but Section 97 of the Companies Act, 1956, entitled to vote on a resolution that directly affects the rights to be attached to their preference shares. Advantages/Merits of Preference Shares The advantages of preference shares can be studied under two heads, they are companies and investors. 1.
Advantages/Merits to Company (a) There is no legal obligation to pay preference dividend. (b) There is no share in control of the company through participation in voting. (c) They provide flexibility in capital structure by issue of redeemable preference shares. (d) It enhances credit worthiness, because preference share capital is generally treated as a part of net worth. (e) Preference shares provide long-term capital for the company. (f) Mortgageable assets are conserved, due to the issue of preference share capital without pledging assets.
51
Chapter 3: Sources of Finance 2.
Advantages/Merits to Investors (a) Stable rate of preference dividend. (b) Prior claim on assets. (c) Less risk when compared to equity shareholders. Disadvantages/Demerits of Preference Shares The disadvantages of preference shares can be studied under two heads, they are companies and investors. 1. Disadvantages/Demerits to Company (a) Tax disadvantage, because preference dividend is not a tax deductible, which makes preference share capital as costly source of finance. (
b) Adverse effect on creditworthiness, if the company avoids payment of dividend. (
c) Permanent burden of payment of dividends, if the preference shares are cumulative in nature. 2.
Disadvantages/Demerits to Investors (
a) Limited return, as preference shareholders do not have voting rights, their return depends on managerial decision, which is arbitrary, and shareholders cannot force management to pay more dividends. (
b) The rate of preference dividend is generally less than the rate of dividend on equity shares. (c) The market prices of preference shares fluctuate more when compared to debentures. Classification of Preference Shares Preference shares are may be of several types: 1. Cumulative Preference Shares: Cumulative preference shares are those shares on, which the amount of dividend payable goes on accumulating until it is fully paid. If the full dividend or partial dividend
can not

be paid in any year (due to less profits), the same can be paid out of future profits. Even if the company is not able to pay the last year's dividend in the next year, the same is cumulated for the future period till the full payment. Preference shares are generally cumulative unless otherwise expressly stated in the Articles of Association or if there are terms of the issue of those shares. 2. Non-cumulative Preference Shares: Non-cumulative preference shares are those shares on which the unpaid dividend does not cumulate to the next year's dividend. It means in any year, the company fails to earn profit to pay fixed dividend for that year, the preference shareholders cannot ask (or cumulate) from the next years' profit. Thus it is the right to claim unpaid dividends will lapse. 3.
Redeemable Preference Shares: Redeemable preference shares are those shares, which can be redeemed or repaid to the holders after a lapse of the stipulated period, which is stated while issue of such a share. A company limited by a share may redeem, if articles permit. 4. Irredeemable Preference Shares or Perpetual Shares: Perpetual preference shares that is not repayable and redeemable only at the time of liquation. These shares are also called perennial shares. 5. Participatory Preference Shares: These are the shares that enjoy the right to participate in surplus profit that is left out after payment of a fixed rate of dividend to equity shareholders. This is the additional return apart from getting a fixed rate of preference dividend. Not only share in surplus profits, they may also participate in surplus assets of the firm at the time of liquidation. Generally, preference shares are deemed to be non-participatory, if there is no clear provision in Articles of Association or in the terms stated while issue of shares. 6. Non-participatory Preference Shares: The preference shares that have no claim in the surplus profit or assets of the firm are deemed to be non-participatory preference shares.
52
Financial Management 7.
Convertible Preference Shares: Here convertible means into equity not into cash. The preference shares, which are having the
right to convert their holdings into equity shares with a specific period, are
known as convertible preference shares. Generally, preference shares are non-convertible in nature unless otherwise stated in Articles of Association or in the terms of issue of the shares. 8. Non-convertible Preference Shares: The preference shares that do not enjoy the option of converting their holdings into equity are known as non-convertible preference shares. The
above discussed are some of the types of preference shares. Caution Creditorship Securities Creditorship securities are those securities, which are issued to creditors for raising finance. The securities are debentures/ bonds. The amount of raised by issue of debentures/bonds is known as debt capital. Debenture and bond

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capital is one of the cheapest sources of long-term finance.

A debenture and bond is an acknowledgement given by the firm for having received a sum of amount as debt. Here, there is no need to understand the two terms debenture and bond. Debenture and bond, both are issued by a corporate concern to raise long-term capital, but there is a difference between them. The term bond refers a security that has secured by tangible fixed assets of a corporate, and debentures are not secured, (i.e., they are secured by credit worthiness of a corporate and not by assets). In US, the debt securities are called as bonds. In India and UK, the securities are called as

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debentures, and they are treated as synonym. According to the Companies Act 1956, the term debenture includes, "debenture stock, bonds and other securities of a corporate concern, whether contributing a charge on the assets of a corporate or not".

Hence, in the following discussion, the two terms debenture and bond have been used interchangeably.
Debentures/Bonds Debenture/bonds are an important source of long-term finance. Raising of funds by issue of debentures/bonds is allowed to public limited Companies, if Memorandum of Association is (MoA) permitted. Meaning of Debenture The term 'Debenture' is derived from the Latin word 'debere', which means 'to be a debtor'. Companies Act of 1956 defines 'debenture' as including
debenture stock, bonds and other security of a company, whether constituting a charge on the assets of the company or not.

It is not clear or does not explain fully what is debenture. According to Naidu and Datta, "a debenture is an instrument issued by the company under its common seal acknowledging a debt and setting forth the terms under which they are issued and are to be paid". A person who buys debentures is debenture holder and creditor of the company. Debenture can be priced as the same manner as share. In other words, they can be issued at face (par) value, at premium or at a discount.

Features of Debentures The features of debentures/bonds are as follows: 1. Fixed Rate of Interest: In general the debentures are issued at a fixed rate of interest, but they may also issued at a floating rate of interest or a zero interest. The fixed rate debentures are more popular in India. The rate of interest is on face
value of the debenture that will be paid out annually
or semi-annually.

The interest payable on debentures is tax deducible. Company is free to determine the interest rate, which may be fixed or floated. 2.

Maturity: The debenture capital is a cheapest source of long-term finance, but it should be repaid after a specific period. In other words, debentures are issued for a specific period (i.e., 10 years or 5 years debentures).

The period in which the debentures are issued or the period after which the debenture capital is repaid is known as maturity period.

The maturity period may vary between 1 year
to 20 years. In India, non-convertible debentures are redeemed after 7-10 years.

 3.

Redemption: Debentures can be repaid either in installment wise or lump sum. If it is repaid in one lump sum amount, it can be done by creation of debenture redemption reserve. It is compulsory for all debentures whose maturity period exceeds 18 months. Company should create Dividend Redemption Reserve (DRR) equivalent to at least 50 per cent of the amount of issue before commencement of repayment. 4.

Call and Put Option: Debentures may have 'call' option, which gives the right to 'buy'
to issuing company
at a certain price before the maturity period. The buy back (call) price may be more than the face value of debenture generally 5 per cent, which is known as premium on redemption. Sometimes, debentures may also put an option, which gives a right to the debenture holder to seek redemption at specified times and at pre-decided prices. 5.

Debenture Indenture: A debenture indenture is a legal document, which specifies the rights of both the issuing company and the debenture holder.

The debenture indenture includes descriptions of the amount and timing of the interest and principle amount payments (installments or lump sum), various standard and restrictive provisions, and frequently sinking fund requirements and security interest provisions. The indenture gives
the responsibility to the trustee to protect the interest of debenture holders by
fulfilling the above stated descriptions. 6.

Security Interest: Debenture may be either secured or insecure. In India most of the debenture is secured debentures. A secured debenture is a debenture which is secured by a charge on the company's immovable assets and a floating charge on other assets. An unsecured debenture is one which is without any charge on firm assets, these are known as naked debenture. 7.

Convertibility: Companies can also issue convertible debentures. It is the debenture that is convertible into equity shares at the option of the debenture holder.

The conversion ratio and the period during which conversion can be affected are specified at the time of issue of debentures. 8.

Credit Ratings: Before issue of debentures to the public, the issuing company needs to get the debentures rated by anyone of the credit rating agencies. The four credit
rating agencies are:

Credit Rating Information Services of India Limited (CRISIL), Investment Information and Credit Rating Agency of India Limited (ICRA), Credit Analysis and Research
Limited (CARL), FITCH India
and Duff & Phelps Credit Rating India Pvt. Ltd (DCRI). 9. Claim on Income and Assets: Debenture
interest is tax deductible. In other words, debenture interest is paid from Earnings before Interest and Taxes (EBIT) or operating profit. The interest is payable before payment of tax, preference dividend and equity dividend. So,
debenture holders have priority of claim on income. At the same time they also have priority of claim on company assets at the time of winding up. Failure of
interest
force to bankruptcy.

Types of Debentures The following are the different types of debentures: 1. From the redemption point of view, the debentures are sub-divided into two: (a) Redeemable Debenture: Redeemable debentures are those debentures, which are to be repaid by the company at the end of specified period or within the specified period at the option of the company by giving a notice to debenture holders with the intention to redeem debentures either lump sum or installments. (b) Irredeemable Debenture: Irredeemable debentures that are not redeemable during the existence (life) of the company. They are repayable either if the company fails to pay interest on them or at the time of liquidation of the company. These types of debentures are also known as perpetual debentures. 2. From the conversion point of view, the debentures are sub-divided into two: (a) Convertible Debenture: Convertible debentures are those debentures that are convertible into equity shares at the option of the debenture holders after stating period at a predetermined price. The debenture capital may be Fully Convertible Debentures (FCDs) or Partially Convertible Debentures (PCDs). This type of debentures is attractive, even though they carry a low rate of interest when compared to non-convertible debentures.

b) Non-convertible Debenture: As the name itself, suggests that the debenture does not carry the option of conversion into equity. 3. From the security point of view, the debentures are sub-divided into two: (a) Secured or Mortgaged Debenture: Secured or Mortgaged debentures are those debentures that are issued with a charge on the immovable assets of the company. The charge may be fixed or floating or on particular assets. In case of failure in payment of interest or principle amount, debenture holders can sell the assets in order to satisfy their claims. (b) Necked or simple or Unsecured Debenture: Necked debentures do not carry any charge on company's assets as regards to the payment of interest and repayment of principle amount. But being creditors of the company, they have general charge on the assets of the company. 4. From the transfer or registration point of view, the debentures are sub-divided into two: (a) Registered Debenture: Registered debentures are those debentures that are registered with the issuing company. Names, addresses and other particulars of holders are recorded in debenture register, which is kept by the issuing company. Transfer of this type of debentures needs a regular transfer deed, at the time of transfer of such debentures. The interest is paid only to the person on whose name the debenture is registered. (b) Bearer Debenture: Bearer debentures are those debentures that are payable to the bearer and transferable by delivery only. Bearer debentures are negotiable instruments and the company keeps no records for them. The interest is paid to the bearer of debenture. 5. Other Types of Debentures (a) Zero Interest (Coupon) Debentures (ZID): Zero interest (coupon) debentures are of the innovative debt instruments. This type of debenture does not carry any interest (coupon) rate. Generally, they are issued at a discount from their maturity/redeemable value. The return for the holders of this type of debenture is the difference between purchase (issue) price and maturity (redeemable) value. Example: Mr. A has purchased a debenture at Rs. 50, having a maturity period of 10 years, and debenture redeemable value is Rs. 200. hence, the return to holder is Rs. 150 (Rs.200 – Rs.50). (b) Deep Discount Debenture/Bond (DDB): Deep discount bond is the same as zero coupon bond but deep discount bond is issued at a deep discount from its redeemable (maturity) value. In India, DDBs are being issued by the public financial institutions. They are Industrial Development Bank of India (IDBI), Small Industries Development Bank of India (SIDBI), etc. For example in the year 1992 IDBI sold deep discount bonds at deep discount price of Rs. 2,700, with maturity value of Rs.1 lakh and its maturity period is 25 years. It was the first institution to issue DDB. DDBs enable the issuing company to consume cash during maturity period. In other words, the issuing company need not serve the debt by paying interest. It reduces the risk of reinvestment of interest, which is receivable at the end of every year. However, DDBs exposed to high risk since the entail a balloon payment at the end of maturity period. (

c) Floating Rate Bonds (FRBs): Floating rate bonds are those bonds
in
which the rate of interest is not fixed. The interest rate is floating and its linked interest rate on Treasury Bills (TBs), Bank Rate (BR),
which
are considered as benchmark. In India, State Bank of India (SBI) was the one of earliest financial institution to successfully sell floating rate bonds. Later, IDBI also issued this type of debentures. Floating rate bonds provide protection against inflation risk to investors or bondholders. (
d) Secured Premium Notes (SPNs): SPN is a type secured debenture
redeemable at a premium over the face or purchase price. It is like zero interest debenture, since there will be no interest payment in the lock-in-period. SPN holders have the option to sell back the debenture/note to the issuing firm at face value after the given lock-in-period. SPNs are
tradable instruments. For example, Tata Iron & Steel Company (TISCO) issued this type of notes in 1992, face value of Rs. 300.
No interest would accrue during the first year after allotment. During 4-7 years the principle amount will be repaid in installments of
Rs.75,
in addition Rs. 75 in each year as interest and redemption on premium. The buyer was given an option to sell back SPNs at the
Rs. 300.
55 Chapter 3: Sources of Finance (
e) Guaranteed Debentures: These are the one type of debentures on which the payment of interest and principle amount is guaranteed by third party at the time of their
issue. The third parties are financial institutions, government, etc. (f) Callable Bonds: Callable bonds are those bonds that can be called in and purchased at a price.
Companies generally call back bonds only when the interest rates fall in the market less than the bond's interest rate. Companies redeem high interest bonds and raise funds by issue of low interest bonds. IDBI was the first bank to issue bonds with call features in 1992.
Advantages/Merits of Debentures/Bonds The advantages of debentures/bonds may be studied under two heads: 1. Advantages/Merits to Company (a)
Debenture capital is one of the cheapest sources of long-term finance, since interest payment on debentures is
a tax-deductible expenditure and low flotation cost. (b) Issue of debenture does not dilute control, since they do not entitled voting right. (
c)
Debentures enable the company to take advantage of trading on equity, which results shareholders wealth maximization. (d) Debenture capital provides flexibility in capital structure, if they are issued as redeemable or if not also, since they have call option. (e) Debenture holders does not participate in the surplus profits of the company since, payments to them are limited to interest and principle amount. (
f) Debenture capital provides protection against inflation since, the interest rate is fixed. 2. Advantages/Merits to Debenture holders (a) Debentures provide a fixed, regular and stable source of income. (b) Debenture holders' investment is safe and secured since, debentures with a charge on company is assets. (c) Debentures are issued for a definite maturity period. (d) Debentures holders' interests (payment of interest and principle amount) are protected by the debenture indenture. Disadvantages/Demerits of Debentures or Bonds The following are the important disadvantages of debentures: 1. Disadvantages/Demerits to Company (a) Raising debenture capital is risky one, since it involves payment of fixed interest charges and repayment of principle amount, which are legal obligations of the issuing company failure to (
pay) honour, it may lead to bankruptcy. (b) Raising debenture capital increases financial leverage (risk perception on investors), which raise the cost of equity according to Capital Assets Pricing Model (CAPM) of the company. (c) Raising debenture capital involves restrictions, like limit the borrowing, limit dividend payment etc. (d) Debenture (irredeemable) capital is costly one, when the rate of inflation decreases. Since the interest rate comes down in the market. (e) This is not stable source of long-term finance for a firm with variable earnings.
56
Financial Management

Table 3.1: Difference between Equity Shares and Debentures Point of Distinction Equity Shares Debentures Nature of Security Ownership security Creditorship security Form of Return Dividend Interest Rate of Return Not fixed (no guarantee) Fixed rate Refund of principle amount May be refunded at the time of liquidation Refunded at the end of maturity period. Voting Rights Have voting rights. No voting right. Charge of Return Dividend is a charge against profit & loss apparition account. Interest is a charge on profit& loss account.
Exemption of return from tax
Not exempted from tax (dividend is paid after payment of tax). Exempted from tax (interest is paid before payment of tax). Claim on assets and income Equity holder does not have claim on assets and income. Debenture holders have claim on assets and income. 2. Disadvantages/Demerits to Debenture holders' (
a) Debentures do not carry any voting rights, which give no controlling power on the working of the company. (b) Debenture holders' does not have claim on surplus profits since they are not the owners of the company. (c) Receipt of debentures is fully taxable under the head income from other sources. (d) Debenture holders' loose interest charges, if the inflation increases. (
e) Debenture prices are vulnerable with changes interest rates.
Venture Capital Venture Capital funding is different from traditional sources of financing. Venture capitalists finance innovation and ideas which have potential for high growth but with inherent uncertainties. Venture capital is a means of equity financing for rapidly-growing private companies. Finance may be required for the start-up, development/expansion or purchase of a company. Venture Capital firms invest funds on a professional basis, often focusing on a limited sector of specialization (e.g. IT, infrastructure, health/life sciences, clean technology, etc.). Venture capital has developed as a result of the need to provide non-conventional, risky finance to new ventures based on innovative entrepreneurship. Venture capital is an investment in the form of equity, quasi-equity and sometimes debt - straight or conditional, made in new or untried concepts, promoted by a technically or professionally qualified entrepreneur. Venture capital means risk capital. It refers to capital investment, both equity and debt, which carries substantial risk and uncertainties. The risk envisaged may be very high may be so high as to result in total loss or very less so as to result in high gains. With venture capital financing, the venture capitalist acquires an agreed proportion of the equity of the company in return for the funding. Equity finance offers the significant advantage of having no interest charges. It is "patient" capital that seeks a return through long-term capital gain rather than immediate and regular interest payments, as in the case of debt financing. Given the nature of equity financing, venture capital investors are therefore exposed to the risk of the company failing. As a result the venture capitalist must look to invest in companies which have the ability to grow very successfully and provide higher than average returns to compensate for the risk. When venture capitalists invest in a business they typically require a seat on the company's board of directors. They tend to take a minority share in the company and usually do not take day-
to-
day control. Rather, professional venture capitalists act as mentors and aim to provide support and advice on a range of management, sales and technical issues to assist the company to develop its full potential.

The objective of the VC scheme is to provide a window to entrepreneurs who have thought of ventures having special characteristics to be innovative but at the same time may not qualify for assistance through the conventional route of loans and financing. Projects involving new and untried/untested processes and technologies which have scope for commercial application with characteristics of high risk and high return are one example of the type of projects which a VC looks for. Importance of Venture Capital Venture capital is valuable not just because it makes risk capital available at the early stages of a project but also because of the expertise of venture capitalist that leads to superior product development. Development of a proper venture capital industry particularly in the Indian context is important for bringing to market high quality public offerings (IPOs). In the present situation, an individual investor becomes a venture capitalist of a sort by financing new enterprises and undertaking unknown risk. Investors also get enticed into public offerings of unproven and at times dubious quality. This situation can be corrected by venture capital backed successful enterprises accessing the capital market. This will also protect smaller investors. Venture capital
has a number of advantages over other forms of finance, such as: 1.
It injects long term equity finance which provides a solid capital base for future growth. 2.
The venture capitalist is a business partner, sharing both the risks and rewards. Venture capitalists are rewarded by business success and the capital gain. 3. The venture capitalist is able to provide practical advice and assistance to the company based on past experience with other companies which were in similar situations. 4. The venture capitalist also has a network of contacts in many areas that can add value
to the company, such as in recruiting key personnel, providing contacts in international markets, introductions to strategic partners,

and if needed co-investments with other venture capital firms when additional rounds of financing are required. 5. The venture capitalist may be capable of providing additional rounds of funding should it be required to finance growth.
Notes
Types of Venture Capital Funds Generally there are three types of organised or institutional venture capital funds: venture capital funds set up by angel investors, that is, high net worth individual investors; venture capital subsidiaries of corporations and private venture capital firms/funds. Venture capital subsidiaries are established by major corporations, commercial bank holding companies and other financial institutions. Venture funds in India can be classified on the basis of the type of promoters. 1. VCFs promoted by the Central Government. controlled development financial institutions such as
TDICI, by ICICI, Risk Capital and Technology Finance Corporation Limited (RCTFC) by
the Industrial Finance Corporation of India (
IFCI) and Risk Capital Fund by IDBI. 2. VCFs promoted by the State Government-controlled development finance institutions such as
Andhra Pradesh Venture Capital Limited (APVCL) by Andhra Pradesh State Finance Corporation (APSFC) and
Gujarat Venture Finance Company Limited (GVCFL) by Gujarat Industrial Investment Corporation (GIIC). 3. VCFs promoted by Public Sector banks such as Canfina by Canara Bank and SBI-Cap by State Bank of India. 4.
VCFs promoted by the
foreign banks or private sector companies and financial institutions such as Indus Venture Fund,
Credit Capital Venture Fund and Grindlay's India Development Fund.
Venture Capital in India In India the Venture Capital plays a vital role in the development and growth of innovative entrepreneurship. Venture Capital activity in the past was possibly done by the developmental financial institutions like IDBI, ICICI and State Financial

Corporations. These institutions promoted entities in the private sector with debt as an instrument of funding. For a long time funds raised from public were used as a source of Venture Capital. This source however depended a lot on the market vagaries. And with the minimum paid up capital requirements being raised for listing at the stock exchanges, it became difficult for smaller firms with viable projects to raise funds from public. In India, the need for Venture Capital was recognised in the 7th five year plan and long term fiscal policy of GoI. In 1973 a committee on Development of small and medium enterprises highlighted the need to faster VC as a source of funding new entrepreneurs and technology. VC financing really started in India in 1988 with the formation of Technology Development and Information Company of India Ltd. (TDICI) - promoted by ICICI and UTI. The first private VC fund was sponsored by Credit Capital Finance Corporation (CFC) and promoted by Bank of India, Asian Development Bank and the Commonwealth Development Corporation viz. Credit Capital Venture Fund. At the same time Gujarat Venture Finance Ltd. and APIDC Venture Capital Ltd. were started by state level financial institutions. Sources of these funds were the financial institutions, foreign institutional investors or pension funds and high net-worth individuals. India has a vast pool of scientific and technical research carried out in research laboratories, defense laboratories as well as in universities and technical institutes. A conducive environment including incubation facilities can help a great deal in identifying and actualizing some of this research into commercial production. India certainly needs a large pool of risk capital both from home and abroad. Examples of US, Taiwan and Israel clearly show that this can happen provided there is right regulatory, legal, tax and institutional environment. It is also necessary that
start-up's
have access to R&D flowing out of laboratories and universities with infrastructure support such as telecom, technology parks etc. Steps are being taken at the level of Government, Ministry of Information and Technology, and CSIR for improvement in infrastructure and R&D. Certain NRI organisations are taking initiatives to create a corpus of US$500m to strengthen the infrastructure of IITs. More focused attempts will be required in all these directions. Recent phenomena, partly ignited by success stories of Indians in US and other places abroad, provide the indications of a growing number of young, technically qualified entrepreneurs in India. There are success stories within India also. At the same time increasing number of internationally savvy, senior managers have been leaving established multinationals and Indian companies to start new ventures. The quality of enterprise in India is on an ascending curve. The atmosphere thus is ripe for creating the right

regulatory and policy environment for sustaining the momentum for high-technology entrepreneurship. The Indians abroad have leapfrogged the value chain of technology to its highest levels. By bringing venture capital and other supporting infrastructure this can certainly happen at home also. Another important area is the need for multi country integration. Information Technology and Internet have brought about the trend of what can be called the "death of distance" and operation across the countries can be seamlessly integrated. In the Indian context with developing IT and internet technology coupled with close linkages of Indian technocrats and entrepreneurs located in India and abroad, there are interesting possibilities. This will of course need further regulatory and policy support to provide operational flexibility, easy entry-exit and ownership patterns to suit global needs. It is also to be noted that the quality and quantity of research conceptualized in startups competes favorably with research undertaken by big firms. This phenomenon is seen even in India. Eligibility for VC Though the requirement and eligibility criteria differ among different VCs, but generally any entrepreneur who has a good idea or invention in terms of process or product that is different from existing thing, even if it is new and untested. Ventures involving high risk and high return are preferred. While great ideas, innovative technologies, and favorable market conditions are good reasons, the primary factor is strong and diverse management team with solid operational experience and deeply rooted domain expertise. VCs after investment remain actively involved in board membership and help in a variety of functional, strategic and financial roles. Nature of Assistance: The nature of assistance would depend upon needs and requirement of the project. A VC invests in the company and expects that the venture company would go in for an IPO within a reasonable period of time to offer an exit route or buy back. Extent of Assistance: Extent of assistance shall be decided on a case-to-case basis on detailed assessment of the requirements. No minimum/maximum limits are fixed in respect of the quantum of assistance.

Promoters Contribution: The promoter's contribution in terms of involvement and finance is very important in deciding the fate of the venture. The quantum of promoters' contribution is not fixed and vary from case to case basis. But it is expected that the promoters have reasonable stake in the venture, their own resource raising capacity, etc. Security: In normal situations the VCs don't insist for security and collateral but sometimes security requirements are considered in some cases. Business Plan: The primary document, which an entrepreneur should be ready with, is a Business Plan that should cover the following aspects
are adequately covered: 1.
Executive summary giving objective and brief details of the project, project cost and financial requirements. Briefly outline his objective; what exists in the market as on date, his contribution or innovation, what benefit it accrues to the users, cost factor comparison, special legislation prevailing, target users, and other details that are necessary for the product. 2. Resume (with brief write up on the interest, experience, qualification) of the promoters and management team with references from experts of the field if possible, this can make a good impact, for example, a student with an Aerospace Engineering degree builds a prototype of a equipment finding use in aviation so a reference letter of his supervisor or lab in charge will be helpful. 3. Innovative content of the product/service and technology with its distinct characteristics. If a statement of novelty and innovation is outlined separately and the difficulty in the field is mentioned, this would be a handy document. A comparison with the existing product or analogous field will be helpful along with geographical comparison. 4. Details of credit facilities, grants, loans if any, availed by the promoter from any bank/Financial Institution, organization. 5. Detailed shareholding and stakes within the company (existing and proposed). 6. Human resources and requirement in future and mode of acquiring and special training, minimum education criteria, experience. 7. Details of performance of the company during the preceding years (where applicable) covering financial performance, nature/type of operation, projects completed, products developed, competitive strength etc. 8. Details of technical tie ups/collaborations, existing or proposed, if any. 9. Quality systems documentation adopted and milestones achieved in obtaining Quality certifications like ISO 9000, if any. 10. Marketing strategy: How will the product or service reach to target customers is a very important ingredient in a business plan, Intended geographical areas and time frame within which the targets are to be covered. Online marketing mode and special adaptations for the same. 11. Existing Clients added major orders executed for them, if applicable. 12. Details of ratings (if any) certifications from a trusted third party about worthiness of the company, if any. 13. Details of operations like sales office, overseas site offices, subsidiary/associate companies set up abroad for marketing/ offshore development 14. Total cost of machinery, hardware, and proposed means of finance and possible vendors or suppliers to give timely supplies. 15. Present status of the proposed project. Whether it is in idea stage, prototype, or any other stage. 16. Financial projections with underlying assumptions: Like the minimum sales and expenses. 17. Implementation schedule: This is very important yet difficult to make, since these are interdependent and can change with various unrelated factors, like marketing target will change if the purchase of required machinery is delayed, and so on, but it is advisable as the time overrun will affect the cost of the project. 18. Once the deal has been structured and agreement finalised, the venture capitalist generally assumes the role of a partner and collaborator. He also gets involved in shaping of the direction of the venture. The degree of the venture capitalist's

60 Financial Management involvement depends on his policy. It may not, however, be desirable for a venture capitalist to get involved in the day-
to-
day operation of the venture. If a financial or managerial crisis occurs, the venture capitalist may intervene, and even install a new management team. 19.
Exit plan: Venture capitalists generally want to cash-out their gains in five to ten years after the initial investment. They play a positive role in directing the company towards particular exit routes. A venture may exit in one of the following ways: (
a) Initial Public Offerings (IPOs) (
b) Acquisition by another company (c) Purchase of the venture capitalist's shares by the promoter, or (d) Purchase of the venture capitalist's share by an outsider. Methods of Venture Financing: Venture capital is typically available in three forms in India, they are: 1. Equity: All VCFs in India provide equity but generally their contribution does not exceed 49 percent of the total equity capital. Thus,
the
effective control and majority ownership of the firm remains with the entrepreneur.
They buy shares of an enterprise with an intention to ultimately sell them off to make capital gains. 2.
Conditional Loan: It
is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans. In India, VCFs charge royalty ranging between 2
to 15
percent;
actual rate depends on other factors of the venture such as gestation period, cost-flow patterns, riskiness and other factors of the enterprise. 3.
Income Note: It is a hybrid security which combines the features of both conventional loan and conditional loan. The entrepreneur has to pay both interest and royalty on sales, but at substantially low rates. 3.3
Leasing as a Source of Finance Lease financing denotes procurement of assets through lease. The subject of leasing falls in the category of finance. Leasing is a process by which a firm can obtain the use of a certain fixed assets for which it must pay a series of contractual, periodic, tax deductable payments. The lessee is the receiver of the services or the assets under the lease contract and the lessor is the owner of the assets. The relationship between the tenant and the landlord is called a tenancy, and can be for a fixed or an indefinite period of time (called the term of the lease). The consideration for the lease is called rent. Legally, a leasing company is defined as one having the business of hiring plants or equipment or of financing their hire by others. The International Finance Corporation promotes leasing as a method of financing industrial development in the developing countries as a part of its capital market development strategies.
Term of a Lease The term of the lease may be fixed, periodic or of indefinite duration. If it is for a specified period of time, the term ends automatically when the period expires, and no notice needs to be given, in the absence of legal requirements. The term's duration may be conditional, in which case it lasts until some specified event occurs, such as the death of a specified individual. A periodic tenancy is one which is renewed automatically, usually on a monthly or weekly basis. A tenancy at will lasts only as long as the parties wish it to, and be terminated without penalty by either party. It is common for a lease to be extended on a "holding over" basis, which normally converts the tenancy to a periodic tenancy on a month by month basis.
61
Chapter 3: Sources of Finance
Advantages
of Lease Financing Leasing industry plays an important role in the economic development of a country
by providing money incentives to lessee.
The lessee does not have to pay the cost of asset at the time of signing the contract of leases. Leasing contracts are more flexible so lessees can structure the leasing contracts according to their needs for finance.
The lessee can also pass on the risk of obsolescence to the lessor by acquiring those appliances, which have high technological obsolescence. To day, most of us are familiar with leases of houses, apartments, offices, etc. Leasing is inflation friendly. As the costs go up over five years, you still pay the same rate as when you began the lease, therefore making your dollar stretch farther. (In addition, the lease is not connected to the success of the business. Therefore, no matter how well the business does, the lease rate never changes.) Leasing better utilizes equipment; you lease and pay for equipment only for the time you need it. One of the reasons for the popularity of leasing is the steady stream of new and improved technology. By the end of a calendar year, much of your technology will be deemed "dinosaurs." The cost of continually buying new equipment to meet changing and growing business needs can be difficult for most small businesses. For this reason leasing is very advantageous.

Leasing can also help you enhance your status to the lending community by improving your debt-to-equity and earnings-to- fixed assets ratios. There are a variety of ways in which a lease can be structured. This provides greater flexibility so that the lease is structured to best accommodate the individual cash flow requirements of a specific business. For example, you may have balloon payments, step up or step down payments, deferred payments or even seasonal payments.

Disadvantages of Lease Financing

Leasing is a preferred means of financing for certain businesses. However it is not for everyone. The type of industry and type of equipment required also need to be considered. Tax implications also need to be compared between leasing and purchasing equipment. 1. You have an obligation to continue making payments. Typically, leases may not be terminated before the original term is completed. Therefore, the renter is responsible for paying off the lease. This can pose a major financial problem for the owners of a business experiences a downturn. 2. You have no equity until you decide to purchase the equipment at the end of the lease term, at which point the equipment has depreciated significantly. 3. Although you are not the owner, you are still responsible for maintaining the equipment as specified by the terms of the lease. Failure to do so can prove costly. Types of Lease The most common types of leases are operating leases and finance leases. 1. Operating Lease: An operating lease is particularly attractive to companies that continually update or replace
equipment and want to use equipment without ownership, but also want to return equipment at lease-end and avoid technological obsolescence. An operating lease usually results in the lowest payment of any financing alternative and is an excellent strategy for bypassing capital budgeting restraints. It typically qualifies for off-balance sheet treatment and can result in improved Return On Asset (RoA) due to a lower asset base. It can also result in higher reported earnings in the early years of the lease. 2.

Finance Lease: A Financial Lease is a means of financing capital equipments. It is a contract between the Bank (Lessor) and the Customer (Lessee) for the hire of a specific asset, selected from a manufacturer/Supplier of lessee's choice and to suit the lessee's requirements. The lessee has possession of the asset and uses the same on payment of specified rentals and other usual charges/fees, while the lessor retains ownership of the asset. All the risks (major or minor) and rewards of ownership are normally transferred to the lessee and the obligations are non-cancellable. The lessee is to bear the costs of insurance, maintenance and other related costs and expenses for the leased equipment. A finance lease is a full-payout, non-cancellable agreement, in which the lessee is responsible for maintenance, taxes and insurance. Finance leases are most attractive in cases where the lessee wants the tax benefits of ownership or expects the equipment's residual value to

be high. These leases are structured as equipment financing agreements with residuals up to 10 percent. The lessee purchases the equipment upon lease termination at a pre-agreed amount. The term of a finance lease tends to be longer, nearly covering the useful life of the equipment.

The other variations in lease agreements are: Sale and lease back, Leveraged leasing and Direct leasing. 1.

Direct Lease: A non-leveraged lease by a lessor (not a manufacturer or dealer) in which the lease meets any of the definitional criteria of a capital lease, plus certain additional criteria. Under
direct leasing, a
firm acquires the right to use an asset from the manufacturer directly. The ownership of the asset leased out remains with the manufacturer itself. The
major types of direct lessor include manufacturers, finance companies, independent lease companies, special purpose leasing companies etc. 2.

Leveraged Lease: In this type of lease, the lessor provides an equity portion (usually 20 to 40 percent) of the equipment cost and lenders provide the balance on a non-recourse debt basis. The lessor receives the tax benefits of ownership. Under
leveraged leasing arrangement, a third party is involved beside lessor and lessee. The lessor borrows a part of the purchase cost (say 80%) of the asset from the third party i.e., lender and the asset so purchased is held as security against the loan. The lender is paid off from
the lease rentals directly by the lessee and the surplus after meeting the claims of the lender goes to the lessor. The lessor, the owner of the asset is entitled to depreciation allowance associated with the asset. 3.

Sale and Lease Back: It is a sub-part of finance
lease. This
is a situation where a company has purchased and is using the equipment, which they then sell to a leasing company, who in turn charges rent for the usage. The main reason for doing a sale/leaseback is so that a company, which has recently paid cash for a piece of equipment, realizes that they could have put the cash to better use. Under
this, the owner of an asset sells the asset to a party (

the
buyer), who in turn leases back the same asset
to the owner in consideration of lease rentals. However, under this arrangement, the assets are not physically exchanged but it all happens in records only. This is nothing but a
paper transaction. Sale and lease back transaction is suitable for those assets, which are not subjected depreciation but appreciation, say land. The advantage of this method is that the lessee can satisfy himself completely regarding the quality of the asset and after possession of the asset convert the sale into a lease
arrangement. 3.4
Lease Evaluation A leasing transaction has to be beneficial to both the lessee and lessor. Each party evaluates the transaction from his points of view and arrives at the cost-benefit analysis. Let us understand their viewpoints and techniques used to evaluate a lease transaction. 1. Lessee's View: There are many models to evaluate a lease from lessee's angle. Some treat leasing as a finance decision and compare the advantages of buying and leasing according to discounted cash flow technique, using either Net Present Value (NPV) or Internal Rate of Return (IRR) method. Some treat leasing as an investment decision while some others treat leasing as financial-cum-investment decision.
After establishing the economic viability of acquiring an asset, a lessee has to weigh the various options to finance such acquisition. The cost of alternative sources of finance - through cash accrual, hire-purchase, leasing, public deposits, share capital, debentures, term loans, deferred credit, etc. - has to be kept is mind. Broadly the decision variables boil down to 'buy' or lease'. 2.
Buy or Lease: The following features of 'buying' and 'leasing' are noted for comparing both the options.
Features Buying Leasing
Initial cost/Deposit Incurred (cash outflows) Not incurred Depreciation charges Available (cash inflows) Not available Residual value Available (cash inflows) Not available Management fees and lease rentals. Not payable. Payable (cash outflows). Once the lessee accepts leasing as a financing proposition, for the sake of comparison, we limit ourselves to after-tax cash flows.
63
Chapter 3: Sources of Finance 3.
NPV Method: Under this method, the present value of cash flows associated with the buying and leasing alternatives are independently ascertained and compared. The alternative that shows higher NPV is preferred. But the basic question is to decide the rate at which the cash flows will be discounted to arrive at the Net Present Values. However, we can evaluate a 'Buy or Lease' preposition by assuming certain discount rate as worked out in the following cases. Example: A firm wishes to acquire a machine costing Rs.12000/-. It has two options. It can acquire the machine by borrowing Rs.10000/- and meeting the balance as margin from own sources. The loan is repayable in 5 year-end instalments at an interest rate of 15% p.a. Alternatively, it can lease-in the asset at yearly rental of
Rs.3200/-
payable at year-end. The firm can claim 25% depreciation on WDV method. It also has an effective tax rate of 50% and expects a discounting rate of 18%. Let us assume that at the end of 5th year, the machine is sold for Rs.4000 and the excess realization, if any over the written down value is subject to tax. Which option is advisable for the firm?
Since there is no cash inflow, the net post-tax discounted cash flow under lease' option is
Rs.5003.47
which is lesser than the net post-tax discounted cash outflow of
Rs.5191.91 under 'Borrow and Buy' option. Hence, leasing should be
advisable for the firm in the above example. 4. IRR Method: Under this method, a lessee's evaluation will proceed as follows: (a) IRR under the 'buying' alternative is computed. (
b) IRR under the 'leasing' alternative is computed. IRR computation is made based upon the post-tax net cash outflows. (
c) A choice between buying and leasing is taken by comparing the IRR under the two alternatives. The alternative having a higher IRR is preferred. In the IRR analysis, the lessee's evaluation is based on cash flows associated with various options. But the effect of other variables like lease management fee, sales tax on lease rental, lessee's tax position, issues relating to flexibility of lease agreement in the event of contingencies, alternative sources and cost of capital, lessee's capital structure, urgency of finance, etc., will influence the decision to 'buy or lease.' 5. Lessor's Perspective: While evaluating a lease, a lessor faces a problem of whether to accept a lease plan or not, or which plan among the various alternatives to accept, or how to quote lease rates. In answering these questions, lessors commonly adopt the technique of Internal Rate of Return (IRR). This simple analytical technique of capital budgeting is used since a lessor's expected cash inflows and outflows are known with near certainty. IRR is the rate which discounts these cash flows to zero. If this IRR is higher than the weighted after-tax average cost of capital (of the lessor), the lease plan is accepted. (a) Cash Inflows: The lessors' inflows from a financial lease are: (i) Initial/security deposit, (ii) Lease rentals, (iii) Management fees, (iv) Tax benefit on account of

depreciation, etc. (v) Salvage/residual value at the termination of agreement. (b) Cash Outflows: The following outflows are most perceptible in a lease deal. (i) Purchase cost of the asset, (ii) Financing cost, (iii) Administrative charges, (iv) Tax outflows, including sales tax. (
c)
Cost of Capital: A lease deal entails initial outflow in year O on the acquisition of the asset. The lessor receives cost-free initial deposit from the lessee, wherever available. Apart from this the balance outflow has a cost. (d) Lease Rentals: While pricing, the lessor has to consider the following: (i) The rates should be
competitive; (
ii) The rates should be adequate to earn a reasonable (risk adjusted) rate of return on investment. The lessor calculates as follows the present value of cash inflows arising from his ownership of the asset. 1 ( ) ( ) (1) (1) = å + + + n n t n t Dt T SV
K
K
64 Financial Management
D = Depreciation charge for year't' which varies from 1 to n T = Lessor's tax-rate K = Lessors' post-tax required rate of return n = Duration of the primary lease period
SV n =
Net Salvage/residual value after the primary lease period. The net recovery through lease rentals should be equal to cost of leased asset (net of initial deposit) minus the present value of ownership benefits. The Post-Tax Lease Rental (PTLR) can be worked out as: PTLR = Net recovery of lease rentals PVIFA Where K = required post-tax rate of return duration of the primary lease period Present Value Interest Factor for Annuity. n = duration of the primary lease period PVIFA = Present Value Interest Factor for Annuity
The actual return of the lessor will also depend upon the timing of rental payments. So the cash inflows by way of lease rentals may be discounted at appropriate post-tax rate of return. The present value of all these lease rentals should be equal to the net recovery through lease rentals
Post tax lease rentals is
adjusted for the tax factor to get the lease rentals (LR) as follows: LR = PTLR 1 – tax rate Example: KSBS Ltd. is planning to install a captive generator set at its plant. Its finance manager is asked to evaluate the alternatives either to purchase or acquire generator on lease basis. Buying Initial cost
Rs.5,00,000 Residual Value Rs.1,60,000
Leasing for 5 years Annual lease rentals Rs.1,50,000 Residual value Rs.90,000 returned to Lessee in 5 years time Depreciation @ 20% p.a on written down value. Corporate tax rate 40%. After tax cost of debt is 14%. The time gap between the claiming of the tax allowance and receiving the benefit is one year. Evaluate the lease or buy decision based on the above information. Solution: Alternative 1: Buying
Year Cost or W.D.V Depreciation @ 20% Corporate Tax @ 40% 1 5,00,000 1,00,000 40,000 2 4,00,000 80,000 32,000 3 3,20,000 64,000 25,600 4 2,56,000 51,200 20,480 5 2,04,800 - - Less: Residual Value 1,60,000 - - 44,800 44,800 17,920
65 Chapter 3: Sources of Finance Calculation of Net Present Value Year Cost Rs. Tax relief Rs. Net cash flow Rs. P.V. Factor @ 14% P.V. Rs. 0 (5,00,000) - (5,00,000) - (5,00,000) 1 - - - 0.8772 - 2 - 40,000 40,000 0.7695 30,780 3 - 32,000 32,000 0.6750 21,600 4 - 25,600 25,600 0.5921 15,158 5 (1,60,000) 20,480 1,80,480 0.5194 93,741 6 - 17,920 17,920 0.4556 8,164 NPV = (3,30,557) Alternative 2: Leasing Year Lease rentals Rs. Tax Relief Net cash flow Rs. P.V. Factor @ 14% P.V. Rs. 0 (1,50,000) - (1,50,000) - (1,50,000) 1 (1,50,000) - (1,50,000) 0.8772 (1,31,500) 2 (1,50,000) 60,000 (90,000) 0.7695 (69,750) 3 (1,50,000) 60,000 (90,000) 0.6750 (53,289) 4 (1,50,000) 60,000 (90,000) 0.5921 77910 5 90,000 60,000 (1,50,000) 0.5194 10,934 6 (Share residual value) Tax on residual value 60,000 36,000 24,000 0.4556
NPV = (3,76,030) Analysis: From the above analysis, by applying the discounted cash flow technique, we can observe that the net present value of cash outflow is higher in case of leasing decision i.e., Rs.3,76,030 as compared to buying decision it is only
Rs.3,30,557.
The company may go for purchase of the generator instead of acquiring on lease basis.
Task
Do you think there is any difference between hire & purchase & lease financing? Comment giving the prons & cons of both the methods.
Case Study DLF Ltd. – Lease Option D LF Ltd. is engaged in the business of leasing and hire purchase. The company also functions as a merchant banker equity researcher, corporate financier, portfolio manager, etc. The company provides fund based as well as non- fund based financial solutions to both wholesale and retail segments. DLF Ltd. has been approached by A Ltd., Mumbai, for financial help. A Ltd. manufacturers process system for food processing, pharmaceuticals, engineering, dairy and chemical industries. A wide range of centrifugal separators, plate, spray drudgers, custom fabricated equipment for exotic metals, refrigeration compressors,
are

also manufactured by the company. One of the major strengths of the company is project management. A Ltd. has a well-equipped R&D centre. It has pilot plant facilities and a modern laboratory for chemical, metallurgical and mechanical analyser. The company has also set up a technology centre with advanced testing facilities. Recently, the manager of the technology centre has requisitioned for the acquisition of computerised sophisticated equipment for conducting important tests. The equipment is likely to have the useful life of three years. The cost of the equipment is Rs.10 crore. The scrap value of the equipment at the end of its useful life will be zero for the company. The finance manager of A Ltd. has suggested that the company should take a loan for three years from a commercial bank. Repayment of the loan would be made at the end

Contd...

66 Financial Management

of each year in three equal instalments. The repayments would comprise of the (i) principal, and (ii) interest at 10% p.a. (on the outstanding amount in the beginning of the year). A Ltd. uses a cost of capital of 15% to evaluate the investments of this type. The equipment will be depreciated @ 33.3% p.a. (WDV). P. Securities Ltd. has agreed to give the equipment to the company on a three-year lease. The annual rental for the lease, payable in the beginning of each year, would be Rs.4 crore. P. Securities Ltd. discounts its cash flows @ 14%. The equipment is depreciable at 33.3% p.a. (straight line method). The lessee may exercise its option to purchase the equipment for Rs.4 crore at the termination of the lease. A Ltd. would bear all maintenance, insurance and other charges in both the alternatives. Both the companies pay tax @ 35%. You are a practicing Company Secretary. You are approached by the Managing Director of A Ltd. to help the company in evaluating the proposal. Prepare a report for the Managing Director of A Ltd. showing the effect of the lease alternative on the wealth of its shareholders. Support your answer with appropriate calculations.

Note: Present value of Re.1 is: Year 6% 7% 10% 14% 15% 1 0.943 0.935 0.909 0.877 0.870 2 0.890 0.873 0.826 0.769 0.756 3 0.840 0.816 0.751 0.675 0.658 4 0.792 0.763 0.683 0.592 0.572 Present value of an annuity of Re.1 is: Year 6% 7% 10% 14% 15% 1 0.943 0.935 0.909 0.877 0.870 2 1.833 1.808 1.736 1.647 1.626 3 2.673 2.624 2.487 2.322 2.283 4 3.465 3.387 3.170 2.914 2.855 Solution: Alternative: Purchase of equipment by financing it through bank loan Cost of equipment = Rs.10,00,000

Useful life = 3 years Loan period = 3 years (payment in three equal instalments) Interest rate = 10% p.a Scrap value after 3 years = NIL Annual repayment amount =

Rs.10,00,00,000 Annuity factor of 10% of 3 years = Rs.10,00,00,000 2,487 = Rs.4.021

crore Calculation of Principal and Interest Amount Payments Year Principle amount Instalment at the end of the year Interest @ 10% Repayment of principal Balance amount 1 10.00 4.021 1.000 3.021 6.979 2 6.979 4.021 0.698 3.323 3.656 3 3.656 4.021 0.365 3.656

Contd...

67 Chapter 3: Sources of Finance Calculation Depreciation on WDV basis

Year Principle Depreciation @ 33-1/3% p.a Balance 1 10.00 3.333 6.667 2 6.667 2.222 4.445 3 4.445 1.482 2.693 Calculation of Present Value of Net Cash Outflows Year Loan Instalment Principal repayment Interest @ 10% (Rs.)

Depreciation @ 33-1/3% p.a (WDV) Tax shield @ 35% Net cash outflow PV factor @ 15% PV of Nt cash outflows 1 4.021 3.021 1.000 3.333 1.517 2.504 0.870 2.178 2 4.021 3.323 0.698 2.222 1.022 2.999 0.756 2.267 3 4.021 3.656 0.365 1.482 0.646 3.375 0.658 2.221 Total P.V. of net cash outflows =6.666 Alternative I: Lease the Equipment Year Lease rent Tax savings @ 35% Net cash outflow PV factor @ 15% PV of net cash outflows 0 4.00 4.0 1.000 4.000 1 4.00 1.40 2.60 0.870 2.262 2 4.00 1.40 2.60 0.756 1.966 3 1.40 (1.40) 0.658 (0.921) Total P.V of net cash outflows = 7,307 Suggestion: The present value of net cash outflows is lowest, if the equipment is purchased by taking a loan from the bank. Hence it is suggested to consider Alternative I. 3.5 Summary ?

Working capital should be financed by suitable and optimal mix of short-term source of funds and long-term source of funds. ?

Trade credit

is a spontaneous source of finance that it arises in the normal

business transactions of the firm without specific negotiations (automatic source of finance). ?

Accrued expenses are those expenses which the company owes to the other persons or organisations, but not yet due to pay the amount. ?

Deferred Incomes are income received in advance by the firm for supply of goods or services in future period. ?

Commercial Papers (CPs) represent a short-term unsecured promissory notes issued by

firm's

that have a fairly high credit (standing) rating. ?

Public Deposits or term deposits are in the nature of unsecured deposits, have been solicited by the firms (both large and small) from general public primarily for the purpose of

financing their working capital requirements. ?

Commercial banks are the major source of working capital finance to industries and commerce.
68
Financial Management ?
The cost of factoring is higher and compared to other sources of short-term working capital finance. ? Factoring of debt may be perceived as an indication of financial weakness, and reduces future sales due to strict collection policy of factor. ?
The sources of long-term working capital are: retained earnings, issue of shares (ordinary or equity shares and preference shares), debentures, public deposits, loan from financial institutions,

93% **MATCHING BLOCK 18/151** **W**

Life Insurance Corporation of India (LIC), General Insurance Corporation (GIC), Unit Trust of India (UTI),

State Financial Corporations (SFC's), Industrial Development Bank of India (IDBI), etc. 3.6 Keywords

88% **MATCHING BLOCK 19/151** **SA** FMG-301 Corporate Finance.pdf (D164737021)

Trade Credit: It refers to the credit extended by the supplier of goods

or services to his/her customer in the normal
course
of business.
Accruals: Accrued expenses are those expenses which the company owes to the other persons or organisations, but not yet due and not yet paid the amount.
Deferred Income:
Deferred incomes are incomes received in advance by the firm for supply of goods or services in future period.
Commercial
Paper: It represents a short-term unsecured promissory note issued by firms that have a fairly high credit (standing) rating.
Inter-
corporate Deposits (ICDs): A deposit made by one firm with another firm is known as Inter-corporate Deposits (ICDs).
Factoring: Factoring is a financial service covering the financing and collection of book debts and receivables arising from credit sale of goods and services, both in the domestic as well as international market.
Retained Earnings: These are the portion of earnings
available to equity shareholders, which are ploughed back in the company. 3.7
Self Assessment 1. Fill in the blanks: (a) .....
and ..... working capital the two types of working capital. (b)
Trade credit is a ..... source of short-term finance. (c) .....
income is income received in advance by the firm for supply of goods in future. (
d) CPs
is
sold at ..... and redeemed at ..... (e) A firm cannot issue public deposits for more than ..... of its share capital and free reserves. (f) ..... interest rate ceiling on public deposits. (
g) There are no commitment charges for ..... (h) .....

83% **MATCHING BLOCK 20/151** **SA** GE Fundamentals of Financial Management Combin ... (D143725429)

letter of credit is one that can be withdrawn by the issuing

banker any time after it is issued. (i) ..... means borrower is provided money against the security of movable property. (j) ..... is a financial institution, which render services relating to the management of and financing of sundry debtors that arises from credit sale. 2. State whether the following statements are true of false: (a)
Minimum size of CP is Rs. 6 lakhs. (b) Pubic deposits are governed by the companies (Acceptance of deposits) Amendment Rules 1978.
69

Chapter 3: Sources of Finance (c) The consideration for the lease is called rent. (d) In India, the factoring services are providing by four financial institutions. (e) Factor charges a commission ranging between 1% and 2%. 3.8 Review Questions 1. "
Is Trade Credit is
source of working capital finance". Discuss. 2. Taking the example of the Indian corporate, analyse the importance of issuing the CPs for the firm & to the investors. 3. "
Accruals are a free source of finance".
Comment. 4.
Do you agree that lease is the efficient source of finance for corporates? How? 5.
In your opinion, which is the best source of finance available to the firm for raising money from the public? 6.
Analyse the
quasi-credit facilities available to the firms in course of business. 7.
You are an exporter & wanted to raise finance for the working capital requirements. Analyse the sources of finance available to you. 8.
You
are the owner of the company. Now you want to purchase an asset costing crores of rupees. But your friend gave you the suggestion for the lease financing. Analyse the various agreements you will consider for financing the assets through lease. 9.
Analyse the importance of lease financing in modern scenario. 10.
You are starting your new company & wanted to raise capital from public. Analyse
the sources of finance available to you. 11.
What are the sources of working capital finance? Discuss. 12.
Elucidate the sources of short term but cost free finances available to the firm.
Answers: Self Assessment 1. (a) Permanent, variable; (b) Spontaneous; (c) Differed (d) Discount, face value; (e) 25%; (f) 15%; (g) Cash credit account; (h) Revocable; (i) Hypothecation; (j) Factor. 2. (a) False; (b) True; (c) True; (d) True; (e) True.
3.9
Further Readings
Books
Sudhindra Bhat,
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Chapter 4: Concept of Economic Value Added Objectives This chapter on Concept of Economic Value Added covers 1. Economic value added 2. EVA calculation 3. Need for EVA 4. EVA & EPS Introduction
Economic Value Added was developed to promote
value-maximizing behaviour in corporate managers. It is a single, value- based
measure that was intended to evaluate business strategies, capital projects and to maximize long-term shareholders wealth. Value

that has been created or destroyed by the firm during the period can be measured by comparing profits with the cost of capital used to produce them. Therefore, managers can decide to withdraw value-destructive activities and invest in projects that are critical to shareholder's wealth. This will lead to an increase in the market value of the company. However, activities that do not increase shareholders value might be critical to customer's satisfaction or social responsibility. For example, acquiring expensive technology to ensure that the environment is not polluted might not be of high value from a shareholder's perspective. Focusing solely on shareholder's wealth might jeopardize a firm reputation and profitability in the long run. 4.1 Economic Value Added (EVA) Financial Statement Analysis (FSA) and Economic Value Added (EVA) are tools to ascertain the financial health of the organization and its capacity to generate shareholder 'value' respectively. The term "Economic Value Added (EVA)" is a registered trademark of Stern Stewart & Co, a consulting firm which implements the EVA concept for large companies. Economic Value Added (EVA) sharpens the view of corporate governance by redefining its goal. It has long been accepted that companies should seek to maximize profits. Economic Value Added (EVA) uses accounting information to improve decisions and motivate employees. According to Erik Stern, president international of Stern Stewart, "Although EVA is based on accounting, when implemented the system must be simple and operational or it is irrelevant. EVA is not a metric but a way of thinking, a mindset. While the language is technical, the lifestyle is operational." Central to the concept is the idea of opportunity cost. Capital is used in each division of the organisation. That division is required to earn a rate of return based on the amount of capital it uses and the cost of that capital. The firm's cash flow is subtracted from the required profits, based on the rate of return, to give economic profits. EVA sets managerial performance target and links it to reward systems. The single goal of maximizing shareholder value helps to overcome the traditional measure problem, where different measures are used for different purposes with inconsistent standards and goal. Rewards will be given to managers who are able to turn investor's money and capital into profits efficiently. Researches have found that managers are more likely to respond to EVA incentives when making financial, operational and investing decision allowing them to be motivated to behave like owners. However this behaviour might lead to some managers pursuing their own goal and shareholder value at the expense of customer satisfaction. 4.2 Calculating EVA There are four steps involved in the calculation of EVA, which are as follow: 1. Calculating the net operating profit after tax (NOPAT); 2. Calculating total invested capital (TC);

3. Determine a cost of capital (WACC); and 4. Calculating EVA - NOPAT - WACC% * (TC) The first step, calculating NOPAT, requires conversion of the company's accrual to cash accounting. Under some accounting regimes, a step by step add-back of cash items is required if cash statements are not available. For publicly traded US companies and others which follow US GAAP, one can simply refer to the required statement of cash flows, one of the four required financial statements. Non-public and small companies may not fall under GAAP requirements, so the add-back may be required. The same applies to non-US accounting where statement of cash flows is not required. Many large firms, however, will include it voluntarily with their financial statements. 4.3

Need for EVA There is a long history in economics of preferring "economic" over "accounting" profits. The difference is that the former subtracts opportunity costs, in particular, a "fair" rate of return on investment. Accounting profits do not. In its basic form, EVA is the Net Operating Profit After Taxes (NOPAT) minus the money cost of capital. Money cost of capital means the rupee value of that cost rather than a rate of return. It adds back to the accounting profits the amortization of goodwill or capitalisation of brand advertising. There are other similar adjustments of intangibles which EVA considers important. Shareholders of the company receive positive value added when the return from the capital employed in the business operations is greater than the cost of that capital. The EVA concept believes that for every performance measure there is a corresponding wealth measure. For example the P/E ratio is the wealth measure that corresponds to return on equity. Market capitalisation (price × number of shares) corresponds to free cash flow, while total shareholder return corresponds to cash flow return on investment. To calculate NOPAT, EVA starts with income before income taxes and minority interests. Then it adds interest expense to get Earnings before Interest and Taxes (EBIT). Next, it makes two adjustments. First, it adds and subtracts non-cash items to put EBIT on a cash basis. An alternative would be to take the information from the firm's cash flow statement, if available. Then, it capitalizes expenses which it believes should be treated as investments. The effect of this is to move certain expense items to the balance sheet. Examples of converting accrual information to cash are adding increases in LIFO reserves. Another is adding increases in the allowance for bad debts. An example of capitalizing debt/equity equivalents is to convert operating to capital leases. It takes an off-balance sheet type of financing (the operating lease) and puts it back onto the converted balance sheet. The preferred way to do this is to take the present value of the lease payments for the period of the lease. The interest rate for the discounting is usually available from the company - its ratio of lease payments for the year to total lease obligations. If not available, a reasonable discount rate can be estimated based on the firm's cost of debt and equity capital. Next, in converting to a cash basis, the company subtracts cash taxes paid. One can do this by subtracting increases in deferred tax liability and adding tax subsidy on deductible expenses. The result is cash operating taxes. A key step is to determine the weighted average cost of capital and multiply it times the capital that the company uses. This is the "opportunity cost" concept that is at the heart of the economic profits approach. Estimating the cost of debt is relatively straightforward. The exception is if the debt is not publicly traded and therefore hard to value (such as CDO debt). In the absence of such problems, the standard way is to look at debt costs on the income statement and divide by the total debt outstanding on the balance sheet. Another way is to estimate the cost of debt from the company's debt rating from rating agencies such as Moody's or Standard and Poor's.

Cola-Cola is one of the many companies that adopted EVA for measuring its performance. Its aim, which was to create shareholders wealth, was announced in its annual report. Coca-Cola CEO Roberto Goizueta accredited EVA for turning Coca-Cola into the number one Market Value Added Company. Coca-Cola's stock price increased from $3 to over $60 when it first adopted EVA in the early 1980s. In 1995, Coca-Cola's investor received $8.63 wealth for every dollar they invested.

 4.4

Implementation The EVA concept is not a new one. It is a basic part of accounting and finance. The key to it all is successful implementation. That is, calculating the numbers and then committing management to act on them, such as to increase funding to divisions with positive EVA, and to harvest (sell) divisions with negative EVA. Another important implementation is to reward or punish managers for generating positive or negative EVA. Incentive schemes based on the EVA are shown to be more motivating than other company-wide or accrual-based incentives. According to Stern, "EVA attempts to bring the concept of the franchisee into the corporate world. Most franchises outperform company operated businesses. Ownership makes a difference. EVA-based compensation mimics the ownership mindset and encourages the company manager to take decisions as would the franchise owner." Orpurt gives his take on implementation: "EVA is an incentive system so employees need a reward for creating and sustaining it. Successful implementation requires a substantial commitment by managers and employees at all levels of an organisation." 4.5

Economic Value Added (EVA) vs. Earning Per Share (EPS) EPS is calculated by dividing the net profits after interest, depreciation and taxation by the number of equity shares issued by the company to find out the profits earned per share. This measure is flawed because it does not consider the equity cost of capital employed (i.e. it assumes that equity capital comes to the company for free).

EPS can be improved without corresponding improvement in performance simply by issuing further equity at a premium. Naturally, when more funds are pumped into the company, the size of the business increases without necessary increasing the profitability. Also, EVA takes into consideration the total capital employed by the company - total shareholders' fund (equity and accumulated profits) and total debt - and finds out the difference between the earning and the cost of the capital employed. 4.6

How Companies have used EVA Name Timeframe Use of EVA The Coca-Cola Co. Early 1980s Focused business managers on increasing shareholder value AT&T Corp. 1994

Used EVA as the lead indicator of a performance measurement system that included "people value added" and "customer value added" IBM 1999 Conducted a study with Stern Stewart that indicated that outsourcing IT often led to short-term increases in EVA
Herman Miller Inc.
Late 1990s Tied EVA measure to senior managers' bonus and compensation system
Caselet Performance Evaluation, Economic Value Added and Managerial Behaviour F or the past two decades many countries started transforming their economies from traditional protected ones to those of more liberalized, globalized and market driven. This period has also seen the economies becoming more knowledge oriented and Human Resources started assuming more prominence in the growth of the economies and businesses posing a greater challenge for companies to acquire and retain talented workforce (especially at the strategic & managerial levels). The knowledge economy also started witnessing the rapid rise of the agency problem- conflict of interest between managers and owners. So it is very essential to align the interests of the mangers and shareholders or at least reduce the difference between them. In this regard Economic Value Added has been seen as better alternative to the stock price and traditional performance measures. While successful EVA stories in the west are quite encouraging, Corporate India is slowly catching up the EVA adoption. Although not a panacea, EVA based compensation plans will drive managers employ a firm's assets more productively and EVA should help reduce the difference in the interests of the managers and shareholders, if not perfectly align them. Source: papers.ssrn.com
73 Chapter 4: Concept of Economic Value Added 4.7
Four Ms of EVA There are four main applications of EVA with four words beginning with the letter M: 1. Measurement: EVA is the most accurate measure of corporate performance over any given period. EVA is a measure of "total factor productivity" whose growing popularity reflects the new demands of the information age. 2. Management System: While simply measuring EVA can give companies a better focus on how they are performing, its true value comes in using it as the foundation for a comprehensive financial management system that encompasses all the policies, procedures, methods and measures that guide operations and strategy. The EVA system covers the full range of managerial decisions, including strategic planning, allocating capital, pricing acquisitions or divestitures, setting annual goals-even day-to-day operating decisions. 3. Motivation: To instill both the sense of urgency and the
long-term
perspective of an owner, Stern Stewart designs cash bonus plans that cause managers to think like and act like owners because they are paid like owners. Indeed, basing incentive compensation on improvements in EVA is the source of the greatest power in the EVA system. Under an EVA bonus plan, the only way managers can make more money for themselves is by creating even greater value for shareholders. This makes it possible to have bonus plans with no upside limits. In fact, under EVA the greater the bonus for managers, the happier shareholders will be. 4. Mindset: When implemented in its totality, the EVA financial management and incentive compensation system transforms a corporate culture. By putting all financial and operating functions on the same basis, the EVA system effectively provides a common language for employees across all corporate functions. EVA facilitates communication and cooperation among divisions and departments, it links strategic planning with the operating divisions, and it eliminates much of the mistrust that typically exists between operations and finance. The EVA framework is, in effect, a system of internal corporate governance that automatically guides all managers and employees and propels them to work for the best interests of the owners. The EVA system also facilitates decentralized decision making because it holds managers responsible for-and rewards them for-delivering value.
Notes Strategies for increasing EVA are as follows: 1. Increase the return on existing projects (improve operating performance) 2. Invest in new projects that have a return greater than the cost of capital. 3. Use less capital to achieve the same return. 4. Reduce the cost of capital. 5. Liquidate capital or curtail further investment in sub-standard operations where inadequate returns are being earned. 4.8
Advantages of EVA Several advantages of EVA are: 1.
EVA eliminates economic distortions of GAAP to focus decisions on real economic results. 2. Provision of correct incentives for capital allocations. 3. EVA provides for better assessment of decisions that affect balance sheet and income statement or trade-offs between each through the use of the capital charge against NOPAT. 4. Long-term performance that is not compromised in favor of short-term results. 5. EVA decouples bonus plans from budgetary targets. 6. EVA covers all aspects of the business cycle.
74
Financial Management 7. EVA aligns and speeds decision making, and enhances communication and teamwork. 8. Provision of significant information value beyond traditional accounting measures of EPS, ROA and ROE. 9. Goal congruence of managerial and shareholder goals achieved by tying compensation of managers and other employees to EVA measures. 10.

Better goal congruence than ROI. 11. Annual performance measured tied to executive compensation. 4.9 Limitations of EVA The limitation of EVA are as follows: 1. EVA does not control for size differences across plants or divisions 2. EVA is based on financial accounting methods that can be manipulated by managers 3. EVA may focus on immediate results which diminishes innovation 4. EVA provides information that is obvious but offers no solutions in much the same way as historical financial statement. 5. Given the emphasis of EVA on improving business-unit performance, it does not encourage collaborative relationship between business unit managers. 6. EVA although a better measure than EPS, PAT and RONW is still not a perfect measure

Illustration: Income statement Net Sales 2,600.00 Cost of Goods Sold 1,400.00 SG&A Expenses 400.00 Depreciation 150.00 Other Operating Expenses 100.00 Operating income 550.00 Interest Expenses -200.00 Income Before Tax 350.00 Income Tax (25%) 140.00 Net Profit After Taxes 210.00 Common Balance Sheet Current Assets Current Liabilities Cash 50.00 Accounts Payable (A\P) 100.00 Receivable (A/R) 370.00 Accrued Expenses (A\E) 250.00 Inventory 235.00 Short-Term Debt 300.00 Other Current Assets 145.00 Total Current Liabilities 650.00 Total Current Assets 800.00 Long-Term Liabilities

Contd....

75 Chapter 4: Concept of Economic Value Added

Fixed Assets Long-Term Debt 760.00 Property, Land 650.00 Total Long-Term Liabilities 760.00 Equipment 410.00 Capital (Common Equity) Other Long-Term Assets 490.00 Capital Stock 300.00 Total Fixed Assets 1,550.00 Retained Earnings 430.00 Year to Date Profit/Loss 210.00 Total Equity Capital 940.00 Total Assets 2,350.00 Total Liabilities 2,350.00 1. Calculate Net Operating Profit After Tax (NOPAT) 2. Identify company's Capital (C) 3. Determine a reasonable Capital Cost Rate(CCR) 4. Calculate company's Economic Value Added (EVA) Solution: Step 1: Calculate Net Operating Profit After Taxes (NOPAT) Net Sales 2,600 (A) Cost of Goods Sold 1,400.00 SG&A Expenses 400.00 Depreciation 150.00 Other Operating Expenses 100.00 2050 Operating income 550.00 Tax (25%) 140.00 NOPAT 410.00 Note: This NOPAT calculation does not include the tax savings of debt. Companies paying high taxes and having high debts may have to consider tax savings effects, but this is perhaps easiest to do by adding the tax savings component later in the capital cost rate (CCR). An alternative way to calculate NOPAT: Net Profit After Tax 210.00 Interest Expenses +200.00 NOPAT 410.00 Step 2: Identify Company's Capital (C) Company's Capital (C) are Total Liabilities less Non-Interest Bearing Liabilities: Total Liabilities less 2,350.00 Accounts Payable (A/P) 100.00 Accrued Expenses (A/E) 250.00 Capital (C) 2,000.00

76

Financial Management

Step 3: Determine Capital Cost Rate (CCR) In this example: CCR = 10% Because: Owners expect 13% return for using their money because less are not attractive to them; this is about the return that investors can get by investing long-term with equal risk (stocks, mutual funds, or other companies). Company has 940/2350 = 40% (or 0.4) of equity with a cost of 13%. Company has also 60% debt and assume that it has to pay 8% interest for it. So the average capital costs would be: CCR = Average Equity Proportion × Equity Cost + Average Debt Proportion Debt cost = 40% × 13% + 60% × 8% = 0.4 × 13% + 0.6 × 8% = 10% Note: CCR depends on current interest level (interest higher, CCR higher) and company's business (company's business more risky, CCR higher). Note: If tax savings from interests are included (as they should if we do not want to simplify), then CCR would be: CCR = 40% × 13% + 60% × 8% × (1– tax rate) = 0.4 × 13% + 0.6 × 8% × (1 – 0.4) = 8.08% (Using 40% tax rate) Step 4: Calculate Company's EVA EVA = NOPAT – C × CCR = 410.00 – 2,000.00 × 0.10 = 210.00 This company created an EVA of 210. Note: This is the EVA calculation for one year. If a company calculates EVA e.g. for a quarterly report (3 months) then it should also calculate capital costs accordingly: Capital costs for 3 months: 3/12 × 10% × 2,000 = 50 Capital costs for 4 months: 4/12 × 10% × 2,000 = 67 Capital costs for 6 months: 6/12 × 10% × 2,000 = 100 Capital costs for 9 months: 9/12 × 10% × 2,000 = 150 The Complete Procedure: Calculate EVA in the Internal Reporting Net Sales 2,600.00 Cost of Goods Sold -1,400.00 SG&A Expenses -400.00 Depreciation -150.00 Other Operating Expenses -100.00 Operating income 550.00 Tax (25%) -140.00 NOPAT 410.00 Capital costs (10% * 2000) -200.00 Economic Value Added (EVA) 210.00 Note: In this example (for one year) the capital costs are calculated on a yearly basis. E.g. capital costs for 3 months: 3/12 × 10% × 2,000 = 50

77

Chapter 4: Concept of Economic Value Added Task Analyse how the market value of the corporates has changed after they have used the Economic Value added approach. Give illustrations from Indian corporates for the same.

Case Study Economic Value Added I n economics, the value addition is calculated by the following formula: Value Added = Value of sales less the cost of bought-in goods and services. In this formula, only cost of bought-in goods and services has been accounted for. It completely ignores labour cost, depreciation, markup etc. In fact, they are factors of production (land, labour and capital). They provide "services" which raise value of "inputs" to a much higher realized value. The difference would be shared among them. Calculate the value added & the value distributed in the below case. Sales of the company 2862000 Out-side purchases 676800 Workers salary 104400 Bankers 836570 Government 350810 Owners 500000 Firms deprecation 367800 Retained earnings 25620

Indus Machine Tools Ltd is a Private Ltd Company at Multan, a city in Punjab, Pakistan. Its Balance Sheet is given below. Indus Machines Tools Ltd. Balance Sheet as on 31st Dec08 Liabilities Assets Accounts payable 208000 Cash 4940 Bank overdraft 484000 Raw material stock 86400 Long term debt 6000000 Finished goods stock 171360 Equity 4000000 Account receivables 429300 Fixed assets 10000000 Total 10692000 Total 10692000 Additional Information Taxes accounts for
Rs.685, 440/-, Total costs is Rs.1148, 400/-,
effective returns on debt- 7.5 %, equity- 20% & bank loan is 10.8%. Questions 1. Calculate the NOPAT & total capital. 2. What is the return on capital? 3. From the given details, calculate the cost of capital. 4. Analyse the financial position of the company by calculating the EVA. 5. Do you think the company will be getting the desired equity investment if it plans to go for expansion? Why?
78
Financial Management 4.10 Summary ? Economic Value Added (EVA) is a tool to ascertain the financial health of the organization and its capacity to generate shareholder 'value'. ? EVA is based on the concept that a successful firm should earn at least its cost of capital. ? Firms that earn higher returns than financing costs benefit shareholders and account for increased shareholder value. ? EVA = Net Operating Profit After Tax (NOPAT) – Cost of Capital. ? EVA focuses on ends and not means as it does not state how manager can increase company's value as long as the shareholders wealth are maximized. ? NOPAT is calculated as net operating income after depreciation, adjusted for items that move the profit measure closer to an economic measure of profitability. ?
Measurement of EVA can be made using either an operating or financing approach. ? Though here are advantages of using EVA, but it is also accompanied by disadvantages as well. 4.11 Keywords
Economic
Value Added: It is an estimate of economic profit by after making adjustments to GAAP accounting, including deducting the opportunity cost of equity capital.
NOPAT: It is a
company's after-tax operating profit for all investors, including shareholders and debt holders.
Weighted Average Cost of Capital: It is the rate that a company is expected to pay on average to all its security holders to finance its assets.
Capital Employed: It is the capital investment necessary for a business to function. Corporate Finance: It is an area of finance dealing with the financial decisions corporations make and the tools and analysis used to make these decisions.
Net Asset Value: It is
a term used to describe the value of an entity's assets less the value of its liabilities.
Market Value Added: It is the difference between the current market value of a firm and the capital contributed by investors. 4.12
Self Assessment State whether the following statements are
true or false: 1.
Economic Value Added (EVA) concentrates only on one of the factors of production i.e. Capital. 2. By dividing NOPAT with capital, we get returns in percentage. 3.
EVA measures surplus value created by total investments which include funds provided by banks, bond-holders and share holders. 4. EVA= (Return on Capital - Cost of Capital) x
Total Capital 5. It is more useful than Rate of Return (ROI) or Internal Rate of Return (IRR) in evaluating operations of an enterprise. 6.
It indicates financial performance of a company based on its economic profit. 7. EVA is a financial measure based on accounting data and is therefore modern in its approach. 8.
Short term financing refers to the capital employed by the firm. 9. Even though the cost of capital is high, still it is advantageous to use EVA.
79
Chapter 4: Concept of Economic Value Added 10. Managers are not quite happy with the EVA approach today. 11.
Money cost of capital is the rupee value of that cost rather than a rate of return. 12.
EVA is a better approach but not the perfect measure. 4.13 Review Questions 1. EVA is a tool to measure efficiency with which a company uses its resources. Comment. 2.
Elucidate the advantages which a firm will obtain by using EVA approach. 3. EVA results in increasing the shareholders wealth. Do you agree? Justify. 4. Comment on the major applications of EVA. 5. Taking the
example of different companies, analyse how the corporates have used EVA model. 6.
Analyse the need for EVA in today's competitive scenario. 7. Elucidate how EVA is much better & efficient approach than other traditional approaches. 8.
You are the finance manager in the company. Analyse the steps for calculating the EVA. 9. "

Successful implementation of EVA requires a substantial commitment by managers and employees at all levels of an organisation." Comment. 10.
Given sales of a company- Rs. 4,500,000/-, cost of goods-
Rs. 2,857,600/- &
tax paid by the firm is Rs. 50000/-.
Calculate NOPAT from the given data. 11. If XYZ employs a total capital of
Rs. 15,896,000 &
return on capital is 15%. The cost of capital is Rs. 12%. Calculate EVA. 12.
Critically appraise the Economic value added approach.
Answers: Self Assessment 1. T 2. F 3. T 4. T 5. T 6. T 7. F 8. F 9. F 10. F 11. T 12. T 4.14
Further Readings Books
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Financial Management, New Delhi, Excel Books, 2008. Van Horne, J.C. and Wachowicz, Jr, J.M., Fundamentals of Financial Management, New Delhi, Prentice Hall of India Pvt. Ltd., 1996, p. 2.
Chandra, P., Financial Management - Theory and Practice, New Delhi, Tata McGraw Hill
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Chapter 5: Risk and Return Analysis Objectives
This chapter on Risk and Return Analysis covers 1. Differentiation between systematic and unsystematic return 2. Risk in contemporary mode 3. The use of 'Beta' in estimating returns 4. Measure risk and return 5. CAPM model 6. Security market line
Introduction Risk can be defined as the
probability that the expected return from the security will not materialize.
Every investment involves uncertainties that make future investment returns risk-prone. Uncertainties could be due to the political, economic and industry factors. Risk could be systematic in future depending upon its source. Systematic risk is for the market as a whole, while unsystematic risk is specific to an industry or the company individually. The first three risk factors discussed below are systematic in nature and the rest are unsystematic. Political risk could be categorised depending on whether it affects the market as whole, or just a particular industry. 5.1 Types of Investment Risk Systematic versus Non-systematic Risk Modern investment analysis categorizes the traditional sources of risk causing variability in returns into two general types: those that are pervasive in nature, such as market risk or interest rate risk, and those that are specific to a particular security issue, such as business or financial risk. Therefore, we must consider these two categories of total risk. The following discussion introduces these terms. Dividing total risk into its two components, a general (market) component and a specific (issuer) component, we have systematic risk and non-systematic risk, which are additive: Total risk = General risk + Specific risk = Market risk + Issuer risk = Systematic risk + Non-systematic risk Systematic Risk: An investor can construct a diversified portfolio and eliminate part of the total risk, the diversifiable or non-market part. What is left is the non-diversifiable portion or the market risk. Variability in a security's total returns that is
directly associated with overall movements in the general market or economy is called systematic (market) risk.
Virtually all securities have some systematic risk, whether bonds or stocks, because systematic risk directly encompasses interest rate, market, and inflation risks. The investor cannot escape this part of the risk because no matter how well he or she diversifies, the risk of the overall market cannot be avoided. If the stock market declines sharply, most stocks will be adversely affected; if it rises strongly, as in the last few months of 1982, most stocks will appreciate in value. These movements occur regardless of what any single investor does. Clearly, market risk is critical to all investors.

Non-systematic Risk: The variability in a security's total returns not related to overall market variability
is called the non-systematic (non-market) risk. This risk is unique to a particular security and is associated with such factors as business and financial risk as well as liquidity risk. Although all securities tend to have some non-systematic risk, it is generally connected with common stocks.
Caution Remember the difference: Systematic (market) risk is attributable to broad macro factors affecting all securities. Non-systematic (non-market) risk is attributable to factors unique to a security.
Different types of systematic and unsystematic risks are explained as under: 1. Market Risk: The variability in a security's returns resulting from fluctuations in the aggregate market is known as market risk. All securities are exposed to market risk including recessions, wars, structural changes in the economy, tax law changes and even changes in consumer preferences. Market risk is sometimes used synonymously with systematic risk. 2. Interest Rate Risk: The

variability in a security's return resulting from changes in the level of interest rates
is referred to as interest rate risk. Such changes generally affect securities inversely; that is, other things being equal, security prices move inversely to interest rates. The reason for this movement is tied up with the valuation of securities. Interest rate risk affects bonds more directly than common stocks and is a major risk that all bondholders face. As interest rates change, bond prices change in the opposite direction. 3. Purchasing Power Risk: A factor affecting all securities is purchasing power risk, also known as inflation risk. This is the possibility that the purchasing power of invested dollars will decline. With uncertain inflation, the real (inflation- adjusted) return involves risk even if the nominal return is safe (e.g., a Treasury bond). This risk is related to interest rate risk, since interest rates generally rise as inflation increases, because lenders demand additional inflation premiums to compensate for the loss of purchasing power. 4. Regulation Risk: Some investments can be relatively attractive to other investments because of certain regulations or tax laws that give them an advantage of some kind. Municipal bonds, for example, pay interest that is exempt from local, state and federal taxation. As a result of that special tax exemption, municipals can price bonds to yield a lower interest rate since the net after-tax yield may still make them attractive to investors. The risk of a regulatory change that could adversely affect the stature of an investment is a real danger. In 1987, tax law changes dramatically lessened the attractiveness of many existing limited partnerships that relied upon special tax considerations as part of their total return. Prices for many limited partnerships tumbled when investors were left with different securities, in effect, than what they originally bargained for. To make matters worse, there was no extensive secondary market for these illiquid securities and many investors found themselves unable to sell those securities at anything but 'fire sale' prices if at all. 5. Business Risk: The risk of doing business in a particular industry or environment is called business risk. For example, as one of the largest steel producers, U.S. Steel faces unique problems. Similarly, General Motors faces unique problems as a result of such developments as the global oil situation and Japanese imports. 6. Reinvestment Risk: The YTM calculation assumes that the investor reinvests all coupons received from a bond at a rate equal to the computed YTM on that bond, thereby earning
interest on interest over the life of the bond at the computed YTM rate. In effect, this calculation assumes that the reinvestment rate is the yield to maturity.
If the investor spends the coupons, or reinvests them at a rate different from the assumed reinvestment rate of 10%, the realized yield that will actually be earned at the termination of the investment in the bond will differ from the promised YTM. And, in fact, coupons almost always will be reinvested at rates higher or lower than the computed YTM, resulting in a realized yield that differs from the promised yield. This gives rise to reinvestment rate risk. This interest-on-interest concept significantly affects the potential total dollar return. Its exact impact is a function of coupon and time to maturity, with reinvestment becoming more important as either coupon or time to maturity, or both, rise, specifically: (a) Holding everything else constant, the longer the maturity of a bond, the greater the reinvestment risks. (b) Holding everything else constant, the higher the coupon rate, the greater the dependence of the total dollar returns from the bond on the reinvestment of the coupon payments.
82 Financial Management Let's look at realised yields under different assumed reinvestment rates for a 10% non-callable 20-year bond purchased at face value. If the reinvestment rate exactly equals the YTM of 10%, the investor would realize a 10% compound return when the bond is held to maturity, with $4,040 of the total dollar return from the bond attributable to interest-on-interest. At a 12% reinvestment rate, the investor would realize an 11.14% compound return, with almost 75% of the total return coming from interest-on-interest ($5,738/$7,738). With no reinvestment of coupons (spending them as received), the investor would achieve only a 5.57% return. In all cases, the bond is held to maturity. Clearly, the reinvestment portion of the YTM concept is critical. In fact, for long-term bonds the interest-on-interest component of the total realized yield may account for more than three-fourths of the bond's total dollar return. 7. Bull-bear Market Risk: This risk arises from the variability in the market returns resulting from alternating bull and bear market forces. When security index rises fairly consistently from a low point, called a trough, over a period of time, this upward trend is called a bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period during which the market declines to the next trough is called a bear market. 8. Management Risk: Management, all said and done, is made up of people who are mortal, fallible and capable of making a mistake or a poor decision. Errors made by the management can harm those who invested in their firms. Forecasting errors is difficult work and may not be worth the effort and, as a result, imparts a needlessly sceptical outlook.
An agent-principal relationship exists when the shareholder owners delegate the day-to-day decision-making authority to managers who are hired employees rather than substantial owners. This theory suggests that owners will work harder to maximize the value of the company than employees will. Various researches in the field indicate that investors can reduce their losses to difficult-to-analyse management errors by buying shares in those corporations in which the executives have significant equity investments. 9.
Default Risk: It is that portion of an investment's total risk that results from changes in the financial integrity of the investment.

Example: When a company that issues securities moves either further away from bankruptcy or closer to it, these changes in the firm's financial integrity will be reflected in the market price of its securities. The variability of return that investors experience, as a result of changes in the credit worthiness of a firm in which they invested, is their default risk. Almost all the losses suffered by investors as a result of default risk are not the result of actual defaults and/or bankruptcies. Investor losses from default risk usually result from security prices falling as the financial integrity of a corporation's weakness - market prices of the troubled firm's securities will already have declined to near zero. However, this is not always the case - 'creative' accounting practices in firms like Enron, WorldCom, Arthur Anderson and Computer Associates may maintain quoted prices of stock even as the company's net worth gets completely eroded. Thus, the bankruptcy losses would be only a small part of the total losses resulting from the process of financial deterioration. 10. International Risk: International risk can include both country risk and exchange rate risk. (a) Exchange Rate Risk: All investors who invest internationally in today's increasingly global investment arena face the prospect of uncertainty in the returns after they convert the foreign gains back to their own currency. Unlike the past, when most US investors ignored international investing alternatives, investors today must recognize and understand exchange rate risk, which can be defined as the variability in returns on securities caused by currency fluctuations. Exchange rate risk is sometimes called currency risk. Example: A US investor who buys a German stock denominated in marks (German currency), must ultimately convert the returns from this stock back to dollars. If the exchange rate has moved against the investor, losses from these exchange rate movements can partially or totally negate the original return earned. Obviously, US investors who invest only in US stocks on US markets do not face this risk, but in today's global environment where investors increasingly consider alternatives from other countries, this factor has become important. Currency risk affects international mutual funds, global mutual funds, closed-end single country funds, American Depository Receipts, foreign stocks, and foreign bonds.
83 Chapter 5: Risk and Return Analysis (b) Country Risk: Country risk, also referred to as political risk, is an important risk for investors today. With more investors investing internationally, both directly and indirectly, the political and therefore economic stability and viability of a country's economy need to be considered. The United States has the lowest country risk, and other countries can be judged on a relative basis using the United States as a benchmark. Examples of countries that needed careful monitoring in the 1990s because of country risk included the former Soviet Union and Yugoslavia, China, Hong Kong, and South Africa. 11. Liquidity Risk: Liquidity risk is the risk associated with the particular secondary market in which a security trades. An investment that can be bought or sold quickly and without significant price concession is considered liquid. There is more uncertainty about the time element and the price concession, the greater the liquidity risk. A treasury bill has little or no liquidity risk, whereas a small OTC stock may have substantial liquidity risk. Liquid Assets Risk: It is that portion of an asset's total variability of return which results from price discounts given or sales concessions paid in order to sell the asset without delay. Perfectly liquid assets are highly marketable and suffer no liquidation costs. Illiquid assets are not readily marketable and suffer no liquidation costs. Either price discounts must be given or sales commissions must be paid, or the seller must incur both the costs, in order to find a new investor for an illiquid asset. The more illiquid the asset is, the larger the price discounts or the commissions that must be paid to dispose of the assets. 12. Political Risk: It arises from the exploitation of a politically weak group for the benefit of a politically strong group, with the efforts of various groups to improve their relative positions increasing the variability of return from the affected assets. Regardless of whether the changes that cause political risk are sought by political or by economic interests, the resulting variability of return is called political risk, if it is accomplished through legislative, judicial or administrative branches of the government. Domestic political risk arises from changes in environmental regulations, zoning requirements, fees, licenses, and most frequently, taxes. Taxes could be both direct and indirect. Some types of securities and certain categories of investors enjoy a privileged tax status. International political risk takes the form of expropriation of non-residents' assets, foreign exchange controls that won't let foreign investors withdraw their funds, disadvantageous tax and tariff treatments, requirements that non-residents investors give partial ownership to local residents, and un-reimbursed destruction of foreign-owned assets by hostile residents of the foreign country. 13. Industry Risk: An industry may be viewed as group of companies that compete with each other to market a homogeneous product. Industry risk is that portion of an investment's total variability of return caused by events that affect the products and firms that make up an industry. For example, commodity prices going up or down will affect all the commodity producers, though not equally. The stage of the industry's life cycle, international tariffs and/or quotas on the products produced by an industry, product/industry related taxes (e.g. cigarettes), industry-wide labour union problems, environmental restrictions, raw material availability, and similar factors interact with and affect all the firms in an industry simultaneously. As a result of these common features, the prices of the securities issued by the competing firms tend to rise and fall together. These risk factors do not make up an exhaustive list, but are merely representative of the major classifications involved. All the uncertainties taken together make up the total risk, or the total variability of return. 5.2

Measurement of Risk 5.2.1 Volatility Of all the ways to describe risk, the simplest and possibly most accurate is "the uncertainty of a future outcome." The anticipated return for some future period is known as the expected return. The actual return over some past period is known as the realized return. The simple fact that dominates investing is that the realized return on an asset with any risk attached to it may be different from what was expected. Volatility may be described as the range of movement (or price fluctuation) from the expected level of return.
84 Financial Management Example: The more a stock goes up and down in price, the more volatile that stock is. Because wide price swings create more uncertainty of an eventual outcome, increased volatility can be equated with increased risk. Being able to measure and determine the past volatility of a security is important in that it provides some insight into the riskiness of that security as an investment. 5.2.2 Standard Deviation Investors and analysts should be at least somewhat familiar with the study of probability distributions. Since the return an investor will earn from investing is not known, it must be estimated. An investor may expect the TR (total return) on a particular security to be 10% for the coming year, but in truth this is only a "point estimate." 5.2.3 Probability Distributions To deal with the uncertainty of returns, investors need to think explicitly about a security's distribution of probable TRs. In other words, investors need to keep in mind that, although they may expect a security to return 10%, for example, this is only a
one-point
estimate of the entire range of possibilities. Given that investors must deal with the uncertain future, a number of possible returns can, and will, occur.
In the case of a treasury bond paying a fixed rate of interest, the interest payment will be made with 100 per cent certainty, barring a financial collapse of the economy. The probability of occurrence is 1.0, because no other outcome is possible. With the possibility of two or more outcomes, which is the norm for common stocks, each possible likely outcome must be considered and a probability of its occurrence assessed. The result of considering these outcomes and their probabilities together is a probability distribution consisting of the specification of the likely returns that may occur and the probabilities associated with these likely returns. Probabilities represent the likelihood of various outcomes and are typically expressed as a decimal (sometimes fractions are used). The sum of the probabilities of all possible outcomes must be 1.0, because they must completely describe all the (perceived) likely occurrences. How are these probabilities and associated outcomes obtained? In the final analysis, investing for some future period involves uncertainty, and therefore subjective estimates. Although past occurrences (frequencies) may be relied on heavily to estimate the probabilities, the past must be modified for any changes expected in the future. Probability distributions can be either discrete or continuous. With a discrete probability distribution, a probability is assigned to each possible outcome. With a continuous probability distribution, an infinite number of possible outcomes exists. The most familiar continuous distribution is the normal distribution depicted by the well-known bell-shaped curve often used in statistics. It is a two-parameter distribution in that the mean and the variance fully describe it. To describe the single-most likely outcome from a particular probability distribution, it is necessary to calculate its expected value. The expected value is the average of all possible return outcomes, where each outcome is weighted by its respective probability of occurrence. For investors, this can be described as the expected return. We have mentioned that it's important for investors to be able to quantify and measure risk. To calculate the total risk associated with the expected return, the variance or standard deviation is used. This is a measure of the spread or dispersion in the probability distribution; that is, a measurement of the dispersion of a random variable around its mean. Without going into further details, just be aware that the larger this dispersion, the larger the variance or standard deviation. Since variance, volatility and risk can, in this context, be used synonymously, remember that the larger the standard deviation, the more uncertain the outcome. Calculating a standard deviation using probability distributions involves making subjective estimates of the probabilities and the likely returns. However, we cannot avoid such estimates because future returns are uncertain. The prices of securities are based on investors' expectations about the future. The relevant standard deviation in this situation is the ex ante standard deviation and not the ex post based on realized returns. Although standard deviations based on realized returns are often used as proxies for ex ante standard deviations, investors should be careful to remember that the past cannot always be extrapolated into the future without modifications. Ex post standard deviations may be convenient, but they are subject to errors. One important point about the estimation of standard
85 Chapter 5: Risk and Return Analysis deviation is the distinction between individual securities and portfolios. Standard deviations for well-diversified portfolios are reasonably steady across time, and therefore historical calculations may be fairly reliable in projecting the future. Moving from well-diversified portfolios to individual securities, however, makes historical calculations much less reliable. Fortunately, the number one rule of portfolio management is to diversify and hold a portfolio of securities, and the standard deviations of well-diversified portfolios may be more stable. Something very important to remember about standard deviation is that it
is a measure of the total risk of an asset or a portfolio, including, therefore, both systematic

and unsystematic risk. It captures the total variability in the assets or portfolios return whatever the sources of that variability. In summary, the standard deviation of return measures the total risk of one security or the total risk of a portfolio of securities. The historical standard deviation can be calculated for individual securities or portfolios of securities using total returns for some specified period of time. This ex post value is useful in evaluating the total risk for a particular historical period and in estimating the total risk that is expected to prevail over some future period. The standard deviation, combined with the normal distribution, can provide some useful information about the dispersion or variation in returns. In a normal distribution, the probability that a particular outcome will be above (or below) a specified value can be determined. With one standard deviation on either side of the arithmetic mean of the distribution, 68.3% of the outcomes will be encompassed; that is, there is a 68.3% probability that the actual outcome will be within one (plus or minus) standard deviation of the arithmetic mean. The probabilities are 95% and 99% that the actual outcome will be within two or three standard deviations, respectively, of the arithmetic mean. 5.2.4 Beta

Beta is a measure of the systematic risk of a security that cannot be avoided through diversification. Beta is a relative measure

of risk – the risk of an individual stock relative to the market portfolio of all stocks. If the security's returns move more (less) than the market's returns as the latter changes, the security's returns have more (less) volatility (fluctuations in price) than those of the market. It is important to note that beta measures a security's volatility, or fluctuations in price, relative to a benchmark, the market portfolio of all stocks. Securities with different slopes have different sensitivities to the returns of the market index. If the slope of this relationship for a particular security is a 45-degree angle, the beta is 1.0. This means that for every one per cent change in the market's return, on average this security's returns change 1%. The market portfolio has a beta of 1.0. A security with a beta of 1.5 indicates that, on average, security returns are 1.5 times as volatile as market returns, both up and down. This would be considered an aggressive security because when the overall market return rises or falls 10%, this security, on average, would rise or fall 15%. Stocks having a beta of less than 1.0 would be considered more conservative investments than the overall market. Beta is useful for comparing the relative systematic risk of different stocks and, in practice, is used by investors to judge a stock's riskiness. Stocks can be ranked by their betas. Because the variance of the market is constant across all securities for a particular period, ranking stocks by beta is the same as ranking them by their absolute systematic risk. Stocks with high betas are said to be high-risk securities. The risk of an individual security can be estimated under CAPM model. The market related risk, which is also called 'systematic risk,' is unavoidable even by diversification of the portfolio.

The systematic risk of an individual security is measured in terms of its sensitivity to market movements which is referred to as security's beta.

Investors can avoid or eliminate the unsystematic risk by investing funds in wide range of securities and by having well diversified portfolio.

Beta coefficient is a measure of the volatility of stock price in relation to movement in stock index of the market; therefore, beta is the index of systematic risk. ? ? ? ? ? ? ? ? ? ?

im i m im i m im I 2 m m m Cov Cor Cor Var

Where, ? I = Beta of individual security Cov im = Covariance of returns of individual security with market portfolio Var m = Variance of returns of market portfolio (?

m 3)

Correlation coefficient between the returns of individual security and the market portfolio ? i = Standard deviation of returns of individual security ? m = Standard deviation of returns of market portfolio A beta coefficient is a relative measure of the sensitivity of an assets' return to changes in the return on the market portfolio. Mathematically, the beta coefficient of a security is the security's covariance with the market portfolio divided by the variance of the market portfolio. The beta factor is the measure of volatility of systematic risk of a security or investment in the portfolio. The beta factor of the market as a whole is 1.0. A beta of 1.0 indicates average level of risk while more or less than that the security's return fluctuates more or less than that of market portfolio. A zero beta means no risk. The degree of volatility is expressed as follows: 1. If the beta is one, then it has the same risk profile as the market as a whole, the average risk profile. 2. If the beta is less than one, it is not as sensitive to systematic or market risk as the average investment. 3. If beta is more than one, it is more sensitive to the market or systematic risk than the average investment. Beta Factor of a Market Portfolio If the return from the market portfolio rises or falls, we should expect a corresponding rise or fall in the return from an individual share. The amount of this corresponding rise or fall depends on the beta factor of the share. The beta factor of an investor's portfolio is the total of the weighted average beta factors of each security in the portfolio. As the market portfolio represents all shares on the stock market, it follows that the beta coefficient of the market portfolio must be 1, and all other betas are viewed relative to this value. Thus, if the return from the market portfolio rise by says 2%, the coefficient would be: ? ? Increase in return on investment 2% 1 Increase in return on market portfolio 2% CAPM indicates the expected return of a particular security in view of its systematic or market risk. The value of a share price is determined in relation to investment in shares of individual companies, rather than as a portfolio. In practice, for estimation of beta factor the following regression equation is used: R i = ? i + ? i R m + e i Where, R i = Rate of return of individual security ? i = The intercept that equals the risk free rate (R f) ? i = Beta factor of he individual security R m = Market of return e i = Random error, which reflects the diversifiable risk of individual security

Illustration 1: Wipro provides you the following informations. Calculate the expected rate of return of a portfolio: Expected market return 15% Risk-free rate of return 9% Standard deviation of an asset 2.4% Market Standard deviation 2.0% Correlation co-efficient of portfolio with market 0.9

87 Chapter 5: Risk and Return Analysis Solution: Calculation Market Sensitivity Index (? i) Since, market sensitivity index is not given in the problem, it is calculated by applying the following formula: ? ? ? ? ? i i m m r Where, ? ? = Market sensitivity index or Beta factor ? i = Standard deviation of an asset i.e., 0.024 ? m = Market Standard deviation i.e., 0.02 r im = Correlation coefficient of portfolio with market i.e., 0.90 ? i = ? ? 0.024 0.90 1.08 0.02 We can calculate the expected rate of return of a portfolio by applying capital asset pricing model:

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E(R i) = R f + ? i (R m – R f) Where, E(R i) = Expected rate of return of portfolio R f = Risk free rate of return

i.e., 9% R m = Expected return of market portfolio i.e. 15% ? i = Beta coefficient of investment i.e. 1.08 By substituting, we get E(R i) = 9 + 1.08 (15 – 9) = 9 + 1.08(6) = 15.48 or 15.48% Illustration 2: SCM Portfolio Ltd. has three investments in its portfolio. Its details are given below: Investment E(R) Proportion of Invested Funds Wipro 14% 1.6 50% SBI 16% 1.2 20% DCM 12% 0.8 30% Calculate the weighted average of expected return and Beta factor of the portfolio. Solution: Weighted Average of Expected Return of the Total Portfolio: E(R p) = (14% × 0.5) + (16% × 0.2) + (12% × 0.3) = 7% + 3.2% + 3.6% = 13.8% Weighted Average Market Sensitivity Index of the Total Portfolio: ? p = (1.6 × 0.5) + (1.2 × 0.2) + (0.8 × 0.3) = 0.8 + 0.24 + 0.24 = 1.28 5.3 Risk and Expected Return Risk and expected return are the two key determinants of an investment decision. Risk, in simple terms, is associated with the variability of the rates of return from an investment; how much do individual outcomes deviate from the expected value? Statistically, risk is measured by any one of the measures of dispersion such as co-efficient of range, variance, standard deviation etc.

88 Financial Management The risk involved in investment depends on various factors such as: 1. The length of the maturity period - longer maturity periods impart greater risk to investments. 2. The credit-worthiness of the issuer of securities - the ability of the borrower to make periodical interest payments and pay back the principal amount will impart safety to the investment and this reduces risk. 3. The nature of the instrument or security also determines the risk. Generally, government securities and fixed deposits with banks tend to be riskless or least risky; corporate debt instruments like debentures tend to be riskier than government bonds and ownership instruments like equity shares tend to be the riskiest. The relative ranking of instruments by risk is once again connected to the safety of the investment. 4. Equity shares are considered to be the most risky investment on account of the variability of the rates of returns and also because the residual risk of bankruptcy has to be borne by the equityholders. 5. The liquidity of an investment also determines the risk involved in that investment. Liquidity of an asset refers to its quick saleability without a loss or with a minimum of loss. 6. In addition to the aforesaid factors, there are also various others such as the economic, industry and firm specific factors that affect the risk an investment. Another major factor determining the investment decision is the rate of

the yield and capital appreciation. Notes Before we look at the methods of computing the rate of return from an investment, it is necessary to understand the concept of the return on investment. We have noted earlier that an investment is a postponed consumption. Postponement of consumption is synonymous with the concept of 'time preference for money'. Other things remaining the same, individuals prefer current consumption to future consumption. Therefore, in order to induce individuals to postpone current consumption they have to be paid certain compensation, which is the time preference for consumption. The compensation paid should be a positive real

expected by an investor from a risk-free capital asset assuming a world without inflation. However, in real life, inflation is a common feature of a capitalist economy. If the investor is not compensated for the effects of inflation, the real rate of return may turn out to be either zero or negative. Therefore, the investors, generally, add expected inflation rate to the real rate of return to arrive at the nominal rate of return. For example, assume that the present value of an investment is Rs. 100; the investor expects a real time rate of 3% per annum and the expected inflation rate is 3% per annum. If the investor was to receive only the real time rate, he would get back Rs. 103 at the end of one year. The real rate of return received by the investor would be equal to zero because the time preference rate of 3% per annum is matched by the inflation of 3% per annum. If the actual inflation rate is greater than 3% per annum, the investor would suffer negative returns. Thus, nominal rate of return on a risk-free asset is equal to the time preference real rate plus expected inflation rate. If the investment is in capital assets other than government obligations, such assets would be associated with a degree of risk that is idiosyncratic to the investment. For an individual to invest in such assets, an additional compensation, called the risk premium will have to be paid over and above the nominal rate of return. 5.4 Determinants of the Rate of Return Caution Therefore, three major determinants of the rate of return expected by the investor are: 1. The time preference risk-free real rate 2. The expected rate of inflation 3. The risk associated with the investment, which is unique to the investment.

89 Chapter 5: Risk and Return Analysis Hence, Required return = Risk-free real rate + Inflation premium + Risk premium It was stated earlier that the rate of return from an investment consists of the yield and capital appreciation, if any. The difference between the sale price and the purchase price is the capital appreciation and the interest or dividend divided by the purchase price is the yield. Accordingly Rate of return (R
t) = + t t t–1 t–1 I [P –P] P ...(1) Where R t = Rate of return
per time period 't' I t = Income for the period 't' P t = Price at the end of time period 't' P t-1 = Initial price, i.e., price at the beginning of the period 't'. In the above equation 't' can be a day or a week or a month or a year or years and accordingly daily, weekly, monthly or annual rates of return could be computed for most capital assets. The above equation can be split in to two components. viz., Rate of return (R t) = - t t t–1 t–1 t–1 I P P + P P ...(2) Where t t-1 I P is called the current yield, and t t–1 t–1 P –P P is called the capital gain yield. Or RoR = Current yield + Capital gain yield Illustration 3: The following information is given for a corporate bond.

Rs. 95.40, Interest received for the year: Rs. 13.50. Compute the rate of return. Solution: The rate of return can be computed as follows: 13.50+(95.40−90) 90 = 0.21 or 21% per annum The return of 21% consists of 15% current yield and 6% capital gain yield. There is always a direct association between the rates of return and the asset prices. Finance theory stipulates that the price of any asset is equal to the sum of the discounted cash flows, which the capital asset owner would receive. Accordingly, the current price of any capital asset can be expected, symbolically, as P 0 = n t n t n t=1 E(I) P + (1+r) (1+r) å ...(3) Where E (R t) = Expected income to be received in year 't' P 0 = Current price of the capital asset P n = Price of the asset on redemption or on liquidation R = The rate of return investors expect given the risk inherent in that capital asset. Thus, 'r' is the rate or return, which the investors require in order to invest in a capital asset that is used to discount the expected future cash flows from that capital asset.

90 Financial Management Illustration 4: Mr. Amirican has purchased 100 shares of Rs. 10 each of Kinetic Ltd. in 2005 at Rs. 78 per share. The company has declared a dividend @ 40% for the year 2006-07. The market price of share as on 1-4-2006 was Rs. 104 and on 31-3-2007 was Rs. 128. Calculate the annual return on the investment for the year 2006-07. Dividend received for 2004-05 = Rs. 10 × 40/100 = Rs. 4 Solution: Calculation of annual rate of return on investment for the year 2006-07 R = 1 1 0 0 d +(P −P) 4+(128−104) = = 0.2692 or 26.92% P 104 5.5 Risk-return Relationship The most fundamental tenet of finance literature is that there is a trade-off between risk and return. The risk-return relationship requires that the return on a security should be commensurate with its riskiness. If the capital markets are operationally efficient, then all investment assets should provide a rate or return that is consistent with the risks associated with them. The risk and return are directly variable, i.e., an investment with higher risk should produce higher return. The risk/return trade-off could easily be called the "ability-to-sleep-at-night test." While some people can handle the equivalent of financial skydiving without batting an eye, others are terrified to climb the financial ladder without a secure harness. Deciding what amount of risk you can take while remaining comfortable with your investments is very important. In the investing world, the dictionary definition of risk is

Technically, this is measured in statistics by standard deviation.

Low levels of uncertainty (low risk) are associated with low potential returns. High levels of uncertainty (high risk) are associated with high potential returns. The risk/return trade-off
is the balance between the desire for the lowest possible risk
and the highest possible return. This is demonstrated graphically in the chart below. A higher standard deviation means a higher risk and higher possible return. The figure below represents the relationship between risk and return. Low risk Average risk High risk M Return Slope indicates required required Return per unit of risk Risk-free return R(f) Figure 5.1: Risk and Return Relationship

91 Chapter 5: Risk and Return Analysis The slope of the Market Line indicates the return per unit of risk required by all investors. Highly risk-averse investors would have a steeper line, and vice versa. Yields on apparently similar stocks may differ. Differences in price, and therefore yield, reflect the market's assessment of the issuing company's standing and of the risk elements in the particular stocks. A high yield in relation to the market in general shows an above average risk element. This is shown in the Figure 5.2 below: Rate of Return Risk Market Line E(r) Premium Ordinary shares Preference shares Subordinate loan stock Unsecured loan Debenture with floating charge Mortgage loan Government stock (risk - free) O Degree of Risk Given the composite market line prevailing at a point of time, investors would select investments that are consistent with their risk preferences. Some will consider low-risk investments, while others prefer high-risk investments. A common misconception is that higher risk equals greater return. The risk/return trade-off tells us that the higher risk gives us the possibility of higher returns. But there are no guarantees. Just as risk means higher potential returns, it also means higher potential losses. On the lower end of the scale, the risk-free rate of return is represented by the return on Treasury Bills of government securities, because their chance of default is next to nil. If the risk-free rate is currently 8 to 10 %, this means, with virtually no risk, we can earn 8 to 10% per year on our money. The common question arises: who wants to earn 6% when index funds average 12% per year over the long run? The answer to this is that even the entire market (represented by the index fund) carries risk. The return on index funds is not 12% every year, but rather 5% one year, 25% the next year, and so on. An investor still faces substantially greater risk and volatility to receive an overall return that is higher than a predictable government security. We call this additional return the risk premium, which in this case is 8% (12% - 8%). Determining what risk level is most appropriate for you isn't an easy question to answer. Risk tolerance differs from person to person. Your decision will depend on your goals, income and personal situation, among other factors. 5.6 Portfolio and Security Returns A portfolio is a collection of securities. Since it is rarely desirable to invest the entire funds of an individual or an institution in a single security, it is essential that every security be viewed in a portfolio context. Thus, it seems logical that the expected return of a portfolio should depend on the expected return of each of the security contained in the portfolio. It also seems logical that the amounts invested in each security should be important. Indeed, this is the case. The example of a portfolio with three securities shown in Table a illustrates this point. The expected holding period value - relative for the portfolio is clearly shown: = 1.155 Giving an expected holding period return of 15.50%. Figure 5.2: Risk Return Relationship of Different Stocks
92 Financial Management 1. Security and Portfolio Value Security No. of Shares (Rs.) Current Price Per Share (Rs.) Current Value (Rs.) Expected End-of-Period Per Share Value (Rs.) Expected End-of-Period Share Value (Rs.) 1 2 3 4 5 6 XYZ 100 15.00 1,500 18.00 1,800 ABC 150 20.00 3,000 22.00 3,300 RST 200 40.00 8,000 45.00 9,000 KNF 250 25.00 6,250 30.00 7,500 DET 100 12.50 1,250 15.00 1,500 20,000 23,100 2. Security and Portfolio Value-Relative Security Current Value (Rs.) Proportion of Current Value of Properties Current Price Per Share (Rs.) Expected End- of-Period Value Per Share (Rs.) Expected Holding-Period Value-Relative Contribution to Portfolio Expected Holding-Period Value-Relative (1) (2) 3 = (2) Rs. 20,000 (4) (5) (6) = (5) / (4) (7) = (3) × (6) XYZ 1,500 .0750 15,00 18.00 . 1,200 0.090000 ABC 3,000 .1500 20,00 22.00 1,100 0.165000 RST 8,000 .4000 40,00 45.00 1,125 0.450000 KNF 6,250 .3125 25,00 30.00 1,200 0.375000 DET 1,250 .0625 12,50 15.00 1,200 0.075000 20,000 1.0000 1.155000 3. Security and Portfolio Holding-Period Returns Security Proportion of Current Value of Portfolio Expected Holding Period Return (%) Contribution to Portfolio Expected Holding Period Return (%) 1 2 3 4 XYZ .0750 20.00 1.50 ABC .1500 10.00 1.50 RST .4000 12.50 5.00 KNF .3125 20.00 6.25 DET .0625 20.00 1.25 1.0000 15.50 Since the portfolio's

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expected return is a weighted average of the expected returns of its securities,

the contribution of each security to the portfolio's expected returns depends on its expected returns and its proportionate share of the initial portfolio's market value. Nothing else is relevant. It follows that an investor who simply wants the greatest possible expected return should hold one security. This should be the one that is considered to have the greatest expected return. Very few investors do this, and very few investment advisers would counsel such an extreme policy. Instead, investors should diversify, meaning that their portfolio should include more than one security. This is because diversification can reduce risk.

93 Chapter 5: Risk and Return Analysis Illustration 5: The average market prices and dividend per share of Asian CERC Ltd. for the past 6 years are given below: Year Average market price (Rs.) Dividend per share (Rs.) 2007 68 3.0 2006 61 2.6 2005 50 2.0 2004 53 2.5 2003 45 2.0 2002 38 1.8 Solution: Calculate the average rate of return of Asian CERC Ltd.'s shares for past 6 years. Year Average market price per share (Rs.) Capital gain (%) Dividend per share (Rs.) Dividend yield (%) Rate of return (%) 2002 38 - 1.8 4.74 - 2003 45 18.42 2.0 4.44 22.86 2004 53 17.78 2.5 4.72 22.50 2005 50 -5.66 2.0 4.00 -1.66 2006 61 22.00 2.6 4.26 26.26 2007 68 11.48 3.0 4.41 15.89 R = 1/5 (22.86 + 22.50 – 1.66 + 26.26 + 15.89) = 1/5(85.85) = 17.17% Risk All possible questions which the investor may ask, the most important one is concerned with the probability of actual yield being less than zero, that is, with the probability of loss. This is the essence of risk. A useful measure of risk should somehow take into account both the probability of various possible "bad" outcomes and their associated magnitudes. Instead of measuring the probability of a number of different possible outcomes, the measure of risk should somehow estimate the extent to which the actual outcome is likely to diverge from the expected. Two measures are used for this purpose: the average (or mean) absolute deviation and the standard deviation. Illustration 6: The rate of return of equity shares of Wipro Ltd., for past six years are given below: Year 01 02 03 04 05 06 Rate of return (%) 12 18 -6 20 22 24 Calculate the average rate of return, standard deviation and variance.

94 Financial Management Solution: Calculation of Average Rate of Return (R) R = ΣR 12+18-6+20+22+24 = = 15% N 6 ? 2 = 2 Σ(R –R) N Year Rate of Return (%) (R–R) 2 (R–R) 2001 12 -3 9 2002 18 3 9 2003 -6 -21 441 2004 20 5 25 2005 22 7 43 2006 24 9 81 2 Σ(R–R) = 614 Variance (? 2) = 64 6 = 102.33 ? = 2 σ = Variance = 10.12% Illustration 7: Mr. RKV invested in equity shares of Wipro Ltd., its anticipated returns and associated probabilities are given below: Return (%) -15 -10 5 10 15 20 30 Probability 0.05 0.10 0.15 0.25 0.30 0.10 0.05 You are required to calculate the expected rate of return and risk in terms of standard deviation. Solution: Calculation of expected return and risk in terms of standard deviation. Return (R) Probability (P) (P × R) ( ) R–R 2 ( ) R–R 2 ( ) R–R × P -15 0.05 - 0.75 -5.5 30.25 1.5125 -10 0.10 -1.0 -0.5 0.25 0.0250 5 0.15 0.75 -4.5 20.25 3.0375 10 0.25 2.50 0.5 0.25 0.625 15 0.30 4.50 5.5 30.25 9.0750 20 0.10 2.00 10.5 110.25 11.0250 30 0.05 1.50 20.5 420.25 21.0125 1.00 R = 9.5% 2 Σ( ) R–R P = 45.75 Expected Return R = ?(P×R) = 9.5% Standard Deviation = 2 Σ(R –R) P = 45.75 = 6.764 The risk in the above illustration can be measured by taking the range of 45% [i.e. 30% - (-) 15%] and standard deviation of 6.764. The investment carries greater risk in terms of high variation in return.

95 Chapter 5: Risk and Return Analysis Illustration 8: Mr. Marin provides the following informations, from the same compute his expected return and standard deviation and variance. Events 1 2 3 4 Probability .20 .40 .30 .10 Return (%) – 10 25 20 10 Solution: 1. Calculating the Mean Absolute Deviation: Event Probability Return (%) P x Return Deviation Probability × Deviation Probability × Absolute Deviation (1) (2) (3) (4) (5) (6) (7) A .20 -10 -2.0 -25.0 -5.0 5.0 B .40 25 10.0 10.0 4.0 4.0 C .30 20 6.0 .0 1.5 1.5 D .10 10 -1.0 -5.0 -0.5 0.5 Expected Return = 5.0 0.0 Average = 10.0 Absolute Deviation 2. Calculating the Standard Deviation: Event Probability Deviation Deviation squared Probability x Deviation (1) (2) (3) (4) = (3) 2 (5) = (2) x (4) A .20 -25.0 625.0 125.0 B .40 10.0 100.0 40.0 C .30 5.0 25.0 7.5 D .10 -5.0 25.0 2.4 Variation = Weighted average squared deviation = 175.0 Standard Deviation = square root of variance = 13.2287 When an analyst predicts that a security will return 15% next year, he or she is presumably stating something comparable to an expected value. If asked to express the uncertainty about the outcome, he or she might reply that the odds are 2 out of 3 that the actual return will be within 10% of the estimate (i.e., 5% and 25%). The standard deviation is a formal measure of uncertainty, or risk, expressed in this manner, just as the expected value is a formal measure of a "best guess" estimate. Most analysts make such predictions directly, without explicitly assessing probabilities and making the requisite computations. Illustration 9: The possible returns and associated probabilities of Securities X and Y are given below: Security X Security Y Probability Return (%) Probability Return (%) 0.05 6 0.10 5 0.15 10 0.20 8 0.40 15 0.30 12 0.25 18 0.25 15 0.10 20 0.10 18 0.05 24 0.05 20 Calculate the expected return and standard deviation of securities X and Y.

96 Financial Management Solution: Calculation of expected return and standard deviation of Security X: Probability (P) Return (%) (R) (P × R) (R – R) 2 (R – R) P 0.05 6 0.30 - 9.5 4.5125 0.15 10 1.50 -5.5 4.5375 0.40 15 6.00 -0.5 0.1000 0.25 18 4.50 2.5 1.5625 0.10 20 2.00 4.5 2.0250 0.05 24 1.20 8.5 3.6125 1.00 R = 15.5 2 Σ(R –R) P = 16.35 Expected Return of Security X = 15.5% Standard Deviation of Security X 2 y σ = 16.35 ? y = 16.35 = 4.04% Calculation of expected return and standard deviation of Security Y Probability (P) Return (%) (R) (P × R) (R–R) 2 (R–R) P 0.10 5 0.50 -7.25 5.2563 0.20 8 1.60 -4.25 3.6125 0.30 12 3.60 -0.25 0.0188 0.25 15 3.75 2.75 1.8906 0.10 18 1.80 5.75 3.3063 0.05 20 1.00 7.75 3.0031 12.25 2 Σ(R–R) P = 17.0876 Expected Return Security Y (R) = 12.25% Standard Deviation of Security Y 2 y σ = 17.086 ? y = 17.0876 = 4.134% Analysis - Security X has higher expected return and lower level of risk as compared to Security Y. 5.7 Return and Risk of Portfolio 5.7.1 Return of Portfolio (Two Assets) The expected return from a portfolio of two or more securities is equal to the weighted average of the expected returns from the individual securities. ?(R P) = W A (R A)+ W B (R B)

97 Chapter 5: Risk and Return Analysis Where, ?(R P) = Expected return from a portfolio of two securities W A = Proportion of funds invested in Security A W B = Proportion of funds invested in Security B R A = Expected return of Security A R B = Expected return of Security B W A + W B = 1 Illustration 10: A Ltd.'s share gives a return of 20% and B Ltd.'s share gives 32% return. Mr. Gotha invested 25% in A Ltd.'s shares and 75% of B Ltd.'s shares. What would be the expected return of the portfolio? Solution: Portfolio Return = 0.25(20) + 0.75 (32) = 29% Illustration 11: Mr. RKV's portfolio consists of six securities. The individual returns of each of the security in the portfolio are given below: Security Proportion of investment in the portfolio Return Wipro 10% 18% Latham 25% 12% SBI 8% 22% ITC 30% 15% RNL 12% 6% DLF 15% 8% Calculate the weighted average of return of the securities consisting the portfolio. Solution: Security Weight (W) Return (%) (R) (W × R) Wipro 0.10 18 1.80 Latham 0.25 12 3.00 SBI 0.08 22 1.76 ITC 0.30 15 4.50 RNL 0.12 6 0.72 DLF 0.15 8 1.20 12.98 ? Portfolio return is 12.98% 5.7.2 Risk of Portfolio (Two

not simply a measure of its weighted average risk. The securities that a portfolio contains are associated with each other. The portfolio risk also considers the covariance between the returns of the investment. Covariance of two securities is a measure of their

98 Financial Management co-movement; it expresses the degree to which the securities vary together. The standard deviation of a two-share portfolio is calculated by applying formula given below: p = 2 2 2 2 A A B B A B AB A B W σ +W σ +2W W ρ σ σ Where, ? p = Standard deviation of portfolio consisting securities A and B W A W B = Proportion of funds invested in Security A and Security B ? A ? B = Standard deviation of returns of Security A and Security B ? AB = Correlation coefficient between returns of Security A and Security B The correlation coefficient (AB) can be calculated as follows: AB = AB A B Cov σ σ The covariance of Security A and Security B can be presented as follows: Cov AB = ? A ? B ? AB The diversification of unsystematic risk, using a two-security portfolio, depends upon the correlation that exists between the returns of those two securities. The quantification of correlation is done through calculation of correlation coefficient of two securities (? AB). The value of correlation ranges between −1 to 1; it can be interpreted as follows: If ? AB = 1, No unsystematic risk can be diversified. If ? AB = −1, All unsystematic risks can be diversified. If ? AB = 0, No correlation exists between the returns of Security A and Security B. Illustration 12: The returns of Security of Wipro and Security of Infosys for the past six years are given below: Year Security of Wipro Return (%) Security of Infosys Return (%) 2003 9 10 2004 5 -6 2005 3 12 2006 12 9 2007 16 15 Calculate the risk and return of portfolio consisting. Solution: Calculation of Mean Return and Standard Deviation of Security A: Year Return (%) (R −R) 2 (R −R) 2003 9 0 0 2004 5 -4 16 2005 3 -6 36 2006 12 3 9 2007 16 7 49 45 110

99 Chapter 5: Risk and Return Analysis Mean Return ( ) R = 45/5 = 9% Standard Deviation (? A) = 110 = 10.49% Calculation Mean Return and Standard Deviation of Security A Year Return (%) (R−R) 2 (R−R) 2001 10 2 4 2002 -6 14 196 2003 12 4 16 2004 9 1 1 2005 15 7 49 40 266 Mean Return ( ) R = 40/5 = 8% Standard Deviation (? B) = = 16.31% Analysis − Security A has a higher historic level of return and lower risk as compared to Security B. Correlation Coefficient (? AB). = 2 2 2 2 NΣXY−(ΣX)(ΣY) NΣX −(ΣX) NΣY −ΣY A's return (%) B's return (%) X X 2 Y Y 2 XY 9 81 10 100 90 5 25 -6 36 -30 3 9 12 144 36 12 144 9 81 108 16 256 15 225 240 ?X= 45 ?X 2 = 515 ?Y = 40 ?Y 2 = 586 ?XY = 444 = 2 2 2 2 (5×5)−(45) 5×586−(40) (5×515)−(45) 5×586−(40) = 2,220-1800 2575- 2025 2930-1600 = 420 550 1330 = 420 23.452×36.469 = 420 855.271 = 0.491 Verification: Calculation of Covariance of Returns of Securities A and B Returns (%) Year A B A A (R − R) B B (R −R) (R A − A R) × (R B − B R) 2001 9 10 0 2 0 2002 5 -6 -4 -14 56 2003 3 12 -6 4 -24 2004 12 9 3 1 3 2005 16 15 7 7 49 Cov AB = 84

100 Financial Management ? AB = AB A B Cov 84 = = 0.491 σ σ 10.49×16.31 Cov AB = ? A ? B ? AB = 10.49 × 16.31 × 0.491 = 84 Return of portfolio (R p) = (0.80 × 9) + (0.20 × 8) = 7.2 + 1.6 = 8.8% Risk of portfolio (? p) 2 p σ = (0.80 2 × 10.49 2) + (0.20 2 × 16.31 2) + (2 × 0.80 × 0.20 × 10.49 × 16.31 × 0.491) = (0.64 × 110.04) + (0.04 × 266.02) + 26.88 = 70.43 + 10.64 + 26.88 = 107.95 ? p = 107.95 = 10.39% 5.7.3 Risk and Return of Portfolio (Three Assets) Formula for calculating risk of portfolio consisting three securities 2 p σ = 2 2 2 2 2 2 x x y y z z x y yz y z x z xz x z W σ +W σ +W σ +2W W ρ σ σ +W W ρ σ σ Where, W 1 , W 2 , W 3 = Proportion of amount invested in securities X, Y and Z ? x , ? y , ? z = Standard deviations of securities X, Y and Z ? xy = Correlation coefficient between securities X and Y ? yz = Correlation coefficient between securities Y and Z ? xz = Correlation coefficient between securities X and Z Illustration 13: A portfolio consists of three securities P, Q and R with the following parameters: Security P Q R Correlation coefficient Expected return (%) 35 22 20 Standard deviation (%) 20 26 24 Correlation coefficient: PQ -0.5 QR +0.4 PR +0.6 If the securities are equally weighted, how much is the risk and return of the portfolio of these three securities? Solution: Expected Portfolio Return = (25 × 1/3) + (22 × 1/3) + (20 × 1/3) = 22.33%

101 Chapter 5: Risk and Return Analysis 2 p σ = 2 2 2 2 2 (30) (1/3) +(26) +(24) (1/3) +2(1/3)(-0.5)(30)(26) + 2(1/3)(1/3)(0.4) (26)(24) + 2(1/3)(1/3)(0.6)(30)(24) 2 p σ = 100 + 75.11 + 64 – 86.67 + 55.47 + 96 = 303.91 ? P = 303.91 = 17.43% Notes Optimal Portfolio (Two Assets) The investor can minimise his risk on the portfolio. Risk avoidance and risk minimisation are the important objectives of portfolio management. A portfolio contains different securities; by combining their weighted returns we can obtain the expected return of the portfolio. A risk-averse investor always prefers to minimise the portfolio risk by selecting the optimal portfolio. The minimum risk portfolio with two assets can be ascertained as follows: W A = ¶ ¶ ¶ 2 B AB 2 2 A B AB –Cov + –Cov In continuation to illustration 9 we can calculate the proportion to be invested (W A) in Security A. = 2 2 2 16.31 –84 182.02 = = 0.875 (10.49 +16.31)–(2×84) 208.06 Therefore, 87.5% of funds should be invested in Security A and 12.5% should be invested in Security B, which represents the optimal portfolio.

5.8

Portfolio Diversification and Risk In an efficient capital market, the important principle to consider is that, investors should not hold all their eggs in one basket; investor should hold a well-diversified portfolio. In order to understand portfolio diversification, one must understand correlation.

Correlation is a statistical measure that indicates the relationship, if any, between series of numbers representing anything from cash flows to test data.

If the two series move together, they are positively correlated; if the series move in opposite directions, they are negatively correlated. The existence of perfectly correlated especially negatively correlated- projects is quite rare. In order to diversify project risk and thereby reduce the firm's overall risk, the projects that are best combined or added to the existing portfolio of projects are those that have a negative (or low positive) correlation with existing projects. By combining negatively correlated projects, the overall variability of returns or risk can be reduced. The Figure 5.3 illustrates the result of diversifying to reduce risk. It shows that a portfolio is containing the negatively corrected projects A and B, both having the same expected return, E, but less risk (i.e. less variability of return) than either of the projects taken separately. This type of risk is sometimes described as diversifiable or alpha risk. The creation of a portfolio by combining two perfectly correlated projects cannot reduce the portfolio's overall risk below the risk of the least risky project, while the creation of a portfolio combining two projects that are perfectly negatively correlated can reduce the portfolio's total risk to a level below that of either of the component projects, which in certain situations may be zero.

102

Financial Management Figure 5.3: Reduction of Risk through Diversification O Time Project A and B Return Time O O Time Project A Project B Return Return Benefits of Diversification The gains in risk reduction from portfolio diversification depend inversely upon the extent to which the returns on securities in a portfolio are positively correlated. Ideally, the securities should display negative correlation. This implies that if a pair of securities has a negative correlation of returns, then in circumstances where one of the securities is performing badly, the other is likely to be doing well and vice versa in reverse circumstances. Therefore the average return on holding the two securities is likely to be much 'safer' than investing in one of them alone. Caselet Using Index Options is Solution to Hedge Risk in Portfolio M any times it is in an investor's best interest to lock in recent gains or to protect a portfolio of stocks from a decline beyond a certain price. One way to do this would be to purchase a put option contract on each of your various holdings. However, if the portfolio consists of diversified stocks, then it is probably not cost-effective to insure each and every position in this manner. As an alternative, 'using index options' is a solution to hedge the risk in the portfolio. Depending on the stocks the choice of index could be Bank Nifty, Midcap or even the benchmark Nifty. Next in order to decide the number of contracts of a particular index required to hedge, calculating beta (?) of the portfolio is the key. This may sound like an obscure technical term, but beta simply measures the amount of variance in a portfolio in relation to the market. If using the S&P CNX Nifty as a proxy for the market, then ? would indicate how much the portfolio moves when the Nifty changes by 1%. For example, if the portfolio changes by 2% whenever the Nifty moves up 1%, then the portfolio has a ? of 2.0. If the portfolio changes by 0.5%, then ? = 0.5. Source: financialexpress.com

103 Chapter 5: Risk and Return Analysis 5.9 Utility Function and Risk Taking Common investors will have three possible attitudes to undertake risky course of action (i) an aversion to risk, (ii) a desire to take risk, and (iii) an indifference to risk. The following example will clarify the risk attitude of the individual investors. The possible outcomes of two alternatives A and B, depending on the state of economy, are as follows: Possible outcome (Rs.) State of economy A B Normal 100 100 Boom 110 200 If we assume that the three states of the economy are equally likely, then expected value for each alternative is Rs. 100. 1. A risk-seeker is one who, given a choice between more or less risky alternatives with identical expected values, prefers the riskier alternative i.e. alternative B. 2. A risk averted would select the less risky alternative i.e. alternative A. 3. The person who is indifferent to risk (risk neutral) would be indifferent to both alternative A and B, because they have same expected values. The empirical evidence shows that majority of investors are risk-averse. Some generalisations concerning the general shape of utility functions are possible. People usually regard money as a desirable commodity, and the utility of a large sum is usually greater than the utility of a smaller sum. Generally a utility function has a positive slope over an appropriate range of money values, and the slope probably does not vary in response to small changes in the stock of money. For small changes in the amount of money going to an individual, the slope is constant and the utility function is linear. If the utility function is linear, the decision-maker maximises expected utility by maximising expected monetary value. However, for large variations in the amount of money, this is likely to be the case. For large losses and large gains, the utility function often approaches upper and lower limits. The slope of the curve will usually increase sharply as the amount of loss increases, because the dis-utility of a large loss is proportionately more than the dis-utility of a small loss, but the curve will flatten as the loss becomes very large. For a risk-averse decision-maker, the expected utility of a function is less than the utility of the expected monetary value. It is also possible for the decision-maker to be risk preferring, at least over some range of the utility function. In this case, the expected utility of a function is more than the utility of the Expected Monetary Value (EMV). Risk averse Utility Risk neutral Risk Preferring O Money Illustration 14: Assume the investor in Problem 35 wants to determine how risky his portfolio is and wants you to compute the portfolio variance. If the expected correlations and variance of the stocks are as follows, what is the variance of the portfolio? Figure 5.4: Utility Function and Risk Taking

104 Financial Management Correlations ABC BCD CDE DEF BCD .50 - - - CDE .60 .30 - - DEF -.30 -.20 -.10 - Variances .04 .16 .02 .10 Solution: To compute the variance, you need to make a covariance matrix. Using the square roots of the variances and correlations given, the covariance are calculated: Cov(r ABC , R BCD) = .500 × .200 × .400 = .040 Cov(r ABC , R CDE) = .600 × .200 × .141 = .070 Cov(r ABC , R DEF) = –.300 × .200 × .316 = –.019 Cov(r BCD , R CDE) = .300 × .400 × .141 = .017 Cov(r BCD , R DEF) = .200 × .400 × .316 = –.025 Cov(r CDE , R DEF) = .100 × .141 × .316 = .004 With the given variance and the portfolio weights, the covariance matrix is as follows: Securities Weights ABC .25 BCD .25 CDE .25 DEF .25 ABC .25 .04 .040 .017 -.019 BCD .25 .040 .16 .017 -.025 CDE .25 .017 .017 .02 -.004 DEF .25 -.019 -.025 -.004 1.0 Multiplying each covariance by the weight at the top of the column and at the left of the row and summing, we get .25 × .25 × .04 = .0025 .25 × .25 × .040 = .0025 .25 × .25 × .017 = .0011 .25 × .25 × -.019 = .0012 .25 × .25 × .040 = .0025 .25 × .25 × .16 = .0100 .25 × .25 × .017 = .0011 .25 × .25 × –.025 = .0016 .25 × .25 × .017 = .0011 .25 × .25 × .017 = .0011 .25 × .25 × .02 = .0013 .25 × .25 × –.004 = .0003 .25 × .25 × –.019 = .0012 .25 × .25 × -.025 = –.0016 .25 × .25 × .004 = –.0003 .25 × .25 × 1.0 = .0063 Total portfolio variance = .0223

105 Chapter 5: Risk and Return Analysis 5.10 Capital Asset Pricing Model Approach (CAPM) William F. Sharpe and John Linter developed the Capital Asset Pricing Model (CAPM). The model is based on the portfolio theory developed by Harry Markowitz. The model emphasises the risk factor in portfolio theory is a combination of two risks, systematic risk and unsystematic risk. The model suggests that a security's return is directly related to its systematic risk, which cannot be neutralised through diversification. The combination of both types of risks stated above provides the total risk. The total variance of returns is equal to market related variance plus company's specific variance. CAPM explains the behaviour of security prices and provides a mechanism whereby investors could assess the impact of a proposed security investment on the overall portfolio risk and return. CAPM suggests that the prices of securities are determined in such a way that the risk premium or excess returns are proportional to systematic risk, which is indicated by the beta coefficient. The model is used for analysing the risk-return implications of holding securities. CAPM refers to the manner in which securities are valued in line with their anticipated risks and returns. A risk-averse investor prefers to invest in risk-free securities. For a small investor having few securities in his portfolio, the risk is greater. To reduce the unsystematic risk, he must build up well-diversified securities in his portfolio. The asset return depends on the amount for the asset today. The price paid must ensure that the market portfolio's risk/return characteristics improve when the asset is added to it. The CAPM is a model, which derives the theoretical required return (i.e. discount rate) for an asset in a market, given the risk-free rate available to investors and the risk

Beta), is the measure of asset sensitivity to a movement in the overall market; Beta is usually found via regression on historical data. Betas exceeding one signify more than average "riskiness"; betas below one indicate lower than average. E(R m) – (R f) is the market premium, the historically observed excess return of the market over the risk-free rate. Once the expected return, E(r i), is calculated using CAPM, the future cash flows of the asset can be discounted to their present value using this rate to establish the correct price for the asset. (Here again, the theory accepts in its assumptions that a parameter based on past data can be combined with a future expectation.) A more risky stock will have a higher beta and will be discounted at a higher rate; less sensitive stocks will have lower betas and be discounted at a lower rate. In theory, an asset is correctly priced when its observed price is the same as its value calculated using the CAPM derived discount rate. If the observed price is higher than the valuation, then the asset is overvalued; it is undervalued for a too low price. Notes Mathematically 1. The incremental impact on risk and return when an additional risky asset, a, is added to the market portfolio, m, follows from the formulae for a two asset portfolio. These results are used to derive the asset appropriate discount rate. Risk = 2 2 2 2 m m a a m a am a m (w [w 2w w]) ? + ? + ? ? ? Hence, risk added to portfolio = ? + ? ? ? 2 2 a a m am a m [w 2w] But, since the weight of the asset will be relatively low, 2 a w » 0 i.e. additional risk = [? ? ? m am a m 2w] Return = (w m E(R m) + [w a E(R a)]) Hence additional return = [w a E(R a)] Contd....

106 Financial Management 2. If an asset, a, is correctly priced, the improvement in risk to return achieved by adding it to the market portfolio, m, will at least match the gains of spending that money on an increased stake in the market portfolio. The assumption is that the investor will purchase the asset with funds borrowed at the risk-free rate, R f ; this is rational if E(R a) < R f . Thus [w a (E(R a) – R f)]/[? ? ? m am a m 2w] = [w a (E(R m) – R f)]/[? ? ? m am a m 2w] i.e. : [E(R a)] = R f + [E(R m) – R f] * [? am ? a ? m]/[? m ? m] i.e. : [E(R a)] = R f + [E(R m) – R f] * ? am [ ] / ? mm [ ] ? am [ ] / ? mm [ ] is the "beta", ? — the covariance between the asset and the market compared to the variance of the market, i.e. the sensitivity of the asset price to movement in the market portfolio. 5.11 Assumptions of CAPM Because the CAPM is a theory, we must assume for argument that 1. All assets in the world are traded. 2. All assets are infinitely divisible. 3. All investors in the world collectively hold all assets. 4. For every borrower, there is a lender. 5. There is a riskless security in the world. 6. All investors borrow and lend at the riskless rate. 7. Everyone agrees on the inputs to the Mean-STD picture. 8. Preferences are well described by simple utility functions. 9. Security distributions are normal, or at least well described by two parameters. 10. There are only two periods of time in our world. This is a long list of requirements, and together they describe the capitalist's ideal world. Everything may be bought and sold in perfectly liquid fractional amounts even human capital! There is a perfect, safe haven for risk-averse investors i.e. the riskless asset. This means that everyone is an equally good credit risk! No one has any informational advantage in the CAPM world. Everyone has already generously shared all of their knowledge about the future risk and return of the securities, so no one disagrees about expected returns. All customer preferences are an open book risk attitudes are well described by a simple utility function. There is no mystery about the shape of the future return distributions. Last but not least, decisions are not complicated by the ability to change your mind through time. You invest irrevocably at one point, and reap the rewards of your investment in the next period at which time you and the investment problem cease to exist. Terminal wealth is measured at that time i.e. he who dies with the most toys wins! The technical name for this setting is "A frictionless one-period, multi- asset economy with no asymmetric information." Notes Investment Implications CAPM tells us that all investors will want to hold "capital-weighted" portfolios of global wealth. In the 1960s when the CAPM was developed, this solution looked a lot like a portfolio that was already familiar to many people: the S&P 500. The S&P 500 is a capital-weighted portfolio of most of the US' largest stocks. At that time, the US was the world's largest market, and thus, it seemed to be a fair approximation to the 'cake.' Amazingly, the answer was right under our noses – Contd....

107 Chapter 5: Risk and Return Analysis the tangency portfolio must be something like the S&P 500 Not co-incidentally, widespread use of index funds began about this time. Index funds are mutual funds and/or money managers who simply match the performance of the S&P. Many institutions and individuals discovered the virtues of indexing. Trading costs were minimal in this strategy: capital-weighted portfolios automatically adjust to changes in value when stocks grow, so that investors need not change their weights all the time – it is a "buy-and-hold" portfolio. There was also little evidence at the time that active portfolio management beat the S&P index – so why not? Is the CAPM true? Any theory is only strictly valid if its assumptions are true. There are a few nettlesome issues that call into question the validity of the CAPM: 1. Is the world in equilibrium? 2. Do you hold the value-weighted world wealth portfolio? 3. Can you even come close? 4. What about "human capital?" While these problems may violate the letter of the law, perhaps the spirit of the CAPM is correct. That is, the theory may be a good prescription for investment policy. It tells investors to choose a very reasonable, diversified and low cost portfolio. It also moves them into global assets, i.e. towards investments that are not too correlated with their personal human capital. In fact, even if the CAPM is approximately correct, it will have a major impact upon how investors regard individual securities. Why? 5.12 Portfolio Risk Suppose you were a CAPM-style investor holding the world wealth portfolio, and someone offered you another stock to invest in. What rate of return would you demand to hold this stock? The answer before the CAPM might have depended upon the standard deviation of a stock's returns. After the CAPM, it is clear that you care about the effect of this stock on the TANGENCY portfolio. The Figure 5.5 shows that the introduction of asset A into the portfolio will move the tangency portfolio from T(1) to T(2). R floor E T(2) T(1) +A STD The extent of this movement determines the price you are willing to pay (alternately, the return you demand) for holding asset A. The lower the average correlation A has with the rest of the assets in the portfolio, the more the frontier, and hence T, will move to the left. This is good news for the investor – if A moves your portfolio left, you will demand lower expected return because it improves your portfolio risk-return profile. This is why the CAPM is called the "Capital Asset Pricing Model." It explains relative security prices in terms of a security's contribution to the risk of the whole portfolio, not its individual standard deviation. The CAPM is a theoretical solution to the identity of the tangency portfolio. It uses some ideal assumptions about the economy to argue that the capital weighted world wealth portfolio is the tangency portfolio, and that every investor will hold this same Figure 5.5

108 Financial Management portfolio of risky assets. Even though it is clear they do not, the CAPM is still a very useful tool. It has been taken as a prescription for the investment portfolio, as well as a tool for estimating an expected rate of return. Task Make a technical assessment of the CAPM & discuss its advantages & disadvantages in the changed world scenario. 5.13 Security Market Line (SML) The CAPM equation describes a linear relationship between risk and return. Risk, in this case, is measured by beta. We may plot this line in mean and ß space: The Security Market Line (SML) expresses the basic theme of the CAPM i.e., expected return of a security increases linearly with risk, as measured by 'beta'. The SML is an upward sloping straight line with an intercept at the risk-free return securities and passes through the market portfolio. The upward slope of the line indicates that greater excepted returns accompany higher levels of beta. In equilibrium, each security or portfolio lies on the SML. The next figure shows that the return expected from portfolio or investment is a combination of risk free return plus risk premium. An investor will come forward to take risk only if the return on investment also includes risk premium. CAPM provides an intuitive approach for thinking about the return that an investor should require on an investment, given the assessed systematic or market risk. E(R) E(R) m R f 1 Beta One remarkable fact that comes from the linearity of this equation is that we can obtain the beta of a portfolio of assets by simply multiplying the betas of the assets by their portfolio weights. For instance, the beta of a 50/50 portfolio of two assets, one with a beta of .8 and the other with a beta of 1 is .9. The line also extends out infinitely to the right, implying that you can borrow infinite amounts to lever up your portfolio. Why is the line straight? Well, suppose it curved, as the blue line does in the figure below. The figure shows what could happen. An investor could borrow at the riskless rate and invest in the market portfolio. Any investment of this type would provide a higher expected return than a security, which lies on the curved line below. In other words, the investor could receive a higher expected return for the same level of systematic risk. In fact, if the security on the curve could be sold short, then the investor could take the proceeds from the short sale and enter into the levered market position generating an arbitrage in expectation. Figure 5.6

109 Chapter 5: Risk and Return Analysis Expectations vs. Realizations Beta 1 R f E(R) m E(R) It is important to stress that the vertical dimension in the security market line picture is expected return. Things rarely turn out the way you expect. However, the CAPM equation also tells us about the realized rate of return. Since the realization is just the expectation plus random error, we can write: R i = R f + ? i [R m – R f] + e i This is useful, because it tells us that when we look at past returns, they will typically deviate from the security market line – not because the CAPM is wrong, but because random error will push the returns off the line. Notice that the realized R m does not have to behave as expected, either. So, even the slope of the security market line will deviate from the average equity risk premium. Sometimes it will even be negative! Security market line Expected return (R m) Risk premium Risk free return O 0.5 1.0 1.5 Risk (beta) Figure 5.8 Figure 5.7

110 Financial Management Security Market Line CAPM shows the risk and return relationship of an investment in the formula given below: E(R i) =

R f +?? i (R m – R f) Where, E(R i) = Expected rate of return on any individual security (or portfolio of securities) R f = Risk free rate of return

R m = Expected rate of return on the market portfolio R m – R f = Risk Premium ? i = Market sensitivity index of individual security (or portfolio of securities) Capital Market Line (CML) Expected Capital market value Return M R f The Markowitz mean-variance model is modified by introducing into the analysis the concept of risk-free asset. If it is assumed that the investor has access to risk-free securities (for example, Treasury bills) in addition to the universe of risky securities, then he can construct a new set of portfolios as depicted by the line R f M. At point R f the investor is investing all his investible fund in risk-free securities, whilst at point M he is holding an all-equity portfolio. The combination of risk-free investment and risky investments in portfolio which may be achieved by points between these two limits are termed 'lending portfolios.' Let us now assume that the investor can lend and borrow funds at the same risk-free interest rate. In such circumstances the efficiency boundary simply becomes the straight line drawn from R f that is a tangent to the original risky portfolio efficiency boundary. The efficiency boundary that arises out of this assumption of the identical risk free lending and borrowing rates leads to some very important conclusions and is termed as 'Capital Market Line' (CML).
Illustration 15: Dummy Ltd., an investment company, has invested in equity shares of a blue chip company. It's risk-free rate of return (R f) = 10%, Expected total return (R m) = 16%, Market sensitivity index (?) = 1.50, (of individual security) Calculate the expected rate of return on the investment make in the security. Figure 5.9
111 Chapter 5: Risk and Return Analysis Solution: Total expected return (R m) = 16% Risk free return (R f) = 10% Risk premium (R m – R f) = 6% E(R i) = R f +?? i (R m – R f) = 10 + 1.50 (16 – 10) = 19% Illustration 16:
Mr. Rakesh provides you following information compute expected return by using CAPM
R m = 16%, R f = 9%, ? I = 0.8% Solution: The expected return on portfolio E(R 1) = R f + ? I (R m – R f) = 9 + 0.8 (16 – 9) = 14.6%
Case Study To Invest or Not? W ipro Company has asked the investors to invest in their securities & while making an offer, they have provided you with the following information. For a period of 10 years, company has provided you with the rate of return on security & return on the market portfolio of its securities as: Period Return on security WIPRO (%) Return on market portfolio (%) 1 20 22 2 22 20 3 25 18 4 21 16 5 18 20 6 -5 8 7 17 -6 8 19 5 9 -7 6 10 20 11 You as an investor have decided to invest in the securities of the company. The anticipated return with the associated probabilities is as: Return % -10 -15 5 12 10 20 13 Probability 0.03 0.02 0.15 0.25 0.3 0.1 0.05 Question Now after getting all the details, what would you suggest, whether to invest in the securities or not & what would be your expected rate of return & risk in terms of standard deviation. Also give your comments based on the average rate of return, variance & beta value for the company's securities.
112
Financial Management 5.14 Summary ?
Corporations operate in a highly dynamic and competitive environment, and many operate both nationally and internationally. As a result, the judgment factor still dominates investment decisions. ? Risk can be defined as the probability that the expected return from the security will not materialize. ?
Every investment involves uncertainties that make future investment returns risk-prone. ? Uncertainties could be due to the political, economic and industry factors. ? Systematic risk is for the market as a whole, while unsystematic risk is specific to an industry or the company individually. ?
Beta is a measure of the systematic risk of a security that cannot be avoided through diversification. ? Beta is a relative measure
of risk - the risk of an individual stock relative to the market portfolio of all stocks. ?
If the security's returns move more (less) than the market's returns as the latter changes, the security's returns have more (less) volatility (fluctuations in price) than those of the market. ? It is important to note that beta measures a security's volatility, or fluctuations in price, relative to a benchmark, the market portfolio of all stocks. ?
The risk/return trade-off could easily be called the "ability-to-sleep-at-night test." ? The investor can minimise his risk on the portfolio. ? Risk avoidance and risk minimisation are the important objectives of portfolio management. ? A portfolio contains different securities; by combining their weighted returns we can obtain the expected return of the portfolio.
5.15 Keywords
Risk: Probability that the expected return from the security will not materialize.
Portfolio: It is a collection of securities.
Systematic Risk: Variability in a security is total returns that are directly associated with overall movements in the general market or economy is called systematic risk.
Non-
systematic Risk: The variability in a security is total returns not related to overall market variability.
Correlation: It is a
statistical measure that indicates the relationship between series of number representing anything from cash flows to test data.
Covariance: It is the measure of their co-movement, expressing the degree to which the securities vary together.

Beta:
It is a measure of the systematic risk of a security that cannot be avoided through diversification.
Beta Coefficient: It is a relative measure
of the sensitivity of an assets return to changes in the return on the market portfolio. 5.16
Self Assessment 1.
Fill in the blanks: (a) ..... is the probability that an investor will not get the expected return. (b) ..... is the range of the movement from the expected level of return. (c) .....is the measure of the total risk of an asset or a portfolio including both systematic & unsystematic risk. (
d) .....
is the measure of the volatility of systematic risk of a security or investment in the portfolio.
113
Chapter 5: Risk and Return Analysis (e)
The ..... is the balance between the desire for the lowest possible risk & the highest possible return. (f) .....
helps in reducing the risk & uncertainties associated with the portfolio. 2.
State whether the following statements are true or false: (a) Purchasing power risk is also known as inflation risk. (b) Risk associated with the particular secondary market of the country in which the security trades is called country risk. (c) Portion of the investment's total risk that results from the changes in the financial integrity of the investment are a default risk. (d) The bear
market ends when the market index reaches a peak & starts a downward trend. (
e)
Beta is useful for comparing the relative systematic risk of different stocks. (
f) The creditworthiness of the borrower to make periodical interest payments & payback the principal amount will impart safety to the investment & this reduces the risk. (g) CAPM does not explain the behaviour of security prices. (h) An investor who invests in an asset that does not improve the risk-return characteristics of his existing portfolio will be called a rational investor. 5.17 Review Questions 1. SCM provides the following data, compute beta of Security J: ? j = 12%, ? m = 9% Cor jm = + 0.72 2.
Analyse the effect of Beta in the investment decision-making process. 3. Mr. Rakesh provides you following information compute expected return by using CAPM R m = 16%, R f = 9%, ? i = 0.8% 4. Elucidate the methodology for the measurement of historical return and risk. 5. "It is risky for an investor to hold all their eggs in one basket." why? 6. Analyse the relationship between CAPM & SML. 7. RKS Ltd. has an expected return of 22% and standard deviation of 40%. BBS Ltd. has an expected return of 24% and standard deviation of 38%. RKS Ltd. has a beta of 0.86 and BBS Ltd. a beta of 1.24. The correlation coefficient between the return of RKS Ltd. and BBS Ltd. is 0.72. The standard deviation of the market return is 20%. Suggest: (a) Is investing in BBS Ltd. better than investing in RKS Ltd.? (b) If you invest 30% in BBS Ltd. and 70% in RKS Ltd.? (c) What is your expected rate of return and portfolio standard deviation? (d) What is the market portfolio's expected rate of return and how much is the risk-free rate? 8. The probabilities and associated returns of Modern Foods Ltd., are given below: Return (%) 12 15 18 20 24 26 30 Probability 0.05 0.10 0.24 0.26 0.18 0.12 0.05 Calculate the standard deviation.
114 Financial Management 9.
Elucidate the methodology for measuring risk and return. 10. Analyse the ways in which the portfolio diversification help in reducing risk. 11.
Suppose you have Rs. 10,000 to invest and would like to sell Rs. 5,000 in stock XYZ short to invest in ABC. Assuming no correlation between the two securities, compute the expected return and the standard deviation of the portfolio from the following characteristics: Security ABC XYZ E(R) .12 .02 σ (R) .08 .10 12. Critically examine the benefits & limitations of CAPM. 13. "Risk & expected return are the two key determinants of an investment decision." Justify. 14. The rate of return of equity shares of Anand Rathi Mills Ltd. For past 5 years are given below: Year Rate of return (%) 1 12 2 16 3 18 4 20 5 -6 Calculate the average rate of return, standard deviation & variance. 15.
Elucidate the mechanism for the calculation of minimum risk portfolio with two assets.
Answers: Self Assessment 1. (a) Risk (b) volatility (c) standard deviation (d) beta factor (e) risk-return trade-off (f) diversification 2. (a) T (b) F (c) T (d) F (e) T (f) T (g) F (h) F 5.18
Further Readings
Books
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Chapter 6:
Cost of Capital Chapter 6:
Cost of Capital
Objectives This chapter on
Cost of Capital covers 1. Significance/importance
of cost of capital 2. Basic aspects of
the concept of cost of capital 3. Classification of
the costs 4. Factors that affect
cost of capital Introduction The cost of capital
is an
important concept in
formulating a firm's capital structure.
Cost of capital is a
central concept in financial management. It is
also viewed as one of the corner stones in the theory of financial management. It has received considerable attention from both theorists and practitioners.
Two major schools of thought, have emerged having basic difference on the relevance of cost of capital. In one camp, Modigliani Miller argued, that a firm's cost of capital is constant and it is independent of the method and level of financing. In another camp (traditionalists) cost of capital is varying and dependent on capital structure.
In both the camps, optimal policy is taken as the policy that maximizes the value of a company.
Cost of capital is still largely an academic term and the problem of measuring it in operational terms is a recent phenomena. Prior to this development, the problem was either ignored or by passed. In modern times, it is widely used as basis of investment projects and evaluating the alternative sources of finance. 6.1 Cost of Capital – Concept The term cost of capital is a concept having many different meanings. The three viewpoints, regarding the cost of capital is given below: 1. From Investors' View Point: Investor may define
it as "the measurement of the sacrifice made by him in capital formation."
Example: Mr. A an investor invested in a company's equity shares, amount
Rs. 1,00,000,
instead of investing in a bank at the rate of 7 per cent interest. Here he had sacrificed 7 per cent interest for not having invested in the bank. 2. Firms Point: It is the minimum required rate of return needed to justify the use of capital.
Example: A firm raised Rs. 50 lakhs through the issues of 10 per cent debentures, for justifying this issue, a minimum rate of return it has to earn is 10 per cent. 3.
Capital Expenditure Point:
The
cost of capital is the minimum required rate of
return,
the
hurdle or target rate or the
cut off rate or any discounting rate used to value cash flows.
Example: Firm 'A' is planning to invest in a project, that requires Rs. 20 lakh as initial investment and provides cash flows for a period of 5 years. So for the conversion of future 5 years cash flows into present value,
cost of capital is needed. Cost of capital represents the rate of return that the firm
must pay to the
fund suppliers, who have provided the capital. In other words,
cost of capital
is the weighted average cost of various sources of
finance used by
the
firm.
The
sources are, equity, preference, long-term debt and
short-term debt.

The rate that must be earned on the net proceeds to provide the cost elements of the burden at the time they are due." - Hunt, William and Donaldson "

Cost
of capital is the minimum required rate of earnings or the
cut-off
rate
of
capital expenditures." -
Solomon Ezra "
A cut-off rate for the allocation of capital to investments of projects.
It
is the rate of return on a project that will leave unchanged the market price of the stock." -
James C. Van Horne "
The rate of
return the firm requires, from investment in order to increase the value of
the firm in the market
place." -
Hampton, John J
Thus, as defined above,
we
can say, that
cost
of capital is that minimum rate of return, which
a firm
must
and
is expected to
earn on its investments so as to maintain the market value of its shares.
It
is
also known as
Weighted Average Cost of
Capital (WACC), composite cost of capital or combined cost of capital.
It is
expressed in terms of
percentage. 6.2 Basic Aspects on the Concept of Cost
of Capital The above definitions indicates, that the following are the
three basic aspects of the concept
of
cost of capital: 1. Rates of Return: Cost of capital is not a cost as such, infact it is the rate of return
that a firm requires to earn from its investment
projects. 2. Minimum Rate of Return:
Cost of capital
of any firm is that minimum rate of return that will at least maintain the market value of the
shares. 3. Cost of capital comprises three components: (
a) The risk less cost of the particular type of financing (r j) (b) The business risk premium, (b) and (c) The financial risk
premium (f) Symbolically cost of capital may be represented as:
K o = r j + b + f 6.3
Importance/
Significance
of Cost of Capital The concept of cost of capital
is very important
and the central concept in financial management
decisions. The decisions in
which it is useful are as follows: 1. Designing Optimal Corporate Capital Structure: This concept is helpful in formulating
a sound and economical capital structure for a firm.
The debt policy of a firm is significantly influenced by the cost consideration.
Capital structure involves determination of proportion of debt and equity in capital structure that provides less cost of
capital.

While designing a firm's capital structure, the financial executives always keep in mind minimisation of the over all cost of capital and to maximise value of the firm. The measurement of specific costs of each source of funds and calculation of weighted average cost of capital help to form a balanced capital structure. By comparing various (sources of finance) specific costs, he/she can choose the best and most economical source of finance and can succeed in designing a sound and viable capital structure. 2.
Investment Evaluation/Capital Budgeting: Wilson R.M.S., states that the Cost of Capital is a concept, which should be expressed in quantitative terms, if it is to be useful
as a cut-off rate for capital expenses. Capital expenditure means investment in long-term projects like investment on new machinery. It is also known as Capital budgeting expenditure.
Capital budgeting decisions require a financial standard (cost of capita) for evaluation.
The financial standard is Cost of Capital. In the
Net Present Value (NPV) method, an investment project is accepted,
if
the present value of cash inflows are greater than the present value of cash
outflow. The present
values of cash inflows
are calculated by discounting the rate known as Cost of Capital.
If a firm adopts Internal Rate of Return (IRR) as the technique for capital budgeting evaluation, investment
should be accepted only when cost of capital is less than the
calculated IRR.
Hence, the concept of cost of capital is very much useful in capital budgeting
decisions, particularly if a firm is adopting discounted cash flow methods of project evaluation.
117
Chapter 6:
Cost of
Capital 3.
Financial
Performance Appraisal:
Cost of capital framework can be used to evaluate the financial performance of top management.
Financial performance evaluation involves a comparison of
actual profitability of the investment project with the project overall
cost of
capital
of funds raised to finance the project.
If the actual profitability is more than the projected cost of capital, then the financial performance may said to be satisfactory
and vice versa.
The above discussion clearly shows the role of cost of capital in financial management decisions. Apart from the above areas (decisions), cost of capital is also useful in (distribution of profits), capitalization of profits, making to rights issue and investment in owner assets. 6.4
Classification of Cost Caution Before going to discuss the computation of specific cost of each source of funds and cost of capital, it is wise to know various relevant costs associated with
the problem of measurement of cost of capital. The relevance costs are: 1.
Marginal Cost of Capital: A
marginal cost
is the additional cost incurred to obtain additional funds required by a
firm.
It refers to the change in the total cost of capital resulting from the use of additional funds. The marginal cost of capital is a very important concept in investment decisions (capital budgeting decisions). 2. Average Cost/Composite/Overall Cost: It is the average of various specific costs of the different components of equity, preference shares, debentures, retained earnings of capital
structure at a given time and this is used as the acceptance criteria for (capital budgeting) investment proposals. 3.
Historic
Cost/Book Cost: The book cost has its origin in the accounting system in which book values, as maintained by the books of accounts, are readily available. They are related to the past. It is in common use for computation of cost of capital. For example, cost of capital

may be computed based on the book value of the components of capital structure. Historical costs act as guide for future cost estimation. 4.
Future Cost: It is the cost of capital that is expected to raise funds to finance a capital budget or investment proposal. 5.
Specific Cost: It is the cost
associated with particular component/source
of capital. It is also known as component cost
of capital. For example, cost of
equity (K e) or cost of preference share (K p), or cost of debt (K d),
etc. 6.
Spot Cost: The costs that are prevailing in the market at a certain time.
For example, few years back cost of bank loans (house loans) was around 12 per cent, now it is 6 per cent is the spot cost. 7. Opportunity Cost: The opportunity cost is
the benefit that the shareholder foregoes by not putting his/her funds elsewhere because they have been retained by the management.
For example, an investor, had invested in a company's equity shares (100 shares, each share at
Rs. 10).
The company decided to declare dividend of 10 per cent on book value of share, but due to capital requirements it retains its investment on one project that is having return on investment (RoI) of 4 per cent. Elsewhere, the project rate of interest (banks) is at 6 per cent. Here, the opportunity cost to the investor is (6-4) 2 per cent. 8. Explicit Cost: Cost of capital can be either explicit or implicit. Distinction between explicit and implicit is important from the point of view of computation
cost of capital. An
explicit cost of any source of capital is the discount rate that
equates
Figure 6.1: Classification
of Cost Classification of cost Marginal cost of capital Average cost Historic cost Future cost Specific cost Spot cost Opportunity cost Explicit cost

the present value of the
cash inflows, that are incremental to the taking of the financing opportunity
with present value of its increments cash
outflows. In other words,
the
discount
rate that
equates
the present value of cash inflows with present value of cash
outflows.
It is
also called as the
internal rate of return.
For example, a firm raises Rs. 1,00,000 through the sale of 12
per cent perpetual debentures. There will be a cash inflow of
Rs. 1,00,000 and
a cash outflow of Rs. 12,000 every year for a
indefinite period. The rate that equates the PV of cash inflows (Rs. 1,00,000) and PV of cash outflows (Rs. 12,000 per year) would be the explicit cost. Computation of explicit cost is almost similar to the computation of IRR, with one difference. 9.
Implicit Cost: It is the cost of opportunity, which is given up in order to pursue a particular action.
It is also known as implicit cost of capital. The implicit cost of capital of funds raised and invested by the firm may, therefore be defined as "
the rate of return associated with the best investment opportunity
for the firm and its shareholders that would be foregone,
if the projects presently under consideration by the firm were accepted.

The cost of retained earnings is an opportunity cost of implicit cost for a shareholder, who is deprived of the opportunity to invest retained earnings elsewhere. Funds raised by any form of financing have implicit capital costs once they are invested. Thus, in a sense, implicit costs may also be viewed as opportunity costs. This implies that a project reflects negative PV, when its cash flows are discounted by the implicit
cost of capital. 6.5
Computation of Specific Cost of Capital
The financial manager has to compute the specific cost of each type of
funds
needed in the capitalisation of a company.
The
company may resort to different financial sources (equity share, preference share, debentures, retained earning public deposits;
or it may prefer internal source (retained earnings) or external source (equity, preference and public deposits).
Generally, the component cost of a specific source
of capital is equal to the investors' required rate of
returns. Investors required rate of returns are interest, discount on debt, dividend, capital appreciation, earnings per share on equity shareholders, dividend and share of profit on preference shareholders funds.
But investors' required rate of returns should be adjusted for taxes in practice for calculating the cost of a specific source of capital, to the firm.
Compensation of specific source
of finance, viz., equity, preference shares, debentures, retained earnings, public deposits is discussed below: 6.5.1 Cost of Equity Firms may obtain equity capital in two ways (a) retention of earnings and (b) issue of additional equity shares to the public. The cost of equity or the returns required by the equity shareholders is the same in both the cases, since in both cases, the shareholders are providing funds to the firm to finance their investment proposals.
Retention of earnings involves an opportunity cost. The shareholders could receive the earnings as dividends and invest the same in alternative investments of comparable risk to earn returns. So, irrespective of whether a firm raises equity finance by retaining earnings or issue of additional equity shares, the cost of equity is same. But issue of additional equity shares to the public involves a floatation cost whereas, there is no floatation cost for retained earnings. Hence, issue of additional equity shares to the public for raising equity finance involves a bigger cost when compared to the retained earnings.
In the following cost of equity is computed in both sources point of view (i.e., retained earnings and issue of equity shares to the public). Cost of Retained Earnings (K re) Retained earnings
is
one of the internal sources to raise equity finance. Retained earnings are those part of (amount) earnings that are retained by the form of investing in capital budgeting proposals instead of paying them as dividends to shareholders.
Corporate executives and some analysts too normally consider retained earnings as cost free, because there is nothing legally binding the firm to pay dividends to equity shareholders and the company has its own entity different from its stockholders. But it is not so. They involve
opportunity cost. The opportunity cost of retained earning is the rate of return
the shareholder
forgoes by not putting his/her funds elsewhere, because the management has retained the funds. The opportunity cost can be well computed with the following formula.

( ) ( ) æ ö ´ ç ÷ è ø i re e b 1–T K =K 100 1–T
Where,
K e =
Cost of equity capital [D ÷ P or E/P + g].
T i = Marginal tax rate applicable to the individuals concerned. T b = Cost of purchase of new securities/broker.
D = Expected dividend per share. NP = Net proceeds of equity share/market price.
g = Growth rate in (%). Illustration 1: A company paid a
dividend of
Rs. 2 per share, market price per share is Rs. 20,
income tax rate is 60 per cent
and brokerage is expected to be 2 per cent. Compute the cost of retained earnings. Solution:
K re = ( ) ( ) æ ö ´ ´ ç ÷ è ø i b 1–T D 100 NP 1–T = ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1–0.60 2 100 20 1–0.02 = 0.10 × 0.409 × 100 = 4.1 per cent Illustration 2: ABC company's cost of equity (
K e)

capital is 14 per cent, the average tax rate of individual shareholders is 40 per cent
and it is expected that 2 per cent
is brokerage cost that shareholders will have to pay while investing their dividends in alternative securities. What is the cost of retained earnings?
Solution:
K re = ? ? ? ? ? ? ? ? ? ? ? ? ? ? i e b 1–T K 100 1–T = ? ? ? ? 1-0.4 0.14× ×100 1-0.02 = (0.14 × 0.613) × 100 = 8.6 per cent
Illustration 3: Life Style Garment Manufacturing Company has net earnings of
Rs. 20
lakhs and all of its stockholders are in the bracket of 50 per cent. The management estimates that under the present conditions, the stockholder's required rate of returns is 12 per cent. 3 per cent is the expected brokerage to be paid if stockholders want to invest
in alternative securities. Compute the cost of retained earnings. Solution:
K re = ? ? ? ? ? ? ? ? ? ? ? ? ? i e b 1–T K 100 1–T
120
Financial Management = ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1–0.50 0.10 100 1–0.03 = (0.10 × 0.516) × 100 = 5.2
per cent Illustration 4: BPL company's equity share is currently being sold at
Rs. 350.75 and it is currently paying a dividend of
Rs. 5.25
per share. The dividend is expected to grow at 15 per
cent per annum for one year.
Income tax rate is 40 per cent and brokerage is 2 per cent. Calculate cost of retained earnings. Solution:
K re = ? ? ? ? ? ? ? ? ? ? ? ? ? i b 1– T D +g 100 NP 1– T = ? ? ? ? ? ? ? ? 5.25 1–0.40 +0.15 100 350.75 1–0.02 = [0.165 ? 0.613] ? 100 = 10.2 per cent Cost of Issue of Equity Shares (K e) Calculation of cost of equity (K e) capital cost brings forth, a host of problems. It is the most difficult and controversial cost to measure because there is no one common basis for computation. For calculation of cost of debt (K d) interest charge is the base and preference dividend is the base for calculation of cost of preference shares (K p). Interest on debentures/debt and dividend on preference shares is fixed in terms of the stipulations following the issue of such debentures and shares. In contrast, the return on equity shareholders solely depends upon the discretion of the company management. Apart from this, there is no stipulation for payment of dividend to equity shareholders. They are ranked at the bottom as claimants on the assets of the company at the time of liquidation. Though it is quite evident from the above discussion that, equity capital does not carry any cost. However, this is not true, equity capital has some cost.
The
cost of equity capital (K e),
may be
defined as
the minimum rate of returns that a firm must earn on the equity financed portions of an investment project
in order to leave unchanged the market price of
the shares.
The cost of equity
is
not the out-of-pocket cost of using equity capital as the
equity shareholders are not paid dividend at a fixed rate every year.
Approaches to Calculate the Cost of Equity (K e) There are six approaches
available
to calculate the cost of equity capital, they are: Dividends Capitalisation Approach (D/MN
Approach)
According to
this approach,
the cost of equity capital
is calculated on the
basis
of
a required rate of return in terms of
the future dividends to be paid on the shares.
Accordingly, K e is
defined as
the discount rate that equates the present value of

all expected future dividends
per share,
along
with the net proceeds of the sale (or the current market price) of a share.
It means investor arrives at a market price for a share by capitalizing dividends at a normal rate of return. The cost of equity capital can be measured by the given formula:
K e = D/CMP or NP Where,
K e =
Cost of equity D = Dividends per share CMP = Current market price per share NP = Net proceed
per share

This method assumes that investor give prime importance to dividends and risk in the firm remains unchanged and it does not consider the growth in dividend. Illustration 5: XYZ Ltd., is currently earning Rs. 1,00,000, its current share market price of
Rs. 100
outstanding equity shares is 10,000. The company decides to raise an additional capital of
Rs. 2,50,000
through issue of equity shares to the public. It is expected to pay 10 per cent per share as floatation cost. Equity capital is issued at a discount rate of 10 per cent,
per share.
The company is interested to pay a dividend of
Rs. 8 per share.
Calculate the cost of
equity. Solution: e D K = ×100 NP ? ? e Rs.8 K = ×100 100 – 10 – 10 e Rs.8 K = ×100 80 = 10 per cent Notes Limitations Dividend capitalization approach, suffers from the following limitations: 1. It does not consider future earnings. 2. It ignores the earnings on retained earnings. 3. It ignores the fact that market price raise may be due to retained earnings and not on account of high dividends. 4. It does not take into account the capital gains.
Earnings Capitalisation Approach (E/MP Approach)
According to
this approach,
the
cost of equity (
K e)
is
the discount rate that equates the present value of
expected future
earnings per share with
the net proceeds (or current market
price)
of
a share.
The
advocates of this approach establish a relationship between earnings and market price of the share. They say that, it is more useful than the dividend capitalisation approach, due to two reasons, one, the earnings capitalization approach acknowledges that all earnings of the company, after payment of fixed dividend to preference shareholders, legally belong to equity shareholders whether they are paid as dividends or retained for investment, secondly, and most importantly, determining the market price of equity shares is based on earnings and not dividends. Computation of retained earnings cost, taken separately leads to double the company's cost of capital.
Assumption of earnings capitalization approach is employed under the following conditions: 1. Constant earnings per share over the future period; 2. There should be either 100 per cent rotation ratio or 100 per cent dividend pay out ratio; and 3. The company satisfies the requirements through equity shares and does not employ debt. Cost of equity can be calculated with the following formula: e E K = CMP or NP Where,
K e = Cost of equity

E = Earnings per share CMP = Current market price per share NP = Net proceeds per share. Illustration 6: Well do Company Ltd. is currently earning 15 per cent operating profit on its share capital of
Rs. 20 lakh (FV of Rs. 200
per share). It is interested to go for expansion for which the company requires an additional share capital of
Rs. 10
lakh. Company is raising this amount by the issue of equity shares at 10 per cent premium and the expected floatation cost is 5 per cent. Calculate the cost of equity. Solution: e E K = ×100 NP ( )
Rs.30 = ×100 Rs.200+20–10 Rs.30 = ×100 Rs.210 = 14.3
per cent 1. Calculation of EPS Operating Profit =
Rs.20,00,000 × 0.15 = Rs.3,00,000 No.of Equity Shares = 20,00,000/200 = 10,000 Shares EPS = 3,00,000/10,000 = Rs.30 2. Net Proceeds (NP) = Face value + Premium – Floatation cost = 200 + 20 – 10 = Rs.210
Illustration 7:
A firm is currently earning Rs. 1,00,000 and its share is selling at a market price of
Rs. 90.
The firm has 10,000 shares outstanding and has no debt.
Compute the cost of
equity.
Solution: e E K = ×100 MP Rs.10 = ×100 = 11.11 90 Limitations: Earnings capitalization approach has the following limitations: 1. All earnings are not distributed to the equity shareholders as dividends. 2. Earning per share may not be constant. 3. Share price also does not remain constant.
Dividend Capitalization plus Growth Rate Approach [(D/MP) + g] Computation of cost of equity capital based on a fixed dividend rate may not be appropriate, because the future dividend may grow. The growth in dividends may be constant perpetually or may vary over a period of time. It is the best method over
123
Chapter 6: Cost of Capital
dividend capitalisation approach, since it considers the growth in dividends. Generally, investors invest in equity shares on the basis of the expected future dividends rather than on current dividends. They expect increase in future dividends. Growth in dividends will have positive impact on share prices. Cost of Capital under Constant Growth Rate Perpetually
The formula for computation of cost of equity under constant growth rate is:
e D K = +g NP or CMP
Where,
K e =
Cost of equity capital D = Dividends per share. NP = Net proceeds
per share.
CMP = Current market price per share.
g = Growth rate (%).
Illustration 8: Equity shares
of a paper manufacturing company is currently selling for
Rs. 100. It wants to finance its capital expenditure of Rs. 1
lakh either by retaining earnings or selling new shares.
If company
seeks to sell
shares, the
issue price will be
Rs. 95. The expected dividend next year is
Rs. 4.75
and it is expected to grow at 6
per cent perpetually. Calculate cost of equity
capital (internal and external). Solution: e D
K = +g MP e 4.75 K = +0.06 100 = 0.048 + 0.06 = 10.8
per cent Calculate cost of external equity (Issue of shares) e 4.75 K = +0.06 95 = 0.050 + 0.06 = 11 per cent Cost of Capital under Variable Growth Rate The computation cost of equity after a specific period, is based on the estimation of growth rate in dividends of a company. Expected growth rate will be calculated based upon the past trend in dividend. It may not be unreasonable to project the trend into the future, based on the past trend. The financial manager must estimate the internal growth rate in dividends on the basis of long range plans of the company. Expected growth rate in the internal context requires to be adjusted.

Compound growth rate in dividends can be computed with the following formula. gr = D o (1 + r) n = D n Where, gr = Growth rate in dividends. D o = First year dividend payment.
124
Financial Management (1 +
r) n = Present value factor for 'nth' year. D n = Last year dividend payment. Illustration 9: From the following dividends record of a company, compute the expected growth rate in dividends. Year 1996 1997 1998 1999 2000 2001 2002 2003 Dividends per share (Rs.) 21 22 23 24 25 26 27 28 Solution: gr = D o (1 + r) n = D n = 21 (1 + r) 7 = 28 (1 + r) 7 = 28 ÷ 21 (1 + r) 7 = 1.334 During seven years the dividends has increased by Rs. 7 giving a compound factor of 1.334. The growth rate is 4 per cent since the sum of Re. 1 would accumulate to Rs. 1.334 in seven years at 4 per cent interest. Illustration 10: Mr. A an investor, purchases an equity share of a growing company for Rs. 210. He expects the company to pay dividends of
Rs. 10.5, Rs. 11.025
and Rs. 11.575 in years 1, 2 and 3 respectively and he expects to sell the shares at a price of
Rs. 243.10
at the end of three years. 1. Determine the growth rate in dividends. 2. Calculate the current dividend yield. 3. What is the required rate of return of Mr. A on his equity investment? Solution: 1. Computation of growth rate (gr) gr = D o (1 + r) n = D n = Rs. 10.5 (1 + r) 2 = Rs. 11.575 ( ) 2 11.575 1+r = 10.5 (1 + r) 2 = 1.103 gr = 5 per cent 2. Calculation of the current dividend yield 3 rd year dividend Rs. 11.575 Current dividend yield = 11.575 ×105= Rs. 12.154 100 Growth in dividend is [12.154 – 11.575] = 0.579 Current dividend yield 0.579 ×100 11.575 = 5
per cent In simple words, current dividend yield is equal to growth rate in dividends. 3. Mr. A's required rate of return e D K = +g Expected sales price (MP)
125 Chapter 6: Cost of Capital Rs. 12.154 = +0.05 243.10 = 0.050 + 0.05 = 0.10 × 100 = 10
per cent Illustration 11: (Variable growth rates) A textile company's dividends have been expected to grow in the following manner. 1 – 2 years 15 per cent 3 – 5 years 10 per cent 6 year and beyond 5 per cent The company currently pays a dividend of
Rs. 2 per share, which is currently selling at Rs. 75
per share. What would be the cost of equity capital assuming a fixed dividend pay out ratio? Solution: ( ) ( ) ( ) å t n 0 n+1 t n n t=1
e e e D 1+gr D 1 NP = + × K -g 1+K 1+K ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) 1 2 3 4 5 5 5
e e e e e e e 2.3 2.645 2.9095 3.200 3.52 3.52(1+0.05) 1 75= + + + + + × 1+K 1+K 1+K 1+K 1+K 1+K 1+K ( ) ( ) ( ) ( ) e e e e 1.
K 2.K 3.K 4.K = 2.3
PVIF +2.645 PVIF +2.9095 PVIF +3.2 PVIF + ( ) ( ) e e 6.K 5.K e 3.696 PVIF 3.52 PVIF + K -0.05 By trial and error method using PV tables, we find
K e = 14% First trial at 14% 75= 2.3(0.877)+2.645(0.769)+2.909(0.675)+3.2(0.592)+3.52(0.519)+ 3.696 ×(0.456) 0.14-0.05 75 = 2.02 + 2.03 + 1.96 + 1.89 + 1.83 + 18.73 75 = 28.5
Here, 75 is not equal to 28.5, for increasing the 28.5 to 75 we have to try at a lower rate, say 6% 75= 2.3(0.943)+2.645(0.890)+2.907(0.840)+3.2(0.823)+3.52(0.747)+ - 3.696 ×(0.705) 0.06 0.05 = 2.17 + 2.35 + 2.44 + 2.63 + 2.63 + 260.568 = 272.79 New PV of cash out flows exceeding cash inflow. So, we will use interpolation formula ( ) e 272.79–75 K = 6%+ 14%–6% 272.79–28.5 æ ö ç ÷ è ø
æ ö ç ÷ è ø 197.79 = 6%+8% 244.29 K e = 6% + 6.48 = 12.48 per cent.
126
Financial Management
Bond Yield Plus Risk Premium Approach According to this approach, the rate of return required by the equity shareholder of a company is equal to
K e = Yield on long-term bonds + Risk premium The logic of this approach is very simple, equity investors bear a higher risk than bond investors and hence their required rate of return should include a premium for their higher risk. In other words, bond holders and equity shareholders, both are providing funds to the company, but the company assures a fixed rate of interest to the bond holders and not to the equity shareholders, hence, there is a risk involved due to uncertainty of expected dividends. It makes a sense to base the cost of equity on a readily observable cost of debt. The problem involved in this approach, is the addition of premium, should it be one per cent, two per cent, three per cent or 'n' per cent. There is no theoretical basis for estimating the risk premium. Most analysts look at the operating and financial risks of the business and arrive at a subjectively determined risk premium that normally ranges between 3 per cent to 5 per cent. Cost of equity capital calculated, based on this approach is not a precise one, but it is a ballpark estimation.
Realised Yield Approach
Computation of the cost of equity based on dividends capitalisation and earnings capitalisation, have serious limitations. It is not possible to estimate future dividends and earnings correctly, both these

variables are uncertain. In order to remove the difficulty in the estimation of the rate of return that investors expect on equities, where future dividends, earnings and market price of share are uncertain, Realised Yield Approach is suggested. It
takes into consideration that,
the actual average rate of returns realised in the past few years, may be applied to compute the cost of equity share capital
i.e, the average rate of returns realised
by considering dividends
received in
the past few years along with the gain realised at the time of sale of
share. This is more logical because the investor expects to receive in future at least what he has received in the past. The realised yield approach is based on the following assumptions: 1. Firms risk does not change over the period. 2. Past realised yield is the base for shareholders expectations. 3. There is no opportunity cost to investors. 4. Market price of equity share does not change significantly. Calculation of the cost of equity based on realised yield approach is not realistic, due to unrealistic assumptions.
Illustration 12:
XYZ Company is planning to sell equity shares. Mr. A is planning to invest in XYZ Company by purchasing equity shares. Bond yield of XYZ Company is 12 per cent. Mr. A, an investor requests you to calculate his required rate of return on equity with 3 per cent risk premium. Solution: K e = Bond yield + Risk premium = 10% + 3% = 13 per cent
Illustration 13: An investor purchased equity share of HPH company at
Rs. 240
on 01.01.1998 and after holding it for 5 years sold the share in early 2003 at
Rs. 300.
During this period of 5 years, he received a dividend of
Rs. 14
in 1998 and 1999 and Rs. 14.5 from 2000 to 2002. Calculate the cost of equity capital based on realised yield approach with 10 per cent discounting factor.
127
Chapter 6: Cost of Capital Solution: Years Cash inflows (Rs.)
DF 10% PV of Cash inflows (Rs.) 1998 1999 2000 2001 2002 2003 14.0 14.0 14.5 14.5 14.5 300.0 0.909 0.826 0.751 0.683 0.621 0.621 12.7 11.6 10.9 9.9 9.0 186.3 240.4 (-) Purchase price in 1998 240.0 0.4 At 10 per cent discount rate, the total PV of cash inflows equals to the PV of cash outflows. Hence, cost of equity capital is 10 per cent. 6.5.2
Cost of Preference Shares The preference share is issued by companies to raise funds from investors. Preference share has two preferential rights over equity shares, (i) preference in payment of dividend, from distributable profits, (ii) preference in the payment
of capital at the time of liquidation of the company.
Computation of cost of preference share capital have some conceptual difficulty.
Payment of dividend
is not legally binding on the company and even if dividends are paid, they are not a charge on earnings,
they are distributed from distributable profits. This may create an idea that preference share capital is cost free, which is not true.
The
cost of preference share
capital is a function of the dividend expected by the
investors.
Generally, preference share capital is issued with an intention (
a fixed rate)
to pay dividends. In case dividends are not paid, it will affect the
firm's fund raising capacity. For this reason, dividends on preference share
capital should be paid regularly except when the firm does not make profits.
There are different
types of preference shares, cumulative and non-cumulative, redeemable and irredeemable, participating and non-participating, and convertible and non-convertible.
But computation of cost of preference share will be only for redeemable and irredeemable. Cost of Irredeemable Preference Share/Perpetual Preference Share The share that cannot be paid till the liquidation of the company is known as irredeemable preference share. The cost is measured by the following formula: p D K (without tax)= CMP or NP
Where,

K p =
Cost of preference share. D = Dividend per share. CMP = Market price per share. NP = Net proceeds. Cost of irredeemable preference stock (with dividend tax) ( )
t p
D 1+D
K (with tax)= CMP or NP Where, D t = tax on preference dividend

Illustration 14: HHC Ltd., issues 12 per cent perpetual preference shares
of face value of
Rs. 200
each. Compute cost of preference share (
without tax). Solution: p D K = ×100 NP p 24 K = ×100 200 = 12
per cent Illustration 15: (with dividend tax) A company is planning to issue 14 per cent irredeemable preference share at the face value of
Rs. 250
per share, with an estimated flotation cost of 5%. What is the cost of preference share with 10% dividend tax. Solution: ( ) t p D 1+D K = ×100 NP ( ) 35 1+0.10 = ×100=16.21 per cent 237.5 Illustration 16: Sai Ram & Co. is planning to issue 14 per cent perpetual
preference shares, with face value of
Rs. 100
each. Floatation costs are estimated at 4
per cent on sales price. Compute (a)
cost of preference shares if they are issued at (i) face/par value, (ii) 10 per cent premium, and (iii) 5
per cent discount, (b) compute cost of preference share in these situation assuming 5 per cent dividend. Solution: Without dividend tax With dividend tax (i) Issued at face value 14 K = =14.6 per cent p (100 - 4) (i) Issued at face value 14 1+0.05 K = =15.4 per cent p 96 ( ) (ii) Issued at 10% premium 14 K = =13.2 per cent p (110 - 4) (ii) Issued at 10% premium 14 1+0.05 K = =13.9 per cent p 106 ( ) (iii) Issued at 5% discount 14 K = =15.4 per cent p (100 - 5 - 3.8) (iii) Issued at 5% discount 14 1+0.05 K = =16.2 per cent p 91.2 ( )
Cost of Redeemable Preference Shares Shares that are issued for a specific maturity period
or redeemable after a specific period are known as redeemable preference shares.
The explicit cost
of redeemable preference shares is the discount rate that equates the net proceeds of
the sale of preference shares with the present value of the future dividend and principal repayments.
In other words,
cost of preference share
is
the discount rate that
equates
the present value of
cash inflows (
sale proceeds) with
the present value of cash outflows (
dividend + principal repayment).
Dividends will be paid at the end of each year, but the principal amount will be repaid either in lump sum at the end of maturity period or in installments (equal or unequal). If the principal amount is paid in instalments, then the cash outflow for each year equals to dividend plus part of principal amount. Cost of preference shares, when the principal amount is repaid in one
lump sum amount:
 ( ) ( ) å
t n n t n t=1 p p D P NP = + 1+K 1+K ( ) ( ) ( ) ( ) 1 2 3 n 1 2 3 n p
p p p
D D D P NP = + + +.....+ 1+K 1+K 1+K 1+K Where, K p = Cost of preference share. NP = Net sales proceeds (after discount, flotation cost).
D = Dividend on preference share. P n = Repayment of principal amount at the end of ‘n’
years.

Illustration 17: (Lump sum repayment) A company issues Rs. 1,00,000, 10 per cent
preference shares of
Rs. 100
each redeemable
after 10 years at face value. Cost of issue is 10 per cent. Calculate the cost of
preference share.
Solution: ( ) ( )
å t n n t n t=1 p p D P NP = + 1+K 1+K ( ) ( ) å 10 t 10 t=1 p p Rs. 100 10 90 = + 1+K 1+K The trial and error method is used here, for the computation of the cost of preference share. PV factor Present Values Year Cash outflow (Rs.) 10% 12% 10% 12% 1 - 10 10 6.145 5.650 61.45 56.5 10 100 0.386 0.322 38.60 32.2 Total PV of Cash outflow 100.05 88.70 (-) PV of Cash inflow 90.00 90.00 10.05 (-) 1.3 In trials, PV of cash outflow did not equal to the PV of cash inflow (
Rs. 100).
Hence, cost of preference share is calculated by using interpolation formula. ( ) -
æ ö ç ÷ è ø - LDFPV PV of CIF K =
LDF(%)+ HDF-LDF LDFPV HDFPV Where, LDF = Lower discounting factor in %. LDFPV = Lower discounting factor present value (
Rs.).
HDFPV = Higher discounting factor present value (Rs.). PV of CIF = Present value of cash inflows. K p = ? ? ? ? ? ? ? ? 100.05-90 10% + 12%-10% 100.05-88.7 = ? ? ? ? ? ? 10.05 10% + 2× 11.35
130 Financial Management = 10% + 2 × 0.886 = 10% + 1.772 = 11.77 per cent Short cut formula: r i m p
D +(f +d +p – p)/N
K = (
RV +NP)/2 Where, D = Dividend per share. f = Flotation cost (
Rs.). d = Discount on issue of preference share (Rs.). p r = Premium on redemption of preference shares (Rs.).
p i =
Premium on issue of preference share (Rs.). N m = Term of preference shares. RV = Redeemable value of preference share. NP = Net proceeds realized. K p = 10+(10+0+0-0)/10 (100+90)/2 = 10+(1) = 11.579 per cent 95
Caselet Politics and the Cost of Capital A little known part of the reform process that often makes news in a negative way is the reduction in interest rates and thereby a reduction in the cost of capital for India Inc. As little as five years ago, interest rates were trending at around 12 to 14%. Today, they are 7% or less for top corporates in India. For a typical Indian company with a one-to-one debt to equity ratio, this has resulted in a post-tax saving of almost 2% of capital employed purely on interest cost. For a company with a pre-tax margin of 15% to begin with, a reduction of rates of that nature has meant an increase in profitability by almost a fifth! In addition, given that returns on equity are also priced at a spread over the risk-free interest rate, the reduction in the latter has resulted in a reduction in the cost of equity by a similar amount. Add the two together, and the cost of capital for Indian corporates has reduced by almost 3.5-4%. As a result, projects that would earlier not have been viable, are now quite profitable. Source: financialexpress.com 6.5.3
Cost of Debentures/Debt/Public Deposits Companies may
raise
debt capital through issue of debentures or loan from financial institutions or deposits from public. All these resources involve a specific rate of interest.
The interest paid on these sources
of funds
is a charge on the profit & loss account of the company.
In other words, interest payments made by the firm on debt issue qualify tax deduction in determining net taxable income. Computation of cost of debenture or debt is relatively easy, because the interest rate that is payable on debt is fixed by the agreement between the firm and the creditors. Computation of cost of debenture or debt capital depends on their
131
Chapter 6: Cost of Capital
nature. The debt/debentures can be perpetual or irredeemable and redeemable cost of debt capital is equal to the interest paid on that debt, but from company's point of view it will be less than the interest payable, when the debt is issued at par, since the interest is tax deductible. Hence, computation of debt is always after tax cost. Cost of Irredeemable Debt/Perpetual Debt Perpetual debt provides permanent funds to the firm, because the funds will remain in the firm till liquidation. Computation
of cost of perpetual debt is conceptually relatively easy.
Cost of perpetual debt is the rate of return that lender expect (i.e., fixed interest rate).
The coupon rate or the market yield on debt can be said to represent an approximation of cost of debt. Bonds/

debentures can be issued at (i) par/
face value, (ii) discount and (iii) premium. The following formulae are used to compute cost of debentures
or debt of bond: (i) Pre-tax cost di I K = P or NP (ii) Post-tax cost
di I(1– t) K = P or NP Where, K di =
Pre-tax cost of debentures. I = Interest P = Principal amount or face value. P = Net sales proceeds. t = Tax rate.
Illustration 18: XYZ Company Ltd., decides to float perpetual 12 per cent, debentures of
Rs. 100
each. The tax rate is 50 per cent. Calculate cost of debenture (pre- and post-tax cost). Solution: (i) Pre-tax cost di Rs. 12
K = = 12 per cent 100 (ii) Post-tax cost ( )
d 12 1-0.5 K = = 6
per cent 100 Generally, cost of debenture is equal to the interest rate, when debenture is issued at par and without considering tax. Cost will be less than the interest when we calculate cost after considering tax since it is tax deductible. From the cost of capital point of view, debenture cost is always in post tax cost. Sometimes debentures may be issued at premium or discount. A company, which is having a good track record, will be issued at premium and a company that is new or unknown to the public or has a nominal or poor track record will be
issued at discount. Whenever debentures are issued at premium or discount the cost of
debenture will be affected, it will decrease or increase respectively.
 Illustration 19: Rama & Co. has 15 per cent

per cent. Determine debenture assuming it is issued at (i) face value/par value (ii) 10 per cent premium and (iii) 10 per cent discount. Solution: Issued at Pre-tax Post-tax (i) Face value Rs.15 = 15
per
cent 100 15 1 – 0.35 = 9.8 per cent 100 ( ) (
ii) 10% premium Rs.15 = 13.7
per cent (100+10) 110 15 1 – 0.35 = 8.9 per cent 110 ( ) (iii) 10% discount Rs.15 = 16.67 per cent (100–10) 90 15 1 – 0.35 = 10.9 per cent 90 ( ) Cost of Redeemable Debentures/Debt Redeemable debentures that, are having a maturity period or are repayable after a certain given period of time. In other words, these type of debentures that are under legal obligation to repay the principal amount to its holders either at certain agreed intervals during the duration of loan or as a lump sum amount at the end of its maturity period. These type of debentures are issued by many companies, when they require capital for fulfilling their temporary needs. Cost of Redeemable Debentures ( ) ( )
å n t n d t n t=1 d d NI P K = + 1+K 1+K
Where, K d = Cost of debentures. n = Maturity period. NI = Net interest (after tax adjustment). P n = Principal repayment in the year 'n'.
Illustration 20: BE Company issues Rs. 100 par value of debentures carrying 15 per cent
interest. The debentures are repayable after 7 years at face value. The cost of issue is 3 per cent and tax rate is 45 per cent. Calculate the cost of debenture.
Solution: ( ) ( ) ( ) ( )
å 7 t n t=1 d d 15 1–0.45 100 100–3 = + 1+K 1+
K DF PV of Cash Outflows (Rs.) Year Cash outflow (Rs.) 7% 10% 7% 10% 1 - 7 8.25 5.389 4.868 44.96 40.16 7 100 0.623 0.513 62.30 51.30
PV of cash out flows 106.76 91.46 (-) PV of Cash inflows 97.00 97.00 9.76 5.54

Cost of debenture capital lies between 10 per cent and 12 per cent, because net present value Rs. 97 lies between the PV of 10 per cent and 12 per cent. Exact cost can be computed only with interpolation formula: ( ) - æ ö ç ÷ è ø - d LDFPV NP
K =
LDF+ HDF-LDF LDFPV HDFPV Where, LDF = Lower discounting factor. HDF = Higher discounting factor. LDFPV = Lower discounting factor present value. HDFPV = Higher discounting factor PV. PVCIF = Present value of cash inflows NP = Net proceeds. é ù ê ú ë û d 106.76–97 K =7%+ 3× 106.76–91.46 =7%+1.91= 8.91% Short cut method ( ) ( ) ( ) r i m p I 1–
t + f+d+p –p /N
K =

RV+NP /2 Where, I = Interest t = Tax rate f = Flotation cost d = Discount p r = Premium on redemption p i = Premium on issue RV = Redeemable value NP = Net proceed
N m = Maturity period of debt ( ) ( ) ( ) p 15 1–0.45 + 3–0+0–0 /7 K = 100–97 /2 p 8.68 K = = 8.81% 98.5 Illustration 21: (Instalment repayment) Hari Ram & Co. issued 14 per cent debentures aggregate at
Rs. 2,00,000.
The face value of debenture is Rs. 100. Issue cost is 5 per cent. The company has agreed to repay the debenture in 5 equal instalment at par value. Instalment starts at the end of the
year. The company's tax rate is 35 per cent. Compute cost of debenture.
Solution: Sales proceeds = Face value – Flotation cost =
Rs. 100 – 5 = Rs. 95 Instalment amount = Face value ? No. of instalments = 100 ÷ 5 = Rs. 20.
134 Financial Management Cash Outflow (Rs.) DF Factor PV of Cash Outflows (Rs.)
Years (NI + Instalment) 8% 13% 8% 13% 1 9.1 + 20 = 29.1 0.926 0.885 26.947 25.754 2 7.28 + 20 = 27.28 0.857 0.783 23.379 21.361 3 5.46 + 20 = 25.46 0.794 0.693 20.216 17.644 4 3.64 + 20 = 23.64 0.735 0.613 17.376 14.492 5 1.82 + 20 = 21.82 0.681 0.543 14.860 11.849 PV of cash out flows 102.778 91.230 PV of cash inflows 95.000 95.000 (+) 7.778 (-)3.770 ( )
æ ö ç ÷ è ø d 102.778–95 K = 8%+ 13–8 × 102.778–91.1 æ ö ç ÷ è ø 7.778 = 8%+ 5× 11.678 = 8% + 3.33 = 11.33 per cent
6.6
Weighted Average Cost of Capital (WACC) A company has to employ a combination of creditors and fund owners. The composite cost of capital lies between the least and most expensive funds. This approach enables the maximisation of profits and the wealth of the equity shareholders by investing the funds in projects earning in excess of the overall cost of capital. The composite
cost of capital implies
an
average of the costs of each of the source of funds employed by the firm
property, weighted by the proportion they hold in the
firm's capital structure. 6.6.1
Steps Involved in Computation of WACC Caution 1. Determination of the type of funds to be raised and their individual share in the total capitalisation of the firm. 2. Computation of
cost of specific source of funds. 3. Assignment of weight
to specific costs. 4. Multiply the cost of each source by the appropriate assigned weights. 5. Dividing the total weighted cost by the total weights
to get overall cost of capital.
Once the company decides the funds that will be raised from different sources, then the computation of specific cost of each component or source is completed after which, the third step in computation of cost of capital is, assignment of weights to specific costs, or specific sources of funds. How to assign weights? Is there any base to assign weights? How many types of weights are there? Assignment
of Weights: The weights to specific funds may be assigned, based on the following: 1. Book Values: Book value weights are based on the values found on the balance sheet. The weight applicable to a given source of fund is simply the book value of the source of fund divided by the book value of the total
funds.
135
Chapter 6: Cost of Capital The merits of book values weights are: (a) Calculation of weights is simple. (b) Book values provide a usable base, when firm is not listed or security is not actively traded. (c) Book values are really available from the published records of the firm. (d) Analysis of capital structure in terms of debt – equity ratio is based on book value.
Disadvantages of book value weights (
a)
There is no relation between book values and present economic values of the various sources of capital (
b)
Book value proportions are not consistent
with the concept of cost of capital because the latter is defined as the minimum rate of return to maintain
the market value of the
firm. 2.
Capital Structure Weights: Under this method, weights are assigned to the components of capital structure based on the targeted capital structure. Depending up on the target, capital structures have some difficulties. They are: (a) A company may not have a well defined target capital structure. (b) It may be difficult to precisely estimate the components of capital costs, if the target capital is different from present capital structure. 3. Market Value Weights: Under

this method, assigned weights to a particular component of capital structure is equal to the market value of the component of capital divided by the market value of all components of capital and capital employed by the firm.

Advantages of Market Value Weights (a) Market values of securities are approximately close to the actual amount to be received from their sale. (b) Costs of the specific resources of funds that constitute the capital structure of the firm, are calculated by keeping in mind the prevailing market prices. Disadvantages of Market Value Weights (a) Market values may not be available when a firm is not listed or when the securities of the firm are very thinly traded. (b) Market value may be distorted when securities prices are influenced by manipulation loading. (c) Equity capital gets greater importance. Most of the financial analysts prefer to use market value weights because it is theoretically consistent and sound.

Illustration 22: A firm has the following capital structure as the latest statement shows:

Source of Funds | Rs. After Tax Cost (%)

Debt | 30,00,000 | 4
Preference shares | 10,00,000 | 8.5
Equity share | 20,00,000 | 11.5
Retained earnings | 40,00,000 | 10
Total | 100,00,000

Based on the book values compute the cost of capital.

Financial Management

Solution: Source of Finance | Weights | Specific Cost (%) | Weighted Cost

Debt | 0.30 | 0.04 | 0.012
Preference shares | 0.10 | 0.08 | 0.008
Equity share | 0.20 | 0.11 | 0.022
Retained earnings | 0.40 | 0.10 | 0.040
| 1.00 | | 0.082

Overall cost of capital (K_o) = Total Weighted Cost × 100 = 0.082 × 100 = 8.2 per cent

Cost of Weight Debt capital 30,00,000 Debt weight = = = 0.30 Total capital 1,00,00,000

Illustration 23: XYZ company supplied the following information and requested you to compute the cost of capital based on book values and market values.

Source of Finance | Book Value (Rs.) | Market Value (Rs.) | After Tax Cost (%)

Equity capital | 10,00,000 | 8,00,000 | 12
Long-term debt | 2,00,000 | 2,00,000 | 7
Short-term debt | 15,00,000 | 7,50,000 | 4
Total | 20,00,000 | 24,50,000 |

Solution: Computation of Cost of Capital based on Book Value

Source of Finance | Book Value (Rs.) | Weights | Specific cost | Weighted cost
(1) | (2) | (3) | (4) | (5) = (3) × (4)
Equity capital | 10,00,000 | 0.50 | 0.12 | 0.060
Long-term debt | 8,00,000 | 0.40 | 0.07 | 0.028
Short-term debt | 2,00,000 | 0.10 | 0.04 | 0.004
Total | 20,00,000 | 1.00 | | 0.092

Cost of capital = 0.092 × 100 = 9.2 per cent

Cost of Capital based on Market Value Weight

Source of Finance | Book Value (Rs.) | Weights | Specific cost | Weighted cost
(1) | (2) | (3) | (4) | (5) = (3) × (4)
Equity capital | 15,00,000 | 0.613 | 0.12 | 0.074
Long-term debt | 7,50,000 | 0.307 | 0.07 | 0.022
Short-term debt | 2,00,000 | 0.080 | 0.04 | 0.003
| 24,50,000 | 1.000 | | 0.099

Cost of capital = 100 × 0.099 = 9.9 per cent

Weighted Average Cost of Capital (Alternative Method)

Source of Finance | Market Value (Rs.) | Cost (%) | Total Cost
(1) | (2) | (3) | (4) = (2) × (3)
Equity capital | 15,00,000 | 0.12 | 1,80,000
Long-term debt | 7,50,000 | 0.07 | 52,500
Short-term debt | 2,00,000 | 0.04 | 8,000
| 24,50,000 | | 2,40,500

WACC = Total Cost / Total Capital = 2,40,500 / 24,50,000 ×100 = 9.9% approx. 10 per cent ?

6.6.2 Marginal Cost of Capital

Companies may rise additional funds for expansion. Here, a financial manager may be required to calculate the cost of additional funds to be raised. The cost of additional funds is called marginal cost of capital. For example, a firm at present has Rs. 1,00,00,000 capital with WACC of 12 per cent, but it plans to raise Rs. 5,00,000 for expansion, such as additional funds, the cost that is related to this Rs. 5 lakhs is marginal cost of capital. The weighted average cost of new or incremental, capital is known as the marginal

cost of capital.
The marginal cost of capital is the weighted average cost of
new
capital
using the
marginal weights.
The marginal weights represent the proportion of various sources of funds
to
be employed in raising additional funds. The
marginal cost of capital
shall be equal to WACC, when
a firm employs the existing proportion of capital structure and
some cost of component of capital structure.
But in practice WACC may not be equal to marginal cost of capital due to change in proportion and cost of various sources of funds used in raising new capital. The marginal cost of capital ignores the long-term implications of the new financing plans. Hence, WACC should be preferred, to maximise the shareholders wealth in the long-term. Illustration 24: HLL has
provided the following information and requested you to calculate (a)
WACC using book-value weights and (b) weighted marginal cost of capital (assuming that specified cost do not change).
Source of Finance Amount (Rs.) Weights (%) After tax cost (%) Equity capital Preference capital Debentures 14,00,000 8,00,000 9,00,000 0.452 0.258 0.290 9 12 16 HLL wishes to raise an additional capital of
Rs. 12,00,000
for the expansion of the project. The details are as follows: Equity capital
Rs. 3,00,000 Preference capital Rs. 3,00,000 Debentures Rs. 6,00,000
Solution: Computation
of WACC Source of Finance Weights After tax Cost (%) Weighted Cost Equity capital Preference capital Debentures 0.452 0.258 0.290 0.09 0.12 0.16 0.041 0.031 0.046 0.118 WACC = 0.118 × 100 = 11.8 per cent
138 Financial Management Computation of Weighted Marginal Cost of Capital (WACC) Source of Finance Marginal Weights
After tax Cost (%) Weighted marginal cost
Equity capital Preference capital Debentures 0.50 0.25 0.25 0.09 0.12 0.16 0.045 0.030 0.040 0.115 WACC = 0.115 × 100 = 11.5 per cent 6.6.3 Factors Affecting WACC Weighted average cost of capital is

affected by a number of factors. They are divided into two categories such as: 1. Controllable Factors: Controllable factors are those factors that affect WACC, but the firm can control them. They are: (a) Capital Structure Policy: As we have assured, a firm has a given target capital structure where it assigns weights based on that target capital structure to calculate WACC. However, a firm can change its capital structure or proportions of components of capital that affect its WACC. For example, when a firm decides to use more debt and less equity, which will lead to reduction of WACC. At the same time increasing proportion of debt in capital structure increases the risk of both debt and equity holder, because it increases fixed financial commitment. (b) Dividend Policy: The required capital may be raised by equity or debt or both. Equity capital can be raised by issue of new equity shares or through retained earnings. Sometimes companies may prefer to raise equity capital by retention of earnings, due to issue of new equity shares, which are expensive (they involve flotation costs). Firms may feel that retained earnings is less costly when compared to issue of new equity. But if it is different it is more costly, since the retained earnings is income that is not paid as dividends hence, investors expect more return and so it affects the cost of capital. (c) Investment Policy: While estimating the initial cost of capital, generally we use the starting point as the required rate of return on the firm's existing stock and bonds. Therefore, we implicitly assume that new capital will be invested in assets of the same type and with the same degree of risk. But it is not correct as no firm invest in assets similar to the ones that currently operate, when a firm changes its investment policy. For example, investment in diversified business. 2. Uncontrollable Factors: The factors that are not possible to be controlled by the firm and mostly affects the cost of capital. These factors are known as External factors. (a) Tax Rates: Tax rates are beyond the control of a firm. They have an important effect on the overall cost of the capital. Computation of debt involves consideration of tax. In addition, lowering capital gains tax rate relative to the rate on ordinary income makes stocks more attractive and reduces cost of equity and lower the overall cost of capital. (b) Level of Interest Rates: Cost of debt is interest rate. If interest rates increases, automatically cost of debt also increases. On the other hand, if interest rates are low then the cost of debt is less. The reduced cost of debt decreases WACC and this will encourage an additional investment. (c) Market Risk Premium: Market risk premium is determined by the risk in investing proposed stock and the investor's aversion to risk. Market risk is out of control risk, i.e., firms have no control on this factor. The above are the important factors that affect the cost of capital. Task Weighted average of cost of capital may be determined using book value and market value weights. Compare the pros and cons of using market value weights rather than book value weights in calculating WACC.

139

Chapter 6: Cost of Capital

Case Study

Nike, Inc. – Cost of Capital O n July, Kimi-ford, a portfolio manager at North Point Group, a mutual-fund-management firm, pored over analysts' write-ups of Nike, Inc., the athletic-shoe manufacturer. Nike's share price had declined significantly from the start of the year. Ford was considering buying some shares for the fund she managed, the North Point Large-Cap Fund, which invested mostly in fortune 500 companies, with an emphasis on value investing. Its top holdings included Exxon Mobile. General Motors, McDonald's, 3M, and other large-cap. It had performed extremely well. In 2000, the fund earned a return of 20.7 per cent even as the S&P 500 fell 10.1 per cent. The fund's year-to-date returns at the end of June 2001 stood at 6.4 versus the S&P – 7.3 per cent. Only a week ago, on June 28,2001, Nike held an analyst' meeting to disclose its

fiscal-year 2001

results. The meeting, however had another purpose : Nike management wanted to communicate a strategy for revitalizing the company. Since 1997 Nike's revenues had plateaued at around $9 billion, while net income had fallen from almost $ 800 million to $580 million (see Exhibit 1). Nike's markets in the U.S. had fallen from 48 per cent in 1997 to 42 per cent in 2000. In addition, recent supply-chain issues and the adverse effect of a strong dollar had negatively affected revenue. At the meeting, the management revealed plans to address both-line growth and operating performance. To boost revenue, the company would develop more athletic-shoe products in the mid-priced segment – a segment that had been overlooked in the recent years. Nike also planned to push its apparel line, which, under the recent leadership of industry veteran Mindy Grossman had performed extremely well. On the cost side, Nike would exert more effort on expense control, finally, the company's executives reiterated their long-term revenue growth targets of 8-10 per cent and earnings- growth targets of above 1 percent. The Analysts reactions were mixed. Some thought, the financial targets too aggressive ; other saw significant growth opportunities in apparel and in Nike's international businesses. Ford read all the analysts reports that she could find about the June 28 meeting, but the reports gave her no clear guidance: a Lehman Brothers report recommended a "Strong Buy", while UBS analysts expressed misgiving about the company and recommended a "Hold". Ford decided instead to develop her own discounted-cash-flow forecast to come to a clearer conclusion. Her forecast showed that, at discount rate of 12 per cent, Nike was overvalued at its current share price of $42.09 (see Exhibit 2). She had, however, done a quick sensitivity analysis that revealed Nike was valued at discount rates below 11.2 per cent. As she was about to go into a meeting, she asked her new assistant, Joanna Cohen, to estimate Nike's cost of capital. Cohen immediately gathered all the data she though she might need (Exhibits 1,2,3 and 4) began to work on her analysis. At the end of the day, she submitted her cost-of-capital estimate and a memo (Exhibit 5) explaining her assumption to Ford. Exhibit 1: Consolidated Income Statements Year ended May 31 (in millions excepts per share data) 2000 2001 2002 2003 2004 2005 2006 Revenues 4,760.8 6,470.6 9,816.5 9,553.1 8,776.9 8,995.1 9,488.8 Cost of goods sold 2,865.3 3,906.7 5,503.0 6,065.5 5,493.5 5,403.8 7,784.9 Gross profit 1,895.6 2,563.9 3,683.5 3,487.6 3,283.4 3,591.3 3,703.9 Selling and administrative 1,209.8 1,588.6 2,303.7 2,623.8 2,426.6 2,606.4 2,689.7 Operating Income 685.8 975.3 1,379.8 863.8 856.8 984.9 1,014.2 Interst expense 24.2 39.5 52.3 60.0 44.1 45.0 58.7 Other expense net 11.7 36.7 32.3 20.9 21.5 23.2 34.1 Restructuring charge,net --- --- --- 129.9 45.1 2.5 --- Income before Income taxes 649.9 899.1 1,295.20 653.0 746.1 919.2 921.4 Income taxes 250.2 345.9 499.4 253.4 294.7 340.1 331.7 Net Income 399.7 553.2 795.8 399.6 451.4 579.4 589.7 Diluted earning per Annum Shares 1.4 1.9 2.7 1.4 1.6 2.1 2.2 Average shares outstanding (diluted) 294.0 293.6 297.0 296.0 287.5 279.8 273.3 Growth(%) Revenue 35.9 42.0 4.0 8.1 2.5 5.5 Operating income 42.2 41.5 37.4 0.8 15.0 3.0 Net income 38.4 43.9 49.8 13.0 28.3 1.8 Margins (%) Gross margin 39.6 40.1 36.5 37.4 39.9 39.0 Operating margin 15.1 15.0 9.0 9.8 10.9 10.7 Net margin 8.5 8.7 4.2 3.1 6.4 6.2 Effective tax rate (%) 38.5 38.6 38.8 39.5 37.0 36.0

Contd...

140 Financial Management (

in millions excepts per share data) 2000 2001 2002 2003 2004 2005 2006 Revenues 4,760.8 6,470.6 9,816.5 9,553.1 8,776.9 8,995.1 9,488.8 Cost of goods sold 2,865.3 3,906.7 5,503.0 6,065.5 5,493.5 5,403.8 7,784.9 Gross profit 1,895.6 2,563.9 3,683.5 3,487.6 3,283.4 3,591.3 3,703.9 Selling and administrative 1,209.8 1,588.6 2,303.7 2,623.8 2,426.6 2,606.4 2,689.7 Operating Income 685.8 975.3 1,379.8 863.8 856.8 984.9 1,014.2 Interst expense 24.2 39.5 52.3 60.0 44.1 45.0 58.7 Other expense net 11.7 36.7 32.3 20.9 21.5 23.2 34.1 Restructuring charge,net --- --- --- 129.9 45.1 2.5 --- Income before Income taxes 649.9 899.1 1,295.20 653.0 746.1 919.2 921.4 Income taxes 250.2 345.9 499.4 253.4 294.7 340.1 331.7 Net Income 399.7 553.2 795.8 399.6 451.4 579.4 589.7 Diluted earning per Annum Shares 1.4 1.9 2.7 1.4 1.6 2.1 2.2 Average shares outstanding (diluted) 294.0 293.6 297.0 296.0 287.5 279.8 273.3 Growth(%) Revenue 35.9 42.0 4.0 8.1 2.5 5.5 Operating income 42.2 41.5 37.4 0.8 15.0 3.0 Net income 38.4 43.9 49.8 13.0 28.3 1.8 Margins (%) Gross margin 39.6 40.1 36.5 37.4 39.9 39.0 Operating margin 15.1 15.0 9.0 9.8 10.9 10.7 Net margin 8.5 8.7 4.2 3.1 6.4 6.2 Effective tax rate (%) 38.5 38.6 38.8 39.5 37.0 36.0 Exhibit 2: Discounted - Cash - flow Analysis 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 Assumption Revenue growth (%) 7.0 6.5 6.5 6.5 6.0 6.0 6.0 6.0 6.0 6.0 COGS/Sales (%) 60.0 60.0 59.5 59.5 59.0 59.0 58.5 58.5 58.0 58.0 S & A / Sales (%) 28.0 27.5 27.0 26.5 26.0 25.5 25.0 25.0 25.0 25.0 Tax rate (%) 38.0 38.0 38.0 38.0 38.0 38.0 38.0 38.0 38.0 38.0 Current Assets / sales (%) 38.0 38.0 38.0 38.0 38.0 38.0 38.0 38.0 38.0 38.0 Current liabilities/ sales (%) 11.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5 Yearly depreciations Equals capex. Cost of Capital (%) 12.0 Terminal growth rate (%) 3.0 Discounted cash flow Opeating income 1,218.4 1,351.6 1554.6 1717.0 1950.0 2135.9 2410.2 2554.8 2790.1 2957.5 Taxes 463.0 513.6 590.8 652.5 741.0 811.7 915.9 970.8 1060.2 1123.9 NOPAT 755.4 838.0 963.9 1064.5 1209.0 1324.3 1494.3 1584.0 1729.9 1833.7 Capex.net of dereciation --- --- --- --- --- --- --- --- --- --- Change in NWC 8.8 -174.9 186.3 198.4 195.0 206.7 219.1 232.3 246.2 261.0

Free cash flow 764.1 663.1 776.6 866.2 1014.0 1176.6 1275.2 1351.7 1483.7 1572.7 Terminal value 17998.7 Total flows 764.1 663.1 776.6 866.2 1014.0 1176.6 1275.2 1351.7 1483.7 19571.5 Present value of flows 682.3 528.6 553.5 550.5 575.4 566.2 576.8 545.9 535.0 6301.5 Enterprise

value 11415.7 Less : current outstanding dept. 1296.6 Equity value 10119.1 Current shares outstanding 271.5 Equity value per share $37.27

Current share price $42.09 Contd...
141
Chapter 6: Cost of Capital
Exhibit 3: Sensitivity of Equity Value of Discount Rate Discount rate Equity value 8.00% $75.80 8.50 67.85 9.00 61.25 9.50 55.68 10.00 50.92 10.50 46.81 11.00 43.22 11.17 42.09 11.50 40.07 12.00 37.27 Exhibit 4: Consolidated Balance Sheets (in millions) May 31 2005 2006 Assets Current assets Cash and equivalents $254.3 $304.0 Accounts receivable 1,569.4 1,621.4 Inventories 1,446.0 1,424.0 Deferred income taxes 111.5 113.3 Prepaid expenses 215.2 162.5 Total Current assets 3,596.4 3,625.3 Property, plant and equipment, net 1,583.4 1,618.8 Identifiable, intangible assets and goodwill, net 410.9 397.3 Deferred income taxes and other assets 266.2 178.2 Total assets $5,856.9 $5,819.6 Liabilities and shareholder's equity Current liabilities Current portion of long-term debt $50.1 $5.4 Notes payable 924.2 855.3 Accounts payable 543.8 432 Accrued liabilities 621.9 472.1 Income taxes payable ----- 21.9 Total current liabilities 2,140.0 1,786.7 Long-term debt 470.3 435.9 Deferred income taxes and other liabilities 110.3 102.2 Redeemable preferred stock 0.3 0.3 Share holder equity Common stock, par 2.8 2.8 Capital in excess of stated value 369.0 459.4 Unearned stock comper 11.7 9.9 Accumulated other comprehensive income 111.1 152.1
Retained earnings 2887.0 3194.3 Total share holder equity 3136.0 3494.5 Total liabilities and shareholder's equity $5,856.9 $5,819.6 Contd...
142 Financial Management Exhibit 5: Dr. Bhatt's Analysis Subject:
Nike's Cost of Capital Based on the following assumptions, my estimate of Nike's cost of capital is 8.4 percent : Single or Multiple Costs of Capital
The first question I considered was whether to use single or multiple costs of capital given that Nike has multiple business segments. Aside from footwear, which makes up 62
per cent of revenue. Nike also sells apparel (30 per cent
of revenue) that complement its footwear products. In addition, Nike sells sport balls, time-pieces, eyewear, skates, bats and other equipment designed for sports activities. Equipment products account for 3.6 per cent of revenue. Finally, Nike also sells some non- Nike branded products such as Cole-Haan dress and casual footwear, and ice stakes, skate blades, hockey sticks, hockey jerseys and other products under the Bauer trademark, non-Nike brands account for 4.5 per cent of the revenue.
I
asked myself, whether Nike's different business segments shad enough risks from each other to warrant different costs of capital. Were their profiles really different? I concluded that it was only the Cole-Haan line that was somewhat different: the rest were all sports-related businesses. However, since Cole-Haan makes up only a tiny fraction of the revenues, I did not think it necessary to compute a separate cost of capital. As for the apparel and footwear lines, they are sold through the same marketing and distribution channels and are often marketed in "collections" of similar design. I believe, they face the same risk factors, as such, I decided to compute only one cost of capital of the whole company. Methodology for Calculating the Cost of Capital; WACC Since Nike is funded with both debt and equity, I used the Weighted Average Cost of Capital (WACC) method. Based on the latest available balance sheet, debt as a proportion of total capital makes up 27.0 per cent and equity accounts for 73.0 per cent:
Capital sources Book Values Debt
Current portion of long-term debt $ 5.4 Notes payable 855.3 Long-term debt 435.9 $ 1.291.2 ? 27.0% of total capital $ 3.494.5 ? 72.0% of total capital Cost of Debt My estimate of Nike's cost of debt is 4.3 per cent. I arrived at this estimate by taking total interest expense for the year 2001 and dividing it by the company's average debt balance. The rare is lower than Treasury yields but that is because Nike raised a portion of its funding needs through Japanese yen notes, which carry rates between 2.0 per cent to 4.3 per cent. After adjusting for tax, the cost of debt comes to 2.7 per cent. I used a tax rate of 38 per cent, which I obtained by adding state
taxes of 3 per cent to the U.S. statutory tax rate. Historically, Nike's state taxes have ranged from 2.5 per cent to 3.5 per cent.
Cost of Equity I estimated the cost of equity, using the Capital Asset Pricing Model (CAPM).
Other methods such as the Dividend Discount Model (DDM) and the Earnings Capitalization Ratio can be used to estimate the cost of equity. However, in my opinion, the CAPM is the superior method.
My estimate of Nike's cost of equity is 10.5 per cent I used the current yield on 20-year Treasury bonds as my risk-free rate, and the compound average premium of the market over Treasury bonds (5.9 per cent) as my risk premium. For beta, I took the average of Nike's beta from 1996 to the present.
Putting it all Together After inputting all my assumptions into the WACC formula, my estimate of Nike's cost of capital is 8.4 per cent.
WACC = K d (1 – t) × D/(D + E) + K c ×
E/(D + E) = 2.7% × 27.0% + 20.5% × 73.0% = 8.4%
Question What is the importance of cost of capital for any firm?

Chapter 6: Cost of Capital 6.7

Summary ? The cost of capital is viewed as one of the corner stones in the theory of financial management. ? Cost of capital
may be viewed in different ways. ?
Cost of capital
is the weight average cost of various sources of
finance used by
the firm.
It comprises the risk less cost of the particular type of financing (r j), the business risk premium, (b) and the financial risk premium (f). ? The
cost of capital is useful in designing optimal capital structure, investment evaluation, and financial performance appraisal. ? The financial manager has to compute the specific cost of each type of funds needed in the capitalisation of a company. ?
Retained earnings are one of the internal sources to raise equity finance. ?
The opportunity cost of retained earning is the rate of return the shareholder
forgoes by not putting his funds elsewhere. ?
Cost of equity
capital, is the minimum rate of return that
a firm must earn
on
the
equity financed portions of an investment project
in order to
leave unchanged the market price of
the shares. ?
The
marginal cost of capital
is
the
weighted average cost of new
capital using the
marginal weights. ? Marginal cost of capital shall be equal to WACC, when a firm employs the existing proportion of capital structure and
some cost
of component
of capital structure. 6.8

Keywords

Cost of Capital: It
is that minimum rate of return, which a firm must earn
on its
investments so
as to maintain the market value of its shares.
Marginal Cost
of Capital:
The additional cost incurred to obtain additional funds required by a
firm.
Specific
Cost:
It is the
cost associated with particular component or source
of
capital. Future
Cost:
It is the cost of capital that is expected to raise the funds to finance a capital budget or investment proposal.
Explicit Cost:
It

is
the
discount rate that
equates
the present value of
the
cash inflows with the
present value of
its increments cash outflows.
Implicit Cost: It is the cost
of
opportunity which is given up in order to
pursue a particular action.
Spot Cost: The cost
that are prevailing in the market at a certain time.
Opportunity Cost: The benefit that the shareholder foregoes by not putting his/her funds elsewhere because they have been retained by the management. 6.9
Self Assessment 1.
Fill in the blanks: (a)
Cost of capital
is the ..... required rate of return expected by
investors. (
b)
Cost of capital, is
the measurement sacrifice made by ..... with regard to capital formation. (
c)
The
explicit cost
is the .....,
which equates the present value of cash inflows with present value of cash outflows. (
d)
An
average of the cost of
each source of
funds employed by the firm
for capital formation is known as ..... . (
e) .....
is the additional cost incurred to obtain additional funds required by a
firm.
 (f)
Bond yield plus ..... is one of the approaches available to calculate cost of equity capital. (
g) .....
is the cost associated with particular component at capital structure. 2.
State whether the following statements are true or false: (
a)
Cost of capital with minimum required rate of return needs to be justified. (b) There is no cost for internally generated funds. (
c) According to traditional approach, cost of capital is affected by debt equity MPC. (d)
Cost of capital is useful in capital budgeting, in evaluation based on discounted cash flow techniques only. (e) CAPM approach is one of the approaches used in computation of cost of equity capital. (f) In Bond yield plus risk premium approach of cost of equity, risk premium ranges between 2% to 6%. (
g) Existence of perfect capital market is one of the assumptions of CAPM. (h) Incremental value is the sum of present value of dividend payments during the holding period and present value of expected market price at the end of the specified period. 6.10
Review Questions 1.
Examine the relevance of cost of capital in capital budgeting decisions. 2.

Elucidate the importance of CAPM approach for calculation of cost of equity. 3. "
Marginal cost of capital nothing but the average
cost of capital". Explain. 4.
Analyse the concept of flotation costs in the determination of cost of capital. 5. AMC Engineering Company issues 12 per cent, Rs. 100 face value of preference stock, which is repayable with 10 per cent premium at the end of 5 years. It involves a flotation cost of 5 per cent per share. What is the cost of preference share capital, with 5 per cent dividend tax? 6. "
Evaluating the
capital budgeting proposals without cost of capital is not possible."
Comment. 7.
VS International
is thinking of rising funds
by the issuance of equity capital. The current market price of the firm'
s share is
Rs. 150. The firm is expected to pay
a dividend of Rs. 3.9
next year.
At present, the firm can sell its share for
Rs. 140 each and it involves a flotation cost of Rs. 10.
Calculate cost of new issue. 8. WACC may be determined using the book values & the market value weights. Compare the pros & cons of using market value weights rather than book value weights in calculating the WACC. 9.
Critically evaluate the different approaches to the calculation of cost of equity capital. 10.
A company issues 12,000, 12 per cent perpetual preference shares of
Rs. 100
each. Company is expected to pay 2 per cent as flotation cost. Calculate the cost of preference shares assuming to be issued at (a) face value of par value, (b) at a discount of 5% and (c) at a premium of 10%. 11. An investor supplied you the following information and requested you to calculate. Expected rate of returns on market portfolio – Risk free returns = 10 per cent Investment in Company Initial price Dividends Year-end market price Beta risk factor A Paper 20 2 55 0.7 Steel 30 2 65 0.8 Chemical 40 2 140 0.6 B GOI Bonds 1000 140 1005 0.99
145
Chapter 6: Cost of Capital 12.
A company currently is maintaining 6 per cent rate of growth in dividends. The last year dividend was Rs. 4.5 per share. Equity share holders required rate of return is 15 per cent. What is the equilibrium price per share? 13. Karvy
is planning to sell equity shares. Mr. Ram wishes to invest in Karvy Company by purchasing equity shares.
The company's bond has been yielding at 13 per cent. You are requested by Mr. Ram to calculate his expected rate of return on equity based on bond yield plus risk premium approach (assuming 3 per cent as risk premium). 14. Sai Enterprises issued 9 per cent preference share (irredeemable) four years ago. The preference share that has a face value of
Rs. 100
is currently selling for Rs. 93.
What is the cost of preference share with 8 per cent tax
on dividend? 15.

Answers: Self Assessment 1. (
a) Minimum, (b) Investor, (c) discount rate, (d) Overall cost of capital, (e) Marginal cost, (f) Risk premium, (g) Specific cost. 2. (a) True, (b) False, (c) True, (d) True, (e) True, (f) True, (g) True, (h) True 6.11
Further Readings
Books
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146
Financial Management
Chapter 7: Capital Structure and Theories Objectives This chapter on
Capital Structure and Theories covers 1.
Capital structure 2. Differentiation between capital structure and financial structure 3. Theories of capital structure 4. Optimum capital structure 5. Features of appropriate capital structure 6. Forms of capital structure 7.
EBIT-EPS analysis and their importance in establishing optimal capital structure 8. Meaning of point of indifference and calculate point of indifference
Introduction
Every organisation
requires
funds to run and maintain its business. The required funds may be raised from short-term sources or long-term sources or a combination both the sources of funds, so as to equip itself with an appropriate combination of fixed assets and current assets. Current assets to a considerable extent, are financed with the help of short-term sources. Normally, firms are expected to follow a prudent financial policy, as revealed in the maintenance of net current assets. This net positive current asset must be financed by long-term sources. Hence, long-term sources of funds are required to finance for both (a) long-term assets (fixed assets) and (b) networking capital (positive current assets). The long-term financial strength as well as profitability of a firm is influenced by its financial structure. The term 'Financial Structure' refers to the left hand side of the balance sheet as represented by "total liabilities" consisting of current liabilities, long-term debt, preference share and equity share capital. The financial structure, therefore, includes both short-term and
long-term
sources of funds.
A firm can easily estimate the required funds by a detailed study of the investment decision. In other words, anticipation of the required funds may be estimated by analyzing the investment decision. Once anticipation of required funds is completed then the next step is financial for the manager to make decisions related to the finance or the selected investment decisions.
Generally capital is raised from two prime sources (a) equity and (b) debt.
Than the question is
what
should be
the proportion of equity and debt in the capital structure
of a
company. 7.1
Meaning of Capital Structure
Capital structure is that part of financial structure, which represents long-term sources.
The term capital structure is generally
defined to include only long-term debt and total stockholder investment.
The term
capital structure refers to the mix of long-term sources of funds,
such as
equity shares
capital,
reserves and surpluses, debenture, long-term debt from outside sources and preference share capital.
To quote Bogen, "Capital structure may consists of a single class of stock, or it may be complicated by several issues of bonds and preferred stock, the characteristics of which may vary considerably".
In other words, capital structure refers to the composition of capitalisation, i.e., to the proportion between debt and equity that make up capitalisation. Capital structure
indicated by the following
equation: Capital Structure = Long-term Debt + Preferred Stock + Net worth or Capital Structure = Total Assets – Current Liabilities
147
Chapter 7: Capital Structure
and Theories
Thus,

the capital structure of a firm consists of the shareholder
funds and debt. The inherent
financial stability of an enterprise and risk of insolvency to which it is exposed, are primarily dependent on the source of its funds as well as the type of assets it holds
and relative magnitude of such asset categories. 7.2
Optimum Capital Structure In taking a financing decision, the financial manager's job is to come out with an optimum capital structure.
Optimum capital structure is that capital structure at
that level of debt - equity proportion, where the
market value per share
is maximum and the cost of capital is minimum.
The same to quote, Ezra, "optimum leverage is that mix of debt and equity which will maximise the market value of the company and minimise the company's overall cost of capital." The
study of capital structure involves a discussion of the nature of the industry and specific circumstances of the business enterprise in question, besides the general theory of finance. It is difficult to define an ideal capital structure. A company's capital structure is a function of the nature of its business an how risky the particular business is, and therefore, a matter of business judgment. As observed by Van Horne, "In the optimum capital structure, the marginal real cost of each available method of financing is the same". As Guthmann and Dougall rightly remark, from a strictly financial point of view, the optimum capital structure is achieved by balancing the financing, so as to achieve the lowest average cost of long-term funds. This in turn produces that maximum market value for the total securities issued against a given amount of corporate income.
The optimum capital structure keeps balance between share capital and debt capital. The primary reason for the employment of debt by an enterprise can be stated as upto a certain point, debt is from the point of view of the ownership, a less expensive source of funds than equity capital. Hence, optimum capital structure keeps a balance between debt capital and equity capital. 7.3
Features of an Appropriate Capital Structure Construction of optimum capital structure is very important for a firm, since its value depending on the capital structure. Hence, the financial manager or the concerned person
should develop an appropriate capital structure, which is helpful to maximise shareholder wealth. This can be done only when all those factors., which are relevant to the company's capital structure decision, are properly analysed and balanced. Capital structure should
be planned, keeping in view the interest of
ordinary shareholder because they are the ultimate owners of a business enterprise and have the right to select the directors. However, the interest of the
other groups, such as, employees, customers, creditors, society and government should also receive reasonable consideration.
There is no tailor-made capital structure for all business enterprises. There are certain common characteristics that categorise industries. The study of capital structure involves a study of the debt-equity mix with the object of lowering the overall cost of capital and with a view to maximizing the market value of the firm's securities.
An appropriate capital structure should have the following features: 1. Profitability/
Return: As we have seen in the above discussion the appropriate capital structure is one, which is most advantageous. With the constraints, maximum use of leverage at a minimum cost should be made. In other words, it should generate maximum returns to the owners without adding additional cost. 2. Solvency/Risk: The use of more or excessive
debt threatens the solvency of the firm. Debt should be used till the point where, debt does not add significant risk, otherwise use of debt should be avoided. 3.
Flexibility: Flexible capital structure means it should allow the existing capital structure to change according to the changing conditions without increasing cost.
It should also be possible for the firm to provide funds whenever needed to finance its possible activities. The
Firm should
also repay the funds if not required. 4. Conservation/Capacity:
Capital should be conservative in the sense that the debt capacity
of a firm should not be exceeded. In other words,
the capital structure should be determined within the debt capacity of the firm and
not beyond the firm's capacity.
The debt capacity of a firm depends on its ability to generate future cash inflows. It should have enough cash to pay its fixed charges and principal sum. 5.

Control: Use of more equity may lead to loose my control of the company. The competitors from (closely held firms) are particularly concerned about the dilution of control. Hence, construction of capital structure should not involve the risk of loss of control over the firm.

The above stated are the general features of an appropriate capital structure. There may be particular features for a firm, which may be additional.

firm to
firm. 7.4 Computation of Optimal Capital Structure As we already know that
optimum capital structure is that capital structure at debt equity proportion where the
market value per share and
value of the firm is maximum or the overall cost of capital is
minimum. But here, since, calculation of market value of share or value of the firm is beyond the scope of this book. Hence, capital structure is calculated based on overall cost of capital.
Illustration 1:
In considering the most desirable capital structure of a company,
a financial manager has estimated the following:
Debt as a % of total Capital Employed Cost of Equity (%) Cost
of Debt (%) 0 10 20 30 40 10.0 10.0 10.5 11.0 12.0 6.0 6.0 6.0 6.5 7.0 You are required to determine the optimal debt - equity mix
or optimal capital structure by the calculation of overall cost of capital. Solution: Calculation of Overall Cost of Capital
Equity Weight (W e) Debt Weight (W d)
Cost of Equity (K e) Cost of Debt (K d) Overall cost of Capital (
K o = %) K o = [K e (W e) + K d (W
d)] × 100 1.00 0.90 0.80 0.70 0.60 0.00 0.10 0.20 0.30 0.40 0.100 0.100 0.105 0.110 0.120 0.06 0.06 0.06 0.065 0.07
[(0.10 × 1.0) + (0.06 × 0.0)] × 100 = 10 [(0.10 × 0.90) + (0.06 × 0.10)] × 100 = 9.6 [(0.105 × 0.80) + (0.06 × 0.20)] × 100 = 9.68 [(0.11 × 0.70) + (0.065 × 0.30)] × 100 = 9.65 [(0.12 × 0.60) + (0.07 × 0.40)] × 100 = 10
Here optimal capital structure is one, with 90 per cent equity and 10 per cent debt since K is less (9.6). 7.5 Determinants of Capital Structure Capital structure may be determined at the time of promotion of the firm or during the latter stages. But
determining optimal capital structure at the time of promotion is very important and it
should be designed very carefully. Management of any firm should set a target capital structure and the subsequent financing decisions should be made with a view to achieve the target capital structure.
Construction of capital structure, is difficult, since it involves a complex trade off among several factors or considerations. Keeping the objective of wealth maximisation in mind, capital structure has to be determined. The following factors affect optimal
capital structure. 1. Tax benefit of Debt: Debt is the cheapest source of long-term finance, when compared with other source equity, because the interest on debt finance is a tax-deductible expense. Hence, debt can be accepted as
a
tax-sheltered source of finance, which helps in shareholder wealth
maximisation. 2. Flexibility: Flexibility is one of the most important and serious factors, which is considered in determining capital structure. Flexibility is
the firm'
s
ability to adopt its capital structure to the needs of changing conditions.
Changing conditions may be, need of more funds for investments or having substantial funds that are already raised. Whenever

there is a need to have more funds to finance profitable investments, the firm should be able to rise without delay and less cost. On the other hand, whenever there are surplus funds, the firm should be able to repay them. The above two conditions are fulfilled only when there is a flexible capital structure. In other words, the financial plan of a firm should be able to change according to their operating strategy and needs. The flexibility of capital structure depends on the flexibility in fixed charges, the covenants and debt capacity of the firm. 3. Control: The
equity shareholder have voting right to elect the directors of the company. Raising funds by way of issue of new equity shares to the public may lead to loss of control. If the
management wants to have total control on the firm then, it may require
to raise
funds through non-voting right instrument that is debt source of finance. But the firm needs to pay interest compulsory on debt finance. Debt finance is preferred only when the firm's debt service capacity is good. Otherwise the creditors may seize the assets of the firm to satisfy their claims (interest). In this situation management would lose all control.
It might be better to sacrifice a measure of control by some additional equity
finance rather than run the risk of loosing all control to creditors by employing too
much debt. Widely held companies can raise funds by way of issue of equity shares, since the shares are widely scattered and majority of shareholder are interested in the return. At the same time if they are not satisfied with the firm, they will switch over to some other firm, where they expect higher return. 4.
Industry Leverage Ratios: The Industry standards provide benchmark. Firm can use industry leverage ratio as standard for construction of capital structure. Because industry standard may be appropriate to the firm. It does not mean that all firms in the industry are having optimum capital structure. Put it simple, they may be using more leverage or less leverage, but it suggests that whether the firm is out of line or not, if it is it should know the reasons why and be satisfied with the reasons. 5.
Seasonal Variations: Use of more or less financial leverage depends on the seasonal variations of the business. Low degree of financial leverage (less debt) is preferable when a firm's business is seasonal in nature. Example, Businesses such as production and sale of umbrellas, fans, air coolers., industries requires less debt capital in their capital structure. Use of more debt may make the firm unable to pay interest obligations in lean years, which would lead to financial distress. On the other hand, industries involved in business, where there is no seasonality, like consumer non-durable products (food items, soaps, etc) or with items in habitual use (cigarette) or all those
products, which have an inelastic demand are not likely to be subject to wide fluctuations in sales
can use more debt in their capital structure, since they are able to earn regular profit. 6. Degree of Competition: Competition in the industry also determines the capital structure. When, there is no or less competition then, the firms can use less equity or more debt in their capital structure, since they can sell more products at higher prices. Example, public utility corporations like gas, electricity, etc. On the other hand, competitive firms have to use more equity in their capital structure, because of competition; they may not be able to sell more units and cannot earn more profits. Example, garment industry, home appliances industry. 7. Industry Life Cycle: The Industry life cycle consists of introduction stage; growth stage; maturity stage and declining stage. The industry in infancy should use less debt capital or more equity capital in capital structure, since the profit earning capacity is less due to less sales where as when a firm is in its growing stage (fast) and having more profits, it can go for more debt or less equity that helps to maximise shareholder wealth. 8. Agency Costs: Agency costs arises when there is a conflict of interest among owners, debenture holders and the management. Conflict may arise due to the transferring of wealth to debt holders in their favour. The agency problem is handled through monitoring and restrictive covenants, which involve costs that are called agency costs. The financing strategy of a firm should seek to minimise the agency costs, by way of employing an external agent who specialises in low-cost monitoring. Management should use debt finance to the extent that it maximises the wealth of shareholders, not beyond that. 9. Company Characteristics: Characteristics like size and credit standing among other companies (within or outside industry). Small firm's ability to raise funds from outside is limited when compared to large firms. Small firms have to depend on owners' funds for financing activities. In other words, investors perceive that investment in small firms is more risky than the large firms. On the other hand, large firms are forced to make use of different sources of funds, because no single source is sufficient to their needs.

When it comes to the credit rating characteristics a firm enjoying high credit rating may get funds easily from the capital market, as compared to other firms, which are having low credit rating. Because investors and creditors prefer to invest and grant loans to high credit rating firms, since the risk is less. 10. Timing of Public Issue: Timing of public offer is also one of the most important factors considered while planning the capital structure. Public offering should be made at a time when, that
state of the economy as well as capital market is ideal to provide the funds.

For example during 2003 to 2004 period, many firms like Vijaya Bank, IOB, Union Bank, TCS, IOC, NTPC come up with IPO due to ideal capital market and the economy. Prices as well as yields on securities depend on the money policy pursued by the government. Scarcity of debt money and equity funds leads to high interest rates and low price earnings (P/E) ratios. Therefore, company has to decide whether to finance infancy stage with equity funds and latter stages (except declining) with debt funds or vice versa. 11.
Requirements of Investors: Before going to issue a particular instrument to the public or investors to raise funds, there is a need to know the investors requirements. Investors may be institutional investors. (LIC, GIC, UTI) as well as individual investors. Some investors are ready to take risk (bold investors.), who prefer capital gains and control and hence, equity shares are suitable to them. On the other hand, investors. (cautious), who are interested in the safety of their investment and stable returns, prefer to invest in debentures, since satisfying their needs and preference share are more suitable to the investors. (less cautious), who prefers stable returns and share in profits. 12. Period of
Finance: Period of finance also plays a crucial role in determining the capital structure. A firm can issue redeemable debentures or preference shares, when the finance is required for a limited period. For example, for 5 years, firm can issue 5 years redeemable debentures or preference shares. But equity share capital is the best source when the firm needs finance for unlimited period (unknown). 13. Purpose of Finance: Debt source of finance is suitable when a firm is planning to invest in productive (avenues) purpose. For example, investment on machinery, where as, if the firm is planning to raise funds for non-productive purpose, it can raise funds from equity source for example social responsibility or general development on a permanent basis. 14. Legal Requirements: There are some guidelines on shares and debentures issued by the government that are very important for the construction of the capital structure. For example, the controller of capital issues, now SEBI grants to consent for capital issue when, (a) debt equity ratio does not exceed 2 : 1 (higher ratio may be allowed for capital intensive projects), (b) the ratio of preference capital to equity capital does not exceed 1 : 3 and (c) promoters hold at least 2.5 per cent of the equity capital.
Patterns/Forms
of Capital Structure
The
following are the forms of capital structure. 1. Complete equity share capital; 2. Different proportions of equity and preference share capital; 3. Different proportions of equity and debenture (debt) capital; and 4. Different proportions of equity, preference and debenture (debt) capital. 7.6
Assumption
of
Capital Structure
Theories 1.
There are only two sources of funds i .e. debt and equity. 2.
The total assets of
the company are given and
do not change. 3.
The total financing remains constant. The
firm can change the degree of leverage, either by selling the shares and retiring debt or by issuing debt and redeeming equity. 4. Operating profits (EBIT) are not expected to grow.
 5.
All the investors are assumed to have the same expectation about the future profits. 6. Business risk is constant over time and assumed to be independent of its capital structure and financial risk. 7.
Corporate tax does not exit. 8. The company has infinite life. 9. Dividend payout ratio = 100%.
Notes
Definitions and Symbols
Used S = Total
market value of equity shares.
B = Total market value of debt I = Total interest payments. V = Total market value of the firm
NI = Net income available to equity
shareholders.
V = B+S Cost of debt (K
d) = 1/ B Value of debt (B) = 1/ K e Cost of equity capital (K e) = D1/P + g Because of assumption no-4 growth rate =O. So,
K e =
D/P and since payout ratio = 100% D= earnings or dividends. Therefore, K d = E/P Multiplying both, numerator and denominator by the number of shares, we get: e E×N

EBIT 1 K = orNI P×N S - e Netincomeavailabletothesharehol der K = Totalmarketvalueofequityshares Overall costs of Capital (K o) K o = W 1 K d + W 2 K e (W 1 & W 2 are weights.) ( ) ( ) ( ) e d e d S K B B/V(K)+S/V K or K + B+S B+S or o 1+NI EBIT K = = V V so o EBIT V = K 7.7

Theory of Capital Structure The long-term source of finance, which a company may use for investments, may be broadly classified into two types. They are debt capital and equity capital. The financial manager must determine the proportion of debt and equity and financial leverage.

152 Financial Management Understanding the relationship between financial leverage and cost of capital is extremely important for taking capital structure decisions. Theoretically the value of a firm can be maximized when the cost of capital in minimized. That capital structure, where the cost of capital is minimum, is known as optimum capital structure.

Existence of optimum capital structure is not accepted by all. There exist extreme views. The first viewpoint strongly supports the argument that, the financing or debt equity mix has a major impact on the shareholders wealth.

The second, however, is of the opinion that, capital structure is irrelevant.

There are four major theories explaining the relationship between capital structure, cost of capital and valuation of the firm.

They are: 1. Net Income approach (NI) 2. Net Operating Income approach (NOI) 3. Traditional approach 4. Modigliani-Miller approach 7.7.1 Net Income Approach (NI)

According to this approach, the cost of debt and the cost of equity do not change with a change in the leverage ratio.

As a result, the average cost of capital declines as the leverage ratio increases. This is because when the leverage ratio increases, the cost of debt, which is lower than the cost of equity, gets a higher weightage in the calculation of the cost of capital.

This approach has been suggested by David Durand.

According to this approach, capital structure decision is relevant to the valuation of the firm.

According to the theory it is possible to change the cost of capital by changing the debt equity mix.

In other words, a change in the capital structure causes a change in the overall of capital as well as the value of the firm.

The formula to calculate the average cost of capital is as follows: K o = K d (B/ (B+S)) + K e (S/(B+S)) Where, K o is the average cost of capital K d is the cost of debt B is the market value of debt S is the market value of equity K e is the cost of equity The NI approach is based on the following assumptions: 1. The use of debt does not change the risk of investors and therefore, cost of debt (K d) and cost of equity (K e) remains the same irrespective of the degree of leverage. 2.

Cost of debt is less than the cost of equity. 3.
The
corporate income tax does not
exist. According to the theory,
cost of debt is assumed to be less than
the cost of equity.
Therefore, when the financial leverage is increased (proportion
of debt in the total capital),
the overall cost of capital will decline and the value of the firm
will
increase.
The implications of the 3 assumptions of NI approach is that, as the degree of leverage increases, the proportion of a cheaper source of funds (
debt)
in the capital structure increases. As a result, the weighted average cost of capital
tends to decline leading to an increase in the total level of the firm. Thus, even if the cost of debt and cost of equity remains same regardless of leverage, increased use of
low cost debt will result in the decline of
overall
cost of capital and thereby,
maximize the value of the firm. So the overall cost of capital
will be minimum when the proportion of
debt in the capital structure
is maximum. Hence, optimum structure exists when the firm employs 100% debt or maximum debt in the capital structure.
153
Chapter 7: Capital Structure and Theories The NI approach may be compared to a dishonest trader who wants to sell 10 litres of milk @ Rs. 15 per litre. He can add water and pure milk to prepare the 10 litres of milk. If the cost of 1 litre of water is Re. 1, and cost of 1 litre of pure milk is Rs.10, he can maximise his profit or minimize his cost per litre of milk by adding more and more of low cost water. For example: if he purchases only pure milk, his cost will be Rs. 10×10 = Rs. 100. If he adds 5 litres of water to 5 litres of milk, the cost of 10 litres would be 1×5+10×5=(Rs. 5.5/litre). Here, pure milk is compared to equity , which is a costly source, and water is compared to debt, which is a cheaper source.
Illustration 2:

issued Rs. 5,00,000, 10% debentures at Rs. 100
each. The cost of equity is 12.5%. Assuming no taxes, find out
the overall
cost of capital and the value of the firm
according to NI approach.
Solution: S = Value of equity shares (NI/
K e) (Rs.) 4,00,000 Net operating income (Rs.) 1,00,000 Less: Interest, on debentures (Rs.) 50,000
Earning available to ESH (NI) (Rs.) 50,000 Cost
of equity (K e) 12.5%

Alternatively, K o =K d (W 1) + K e (
W 2) ( ) 5,00,000 0.10 4,00,000(0.125) + = 11.1% 9,00,000 9,00,000 Assuming the market price per share to be Rs. 100, there will be 4000 shares of Rs. 100
each. Find out the effect of increase in leverage on the cost of capital (
K o)

and value of the firm.
Assume that the above company increases the debt from Rs. 5,00,000 to
Rs. 6,00,000
and the cost of the debt and equity remains at the same level. We can calculate
the overall cost of capital, value of the firm
and the market value of equity shares
as shown below. EBIT 1,00,000 Less: Int on debt 60,000
Earnings available to ESH (NI) 40,000 K e 0.125
Value of equity shares (NI/K e) =
S 3,20,000 Value of debt (B) 6,00,000 Value of the firm (
S+B=
V) 9,20,000 = = = o EBIT 1,00,000 K 10.86% V 9,20,000 Alternatively K o can be calculated as below:
K o = K d (W 1) + K e (W 2) 6,00,000(0.10) 3,20,000(0.125) + =10.87% 9,20,000 9,20,000
154 Financial Management
Market Value of Equity Shares Before increasing the debt, there were 4000 ES of
Rs. 100
each . Then the firm increased the debt by Rs. 1,00,000 and used the proceeds to retire equity shares. So the company redeemed 1000 shares of
Rs. 100
each. So the number of shares outstanding is 4000 – 1000=3000. Therefore, value of 1 equity share is: 3,20,000
Rs. = Rs.106.67 3000
So, the market value of equity shares has increased to
Rs. 106.67.
To sum up,
according to the NI approach, as the debt content is increased in the capital structure,
K o falls, value of the firm increases and the market value of the equity shares also increases. We can graph the relationship between K o , K e and K d with the degree of leverage as shown below. Y
K o K e K d 0% 0 50% degree of Leverage 100% X
The degree of leverage is plotted along the X-axis, while the cost of Capital in per cent is plotted on Y-axis. As the cost of debt and cost of equity is constant with leverage, we find that both the curves are horizontal to X-axis. As the degree of leverage increases (% of debt in the total capital increase) overall cost of capital continuously falls. K o is minimum when, there is 100% debt. So optimum capital structure exists at 100% debt and 0% equity capital. But in practice, 100% debt may not be possible. There should be some equity capital in the capital structure of any company. 7.7.2 Net Operating Income Approach This theory is also given by David Durand. This is just the opposite to NI approach. According to NOI approach, the capital structure decision is irrelevant and there is nothing like optimum capital structure. All the capital structures are optimum.
According to this theory,
the market
value of the firm is not affected by the capital structure changes.
The market value of the firm is found by capitalizing (dividing) the net operating income by the
overall cost of capital, which is constant. The market value of the firm is obtained by using the
following formula. ( ) = = = + o NOI V V B S K The overall cost of capital depends on the business risks of the firm, which is assumed to be constant. NOI depends on the investments made by the company and not on the capital structure decisions. So, if NOI and K o are constant, the value of the firm must remain same regardless of
leverage.
Assumptions
The market capitalizes the value of
the firm as a whole.
Thus,
the
split between debt and equity is not
important. The
value of
the firm is obtained by capitalizing NOI by the
K o , which depends on the business risks. If business risks is constant, K o is also constant.
155 Chapter 7: Capital Structure and Theories

The use of debt increases the risks of shareholders, So, K e increases with the leverage and eats completely the advantage of low cost debt. 1. Cost of debt remains same regardless of leverage. 2. Corporate income tax does not exist. The critical assumptions of this approach are that K o remains same regardless of the degree of
leverage.
The market capitalizes the value of
the firm as a whole
and the
split between debt and equity is
unimportant. The benefits from the increase in the use of cost debt is completely offset (neutralised) by the increases in the cost of equity. So even if the leverage is increased, overall cost of capital remains at the same level. When the company increases the leverage, the firm becomes more risky and equity shareholders penalize the firm by demanding higher and higher rate of returns. So, K e is the function of the debt equity ratio. Since overall cost of capital structure remains static according to the theory. Illustration 3:
A company's expected annual net operating income (EBIT) is
Rs. 1,00,000.
The company has 5,00,000, 10% debentures.
The
overall cost of capital
is 12.5%. Calculate the value of the
firm
and
cost of equity according to NOI approach. Solution: Net operating income (
EBIT) (
Rs.) 1,00,000 Overall cost of capital (
K o) 0.125 Total
value of the firm (V=EBIT/K o) (Rs.) 8,00,000
Market value of the debt (B) (Rs) 5,00,000 Total market value of
the equity (
S=V-B) (
Rs) 3,00,000 = = EarningavailabletoESH NI Costofequity S Marketvalueofequityshares - - = = = - - e EBIT I 1,00,000 50,000 K 16,66% V B 8,00,000 5,00,000 Market value of equity shares: Assuming the market price of shares to be Rs. 100, there are 3000 shares of Rs. 100 each. If the company increases
the debt from Rs. 5,00,000 to Rs. 6,00,000 the K e
and the
value of the firm are as below: Net operating income (EBIT) (Rs) 1,00,000 Overall cost of capital (K o) 0.125 Total value of the firm (V=EBIT/
K o)(
Rs.) 8,00,000 Market value of debt (B) (Rs.) 6,00,000 Market value of
the equity (
S) (
Rs) 2,00,000 = = =
NI 40,000 Costofequity 20% S 2,00,000
156 Financial Management Caselet Rise in Net Income C ognizant Technology Solutions Corporation, the US-based software company with offshore development centres in India, reported a 17 per cent increase in net income to $112 million during the fourth quarter ended December 2008 against $96 million in the fourth quarter of 2007. Quarterly revenue rose to $753 million, up 26 per cent from the $600 million in the fourth quarter of 2007, and up 2.5 per cent from $735 million in the third quarter of 2008. Net income for the full year was $431 million, a 23 per cent increase over the $350 million reported in 2007. Revenue for 2008 increased to $2.82 billion, up 32 per cent from $2.14 billion for 2007, according to a company press release. Based on current global economic weakness and recent customer feedback, Cognizant has said that its first quarter revenue in 2009 is anticipated to be $735 million and full-year revenue for the year to be at least $3.1 billon, up at least 10 per cent when compared to 2008 numbers. Source: thehindubusinessline.com
Market Value of the Equity Shares The firm has increased the debt by Rs.1,00,000 and used the proceeds to reduce equity capital. The number of shares has reduced from 3000 to 2000. Therefore, the price per share can be calculated as below: =
Totalmarketvalueoftheshares Pricepershare Numberofshares = = 2,00,000 Rs.100. 2000

So, there is no change in the price per share, total value of the firm and overall cost of the capital when the leverage is changed. NOI approach can be graphically shown as below: 0.5 1.0
Degree of leverage K ,K ,K % o d e K e K o K d 0
From the above graph, it is clear that, as the degree of leverage is increased,
K o and K d
remains at the same level. But cost of equity increases with leverage and exactly neutralises
the benefits of low cost debt. So overall cost of Capital remains at the same level.
157
Chapter 7: Capital Structure and Theories 7.7.3
Traditional or Intermediate Approach or WACC Approach This approach is midway between the NI and the NOI approach. The main propositions of this approach are: The cost of debt remains almost constant upto a certain degree of leverage but rises thereafter, at an increasing rate. The cost of equity remains more or less constant or rises gradually up to a certain degree of leverage and rises sharply thereafter. The cost of capital due to,
the behaviour of the cost of debt and cost of equity, decreases upto a certain point and remains more or less constant for moderate increases in leverage, thereafter, rises beyond
that level at an increasing rate.
In other words NI approach and NOI approach represents two polar cases.
The traditional or the intermediate approach is a midway between these two approaches, because it partly takes the features of both the approaches.
According to the
theory,
the value of the firm can be increased or cost of capital can be reduced
by
a judicious mix of debt and equity capital. This approach states that, cost of capital is a function of leverage. So cost of capital decreases upto a certain degree of leverages then it remains at the same level for certain degrees of leverage and thereafter it rises sharply with the leverage. So
optimum
capital structure exists when
the cost of capital is minimum
or value of the firm is maximum.
The manner in which cost of capital reacts to the changes in the capital structure can be divided into three stages. 1. In the first stage, cost of equity remains constant or rises slightly with the debt. But when it increases, it
does not increase fast enough to offset the advantage of low cost debt. Cost of debt
also remains
same or rises slightly with the leverage. As
the
cost of debt is less than cost of equity,
increased use of debt
reduces the cost capital during the 1 st stage. 2. Once the firm has reached the certain degree of leverage, increased use of debt does not result in the fall in the overall cost of capital. This is due to the fact that, benefits of low cost debt are offset by the increase in the cost of equity. Within this range,
cost of capital will be minimum or value of the firm will be
maximum. 3. Beyond a certain point, use of debt has unfavourable effect on cost of capital and value of the firm. This happens because the firm would become more risky to the investors and hence they would penalize the firm by demanding higher return. Here, advantages of using low cost debt are less than the disadvantages of higher cost of equity. So the overall cost of capital increases with leverage and value of the firm decreases.
Thus,
the cost of capital decreases with leverage, reaches one minimum point and thereafter, increases with the leverage.
Illustration 4: Assume that the firm has EBIT of
Rs. 4,00,000.
The firm has 10% debentures of Rs. 10,00,000 and the
cost of equity is 16%.
Find out
the value of the firm
and overall cost of capital
according to

the traditional approach. Solution: EBIT (Rs.) 4,00,000 Less: Interest (Rs.) 1,00,000 Earnings available to ESH (Rs.) 3,00,000
Cost of equity 0.16 Market value of the
equity shares (Rs.)
NI/
K e = 3,00,000/0.16 18,75,000
Market
Value of the debt (B) 10,00,000 Total Value of the firm (S+B) 28,75,000 o EBIT 4,00,000 Overall cost of capital (K)= = =13.9% V 28,75,000
Now, let us assume that the firm increases the debt to another Rs. 5,00,000.
So cost of debt increases to 11% and cost of equity rises
to 17%. Calculate
the overall cost of capital and the value of the firm.
158
Financial Management EBIT (Rs.) 4,00,00,00 Less: Interest (Rs.) 1,65,000 Earnings available to ESH (Rs.) 2,35,000 Cost of

Rs.) 28,82,352 = = = o EBIT 4,00,000 Overallcostofcapital(K) 13.8% V 28,82,353 If the debt is further increased to Rs. 5,00,000
the
cost of debt increases to 12.5% and the cost of equity is increased to 20%. Find out
the overall cost of capital and value of the firm.
EBIT 4,00,000 Less: Interest (Rs.) 2,50,000 Earning available to ESH (Rs.) 1,50,000 Cost of
equity 0.20
Value of equity shares (
S=NI/K e) 7,50,000 Value of debt (B) (
Rs.) 20,00,00
Value of the firm (V=
S+B) (
Rs.) 27,50,000 = = =
o EBIT 4,00,000 Overallcostofcapital(K) 14.5% V 27,50,353 7.7.4 Modigliani-Miller Approach (MM) MM theory relating to the relationship between cost of capital and valuation
is
similar to the NOI
approach.
According to this approach,
the value of
the
firm is
independent of its capital structure.
However, there is a basic difference between the two. The NOI approach is purely
a definitional
term, defining the concept without behavioural justification. MM approach provides analytically sound, logically consistent, behavioral justification in favour of the theory and considers any other theories of Capital structure as incorrect. Assumption
Capital markets are perfect. This means, 1. Investors are free to buy and sell securities. 2.
Inventors can borrow
and lend money on the same terms on which a firm can borrow and lend. 3. There are no transaction costs. 4. They behave rationally. 5.
Firms
can be classified into homogenous risk categories. All the firms within the same class will have the same degree of business risks. 6. All the investors have the same expectations from a firm's NOI with which to evaluate the value of the firm. 7. Dividends

Payout
ratio is 100% and there are no retained earnings. 8. There are no corporate income taxes.
This assumption
is removed later.

There
are
three Basic Propositions of MM Approach
The overall cost of capital (K_o)
and the value of the firm (
V)
are independent of
leverage. The
K_o
and V are constant for all
the degree of leverage. The
total value of the firm is obtained by capitalizing the EBIT at a discount rate appropriate for its risks class. 1. Cost of equity (K_e)
is equal to the
capitalization
rate of a pure equity stream plus a premium for financial risk.
The financial risks increases with the leverage and therefore, K_e increases in a manner to offset exactly the benefit from the use of low cost debt. $K_e = K_o + (K_o - K_d) B/S$. 2.
The cut-off rate for investment purposes is completely independent of the way in which an investment is financed. This is true because cost of capital remains same regardless of the degree of leverage. So both, investment decision and financing decision are independent.
Notes
Proof of MM Argument The
value of a firm depends on its profitability and risks. It is in variant with respect to relative changes in the firm's capitalization.
Similarly, according to the theory,
cost of capital and market value of the firm
must be same regardless of the degree of leverage.
The operational justification for the MM hypothesis is the "Arbitrage Argument". The term arbitrage refers to
the act of
buying a security in the
market, where the price is less and simultaneously selling it in another market where the price is
more, to take advantage of the difference in price prevailing in two different markets.
Arbitrage process helps to bring equilibrium in the market. Because of arbitrage, a security cannot be sold at different prices
in different markets. MM approach illustrates the arbitrage process with reference to valuation in terms of two firms, which are exactly similar in all
aspects with respect to leverage, so that one of them has debt in the capital structure while other does not. Such homogenous firm's are, according to MM, perfect substitutes. If the market value of the two firms which are exactly same in all the respects, except with the leverage, which is not equal,
investors of the overvalued firm would sell their shares, borrow additional funds on
their
personal account and invest in the undervalued firm, in order to obtain the
investors for arbitrage is termed as home-made or personal leverage. So investor undertaking arbitrage would be better off. This behaviour of arbitrage will have investors of overvalued firm. Arbitrage would be counting till the market prices of two identical firms become identical.
For example:
Assume that
there are two firms L and U which are identical in all
the respects except that, the

firm L has 10%
Rs. 5,00,000
debentures. The EBIT of both the firms are Rs. 80,000. The cost of equity of the firm L is higher
at 16% and firm U
is lower at 12.5%. The total market values of the firm are computed as below. FIRM L FIRM U EBIT 80,000 80,000
Less:Interest 50,000 - Earnings available to ESH (NI) 30,000 80,000
Cost of equity (K
e) 0.16 0.125
Market value of equity shares (S=NI/K e) 1,87,500 6,40,000 Market
value of debt 5,00,000 ------ Total value of the firm 6,87,500 6,40,000 ? ?
o EBIT K V 11.63% 12.5% Thus, the total value of the firm which employed debt is more than the value of the other firm.
According to
MM, this
previous arbitrage would start and continue till the equilibrium is restored.
160
Financial Management 7.7.5 Modigliani & Miller Theory MM theory is based on the assumption of no tax approach. It is made up of two propositions which can also be extended to a situation with taxes. Example: Let us take the example of two firms which are identical except for their financial structures. The first (Firm X) is unlevered: that is, it is financed by equity only. The other (Firm Y) is levered: it is financed partly by equity, and partly by debt. The Modigliani-Miller theorem states that the value of the two firms is the same. With taxes Proposition I: V y = V x + TD where 1. V y is the value of a levered firm. 2. Vx is the value of an unlevered firm. 3. TD is the tax rate (T) × the value of debt (D) 4. the term TD assumes debt is perpetual This means that there are advantages for firms to be levered, since corporations can deduct interest payments. Therefore leverage lowers tax payments. Dividend payments are non-deductible. Proposition II: r E = r 0 + D/E (r 0 – r D)(1 – T) where 1. r E

on borrowings, or cost of debt. 4. D/E is the debt-to-equity ratio. 5. T is the tax rate. The same relationship as earlier described stating that the cost of equity rises with leverage, because the risk to equity rises, still holds. The formula however has implications for the difference with the WACC. Their second attempt on capital structure included taxes has identified that as the level of gearing increases by replacing equity with cheap debt the level of the WACC drops and an optimal capital structure does indeed exist at a point where debt is 100%. The following assumptions are made in the propositions with taxes: 1. Corporations are taxed at the rate T on earnings after interest, 2. No transaction costs exist, and 3. Individuals and corporations borrow at the same rate Illustration 5: Assume two firms firm U and L which are identical in terms of their asset and operations. firm U is unleavered firm (all equity) with operating earning (EBIT) of Rs. 1000 with the marginal tax rate is 40%. Firm L is a leavered firm that has issued 2000 perpetual bonds with an interest rate is 10%. Calculate the tax impact of both the companies.
161 Chapter 7: Capital Structure and Theories Solution: Firm U Firm L EBIT 1000 1000 Interest exp. 0 200 EBT 1000 800 Taxes 400 320 Net income 600 480 Understanding the tax benefit associated with firm L's debt is important. while firm L must pay its bond holders 200 as interest payment it will pay Rs. 80 less in taxes. The interest payment shielded some of firm L's taxable income from tax. 7.8 Working of the
Arbitrage Process Suppose there is
an investor X, who holds 10% of the outstanding shares in the firm L. This means his holding amounts to
Rs. 18,750
and his shares in the earning which belongs to equity shareholders
is
Rs. 3000 (10% of Rs. 30,000).

Mr. X will sell his holding in the firm L and invest money in the firm U. The firm U has no debt in the capital structure and hence, the financial risk to Mr. X would be less in the firm U than firm L. In order to have the same degree of financial risk as of the firm U, Mr. X will borrow additional funds equal to his proportionate shares in substituted personal leverage in place of corporate leverage. The position of Mr.X is summarized as below. Firm L Investment amount (10% holding) 18,750 Dividend income (10% of 30000) 3,000 Return on funds = 3000 16% 18,750 Firm U Investment amount (18,750 + 50,000) = 68,750 (50,000 borrowed at 10%) ´ = 68,750 Totalincome 80,000 8,593.75 6,40,000 Less: Interest on loan 5,000 Return on investment 3,593.75 = = 3,593.75 ROI 19.16% 18,750 So Mr. X gets a higher income after shifting his investment to company U (Rs 3,000 and 3,593.75) His ROI increases from 16% to 19%. The other investors will also wish to make profit out of arbitrage. This increases the
demand for securities of the firm U and will lead to increase in its price. At the same time, the price of the security of the firm L will decline
due to the selling pressure. This will continue till the prices of the securities of the firms become identical. Taxes: If the corporate taxes are taken into consideration. MM argues
that the value of the firm will increase and cost of capital will decrease with
leverage.
Interest paid on the debt is tax deductible and therefore, effective cost of debt
is less than the coupon rate of interest. Therefore, levered firm would have
a greater market value than the unlevered firm (cost capital of levered firm would be lower).
162
Financial Management
Symbolically:

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VL = VU + BT VL = Value of levered firm VU = Value of unlevered firm B = Amount of debt

T = Tax rate 7.9
The
Trade-off Theory: Cost of Financial Distress and Agency Costs As the dedt equity ratio (i.e leverage)
increases, there is a trade-off between the interest tax shield and bankruptcy, causing an optimum capital structure, D/E* The trade-off theory of capital structure is a theory in the realm of Financial Economics about the corporate finance choices of corporations. Its purpose is to explain the fact that firms or corporations usually are financed partly with debt and partly with equity. It states that there is an advantage to financing with debt, the tax benefit of debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy costs of debt and non-bankruptcy costs (e.g. staff leaving, suppliers demanding disadvantageous payment terms, bondholder/stockholder infighting, etc.).
The marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases, so that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing. Although the empirical success of the alternative theories is often dismal, the relevance of this theory has often been questioned. For example, Miller's (1977) metaphor speaks of the balance between those two as equivalent to the balance between horse and rabbit content in a stew of one horse and one rabbit. Other critics have suggested it is the mechanical change in asset prices that makes up for most of the variation in capital structure. Recognize that costs of financial distress and agency costs are real. 7.9.1
Trade-off Model Financial distress costs (includes bankruptcy) 1. Direct costs: Lawyer's fees, court costs, administrative expenses, assets disappear or become obsolete. 2. Indirect costs: Managers make short-run decisions; customers and suppliers may impose costs. 7.9.2 Agency Costs More debt is likely to be experienced. Distress stockholders (thus management) want risk, while bondholders do not. Use covenants to align interests costs: monitoring to ensure they are followed; also may hamper business. In essence, lost efficiency and monitoring costs reduce advantage of debt, given agency costs and financial distress. VL = VU + TD – (PV of expected costs of financial distress) – (PV of agency costs)
163
Chapter 7: Capital Structure and Theories A: Value of firm with no leverage B:
MM value of firm (VL = VU + TD) C: Actual firm value D: Optimal debt level

E: PV of tax shelter (TD) F: Financial distress and agency costs V (Rs) V u D Debt (Rs.) C A E F B Figure 7.1: Agency Costs 7.9.3 Consequences of Financial Distress Bankruptcy Costs Specific bankruptcy costs include legal and administrative costs along with the sale of assets at 'distress' prices to meet creditor claims. Lenders build into their required interest rate the expected costs of bankruptcy, which reduces the market value of equity by a corresponding amount. Indirect Costs 1. Investing in risky projects 2. Reluctance to undertake profitable projects 3. Premature liquidation 4. Short-term orientation Debt Policy and Shareholders Conflicts Shareholder-manager Conflicts Managers have a tendency to consume some of the firm's resources in the form of various perquisites. Managers have a tendency to become unduly risk-averse and shirk their responsibilities as they have no equity interest, or when their equity interest falls. They may be passing up profitable opportunities. Shareholder-bondholder Conflicts Shareholder value is created either by increasing the value of the firm or by reducing the value of its bonds. Increasing the risk of the firm or issuing substantial new debt are ways to redistribute wealth from bondholders to shareholders. Shareholders do not like excessive debt.
164 Financial Management Debt Optimal amount Value of unleveredMarketvalueofthefirm PV of interest Maximum value of firm Cost of financial Value of levered Figure 7.2: Financial Distress 7.9.4 Optimum Capital Structure: Trade-off Theory The optimum capital structure is a function of: 1. Agency costs associated with debt 2. The costs of financial distress 3. Interest tax shield

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The value of a levered firm is: Value of unlevered firm + PV of tax shield - PV of financial distress 7.10

Pecking Order Theory Overview In the theory of firm's capital structure and financing decisions, the Pecking Order Theory or Pecking Order Model was developed by Stewart C. Myers in 1984. It states that companies prioritize their sources of financing (from internal financing to equity) according to the law of least effort, or of least resistance, preferring to raise equity as a financing means "of last resort." Hence, internal funds are used first, and when that is depleted, debt is issued, and when it is not sensible to issue any more debt, equity is issued. This theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required.

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Pecking order theory of capital structure states that firms have a preferred hierarchy for financing decisions. The highest preference is to use internal financing (retained earnings and the effects of depreciation) before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage. If a firm must use external funds, the preference is to use the following order of financing sources: debt, convertible securities, preferred stock and common stock (Myers, 1984). This order reflects the motivations of the financial manager to retain control of the firm (since only common stock has a 'voice' in management), reduce the agency costs of equity, and avoid the seemingly inevitable negative market reaction to an announcement of a new equity issue (

Hawawini & Viallet, 1999).
165 Chapter 7: Capital Structure and Theories Implicit in

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the pecking order theory are two key assumptions about financial managers. The first of these is asymmetric information, or the likelihood that a firm's managers know more about the company's current earnings and future growth opportunities than do outside investors. There is a strong desire to keep such information proprietary. The use of internal funds precludes managers from having to make public disclosures about the company's investment opportunities and potential profits to be realized from investing in them. The second assumption is that managers will act in the best interests of the company's existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project's value to new shareholders at the expense of the old (

Myers & Majluf, 1984). 7.10.1 Capital Market Treatment of New Security Issues The two assumptions noted above help to explain some of the observed behaviour of financial managers. More insight is gained by looking at how the capital markets treat the announcement of new security issues. Announcements of new debt generally are treated as a positive signal that the issuing firm feels strongly about its ability to service the debt into the future. Announcements of new common stock are generally treated as a negative signal that the firm's managers feel the company's stock is overvalued (i.e. earnings are likely to decline in the future) and they wish to take advantage of a market opportunity. So it is easy to see why financial managers use new common stock as a last resort in capital structure decisions. The mere announcement of a new stock issue will cause the price of the firm's stock to fall as the market participants try to sort out the implications of the firm choosing to issue a new equity issue. 7.10.2 How Pecking Order is Superior to the Trade-off Model While the trade-off model implies a static approach to financing decisions based upon a target capital structure, the pecking order theory allows for the dynamics of the firm to dictate an optimal capital structure for a given firm at any particular point in time (Copeland & Weston, 1988). A firm's capital structure is a function of its internal cash flows and the amount of positive- NPV investment opportunities available. A firm that has been very profitable in an industry with relatively slow growth (i.e. few investment opportunities) will have no incentive to issue debt and will likely have a low debt-to-equity ratio. A less profitable firm in the same industry will likely have a high debt-to-equity ratio. The more profitable a firm, the more financial slack it can build up. Financial slack is defined as a firm's highly liquid assets (cash and marketable securities) plus any unused debt capacity (Moyer, McGuigan, and Kretlow, 2001). Firms with sufficient financial slack will be able to fund most, if not all, of their investment opportunities internally and will not have to issue debt or equity securities. Not having to issue new securities allows the firm to avoid both the flotation costs associated with external funding and the monitoring and market discipline that occurs when accessing capital markets. Prudent financial managers will attempt to maintain financial flexibility while ensuring the long-term survivability of their firms. When profitable firms retain their earnings as equity and build up cash reserves, they create the financial slack that allows financial flexibility and, ultimately long-term survival. The pecking order theory explains these observed and reported managerial actions, while the trade-off model cannot. It also explains stock market reactions to leverage-increasing and leverage-decreasing events, which the trade-off model cannot. 7.10.3 Limitations of Pecking Order Theory The pecking order theory, however, does not explain the influence of taxes, financial distress, security issuance costs, agency costs, or the set of investment opportunities available to a firm upon that firm's actual capital structure. It also ignores the problems that can arise when a firm's managers accumulate so much financial slack that they become immune to market discipline. In such a case, it would be possible for a firm's management to preclude ever being penalized via a low security price and, if augmented with non-financial takeover defences, immune to being removed in a hostile acquisition. For these reasons, the pecking order theory is offered as a complement to, rather than a substitution for, the traditional trade-off model. Conclusions and implications: While the traditional trade-off model is useful for explaining corporate debt levels, the pecking order theory is superior for explaining capital structure changes. By including a discussion of pecking order theory in the capital structure unit, students will be exposed to a broad base of both theory and practice that will enable them to better

166 Financial Management understand how important financing decisions are made. In addition to the traditional discussion of the impact of taxes, financial distress, and agency costs upon capital structure decisions, students will gain insight to how management motivations and market perceptions also impact these decisions. Students will readily appreciate the concern managers have regarding the reporting requirements required to access capital markets. They will also be able to explain why observed practice does not seem to always follow theory. Furthermore, the addition of the pecking order theory into the basic debate about capital structure provides one more opportunity for critical thinking to occur. For example, the instructor can show how the debt ratios of leading companies, in particular industries, differ from the so-called industry averages to which most companies are usually compared during a cross-sectional financial analysis. Thus, a given ratio (such as a debt ratio only half the industry average) might be argued as a 'good' thing (since the firm has a large supply of financial slack and financial flexibility) rather than as a point of concern (the firm has opportunity costs due to not making efficient use of debt). Students will have to critically evaluate that particular condition to judge which conclusion is correct. To summarize, by studying the pecking order theory in conjunction with trade-off theory, students will have a more all-round exposure to optimal capital structure. We also briefly look at the important differences between the two theories. Trade-Off Theory Pecking Order Theory 1. Conforms with value-maximizing construct 1. Considers managerial motivations 2. Assumes a relatively static capital structure 2. Allows for a dynamic capital structure 3. Considers the influence of taxes, transaction costs and financial distress 3. Considers the influence of financial slack and availability of positive-NPV projects 4. Ignores the impact of capital market ‘signals’ 4. Acknowledges capital market ‘signals’ 5. Ignores concerns regarding proprietary data 5. Acknowledges proprietary data concerns 6. Cannot explain many real-world practices 6. Explains many real-world practices 7.11
Approaches to Determine Appropriate Capital Structure The following are the approaches to determine
a firm's capital structure: 1. EBIT - EPS
Approach 2. Valuation Approach and 3. Cash flow Approach 1.

EBIT - EPS Approach: This approach is helpful to analyse the impact of debt on earnings per share. 2. Valuation Approach: This approach determines the impact of debt use on the shareholder value. 3. Cash Flow Approach: This approach analyses the firm's debt service capacity.
Apart from the above ROI - ROE analysis, ration analysis is also used. But here in this book, we will discuss the first (EBIT - EPS) approach only. 7.11.1 EBIT-EPS (Approach) Analysis Leverage effects on shareholder ' return and risk, has been discussed in detail in the next part of this lesson, under leverages. But here we shall try to understand how sensitive are Earnings Per Share (EPS) to the changes in Earnings Before Interest and Tax (EBIT) under different
financial plans/capital structures/alternatives.
It is known as EBIT-EPS analysis.
Use of fixed cost sources of finance in capital structure of a firm is known as financial leverages/trading on equity. In other words, use of less cost source of finance to maximise Earnings Per Share (
EPS), but the benefits are more when a firm uses debt as a source of finance, due to cheap and interest is tax deductible source. Use of debt can be used to maximise shareholder wealth only when a firm has a high level of operating profit (EBIT). EBIT-EPS analyses is one way to study the relation between Earnings Per Share (EPS) and various possible levels of operating profit (EBIT), under various
financial plans.
Table 7.1: Comparison of Trade-off and Pecking Order Theory Traits
167 Chapter 7: Capital Structure and Theories Illustration 6: XYZ Co. Ltd. has a share capital of Rs. 1,00,000 face value of Rs. 10
each. It requires Rs. 50,000 to finance expansion programme and is considering three alternative financial plans. 1. Issue of 5000 ordinary shares of Rs. 10 each 2. Issue of 500 preference shares of Rs. 100 each
at 10 per cent and 3. Issue of 10 per cent debentures of
Rs. 50,000
The company's operating profit (EBIT) after additional investment is
Rs. 40,000
per annum. Tax rate is 50 per cent. Show the effect of use of debt in financial plan.
Solution: Calculation of EPS Financial Plan Particulars I (Equity) (Rs.) II (Preference) (Rs.)
III Debt – Equity (Rs.) 40,000 --- 40,000 --- 40,000 5,000 40,000 20,000 40,000 20,000 35,000 17,500 EBIT Less: Interest EBT/or PBT Less: Tax at 50% PAT or
EAT Less: Preference dividend 20,000 --- 20,000 5,000 17,500 --- Earnings available to share holders. 20,000 15,000 17,500 No. of shares outstanding 15,000 10,000 10,000 EPS =
Earnings available to shareholder No. of equity shares 1.333 1.5 1.75
Illustration 7: VS International Ltd.,
has a capital structure (all equity) comprising of
Rs. 5,00,000
each share of Rs. 10.
The firm wants to raise an additional Rs. 2,50,000 for expansion
project. The firm has the following
four alternative financial plans I, II, III and IV. The firm is able to earn an operating profit at Rs. 80,000 after additional investment and 50 per cent tax rate. Calculate EPS for all four alternatives and select the preferable financial plan. 1. Raise the entire amount in the form of equity capital. 2. Raise 50 per cent as equity capital and 50 per cent as 10 per cent debt capital. 3. Raise the entire amount as 12 per cent debentures. 4. Raise 50 per cent equity capital and 50 per cent preference share capital at 10 per cent. Solution: Calculation of EPS
Financial Plan Particulars I
Rs. II Rs. III Rs. IV Rs.
EBIT Less: Interest 80,000 --- 80,000 12,500 80,000 30,000 80,000 --- EBT Less: Tax
at 50% 80,000 40,000 67,500 33,750 50,000 25,000 80,000 40,000 EAT Less: Preference dividend 40,000 --- 33,750 --- 25,000 40,000 12500 Earnings available to share holders. No. of shares (equity) outstanding 40,000 75,000 33,750 62,500 25000 50,000 27500 62,500 EPS 0.53 0.54 0.50 0.44
168 Financial Management As EPS is maximum as per plan-II, this is most-preferable financial plan. 7.11.2 Indifference Point The break-even EBIT level of indifference point, is when the EPS is same for two alternative capital structures. It may be defined as the level of EBIT beyond which the benefits of financial leverage begin to operate with respect to Earnings Per Share (EPS). In other words,
if the expected level of EBIT is less than the indifference
point, it is advantageous with the use of equity capital to maximise EPS. Indifference point between two capital structures can be obtained by using the following formula: ? ? ? ? ? 1 2 1 2 x–
I (1–t) –PD (1 Dt) (x–I)(1–t)–PD(1 Dt) ES ES

Where X = EBIT I 1 I 2 = Interest under alternatives 1 and 2 t = Tax rate PD = Preference dividend Dt = Preference dividend tax ES 1 , ES 2 = No. of equity share outstanding under alternative 1 and 2 Illustration 8: WDC Ltd., has a total capitalisation of
Rs. 10
lakh consisting entirely of equity capital (Rs. 10 each share). It is planning to raise an additional funds of
Rs. 5
lakh for implementing capital budgeting project. There are two alternatives available to the company. 1. Entire equity share capital by issue of shares. 2. Entire amount by debt at 10 per cent interest. The company is in the tax brackets of 50 per cent. Calculate indifference point. Solution: Indifference point formula 1 (

x–I) (1–0.5) ES = 2 (x–1) (1–0.5) ES + x (1–0.5) (1,00,000 50000) = (x–50,000) (1–0.5) 1,00,000 0.5x 1,50,000 = 0.5x–25000 1,00,000 50,000x = 75,000x – 3,75,00,00,000 3,75,00,00,000 = 75,000x – 50,000x = 25,000x x = 3,75,00,00,000/25,000 x =

Rs. 150,000
169 Chapter 7:
Capital Structure and Theories Calculation of EPS Financial Plan Particulars Alternative 'A' (Rs.) Alternative 'B' (Rs.) EBIT 1,50,000 1,50,000 Less: Interest --- 50,000 EBT / or PBT 1,50,000 1,00,000 Less: Tax at 50% 75,000 50,000 EAT 75,000 50,000 Less: Preference dividend --- --- Earnings available to share holders. 75,000 50,000 No. of shares (existing + new) (1,00,000 + 50,000) (1,00,000 + 0) EPS = Earnings available to shareholders No. of equity shares 75,000 1,50,000 = 0.5 50,000 1,00,000 = 0.5
Task "
As the debt-equity ratio increases, there is a trade-off between the interest tax shield and bankruptcy, causing an optimum capital structure."
Do you agree with the statement? Give reasons.
Case Study
Rajart and Associates — Financial Alternatives T his case provides the opportunity to match financing alternatives with the needs of different companies. It allows the reader to demonstrate a familiarity with different types of securities. George Thomas was finishing some weekend reports on a Friday afternoon in the downtown office of Wishart and Associates, an investment-banking firm. Meenda, a partner in the firm, had not been in the New York office since Monday. He was on a trip through Pennsylvania, visiting five potential clients, who were considering the flotation of securities with the assistance of Wishart and Associates. Meenda had called the office on Wednesday and told George's secretary that he would cable his recommendations on Friday afternoon. George was waiting for the cable. George knew that Meenda would be recommending different types of securities for each of the five clients to meet their individual needs. He also knew Meenda wanted him to call each of the clients to consider the recommendations over the weekend. George was prepared to make these calls as soon as the cable arrived. At 4:00 p.m. a secretary handed George the following telegram. George Thomas, Wishart and Associates STOP Taking advantage of offer to go skiing in Poconos STOP Recommendations as follows : (1) common stock, (2) preferred stock, (3) debt with warrants, (4) convertible bonds, (5) callable debentures STOP. See you Wednesday STOP Meenda. As George picked up the phone to make the first call, he suddenly realized that the potential clients were not matched with the investment alternatives. In Meenda's office, George found folders on each of the five firms seeking financing. In the front of each folder were some handwritten notes that Meenda had made on Monday before he left. George read each of the notes in turn. APT, Inc, needs $8 million now and $4 million in four years. Packaging firm with high growth rate in tri-state area. Common stock trades over the counter. Stock is depressed but should rise in year to 18 months. Willing to accept any type of security. Good management. Expects moderate growth. New machinery should increase profits substantially. Recently retired $7 million in debt. Has virtually no debt remaining except short-term obligations.
Contd....
170 Financial Management
Sandford Enterprises
Needs $16 million. Crusty management. Stock price depressed but expected to improve. Excellent growth and profits forecast in the next two year. Low debt-equity ratio, as the firm has record of retiring debt prior to maturity. Retains bulk of earnings and pays low dividends. Management not interested in surrendering voting control to outsiders. Money to be used to finance machinery for plumbing supplies.
Sharma Brothers., Inc.

Needs $20 million to expand cabinet and woodworking business. Started as family business but now has 1200 employees, $50 million in sales, and is traded over the counter. Seeks additional shareholder but not willing to stock at discount. Cannot raise more than $12 million with straight debt. Fair management. Good growth prospects. Very good earnings. Should spark investor's interest. Banks could be willing to lend money for long-term needs. Sacheetee Energy Systems The firm is well respected by liberal investing community near Boston area. Sound growth company. Stock selling for $16 per share. Management would like to sell common stock at $21 or more willing to use debt to raise $ 28 million, but this is second choice. Financing gimmicks and chance to turn quick profit on investment would appeal to those likely to invest in this company. Ranbaxy Industry Needs $25 million. Manufactures boat canvas covers and needs funds to expand operations. Needs long-term money. Closely held ownership reluctant surrender control. Cannot issue debt without permission of bondholders and First National Bank of Philadelphia. Relatively low debt-equity ratio. Relatively high profits. Good prospects for growth. Strong management with minor weaknesses in sales and promotion areas. As George was looking over the folders, Meenda's secretary entered the office. George said, "Did Meenda leave any other material here on Monday except for these notes?". She responded, "No, that's it, but I think those notes should be useful. Meenda called early this morning and said that he verified the facts in the folders. He also said that he learned nothing new on the trip and he sort of indicated that, he had wasted his week, except of course, that he was invited to go skiing at the company lodge up there". George pondered over the situation. He could always wait until next week, when he could be sure that he had the right recommendations and some of the considerations that outlined each client's needs and situation. If he could determine which firm matched each recommendation, he could still call the firms by 6:00 P.M. and meet the original deadline. George decided to return to his office and match each firm with the appropriate financing. Questions 1. Which type of financing is appropriate to each firm? 2. What types of securities must be issued by a firm which is on the growing stage in order to meet the financial requirements? 7.12

Summary ?

Capital structure refers to

the mix of long-term sources of funds,

such as

equity shares

capital,

reserves and surpluses, debenture, long-term debt from outside sources, and preference share capital. ? Capital structure =

Long-term debt + Preferred stock + Net worth or capital structure = Total assets - Current liabilities. ?

In

financing decisions the financial manager's job is to come out with an optimum capital structure,

which maximizes market value per share by minimizing cost of capita. ? An appropriate capital structure

should take into consideration profitability, solvency, flexibility of capital structure, firm's debt capacity, and control. ? The construction of capital structure is difficult, since it involves a complex trade off among several factors.

171 Chapter 7: Capital Structure

and Theories ?

Appropriate capital structure can be determined by adopting: EBIT-EPS approach, valuation Approach and cash flow approach. ?

Indifference point is that EBIT level at which, the EPS is same for two alternative

capital structures. ?

According to the NI approach overall cost of capital continuously decreases as and when the debt content is increased in the capital structure. So optimum capital structure exists when the firm borrows maximum. ? NOI is just opposite to NI approach and argues that capital structure is irrelevant. According to the theory, K o depends on business risk, which is assumed to be constant. So, K o does not change when leverage is changed. ?

The MM approach to capital structure is akin to that of NOI approach and argues that capital structure is irrelevant. 7.13

Keywords

Capital Structure: It

is that part of financial structure, which represents long-term sources.

Optimum Capital Structure:

It is that capital structure where market value per share is maximum and the cost of capital is minimum.

EBIT-EPS Approach: This approach determines the impact of debt on earnings per share.

Net Income Approach: According to this approach, the cost of

debt and the cost of equity do not change with a change in the leverage ratio.

NOI

Approach: According to this approach,

the market value of the firm is

not affected by the capital structure
changes.
WACC Approach: It is
midway between NI and NOI approaches.
MM Theory:
According to
this theory the value
of the firm is independent of its
capital structure. 7.14
Self Assessment
State whether the following statements are
true or false: 1.
Net income approach of capital structure was propounded by David Durand. 2.
According to NI approach the cost of debt and the cost of equity change with a change in the leverage ratio. 3.
According to
NI theory,
cost of equity is assumed to be less than the cost of
debt. 4. Net Operating Income (NOI) theory is propounded by David Durand. 5.
According to NOI theory,
the market value of the firm is not affected by the capital structure
changes. 6.
The
WACC approach is midway between the NI and NOI approach. 7. According to WACC approach, the cost of debt remains almost constant up to certain degree of leverage but decreases thereafter at an increasing rate. 8.
Company issues preference shares or redeemable debentures when it requires finance. 9. Trading on equity uses the variable cost sources of finance in capital structure of firm. 10.
Optimum leverage is that mix of debt & equity which will maximise the market value of the company. 11.
Capital structure that allows
the existing capital structure to change according to the changing conditions without increasing
the costs is called flexible capital structure. 12.
EBIT-EPS Approach is helpful to analyse the impact of debt
use on the shareholders value.
172 Financial Management 7.15 Review Questions 1.
Critically analyse the differences between capital structure and financial structure. 2. From the following information determine optimal capital structure by the calculation of cost of capital. Particulars
Plan 1 Plan 2 Plan 3 Plan 4 Plan 5 Plan 6 Plan 7 Debt as a percentage of total capital 0 0.1 0.2 0.3 0.4 0.5 0.6 Debt cost (K d %) 6 6 6 6.5 7 7.5 8.5 Equity cost (K e %) 14 14 14.5 15 16 18 19 3. Analyse the different forms of capital structure. 4. It is proposed to start a business and so required a capital of
Rs. 10
lakh and an assured return of 15 per cent on investments. Calculate EPS if: (a) Total capital required, by way of Rs. 100 equity (b) If 50 per cent of equity capital and 50 per cent, 10 per cent debentures. 5. Elucidate the relationship between the leverage & cost of capital according to the NI & NOI approach. 6. Calculate EBIT. Interest Rs. 5,0000; sales Rs. 50,000; Variable cost
Rs. 25,000;
Fixed cost Rs. 15,000. 7. List down the approaches available to determine the capital structure of the firm. 8. Critically analyse the different theories of capital structure. 9. From the following information calculate EPS. Particulars Venkat Ltd (Rs. in lakh) Sai Ltd (
Rs. in lakh) Equity (shares of Rs. 10 each) 200 100 Debentures at 12 % - 100 Assets 100 200
Calculate EPS assume (a) 20 per cent
before tax rate of return of assets, (b) 10 per cent before tax return on assets;
company is in 50 per cent tax bracket. 10.
Elucidate the procedure for EBIT-EPS analysis. 11.
There is nothing like optimum capital structure for a firm. Critically
evaluate the statement. 12.
Penta Four Ltd., has currently adopted

financial plan and determine the best one and why? 13.
What basic principles will you advocate in the matter of deciding on a proper constitution of capital structure for a firm? 14.
Comment on the flexibility in the capital structure. 15. Examine the importance of the optimum capital structure of a firm & the ways in which one can deduce it.
173 Chapter 7: Capital Structure and Theories Answers: Self Assessment 1. T 2. F 3. F 4. T 5. T 6. T 7. F 8. T 9. F 10. T 11. T 12. F 7.16
Further Readings
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174
Financial Management
Chapter 8: Concept of Leverages Objectives This chapter on Concept of Leverages covers 1.
Meaning of leverage 2. Types of leverage 3. Financial leverage and its impact on EPS 4. Appropriate combination of operating and financial leverage Introduction
A firm can raise its required finance either equity or debt or both the sources. While constructing
capital structure, a firm can use fixed cost bearing securities for maximisation of shareholder wealth. Leverage
refers to the use of debt to supplement investment. Companies usually leverage to increase returns to stock, as this practice can maximize gains (and losses). Delevering is the action of reducing borrowings. In macroeconomics, a key measure of leverage is the debt to GDP ratio. 8.1
Leverages
Leverage has been defined as, the action of a lever and mathematical advantage gained by it.
In other words, leverage allows accomplishing certain things that are otherwise not possible. The concept is valid in business also. From the financial management point of view,
the term leverage is commonly used to describe the firm's ability to use fixed cost assets or
sources of funds to magnify the returns to its owners.
According to James Home, leverage is, "
the
employment of an asset or
sources of funds for which the firm has to pay a fixed cost or
fixed return."
Here fixed cost (operating cost) or fixed returns (financial cost) remains constant irrespective of the level of output. 8.2
Types of
Leverages Caution
There are two types of leverages, such as: 1. Operating leverage 2. Financial leverage
Now let us discuss about types of leverages. 1. Operating Leverage: Operating leverage is present any time, a firm has operating costs regardless of the level of production. These
fixed costs do not vary with sales.
They must be paid regardless of the amount of revenue available.
Hence,
operating leverage
may be
defined as

the firm's ability to use operating
costs to magnify
the
effects of changes in
sales on its
earnings
before interest and taxes.
Operating leverage
is associated with investment (assets acquisition) activities. Hence,
operating leverage results from the present fixed operating expenses with in firm's income stream. The operating costs are categorised into three: One – fixed costs, which do not vary with
the level of production,
they must be paid regardless of the amount of revenue available.
Example, depreciation plant and machinery, buildings, insurance, etc,. Second – variable costs that varies directly with the level of production. Example, raw materials, direct labour costs, etc. Third – Semi-variable costs, which partly vary and is partly fixed. The degree of operating leverage may be defined as
the change in the percentage of operating income (EBIT), for the change in percentage of sales revenue.
The degree of operating leverage at any level of output is arrived at by dividing the percentage change in EBIT with percentage change in sales.

That is
Degree
of
Operating Leverage = Percentage change in EBIT Percentage change in sales
or DOL = Contribution
Operating Profit (EBIT) Operating leverage may be favourable or unfavourable. High degree of operating leverage indicates
high degree of risk.
It
is good, when revenues are rising and bad when they are falling.
Operating risk (
business
risk) is
the risk of the firm not being able to cover its fixed operating
costs.
The
larger the magnitude, the larger is the volume of sales required to cover all fixed costs.
Before solving the problems, there is a need to know the calculation of earnings available to equity shareholder from the sales revenue. The following table clearly gives a picture about the calculation of earnings available to ordinary shareholder.
Particulars Amount (Rs.) Sales Revenue (units sold × selling price pu) X X X X
Less: Variable cost X X X [Units produced × cost per unit] Contribution X X X X Less: Fixed cost X X X Earnings Before Interest & Taxes (EBIT) X X X X Less: Interest X X X Earnings Before Tax (EBT) X X X X Less: Tax X X X Earnings After Taxes (EAT) X X X X Less: Preference Dividend X X X
Earnings available to Equity shareholder (EAES) X X X X Illustration 1: XYZ Ltd., produced and sold 1,00,000 units of a product at the rate of
Rs.100.
For production of 1,00,000 units, it has spend a variable cost
of
Rs. 6,00,000 at the rate of Rs. 6 per unit and a fixed cost of Rs. 2,50,000. The firm has paid interest Rs. 50,000 at the rate of 5 per cent and Rs. 1,00,000 debt. Calculate operating leverage. Solution: Contribution DOL = EBIT or Operating profit (EBIT) Particulars Amount (Rs.) Sales Revenue (1,00,000 × Rs. 100) 10,00,000
Less: Variable cost (1,00,000 × Rs. 6) 6,00,000 Contribution 4,00,000 Less: Fixed cost 2,50,000 EBIT 1,50,000 4,00,000
Operating leverage = = 2.66 1,50,000
 Illustration 2: From the following particulars of ABC Ltd. Calculate operating

leverage. Particulars Previous Year 2003
Current
Year 2004 Sales revenue 10,00,000 12,50,000 Variable cost 6,00,000 7,50,000 Fixed cost 2,50,000 2,50,000 Solution:
Calculation of EBIT on a Percentage Change Particulars 2002 2004 % change
Sales Revenue 10,00,000 12,50,000 25 Less: Variable cost 6,00,000 7,50,000 25 Contribution 4,00,000 5,00,000 25 Less:
Fixed cost 2,50,000 2,50,000 EBIT 1,50,000 2,50,000 66.67
Increase in revenue/profit/amount Percentage change = Base or previous year revene/profit Percentage change in EBIT
Degree of Operating Leverage (DOL) = Percentage change in sales 66.67 DOL = = 2.6 25 67
Operating leverage 2.667 indicates that when, there is 25 per cent change in sales, the change in EBIT is 2.667 times.
Application of Operating Leverage (a) It is helpful to know how operating profit (EBIT) would change with a given change in units produced. (b) It will be helpful in measuring business risk. 2.
Financial Leverage: A firm may need long-term funds for long-term activities like expansion, diversification, modernization etc. , the financial managers job is to compose funds. The required funds may be raised by two sources: equity and debt. Use of various sources to compose capital is known as financial structure.
The use of
fixed charges, sources of funds such as
debt and preference
share capital along with the equity share capital in capital structure is described as financial leverage.
According to Lawrence,
financial leverage is
the ability of
the
firm
to use fixed financial charges to magnify the effects of changes in EBIT on
the
firm's earnings per share.
In other words, financial leverage
may be defined as
the payment of fixed rate of interest for the use of fixed interest bearing securities, to magnify the rate of return as equity shares. It
is also known as "trading as equity". Hence,
financial leverage results from the presence of fixed financial charges
in the
income statement. Financial leverage associates with financing activities. The fixed charges do not vary with firm's EBIT. They
must be paid regardless of the amount of EBIT available to
the firm. It indicates the effect on EBIT created by the use of fixed charge securities in the capital structure of a firm.
Financial leverage is computed by the following formula: ( )
EBIT or operating profit
Financial Leverage =
EBT or taxable income or Percentage change in EPS Degree of Financial Leverage (DFL) = Percentage change in EBIT
177
Chapter 8: Concept of Leverages
A Financial leverage may be positive or negative.
Favourable leverage occurs when the
firm earns more on the assets purchased with the funds, than the fixed cost of their use
and vice versa. High degree of financial leverage leads to high
financial risk.
The financial
risk refers to
the risk of the firm not being able to cover its fixed financial costs.
Hence, the
financial manager should take into consideration, the level of EBIT and fixed charges while preparing the firm's financial plan.
Gearing and Du Pont Analysis Use of the Du Pont Identity requires that leverage be measured in terms of total assets divided by shareholders' equity, and this is sometimes referred to as gearing or simply leverage: Leverage (gearing) = A/E
Where A- assets E- equity D- Debt

The two measures are related. Since the terms used are the same throughout, debt-to-equity is equal to gearing times debt over assets: D/E = (A/E) × (D/A)
Caselet Mood's Mark Down Tata Steel M oody's Investors Service has downgraded the corporate family rating of Tata Steel Ltd to Ba1 (speculative grade) from Baa2 (investment grade). The rating reflects Tata Steel's weakened balance sheet liquidity and financial profile as a result of its largely debt-funded acquisition of Corus Group plc, the agency said. The rating outlook for Tata Steel is stable. The combined entity is now the world's sixth largest steel company with an annual production capacity of 28 million tonnes of crude steel. The total cost of the acquisition (excluding Corus's debts of $846 million) was approximately $12.9 billion, it said. "The main challenge facing management is to de-risk the enlarged capital structure while not neglecting existing operations and opportunities for rapid growth in Asia. The current high leverage, however, constrains the company's financial strength and flexibility," said Mr. Alan Greene, Moody's Senior Vice-President. "Furthermore, Tata Steel's ambitious capacity expansion plan, will lead to higher project execution risk over several years and materially elevate financial leverage, unless it is deferred. Although the fundamentals of the European and Asian steel industry remain solid, any material decline could further elevate financial leverage."On Wednesday, Fitch assigned a long-term foreign currency issuer default rating of BBB- to Tata Steel Ltd, with a stable outlook. Source: thehindubusinessline.com
Illustration 3: A firm has sales of 1,00,000 units at Rs. 10 pu. Variable cost of the produced products is 60 per cent of the total sales revenue. Fixed cost is
Rs. 2,00,000. The firm has used a debt of Rs. 5,00,000
at 20 per cent
interest. Calculate the operating leverage and financial leverage.
178 Financial Management Solution: Calculation of EBT Particulars Amount (Rs.) Sales Revenue (1,00,000 units × Rs. 10 P.u) 10,00,000
Less: Variable cost (10,00,000 × 0.60) 6,00,000 Contribution 4,00,000 Less:
Fixed cost 2,00,000 EBIT 2,00,000 Less: Interest (5,00,000 × 20 /100) 1,00,000
Earning before tax (EBT) 1,00,000
Operating leverage = Contribution
of
EBIT = 4,00,000 ? 2,00,000 = 2 Financial leverage = 2,00,000 ? 1,00,000 = 2 Illustration 4: From the following particulars of PQR Company, calculate operating and financial leverages. The company's current sales revenue is
Rs. 15,00,000
lakh and sales are expected to increase by 25 per cent.
Rs. 9,00,000 incurred on variable expenses for generating Rs.15 lakh sales revenue. The fixed cost is Rs. 2,50,000.
The company has Rs. 20 lakh equity shares capital and
Rs. 20
lakh, 10 per cent debt capital. Calculate operating leverage and financial leverage. Rs. 10 equity and 50 per cent tax rate.
Solution: Calculation of EPS Particulars
Current position Expected change Percentage of change
Sales Revenue 15,00,000 18,75,000 25 Less: Variable cost 9,00,000 11,25,000 Contribution 6,00,000 7,50,000 Less: Fixed cost 2,50,000 2,50,000
EBIT 3,50,000 5,00,000 42.86 Less: Interest 2,00,000 2,00,000
EBT 1,50,000 3,00,000 Less: Tax 50% 75,000 1,50,000
EAT 75,000 1,50,000 Less: Preference dividend --- --- Earnings available to
shareholder 75,000 1,50,000
EPS 0.375 0.75 100% Working Notes (1) Variable cost in percentage of sales: Total variable cost 9,00,000
VC%= ×100= ×100=60
per cent Sales 15,00,000 Increase in variable cost = 3,75,000 × 60/100 = 2,25,000 Total variable cost = 9,00,000 + 2,25,000 = Rs. 11,25,000 (2) Percentage change in EBIT: Increase or decrease in EBIT 1,50,000 ×100= ×100= 42.86 per cent Base EBIT 3,50,000
179
Chapter 8: Concept of Leverages (3) Interest on Debt: 20 20,00,000× = Rs. 4,00,000 100 (4) EPS Earnings available to shareholders EPS =
No. of ordinary shares Current position = 75000 ? 2,00,000 = 0.375 Expected change = 1,50,000 ? 2,00,000 = 0.75 (a) % change in EBIT Contribution Operating leverage = or EBIT % change in Sales 6,00,000 42.86 = or =1.714 3,50,000 25 (b) % change in EPS EBIT Financial leverage =
or EBT % change in Sales 3,50,000 100 = or = 2.333 1,50,000 42.86
Application of Financial Leverage: (a) It is helpful to know, how EPS would change with a change in operating profit (EBIT). (

b) It will be helpful for measuring the financial risk. 3.
Combined Leverage:
The operating leverage has its effects on operating risk and is measured by the percentage change in EBIT due to the
percentage change in sales. The financing leverage has its effects on financial risk and is measured by the percentage change in EPS due
to
the per centage
change in EBIT.
Since, both these leverages are closely related with the
ascertainment of the firm's
ability to cover fixed charges (fixed operating costs in the case
of operating
leverage and fixed financial costs in the case of financial leverage),
the sum of both, gives us the total leverage or combined
leverage and the risk associated with combined leverage is known as total risk.
The
degree of combined leverage
may be defined as the percentage change in
EPS due to
the percentage change in sales.
Thus the
combined
leverage is: %
Change in EBIT % Change in EPS × % Change in Sales % Change in EBIT = % Change in EPS % Change in Sales
Contribution EBIT × EBIT EBT = Contribution EBT
Illustration 5: VST Corporation
has sales of Rs. 40 lakh, variable cost 70 per cent of the sales and fixed cost is Rs.8,00,000. The firm has
raised Rs.20 lakh funds by issue of debentures at the rate of 10 per cent. Compute operating, financial and combined leverages. Solution: Calculation of EBIT or EBT Particulars Amount (Rs.)
Sales Revenue 40,00,000 Less: Variable cost (40,00,000 × 0.70) 28,00,000 Contribution 12,00,000 Less: Fixed cost 8,00,000 EBIT 4,00,000 Less:

combined leverage can work in both directions. It is favourable if sales increase and unfavourable when sales decrease. This is because the change in sales results in more than proportion returns in the form of EPS. Financial leverage and operating leverage are something like an double-edged sword. They have tremendous acceleration or deceleration effects on EBIT and EPS. A right combination of these leverages is a blessing for the corporate growth, while an improper combination may prove a curse. Operating leverage also acts as a check on financial leverage. The following table shows various combination of operating and financial leverage and the effect of combination. Operating leverage Financial leverage Combined effect High High This combination is very a dangerous policy, which should be avoided. Low Low This combination is a very cautious policy and is not assuming risk. High Low This combination has adverse effect of operating leverage, that is taken care of by having low financial leverage. Low High This combination is an ideal situation. The company can follow aggressive debt policy.
Task
The following data is available for X Ltd.: Selling price
Rs. 120 pu; Variable cost Rs. 70 pu; Total fixed cost
Rs. 200,000 1.
What is the operating leverage when, X Ltd produces and sells 6000 units, 2. What is the percentage change that will occur in the
operating profit (EBIT) of X Ltd., if output increases by 5 per cent?

Notes Negative gearing is a form of financial leverage where an investor borrows money to buy an asset, but the income generated by that asset does not cover the interest on the loan. A negative gearing strategy can only make a profit if the asset rises in value and creates enough future capital gains to cover the shortfall between the income and interest that the investor suffers. The investor must also be able to fund that shortfall until the asset is sold. The tax treatment of interest expenses and future gain will also affect the investor's final return.
Case Study RKV – Leverage T his
case provides the reader with the opportunity to apply different concepts of leverage to the planning process ofthe firm. RKV is an important manufacturer of swimming pools. The firm is located in a semi-urban area. The firm's primary markets are hardware and discount stores located in five Northeastern states. Lucid products reach its market mostly by truck. Most of RKV's financial planning is done by George Lee, GM of finance. Lee has recently prepared financial statements estimating next year's operating results. He believes that, the firm will earn just over $800,000 in the current year on sales of $8 million and is forecasting sales of $13 million next year. It is likely, that variable costs will remain at approximately the same percentage of sales next year as this year. Fixed costs will probably rise to 12 per cent next year.
Contd...
181 Chapter 8: Concept of Leverages
Company A has an EBIT of $2.6 million, no debt, $8 in equity (300,000 shares), $18 million. Company B has the same level of sales, an EBIT of $2.85 million, $3.3 and sales of debt at 11 per cent, and $8 in equity (300,000 shares). The tax rate is 35 per cent. RKV has been investigating the addition of a number of new product lines to be sold through its existing distribution channels. Two items have been of particular interest. The first would involve the production and sale of chaise lounges for use around swimming pools. The product would be aimed at commercial users, such as hotels, but could be sold through hardware and discount stores as a residential product. The second new item would be a patio umbrella. The umbrella would be a large, 12-rib, multicolored canvas with fringe and would be aimed at the residential market. Both products would fit in
with RKV's existing product line and neither would require any increase in
networking capital. In his analysis regarding the new product proposals, George Lee recognized that, the firm would have to build new facilities to produce each product. The lounges would require an investment of $3.8 million which would include the purchase and installation of manufacturing and packaging machinery. The umbrellas, although a relatively simple concept, would require an investment of $6 million for efficient production. For both products, it would take 80 days to install the equipment. This means that production could begin by January 1st. Len haton, the firm's vice-president of sales, has prepared sales estimates for the two products. He forecasts $4 million in sales for the lounges and $ 4.3 million in sales for the umbrellas on annual basis. The report from the cost accounting department estimates variable costs of two-third of the sales value for the lounge unit and 61 per cent for the umbrellas. Fixed costs would be $400,000 and $ 650,000, respectively. To finance the new projects, Lee has been working with Lucid's investment bankers. At a recent meeting, Lee was told that the firm could raise money from two sources under the current market conditions. First, it could borrow on an 11 year note at 12 per cent for either or both the projects in an amount not exceeding $ 8.5 million. Second, the investment bankers felt confident that they could underwrite a preferred stock issue with a 12 per cent dividend upto a dollar amount of $6 million. The issue would have to be cumulative with respect to dividends. Common stock financing would not be a possibility at present.
RKV Balance Sheet (Projected through December 31 this Year) Cash $ 425,000 Accounts receivables 750,000 Inventory 500,000 Fixed Assets 7,650,000 $ 9,325,000
Current liabilities $ 600,000 Long-term debt (10%) 3,800,000 Common stock ($3 par) 1,500,000 Retained earnings 3,425,000 $ 9,325,000 Question What would be the effect of acceptance of each project on leverages? Would it give a favourable financial leverage to RKV?
RKV Income Statement (Projected through December 31 this Year)
EBIT 1,926,520 EBT 1,536,520 Fixed Costs 1,043,480 Interest 390,000 Marginal contribution 2,970,000 Net Income 1,027,303 Sales $ 8,000,000 Taxes 509,217
Variable Costs 5,030,000
182 Financial Management 8.3 Summary ?
Leverage has been defined as
the firm's ability to use fixed cost assets or
sources of funds to magnify the returns to its owners. ? There are two types of leverages: (i) operating leverage and (ii) financial
leverage. ?
Operating Leverage (OL) refers
as
the firm's ability to use operating
costs to magnify

the
effects of changes in sales on its
earnings before interest and taxes. ?
The Degree of Operating Leverage (DOL) may be defined as
the change in the
percentage of operating income (EBIT),
for the change in percentage of sales revenue. ?
Financial Leverage (FL) is
the ability of
the
firm
to use fixed financial charges to magnify the effects of
changes in EBIT on
the
firm's earnings per share. ?
Financial leverage
is
helpful to know how EPS would change with a change in operating profit (EBIT), and for measuring financial risk. ?
The degree of combined leverage is the percentage change in EPS due to
the percentage change in sales. 8.4
Keywords
Leverage: It allows accomplishing certain things that are otherwise not possible. Operating
Leverage: It
results from the present fixed operating expenses within firm's income stream.
Financial Leverage: It is the payment of fixed rate of interest for the use for the fixed interest bearing securities, to magnify the rate of return as equity shares. Debt: It
is that which is owed; usually referencing assets owed.
Operating Risk: It
is
the risk of the firm not being able to cover its fixed operating costs.
Return on Assets: This percentage shows how profitable a company's assets are in generating revenue.
Degree of Operating Leverage: It is
the change in the percentage of operating income (EBIT) for the change in percentage of sales revenue.
Operating Income: It is
a measure of a firm's profitability that excludes interest and income tax expenses. 8.5

OL is helpful in knowing, how the operating profit (EBIT) would change with a given change in units produced, and in measuring business risk. 2. Fixed cost is affected by the level of output of firm. 3. Financial leverage is also known as "trading as equity". 4. Higher risk is accompanied by the higher degree of operating
leverage. 5.
Financial leverage indicated
the ability of firm
to use fixed financial charges to magnify the effects of changes in EBIT on
firm's earnings per share. 6.
Degree of operating leverage
represents the contribution per operating profit. 7. Operating risk is inversely related to the volume of the sales.
183 Chapter 8: Concept of Leverages 8. Fixed charges of the firm vary directly with the firms EBIT. 9.
When the earnings on the assets purchased with the funds are more than the fixed cost of
the firm, it is positive financial leverage. 10. Both the
leverages are related with the ascertainment of firm's ability to cover fixed charges. 11.
Leverage is used to describe the firms' ability to use fixed cost assets or
sources of funds to magnify the returns to its owners. 12.
The degree of the combined leverage is the percentage change in EPS due to the percentage change in sales. 8.6

Review Questions 1.
AMC Company Ltd. provided the following information and requested you to
Calculate (a) Operating leverage with 4000 and 6000 quantity of sales, (b) operating
BEP (Q).
Given, Selling price
Rs. 300, variable cost Rs. 200,
Fixed cost Rs. 2, 40,000 2. Analyse the importance of the financial leverage for a firm. 3.
Given: Financial leverage is 2, Fixed interest charges Rs. 1, 00,000. Find out the operating profit. 4. Operating leverage is associated with the investment
activities. Comment. 5. Given the operating income Rs. 2, 00,000 and taxable income Rs. 1, 25,000,
calculate the financial leverage. 6. Analyse the importance of the concept of leverage in modern scenario. 7.
From the following data, calculate operating leverage. Year
EBIT (Rs.) Sales in units 1998 60,000 3,00,000 1999 70000 3,60,000 8. Calculate operating leverage. Interest
Rs. 5,0000; sales Rs. 50,000; Variable cost Rs. 25,000;
Fixed cost Rs. 15,000. 9. Analyse the ways in which trading on equity maximizes the equity earnings. 10.
ABC companies capital structure is of Rs. 5 lakh, [Rs. 100 each share] and 10 per cent debt capital equity of Rs. 2,00,000.
The sales are increased by 20 per cent from 50,000 to 60,000 units.
Rs. 10 is the selling price per unit, and Rs. 6
is variable cost
per unit and fixed expenses amount to
Rs. 1,00,000.
Tax rate is 10
per cent calculate. (a)
Percentage increase in EPS (b) The degree of operating leverage at 5,0000 units and 60,000 units (c) The degree of financial leverage at 50,000 units and 60,000 units 11.
Calculate operating and financial leverages
under situations A, B and C and Financial plan 1,2, and 3 respectively from the following
functions of XYZ Co.
Also find out the combination of operating and financial leverage that gives the highest value and least value:
Installed capacity = 12,000 units; Actual production & sales = 800 units
Selling price = Rs. 15 p.u; Variable cost =
Rs. 10 p.u

Chapter 9:
Fundamentals
of Capital Budgeting Chapter 9: Fundamentals of Capital Budgeting Objectives This chapter on Fundamentals of Capital Budgeting covers 1. Concept of capital budgeting 2. Importance of capital budgeting 3.
Different capital budgeting appraisal methods 4. Different kinds of capital investment proposals 5.
Capital budgeting process 6. Difficulties of capital budgeting
decisions 7. Different kinds
of capital budgeting decisions Introduction Capital project planning is the process by which companies allocate funds to various investment projects designed to ensure profitability and growth. Evaluation of such projects involves estimating their future benefits to the company and comparing these with their costs. In a
competitive economy, the economic viability and prosperity of a company depends upon the effectiveness and adequacy of capital expenditure evaluation and fixed assets management. 9.1 Meaning and Definition Capital budgeting refers to
planning the deployment
of available capital for the purpose of maximizing the long-term profitability of the
firm. It is
the firm's decision to invest its current funds most efficiently in long-term activities in anticipation
of flow of future benefits over a series of years.
In other words,
capital budget

may
be defined as the firm's decision to invest its current funds
most efficiently in
the long-term assets in anticipation of an expected flow of benefits over a series of years.
Therefore, it involves a current outlay or series of outlay
of cash resources in return for an anticipated flow of future benefits.
Capital budgeting is the process to identify analysis and select investment projects, whose returns (cash flows) are expected to extend
beyond one year. Firm's investment decisions would
generally include expansion, acquisition, and
modernization, replacement of fixed assets or long-term assets.
From the above definition, we may identify the basic features of capital budgeting viz., potentially large anticipated benefits, relatively a high degree risk, and
a relatively long-time period between the initial outlay and anticipated return.
Caution
Capital Budgeting Involves 1. The search
for new and more profitable investment proposals 2. The making of an economic analysis to determine the profit potential of each investment proposal.
In simple,
capital budgeting refers to the total process of generating, evaluating, selecting and following upon capital expenditure alternatives.
Capital budgeting
may be
defined as
the firm's formal process for
the acquisition and investment of capital.
It involves
the
firm's decision to invest its current funds for addition, disposition, modification and replacement of fixed assets.
186
Financial Management 9.2 Features of Capital Budgeting Decisions Capital budgeting decisions have the following features: 1. It involves exchange of current funds for future benefits. 2. They benefit
future periods. 3.
They have the effect of increasing the capacity, efficiency, span of life regarding future benefits. 4.
Funds are invested in long-term activities. Example: Some of the examples of capital budgeting decision are: 1. Introduction of a new product. 2. Expansion of business by investing in plant and machinery. 3. Replacing and modernizing a process. 4. Mechanization of process. 5. Choice between alternative machines. 9.3 Significance of Capital Budgeting
Capital budgeting
decisions are significant due to the following reasons: Growth: The fixed assets are earning assets, since they have decisive influence on the rate of return and direction of firm's growth. A wrong decision
can affect the other projects, which are already running under profits. In other words unwanted or unprofitable investments will result in heavy operating costs.
More Risky: Investment in long-term assets increases average
profit but it may lead to
fluctuations in its earnings, then firm will become more risky. Hence, investment decision decides the future of the business concern.
Huge investments: Long-term assets involve more initial cash outflows, which makes it imperative for the firm to plan its investment programmes very carefully and make an advance arrangement
of funds either from internal sources or external
sources or from both the sources. Irreversibility: Long-term asset investment decisions are not easily reversible and that too, with much financial loss to the firm; due to difficulties in finding out
market for such capital items once they have been used. Hence, firm will incur

more loss in that type of capital assets. Effect on other Projects: Whenever long-term asset investment is a part of the expansion programme, its cash flow effects the projects under consideration, if it is not economically independent. The effect may be increased in profits or decrease in profits. So, while taking investment in long-term assets, the decision maker has to check the impact of this project on other projects, if the effect is in terms of increase in profits then he/she has to accept the project and vice versa. Difficult Decision: Capital budgeting decision is very difficult due to (a) decision involves future years cash inflows, (b) uncertainty of future and more risk. Other reasons regarding the significance of capital budgeting are: 1. The decision-maker loses some of his flexibility, for the results continue over an extended period of time. He has to make a commitment for the future. 2. Asset expansion is related to future sales. 3. The availability of capital assets has to be phased properly. 4. Asset expansion typically involves the allocation of substantial amounts of funds.

 5. Many firms fail, because they involve the allocation of substantial amount of funds. 6. Decision relating to capital investment is among the most difficult and, at the same time, most critical that a management has to make. These decisions require an assessment of the future events which are uncertain. 7. The most important reason for
capital budgeting decisions is that, they have long-term implications
for a firm. The effects of a capital budgeting decision extends
into the future and have to be put up with,
for a longer period than the consequences of current operating expenditures. 8.
Capital budgeting is an important function of the management because it is one of the critical determinants of success or failure of the company, advised or excessive capital spending may create excessive capacity and increase in operating costs limits the viability of company funds and reduce its profit earning capacity. 9.4
Obstacles for Capital Budgeting
Capital budgeting decisions are very important, but they pose difficulties, which shoot
from three principle sources:
Measurement Problem: Evaluation of project requires identifying and measuring its costs and benefits, which is difficult since they involve tedious calculations and lengthy process. Majority of replacement or expansion programmes have impact on some other activities of the company (introduction of
new product may result in the decrease in sales of the other existing product) or have some intangible consequences (improving morale of the workers).
Uncertainty: Selection or rejection of a capital expenditure project depends on expected costs and benefits in the future. Future is uncertain,
if anybody tries to predict the future, it will be childish or foolish. Hence, it is impossible to predict the future cash inflows.
Temporal Spread: The costs and benefits, which are expected, are associated with a particular capital expenditure project spread out over a long period of time, which is 10-20
years for industrial projects and 20-50 years for infrastructure projects. The temporal spread creates some problems in estimating discount rates for conversation of future cash inflows
in present values and establishing equivalences. 9.5 Process/Steps of Capital
Budgeting The process of Capital budgeting may be divided into six broad phases/steps, viz., planning
or
idea generation, evaluation/ analysis, selection, financing, execution/implementation and review. Figure 9.1
depicts the relationship among phases of capital budgeting. 1. Planning/Idea Generation: The search for promising project ideas is the first step in capital budgeting process. In other words
the planning phase of a firm's capital budgeting process is concerned with articulation of its broad investment strategy and the generation and preliminary search of project proposals.
Identifying a new worthwhile project is a complex problem. It involves a careful study from many different angles. Ideas can be generated from the sources like, performance analysis of existing industries,
examination of input and output of various industries, review of import and export data, study plans outlays and government guidelines,
looking at the suggestions of financial institutions and developmental agencies, study of local materials and resources, analysis of economic and social trends, study of new technological developments, draw clues from the consumption abroad, explore the possibility of reviving sick units, identity unfulfilled psychological needs, attending trade fairs, stimulate creativity for generating new product ideas among the employees. 2.

Evaluation/Analysis: In the preliminary screening, when a project proposal suggests that the project is prima facie worthwhile, then it is required to go for evaluation/analysis. Analysis has to consider aspects like, marketing, technical, financial, economic and ecological analysis. This phase focuses on gathering data, preparing, summarizing relevant information about various alternative projects available, which are being considered for inclusion in the capital budgeting process. Costs and benefits are determined based on the information gathered about other alternative projects. 3. Selection: Selection or rejection follows the analysis phase. If the project is worthwhile, after using a wide range of evaluation techniques, which are divided into traditional/non-discounted and modern/discounted. Selection and rejection

188 Financial Management of a project depends on the technique used to evaluate and its rule of acceptance. The acceptance rules are different for each and every method. Apart from the use of techniques of evaluation, there are few techniques available for measurement (range, standard deviation, coefficient of variation) and incorporation of risk (risk adjusted discount rate, certainty equivalent, probability distribution approach and decision tree approach) in capital budgeting. 4. Financing of the Project: After the selection of the project, the next step is financing. Generally the amount required is known after the selection of the project. Under this phase financing arrangements have to be made. There are two broad sources available such as equity (shareholders' funds - paid up share capital, share premium, and retained earnings) and debt (loan funds - term loans, debentures, and working capital advances). While deciding the capital structure, the decision maker has to keep in mind some factors, which influence capital structure. The factors are Flexibility, Risk, Income, Control, and Tax benefits (referred to by the acronym FRICT). Capital should consist of debt and equity. 5. Execution/Implementation: Planning of paper work and implementation is physically different in implementing the selected project. Implementation of an industrial project involves the stages, project and engineering designs, negotiations and contracting, construction, training, and plant commissioning. Translating an investment proposal from paper work to concrete work is complex, time consuming and a risky task. Adequate formulation of project, use of the principle of responsibility accounting and use of network techniques (PERT and CPM), are very much helpful for the implementation of a project at reasonable cost. 6. Review of the Project: Once the project is converted from paper work to concrete work, then, there is need to review the project. Performance review should be done periodically, under this performance review, actual performance is compared with the predetermined or projected performance.

Principles of Capital Budgeting Capital expenditure decisions should be taken on the basis of the following factors: 1. Creative search for profitable opportunities: Profitable investment opportunities should be sought to supplement existing proposals. 2. Long-range capital planning: It indicates sectoral demand for funds to stimulate alternative proposals before the aggregate demand for funds is finalized. 3. Short-range capital planning: It indicates sectoral demand for funds to stimulate alternative proposals before the aggregate demand for funds is finalized. 4. Measurement of project work: Here, the project is ranked with the other projects. 5. Screening and selection: The project is examined on the basis of selection criteria, such as the supply cost of capital, expected returns alternative investment opportunities, etc. 6. Retirement and disposal: The expiry of the life cycle of a project is marked at this stage. 7. Forms and procedures: These involve the preparation of reports necessary for any capital expenditure programme. 9.6

Ranking of Capital Budgeting Proposals or

Classification of Investment Proposals A firm should select its own projects after considering the advantages and disadvantages of each one of them. For this purpose, it should rank the proposals. Proposals are ranked on the basis of the following considerations: 9.6.1 Mutually Exclusive Investment Proposals This kind of Proposal connotes those proposals which represent alternative methods of doing the same job. In case one proposal is accepted, the need to accept the other is ruled out. For Example, there are 5 pieces of equipment available in the market to carry out a job. If the management chooses one piece of the equipment, others will not be required because they are mutually exclusive projects.

189

Chapter 9: Fundamentals of Capital Budgeting 9.6.2 Contingent Investment Proposals There are certain projects utility which is contingent upon the acceptance of others. Example: Management of an enterprise may be contemplating to construct, employee's quarters and a co-operative shops. If it decides not to build quarters, the need for the shop does not arise. If the management decides to construct quarters but not shops, the employees will have no shop to make purchases. These are contingent projects. 9.6.3 Independent Investment Proposals It includes all such investment proposals as are being considered by the management for performing different tasks with in the organization. Investments in machinery, automobiles, buildings, parking lot, and recreation centre and so on are the examples of the independent investment proposals. Acceptance of each of these projects is done on its own merit without depending on other projects. 9.6.4

Replacement The investments, which are contemplated for replacing, old and antiquated equipment so that the job could be performed more efficiently, are termed as replacements. 9.7

Capital Budgeting Appraisal Methods

In view of the significance of capital budgeting decisions, it is absolutely necessary that the method adopted for appraisal of capital investment proposal is a sound one. Notes Any appraisal method should provide for the following: 1. A basis of distinguishing between acceptable and non-acceptable projects. 2. Ranking of projects in order of their desirability. 3. Choosing among several alternatives. 4. A criterion which is applicable to any conceivable project. 5. Recognizing the fact, that bigger benefits are preferable to smaller ones and early benefits are preferable to later ones.

There are many methods for evaluating and ranking the capital investment proposals. In all these methods, the basic method is to compare the investments in the projects regarding the benefits derived. 1. Traditional Methods: (a) Payback period method (b) Accounting rate of return method 2. Discounted Cash Flow Methods: (a) The net present value of method (b) Internal rate of return (c) Profitability index or benefit-cost-ratio

Project Evaluation Techniques Traditional or Non-discounted Cash Flow Modern or Discounted Cash Flow Pay Back Period Accounting Role of Return NPV Method I.R.R. P.I. Method

It should be kept in mind that different firms may use different methods. Which method is appropriate to a specific project of the firm, depends upon the relevant circumstances of the proposed project under evaluation.

Caselet Multinational Capital Budgeting M ultinational companies are constantly acquiring and disposing of assets globally in the normal course of business. Shareholder wealth is created when the MNC makes an investment that will return more (in present value terms) than what it costs. Among the most important decisions that MNC managers face is the choice of capital projects globally. These investments will determine the firm's competitive position in the marketplace, its overall profitability, and, ultimately, its long-run survival. Multinational capital budgeting, like domestic capital budgeting, focuses on the cash flows of prospective long-term investment projects. It is used both in traditional foreign direct investment analysis, such as the construction of a chain of retail stores in another country, as well as cross-border mergers and acquisitions activity. Capital budgeting for a foreign project uses the same Net Present Value (NPV) discounted cash flow model used in domestic capital budgeting. However, multinational capital budgeting is considerably more complex due to a number of additional factors that need to be considered. Some of these factors are as follows. Source: thehindubusinessline.com 9.7.1

Pay Back Period

Pay back period is one of the most popular and widely recognized technique of evaluating investment proposals. Pay back period may be defined as that period required, to recover the original cash outflow invested in a project. In other words it is the minimum required number of years to recover the original cash outlay invested in a project. The cash flow after taxes is used to compute pay back period. Pay back period can be calculated in two ways, (i) Using formula (ii) Using Cumulative cash flow method. The first method can be applied when the cash flows stream of each year is equal/annuity in all the years' or projects life, i.e., uniform cash flows for all the years. In this situation the following formula is used to calculate pay back period. Pay Back Period = Original Investment ÷ Constant Annual Cash Flows after Taxes or Initial investment (cash outlay) ( ) Initial investment cash outlay Payback period = Annual cash inflow

Figure 9.1: Techniques of Project Valuation

The second method is applied when, the cash flows after taxes are unequal or not uniform over the projects' life period.

In this situation, pay back period is calculated through the process of cumulative cash flows, cumulative process goes up to the period where cumulative cash flows equals to the actual cash outflows. Put it simple: PBP = Year before full recovery + (Unrecovered Amount of Investment ? Cash flows during the year) Accept-Reject Rule Acceptance or rejection of the project is based on the comparison of calculated PBP with the maximum or standard pay back period. Put it simple Accept: Cal PBP > Standard PBP Reject: Cal PBP < Standard PBP
Considered: Cal PBP = Standard PBP
Advantages Pay Back Period The merits of pay back period are: 1. It is very simple and easy to understand. 2. Cost involvement in calculating pay back period is very less as compared to sophisticated methods. Limitations of Pay Back Period Payback period method suffers from certain limitations such as: 1. It ignores cash flows after pay back period. 2. It is not an appropriate method of measuring the profitability of an investment, as
it does not consider all cash inflows yielded
by the
investment. 3. It does not take into consideration time value of money. 4.
There is no rationale basis for setting a minimum pay back period. 5. It
is not consistent with the objective of maximizing shareholders' wealth.
Share value does not depend
on pay back periods of investment projects.
For calculating payback period we need Cash Flows After Taxes (CFAT)

xxx Earnings After Taxes but Before Depreciation (EATBD)

Illustration 1: A
project requires an
initial investment
of Rs. 1,20,000
and yields annual cash inflow of Rs. 12,000 for 12 years.
Find the payback period.
Solution: 1,20,000/12,000 = 10
years.
In case of unequal
annual cash inflows,
cumulative cash inflows will be calculated and by interpolation, the exact payback period can be
found out. Illustration 2: The
project requires an initial investment of
Rs. 20,000 and the annual cash inflows for 5 years is Rs. 6,000, Rs. 8,000, Rs. 5,000, Rs. 4,000
and Rs. 4,000
respectively. Find the payback period. Solution: Year Cash Inflow Cumulative
Cash Inflow 1 2 3 4 5
Rs. 6,000 Rs. 8,000 Rs. 5,000 Rs. 4,000
Rs. 4,000 Rs. 6000 Rs. 14,000 Rs. 19,000 Rs. 23,000 Rs. 27,000
The above table shows that in 3 years,
Rs. 19,000 has been recovered, Rs. 1000
is
left out of initial investment. In the fourth year, the cash inflow is Rs. 4000. It means the payback period is between three and four years,
ascertained as follows: - = + = 1000 Pay back period 3 years 3.25
years 4000 Accept or Reject Criterion The decision to accept or reject a proposal depends upon how the computed pay-back figures compares with a standard.
For example, if the pay-back standard were 7 years, the project with

the 5 years pay-back period would be accepted. Therefore, the decision rule is accepted if the computed pay-back period is less than the standard ; other wise it is rejected. Illustration 3: A company is considering expanding its production. It can go either for an automatic machine costing
Rs. 2,24,000
with an estimated life of 5 years or an ordinary machine costing Rs.60,000 having an estimated life of 8 years. The annual sales and costs are estimated as follows: Particulars Automatic Machine (
Rs.) Ordinary Machine (Rs.) Sales 1, 50,000 1, 50,000 Costs:
Materials Labour Variable overheads 50,000 12,000 24,000 50,000 60,000 20,000 Calculate the payback period and advice the management. Solution: Calculation of PBP needs cash flows after tax. Hence, now calculate CFAT
193 Chapter 9: Fundamentals of Capital Budgeting Calculation of Cash Inflows After Taxes (CFAT) Particulars Automatic Machine (Rs.) Ordinary Machine (Rs.) Sales Less costs: Material +Labour +V. overheads EBDT Less: Depreciation (WNi) EBT Less: Taxes at 50 per cent EAT Add: depreciation Cash inflow (CFAT) 1, 50,000 86,000 64,000 44,800 19,200 9,600 9,600 44,800 54,400 1, 50,000 1, 30,000 20,000 7,500 12,500 6,250 6,250 7,500 13,750
Payback period = Initial Investment ? Constant Annual Cash Inflows PBP of Automatic Machine = 2, 24,000 ? 54,400 = 4.11 Years PBP of Ordinary Machine = 60,000 ? 13,750 = 4.36 Years Advice: The payback period in case of automatic machine is shorter. Hence automatic machine is preferable. Working Note: Depreciation = (Original Investment – Scrap Value) ? Life Period Automatic Machine: (2, 24,000 – 0) / 5 =
Rs. 44,800
Old Machine: (60,000 – 0) / 8 = Rs. 7,500 Assumption : Tax rate assumed as 50 per cent
Illustration 4: A project costs
Rs.20 lakh
and yields annually a profit of Rs.3, 00,000
after depreciation at 12½ per cent but before tax
at 50
per cent. Calculate payback period and suggest whether it should be accepted or rejected based on 6 year standard pay back period. Solution: Calculation of Cash Flows After Tax Particulars Amount (Rs.) Profit After Depreciation Before Taxes Less: Taxes at 50 % EAT Add: Depreciation (Note) Cash inflow (CFAT) 3, 00,000 1, 50,000 1, 50,000 2, 50,000 4, 00,000
Payback period = Initial Investment ? Constant Annual Cash Inflows Payback period =
Rs.20,00,000 ? Rs.4,00,000 = 5
years Decision: Project should be accepted since calculated PBP is less than the standard PBP Working Note:
Depreciation = Cost of Project ? Depreciation Rate = 20, 00,000 ? 0.125 =
Rs.2, 50,000 Illustration 5: (When cash inflows are uneven) XYZ Ltd. is considering two projects. Each requires an investment of Rs.10, 000. The firm's cost of capital is 10 per cent. The net cash inflows from investments in two projects X and Y are as follows: Year 1 2 3 4 5 X (Rs.) Y (Rs.) 5,000 1,000 4,000 2,000 3,000 3,000 1,000 4,000 -- 5,000 The company has fixed three years payback period as the cut-off point. State which project should be accepted.
194 Financial Management Solution: Calculation of Pay Back Period Project X Project Y Year CFAT (Rs.) Cumulative CFAT (Rs.) CFAT (Rs.) Cumulative CFAT (Rs.) 1 2 3 4 5 6 5,000 4,000 3,000 1,000 .... 5,000 9,000 1,000/3,000 ? =0.33 1,000 2,000 3,000 4,000 5,000 6,000 1,000 3,000 6,000 10,000 15,000 21,000 Recoverable Amount ? Concerned year cash flows PBP of Project x is 2.33 years PBP of Project Y is 4 years Since the cut-off point is 3 years, project X should be accepted i.e. 2.33 years is less than 3 years. Merits 1. It is an important guide to investment policy. 2. It lays great emphasis on liquidity. 3. The rate which capital is recouped has a positive significance. 4. The method enables a firm to choose an investment which yields a quick return on cash funds. 5. It is easy to understand, calculate and communicate to others. 6. Other than its simplicity, the main advantage claimed for the payback method is, that it is a built-in safeguard against risk. 7. It enables a firm to determine the period required to recover the original investment with some percentage return and thus, arriving at the degree of risk associated with the investment. Demerits 1. It does not measure the profitability of a project. 2. The time value of money is ignored. 3.

is only a rule-of-thumb method. It is often difficult to judge objectively whether one proposed project is superior to another and, if so, by how much. 5. No allowance is made for taxation nor is any capital allowance made. 9.7.2 Accounting Rate of Return/
Average Rate of Return (ARR) Accounting rate of return
method
uses accounting information as revealed by financial statements, to measure the profitability of

the investment
proposals. It is
also known as the Return on Investment (ROI).
Some times
it is known as Average Rate of Return (ARR). Average annual earnings after depreciation
and taxes are used to calculate ARR. It is measured in terms of percentage. ARR can be calculated in two ways. 1.
Whenever it is clearly mentioned as accounting rate of return If accounting rate of return is given in the problem, return on original investment method should be used to calculate accounting rate of return.
195
Chapter 9: Fundamentals of Capital Budgeting ( ) Average annual EAT or PAT
Accounting Rate of Return (ARR) = × 100 Original investment OI * * OI = Original investment + Additional NWC + Installation Charges + Transportation Charge 2.
Whenever
it is clearly mentioned as average rate of return If Average rate of return is given in the Illustration, return on average investment method should be used to calculate average rate of return. ( ) Average annual EAT Average Rate of Return = × 100 Average investment AI * * AI = (Original investment – Scrap)1/2 + Additional NWC + Scrap value 3.
If ARR is given in the problem, any one of the above method can be used to calculate ARR (preferably return on average investment method).
Accept-Reject Rule Acceptance or rejection of the project is based on the comparison of calculated ARR with the predetermined rate or cut of rate. Accept: Cal ARR < Predetermined ARR or Cut-off rate Reject: Cal ARR > Predetermined ARR or Cut-off rate Considered: Cal ARR = Predetermined ARR or Cut-off rate Advantages of ARR Method The ARR method has some merits. 1.
The most significant merit
of ARR is that, it is very
simple to understand and easy to
calculate. 2.
Information can easily
be drawn from accounting records. 3. It takes into account all profits of the projects' life period. 4.
Cost involvement in calculating pay back period is very less
in comparison to the sophisticated methods, since it saves analysts' time. Limitations of ARR Method ARR method suffers form serious demerits. 1. It uses accounting profits instead of actual cash flows after taxes, in evaluating the projects.
Accounting profits are inappropriate for evaluating and accepting projects, since they are computed
based on arbitrary assumptions and choices and also include non-cash items. 2.
It
ignores the concept of time value of money. 3. It does not
allow profits to be reinvested. 4.
It
does not differentiate between the size of the investment required for each project. 5.
It does not take into consideration any benefits, which can accrue to the firm from the sale of equipment, in abundance which is replaced by the new investment. 6. It feels that, 10 per cent rate of return for 10 years is more beneficial than eight per cent rate of return for 25 years.
196 Financial Management 7. It is incompatible with the objective of wealth maximization to the equity shareholders. 8.

Illustration 6: The working result of two machines are given below:
Machine X (Rs.) Machine Y (Rs.)
Cost Sales per year Total Cost Per Year (excluding depreciation Expected Life 45,000 1,00,000 36,000 2 years 45,000 80,000 30,000 3 years Which of the two should be preferred? Solution: Computation of Average Income
Machine X (Rs.) Machine Y (Rs.)
Sales per year 1,00,000 80,000 Less: Cost per year 36,000 30,000 64,000 50,000 Less: Depreciation 22,500 15,000 Net profit 41,500 35,000 Average Income 41,500 35,000 Average Investment 22,500 22,500 Average Income ARR 100 Average investment = ? 41,500 For 'X' 100 184% 22,500 = ? = 35,000 For'Y' 100 156% 22,500 = ? = Machine X has higher ARR. Hence, Machine X should be preferred.
Illustration 7: A

limited firm has under consideration the following two projects. Their details are as follows: Project
X (
Rs.) Project Y (Rs.)
Investment in machinery 10,00,000 15,00,000
Working capital 5,00,000 5,00,000 Life of machinery (Years) 4 6 Scrap value of machinery (%) 10 10 Tax rate (%) 50 50
197
Chapter 9: Fundamentals of
Capital Budgeting Income before depreciation and tax at the end of Year 1 2 3 4 5 6 X (
Rs.) Y (Rs.) 8,00,000 15,00,000 8,00,000 9,00,000 8,00,000 15,00,000 8,00,000 8,00,000 -- 6,00,000 ---- 3,00,000
You are required to calculate the average rate of return and suggest which project is to be preferred. Solution:
Calculation of ARR: (Average annual income after taxes ? Average investment) × 100 Project X = (2,87,500 /10,50,000) × 100 = 27.38 per cent Project Y = (3,54,167/ 13,25,000) × 100 = 26.73 per cent ARR of Project X is higher than that of Project Y. Hence Project X is preferred. Working Notes: 1. Calculation of Average Annual Income After Depreciation and Taxes: Project X (
Rs.)
Project Y (Rs.) Average EBDT 8,00,000 9,33,333 Less: Depreciation 2,25,000 2,25,000 Average EBT 5,75,000 7,08,333 Less: Taxes at 50 % 2,87,500 3,54,166 Average EAT 2,87,500 3,54,167 2. Calculation of Average Investment (Original investment – Scrap value)1/2 + Additional Working Capital + Scrap value Project X: (10,00,000 – 1,00,000) 1/2 + 5,00,000 + 1,00,000 =
Rs.10,50,000
Project Y: (15,00,000 – 1,50,000) 1/2 + 5,00,000 + 1,50,000 = Rs.13,25,000 3. Depreciation: (Original Investment – Scrap Value) ? Life Period Project X: (10,00,000 – 1,00,000)/4 =
Rs. 2,25,000 Project Y: (15,00,000 – 1,50,000)/6 = Rs. 2,25,000 4. Average EBDT = 32,00,000/4 = 8,00,000 56,00,000 /6 = 9,33,333 Illustration 8: A project costs Rs. 5,00,000 and has a scrap value of

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Rs. 1,00,000. Its stream of income before depreciation and taxes during first year through five years is Rs. 1,00,000, Rs. 1,20,000, Rs. 1,40,0000, Rs. 1,60,000 and Rs. 2,00,000. Assume a 50 per cent tax rate and depreciation on straight-line basis.

Calculate the accounting rate for the project. Also state whether you recommend the project for investment when the management expects a rate of return of 10 per cent. Solution: ARR: (Average EAT ? Original investment) x 100 ARR = (Rs.32,000/5,00,000) ? 100 = 6.4 per cent As accounting rate of return for Project is less than the 10 per cent set by the management, hence the project can be rejected.
198 Financial Management Working notes: 1. Calculation of Average EAT Rs. Average EBDT (Note iii) 1,44,000 Less: Depreciation (Note ii) 80,000 Average EBT 64,000 Less: taxes at 50 per cent 32,000 Average EAT 32,000 2. Depreciation = (5,00,000 – 1,00,000) / 5 = Rs. 80,000 3. Average EBDT = Total profits / No. of years = 7,20,000 / 5 =
Rs.1,44,000
Illustration 9:

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Determine the accounting rate of return from the following data of two machines A and B. Machine A (Rs.) Machine B (Rs.) Original cost 56,125 56,125 Additional investment in networking capital 5,000 6,000 Estimated life in years 5 5 Estimated salvage value 3,000 3,000 Average income-tax rate (%) 55 55 Annual

Estimated Income after Depreciation and
Taxes (EAT) Year 1 2 3 4 5 Machine A (Rs.) Machine B (Rs.) 3,375 11,375 5,375 9,375 7,375 7,375 9,375 5,375 11,375 3,375
Depreciation has been charged on straight line basis. Solution: Accounting Rate of Return: (Average EAT ? Original investment) × 100 Machine A: Average annual income after tax = 36,875 / 5 = 7,375 Original investment = 56,125 + 5000 = 61,125 Accounting rate of return = (7,375 ? 61,125)×100 = 12.06 per cent Machine B: Average annual income after tax = 36,875 / 5 = 7,375 Original investment = 56,125 + 6,000 = 62,125 Accounting rate of return = (7,375 ? 62,125) ×100 = 11.87 per cent Notes: 1.
If accounting rate of return is given in the illustration, return on original investment method should be used to calculate accounting rate of return. Original investment = Original investment + Additional
net working capital

199 Chapter 9: Fundamentals of Capital Budgeting 2.
If average rate of return is given in the illustration, return on average investment method should be used to calculate average rate of return. (Average annual income after taxes ? Average investment) × 100 (Original investment - Scrap value) 1/2 + Additional Working Capital + Scrap value 3.
If ARR is given in the problem, any one of the above methods can be used to calculate ARR (preferably return on average investment method). 9.7.3
Net Present Value Method (
NPV) The
net present value method is
one of the
discounted cash flow
methods. It is also known as discounted benefit cost ratio method. NPV
can be
defined as preset value of benefits minus preset value of costs. It is the process of calculating present values of cash inflows using cost of capital as an appropriate rate of discount
and subtract
present value of cash outflows from the present value of cash inflows
and
find the net present value,
which may be positive or negative. Positive net present value occurs when
the
present
value of cash
inflow is higher than the present value of cash
outflows
and vice versa.
Steps involved in computation of NPV are: 1.
Forecasting of cash inflows of the investment project based on realistic assumptions. 2. Computation of cost of capital, which is used as discounting factor for conversion of future cash inflows into present values. 3. Calculation
of cash flows
using cost of capital as discounting rate/factor. 4. Finding out NPV
by subtracting
present value of cash outflows from present value of cash inflows.
Accept-
Reject Rule Acceptance or reject rule of the project is decided based on the NPV. Accept: NPV< Zero Reject: NPV> Zero Consider: NPV= Zero Advantages of NPV Method The merits of NPV are: 1. It
takes into account
the time value of money. 2.
It uses
all cash inflows occurring over the entire life period of the project
including scrap value of the old project. 3. It
is particularly useful for the selection of mutually exclusive projects. 4. It
takes into consideration the changing discount rate. 5. It is consistent with the objective of maximization of shareholders' wealth. Limitations of NPV
Method NPV is the most acceptable method in comparison with traditional methods. Nevertheless, it has certain limitations also. 1. It is difficult to understand when compared with PBP and ARR. 2. Calculation of required rate or discounting factor or cost of capital is difficult, which involves a lengthy and time consuming process and presents illustrations. At the same time calculation cost of capital is based on different methods. 3.
In case of projects involving different cash outlays, NPV method may not give dependable results. 4.
It does not give satisfactory results when comparing two projects with different life periods. Generally a project, having a shorter economic life would be preferable, other things being equal.
200 Financial Management
Illustration 10: A choice is to be made between the two competing proposals which require an equal investment of Rs. 50000
and are expected to generate net cash flows as under: Years Project A (
Rs.)

Project B (Rs.) 1 25000 10000 2 15000 12000 3 10000 18000 4 Nil 25000 5 12000 8000 6 6000 4000 Cost of capital of the company is 10%. The following are the present value factor at 10% p.a. Year 1 2 3 4 5 6 P.V. Factor at 10% 0.909 0.826 0.751 0.683 0.621 0.564 Which proposal should be selected using NPV method? Suggest the best project. Solution: Comparative Statement of NPV Project
A Project B Year PV Factor @10% Cash Inflow Present Value Cash Inflow Present Value 1 2 3 4 5 6 0.909 0.826 0.751 0.683 0.621 0.564 25000 15000 10000 Nil 12000 6000 22725 12390 7510 Nil 7452 3384 10000 12000 18000 25000 8000 4000 9090 9912 13518 17075 4968 2256 Total present Value : Less : Initial
Investment : NPV : 53461 50000 Rs. 3461 56819 5000 Rs. 6819 Since project B has the highest NPV, Project B should be selected. 9.7.4
Internal Rate of Return (IRR) This method advocated by Joel Dean, takes into account the magnitude and timing of cash flows.
IRR is that rate at which the sum of Discounted Cash Inflow (DCF) equals the sum of discounted cash outflow.
It is
the rate at which the net present value of the investment is
zero. It is called Internal Rate
of Return
because
it depends mainly on the outlay and proceeds associated with the project and not on any
rate determined outside the investment.
This method
is also known by following names: 1.
Marginal efficiency of
capital 2. Rate of return over cost 3. Time adjusted rate of return 4.
Yield
on investment
201
Chapter 9: Fundamentals of Capital Budgeting Internal rate of return
may be defined as that discounting factor at
which
the present value of cash inflows
equals to the present value of cash outflows.
It
takes into account the magnitude and timing of cash flows.

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In case of NPV method, the discount rate is the required rate of return and that is predetermined, usually by cost of capital,

which determines based on external point of view, where as IRR is based on facts, which is internal to the proposal. It is the best available concept. We shall see that although frequently a used concept in finance, yet at times quite a misleading measure of
investment worth.
Computation of IRR is based on the cash flows after taxes. IRR is
mathematically represented as ‘r’. It can be found by trial and error method. In this method the evaluator selects any discount rate to compute present value of cash inflows. Generally the
cost of capital is taken as first trial.
If calculated
present value of the cash inflows is higher than the present value cash outflows
then evaluator has to
try at higher rate. On the other hand
if
the
present value of cash inflows is lower than the present value of cash
outflows
then evaluator has to
try lower discounting factor. This process will be repeated till

the present value of cash inflows equals to the present value of cash outflows.
Generally, IRR may lie between two discounting factors; in that case analyst has to use interpolation formula for calculation of IRR. The formulae is as follows: LDPV – OI IRR = LDF% + DF LDPV – HDPV
é ù D ê ú ë û
Where,
LDF = Discount factor of low trial DDF = Difference between low discounting factor and High discounting factor LDPV = PV of cash inflows at low discounting factor trial HDPV = PV of cash inflows at high discounting factor trial OI = Original investment Or
C – O
IRR = A + × (B – A) C – D
Where, A = Discounted factor of low trial B = Discounted factor of high trial C = Present value of cash inflow in the low trial D = Present value of cash inflow in the high trial O = Original or initial outlay
Accept-Reject Rule Acceptance or reject rule of the project decides based upon the calculated IRR and Cost of capital (K o). Accepted:
IRR < Cost of capital (K o) Reject: IRR > Cost of capital (K o) Consider: IRR = Cost of capital (K o) Merits of IRR 1.
IRR
attempts to find the maximum rate of interest at which funds invested in the project
could be repaid out of the cash inflows arising from that project. 2.
It
considers
the time value of money. 3. It considers cash flows thought out the life of
the project. 4.
It
is
not in conflict with the concept of maximizing the welfare of the
equity
shareholders.
202
Financial Management 5. It is calculated by the method of trial and error, usually it gives more psychological satisfaction to the user. 6.
It is consistent with the objective of shareholders; wealth maximization.
Demerits of IRR 1. Calculation of IRR is quite tedious and it is
difficult to understand. 2.
Both NPV and IRR assume
that the
cash inflows can be reinvested at the discounting rate in the new
project.
However, reinvestment of funds at the cut-off rate is more appropriate than at the IRR. Hence, NPV method is more reliable than IRR
to ranking two or more projects. 3. It
implies that profits can be reinvested at internal rate of return, which is not logical. 4. It produces multiple rate of returns which can be confusing. 5. It does not help in the evaluation of mutually exclusive projects, since a
project with highest IRR would be selected. However, in practice, it may not turn out to be
the
one, that is the most profitable and consistent with the objective of
shareholders i.e. wealth maximization. 6.
It may not give fruitful results in case of unequal projects life, unequal cash outflows, and difference in the timing of cash flows. 7.

Compare and Contrast 'NPV' with 'IRR' NPV and IRR are the discounted cash flow methods available for evaluation of capital budgeting projects. These are similar in certain respects. In certain situations, they would give same (accept or reject) decision.

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But they differ in the sense, that the results regarding the choice of assets are under certain circumstances mutually contradictory.

The comparison of these methods is therefore, involves a discussion of (a) Similarities between the methods, and (b) Differences. NPV with IRR: Similarities 1. The two methods use cash inflows after tax (CFAT). 2. Both the methods take into consideration the time value of money. 3. They consider CFAT throughout the projects life period. 4. Both methods give consistent results in terms of acceptance or rejection of investment proposals in certain situations. That is, if a project is viable it will be indicated by both the methods. If a project is not qualified, both methods will indicate that it should

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be rejected. 5. The situations in which the two methods will give a concurrent accept or reject decision will be in respect of conventional and independent projects. 6.

According to NPV
the decision rule is that a project will be accepted if NPV
is greater than zero, the IRR would support projects where IRR is greater than the cost of capital (K o).
203 Chapter 9: Fundamentals of Capital Budgeting Notes NPV with IRR: Differences 1. In case of mutually exclusive projects, if NPV method accepts the project while IRR rejects. 2. If there is a size disparity the NPV and the IRR will give different rankings. 3. When there is an incremental approach, the NPV method is superior to the IRR, because the former supports projects, which are compatible with the goal of shareholders wealth maximization while the latter does not. 4. When there is time disparity the NPV would give results superior to the IRR method. 5. In projects with unequal lives, NPV and IRR would give conflicting ranking to mutually exclusive projects.
NPV Method IRR Method 1. Interest rate is a known factor 1.
Interest rate is an unknown factor 2.
It involves computation of the amount that can be invested in a given project so that the anticipated earnings will be sufficient to repay this amount with market rate of interest. 2.
It
attempts to find out the maximum rate of interest at which funds are invested in the project.
Earnings from the project in the form of cash flow will help us to get back the funds already invested. 3.
It assumes
that the
cash inflows can be reinvested at the discounting rate in the new projects. 3.
It
also
assumes
that the
cash inflows can be reinvested at the discounting rate in the new projects. 4.
Reinvestment is assumed to be at
the cut-off rate. 4.
Reinvestment in funds is assumed to be at the IRR.
The present value method always provides for correct ranking of mutually exclusive investment projects, whereas, IRR method sometimes, does not. In the latter method, the implied reinvestment rate will differ depending upon the cash flow for each investment proposal under consideration. For proposal with a high internal rate of return, a high reinvestment rate is assumed, for proposals with a low rate of return, a low reinvestment rate is assumed. The IRR calculated, may rarely represents the relevant rate as assumed and the relevant rate for reinvestment of intermediate cash flows. 9.7.5
Profitability Index (PI)/Discounted Benefit Cost Ratio (DBCR) This is another discounted cash flow method of evaluating investment proposals.
It is also known as discounted benefit cost ratio method.

It is similar to NPV method.
It
is the ratio of
the
present value of cash inflows, at the
required rate of return,
to the initial
cash outflow of the investment
proposal. PI
method measures the present value of future cash per rupee, where as
NPV is based on
the difference between
present value of cash inflows and present value of
cash
outflows.
NPV method
is not reliable to evaluate projects requiring unequal initial investments. PI method provides solution to this problem. PI is the ratio,
which is derived by dividing
present value of cash inflows by present value of cash
outflows. PI
is
the
ratio of
present value of future cash
benefits at the required rate of return
at the initial cash outflow of the investment.
PV of cash in flows PI = Initial cash outlay Like IRR and NPV methods, profitability index
is a conceptually sound method of appraising investment projects. It
provides ready comparisons between investment proposals of different magnitudes. Accept-Reject Rule Accept: PI < 1 Reject: PI > 1 Considered: PI = 1 Comparison of
NPV and IRR Methods
204 Financial Management Characteristics of Sound
Investment Criterion The

Merits of PI The
PI Method satisfies almost all the requirements of a sound investment criterion. The characteristic, as we recollect are: 1. It gives due consideration to
time value of money. 2. It considers all cash flows to determine PI. 3. It help to rank
projects according to their PI. 4. It
recognizes
the fact that bigger cash flows are
better than
smaller ones and early
cash flows
are preferable to later ones. 5.
It
can also

be used to choose mutually exclusive projects by calculating the incremental benefit cost ratio. 6. It is consistent with the objectives maximization of shareholders' wealth.
Illustration 11:
The initial cash outlay
of a project is

Rs. 50000 and it generates cash inflows of Rs. 10000, Rs. 20000, Rs. 30000 and Rs. 10000.

Assume 10% rate
of discount.
Find PI. Solution: Computation of PI
Year Cash Inflow Present Value Factor @ 10% Present Value of Cash inflow 1 2 3 4 10000 20000 30000 10000 0.909 0.826 0.751 0.683 9090 16520 22530 6830
Total 54970
PV of cash
in flows PI =
Initial cash outlay = 54970/50000 = 1.0994 Accept or Reject Criterion
Accept the project if its profitability index is greater than one. Such a project will have
the positive net present value. Projects
can be ranked on the basis of PI. Highest rank will be assigned to the project with highest PI,
while the
lowest rank will be given to the project having lowest PI. Illustration 12: A project requires an investment of
Rs.10,000
and the expected cash flows are: 1st year Rs.12,000; and 2nd year
Rs.4,000.
The cost of capital is 10 per cent and the PV factors at 10 per cent are 1st year-0.909, 2nd year-0.826. Compute the profitability index.
205
Chapter 9: Fundamentals of Capital Budgeting
Solution: Profitability index = Total PV of cash inflows ÷ Initial investment = (Rs.12,000 × 0.909 + Rs.4,000 × 0.826) ÷ 10,000 = 14,212 ? 10,000 = 1.42 It indicates that for every one rupee investment, there is (1.42 – 1) 0.42 paise profit.
Task
A project requires an investment of Rs. 100,000. It is expected to yield an annual cash flow after taxes of
Rs. 20,000 for 10 years. Calculate payback period.
Case Study RNS Motors Ltd. R NS Adwani, an ITI diploma holder had been working with M/s. RNS and workshop for the last ten years. He had joined as a technician. He was recognized as the best mechanic of Supreme Garage. A good number of clients preferred to get their cars repaired by RNS Adwani. In three years time, he was promoted as a supervisor. RNS Adwani then joined distance education programme of IGNOU and completed his graduation. He studied accounts and would assist the owner Mr. Gupta in maintaining the accounts. Mr. Gupta liked him very much and two years back, RNS Adwani was promoted as the manager of RNS and Workshop. Gupta had set up this business about 18 years back when he had retired from the Indian Army due to a leg injury. Due to good customer relations and quality service, RNS and workshop had earned a very good reputation and was known as the best motor garage in the district. A large number of clients form the neighbouring district would bring in their vehicles to Supreme Garage. The workshop was known for engine overhauling. It had an electrical section for auto electrical and an agency for Exide batteries. RNS specialized in denting and painting and maintained good relations with insurance companies. It maintained its own tow truck and did good business during accidents and break-downs. It presently employed ten full time mechanics, one supervisor besides RNS Adwani and Gupta who were manager and the owner respectively. During the rush season the workers worked overtime and additional casual labour was also employed to meet the delivery schedules. Since past one year, Mrs. Gupta was not keeping well. Six months ago, she had a minor heart attack. Mrs. and Mr. Gupta decided to shift to USA and join their daughter, who was a heart specialist at Los Angles, USA. Gupta had no one to succeed him, he decided to sell the business. He wanted the buyer to run the business on similar lines and maintain its reputation. He called RNS Adwani and made him an offer to sell his business. The initial offer was for
Rs. 57.50

lakh. He also proposed to assist RNS in financing the purchase. Gupta provided him with the information on past earnings with projections for five years. He also provided him with the Balance Sheet and Profit and Loss Accounts of RNS Motors as on 31 st March 2000. He informed RNS that based upon the business flow, he had valued the goodwill as Rs. 15
lakh. RNS was excited about the offer. He knew that the business was very profitable and its profits had been increasing over the years. It had never been at loss. He consulted a friend who was a banker and also a Chartered Accountant. He advised him differently. He knew there was a scope of negotiation over the price of the business. Now RNS now needs assistance. Sales and Profit of Previous Years Net sales PBT PAT 81,95,000 7,37,500 5,25,000 90,34,000 7,56,600 6,23,200
Contd....
206 Financial Management
Summary of Projected Sales and Earnings Year 2001 2002 2003 2004 2005 Net Sales PBT PAT 11,00,000 8,65,000 7,00,000 120,00,000 9,50,000 7,80,000 125,00,000 10,50,000 8,60,000 130,00,000 12,00,000 9,30,000 135,00,000 12,50,000 9,75,000
RNS MOTORS Balance sheet (As on 31.03.2000) Liabilities Rs. Capital 16,00,000 Retained profits 18,10,880 Building loan 26,99,200 Term loan 12,16,000 Current liabilities 8,14,400 Total liabilities 81,40,480 Assets Gross block 66,56,000 Depreciation 14,22,720 Net blocks (at the end) 52,33,280 Current assets Stocks 6,65,600 Receivables 13,31,200 Cash in hand 9,10,400 Total current assets 29,07,200 Total assets 81,40,440 Depreciation Schedule Asset Gross Block Depreciation Net Block Land Building 38,40,000 6,16,000 32,24,000 Plant Eqpt. 26,24,000 7,34,720 18,89,280 Other Assets 1,92,000 72,000 1,20,000 Total 66,56,000 14,22,726 55,33,280 RNS MOTORS Profit & Loss Account (for the year ending 31.03.2000) Rs. Net Sales 99,64,800 Direct Wages 30,78,400 Contract Materials 18,83,200 Supplies 2,36,800 Mix Costs 4,24,000 Cost of Sales 56,22,400 Gross Profit from Operation 43,42,400 Operating Expenses 26,35,200 Total Depreciation for the Year 3,76,272 Net Income before Interest and Taxes 13,30,928 Interest 4,97,440 Profit Before tax 8,33,488 Income tax 1,58,240 Net Profit after tax 6,75,248
Contd....
207 Chapter 9: Fundamentals of Capital Budgeting
Questions 1. Evaluate the value of RNS Motors using discounted cash flow and multiple earning method (Assume 20% required rate of return). 2. How do you think the banker will value this business? Discuss the method and calculate the value. 3. If you were the banker, will you finance? 4. How would you evaluate the good will of RNS Motors? 5. As a consultant would you advice Mr. RNS Adwani to buy RNS Motors or not. Explain with reasons. 9.8
Summary ?
One of the important problems confronting the top management of a firm is to determine whether the firm should invest funds in fixed assets. ?
Capital budgeting is
the firm's decision to invest its current funds most efficiently in
the long-term assets in anticipation of an expected flow of benefits over a series of years. ?
Capital budgeting decisions are important since growth of the firm depends on fixed assets; it is a more risky decision as huge investments are involved. ?
The capital budgeting process may be more or less depended on the type of the project. ?
The process of capital budgeting may be divided into six broad phases/steps. ?
The methods of evaluation capital investment play a vital role, since the
selection of profitable project will help to maximize value of the firm through the maximization of profits. ?
Project evaluation involves market analysis, financial analysis, technical analysis, economic analysis, and ecological analysis. 9.9
Keywords
Capital Budgeting: It refers to planning and deployment
of available capital for the purpose of maximizing long-term profitability of the
firm.
Mutually Exclusive Investment Proposals:
Those proposals which represent alternative methods of doing the same job.
Contingent Investment
Proposals: There are certain projects which are contingent upon the acceptance of others.
Replacement Investment: The investments, which are contemplated for replacing, old and antiquated equipment so that the job could be performed more efficiently, are termed as replacement investment. 9.10
Self Assessment 1. Fill in the blanks: (
a)
Fixed assets represent ..... and ..... elements. (b) ..... is
the firm's decision to invest its current funds most efficiently in

the long-term assets in anticipation of an expected flow of benefits over a series of years. (
c) Capital budgeting decisions are ..... without ..... . (d) Capital budgeting
evaluation techniques are divided into ..... broad categories. (e) Traditional techniques of capital budgeting evaluation is also known as ..... . (
f)
Pay back period and Accounting rate of return methods are ..... . (
g) Profitability index is equal to one the project should be ..... .
208
Financial Management 2. State whether the following statements are true or false: (a)
Capital budgeting is a short-term decision. (b) CFAT is the base for computation of pay back period. (c)
When cash flows after taxes are unequal then cumulative cash flow method is used to compute pay back period. (
d)
Intermediate cash flows are reinvested at the rate of IRR is the assumption of IRR. (e) Additional working capital required is not added to the cost of the project when evaluation is based on DCF techniques. (
f)
Additional, scrap value and cost of project are the components of average investment. (g) If there is a size disparity the NPV and IRR will give different rankings. 9.11 Review Questions 1.
A project
expected cash flows are as follows: Year 0 1 2 3 4 5 CFAT (Rs.) 50,000 10,000 15,000 20,000 25,000 20,000 Calculate pay back period. 2.
A
Company is considering an investment proposal of
Rs. 50,000
to install new
milling controls. The facility has a life expectancy of 5 years and his salvage value. The company's tax rate
is 55%
and no investment tax credit is allowed.
The firm uses straight – line depreciation. The estimated Cash Flow Before Tax (CFBT) from the
proposed investment
proposal is
as follows
Year 1 2 3 4 5 CFBT(Rs.) 10000 11000 14000 15000 25000 Compute

d) Net present value
at 10% discount rate (e) Profitability index at 10% discount rate. 3.
M/s. Bharat Industrial Limited purchased a machine five years ago. A proposal is under consideration to replace it by a new machine. The life of the machine is estimated to be 10 years. The existing (old) machine can be sold at its written down value. As cost accountant of the company you are required to submit your recommendations based on the following information: Existing (Old) machine New machine Initial cost Rs. 25, 000 Rs. 50, 000 Machine hours per annum 2,000 2,000 Wages per running hour 1.25 1.25 Power per hour 0.50 2.00 Indirect material p.a. 3,000 3,000 Other expenses p.a. 12,000 12,000 Cost of materials per unit 1 1 No. of units produced per hour 12 12 Selling price per unit 2 2 Interest to be paid at 10per cent on fresh capital invested.
209
Chapter 9: Fundamentals of
Capital Budgeting 4.
A company is planning to consider any one of the three alternatives A,B and C. Calculate ARR. CFAT(Rs) Alternatives 0 1 2 A B C 5,000 5,000 5,000 0 1,080 5,750 6,610 3,080 0 5.
ABC Ltd.
is proposing to take up a project, which will need an investment of
Rs. 40,000.
The net income before
depreciation and tax is estimated as follows: Year 1 2 3 4 5 IBDT (Rs.) 10,000 12,000 14,000 16,000 20,000 Depreciation is to be charged according to the straight-line method. Tax rate is 50 per cent. Calculate the Accounting rate of return. 6.

Three projects have been suggested to BPL Company, The CFAT is as follows: Years 0 1 2 3 4 Projects X Y Z 10,000 18,000 30,000 2,800 6,500 6,000 3,000 6,500 10,000 4,000 6,500 12,000 4,000 6,500 16,000 Assuming 12 per cent cost of capital, rank the projects based on PI method. 7. XYX., Ltd,

EAT are a follows. Year 1 2 3 4 5 Machine P Machine Q 15,000 5,000 20,000 15,000 25,000 20,000 15,000 30,000 10,000 2,000 Evaluate the two alternatives according to NPV Method. Assuming cost of capital 10 per cent. Which Machine should be selected why? 8.
ABC company is planning to buy an equipment, that had two alternatives A and B. Each equipment requires an initial investment of
Rs 30,000.
From the following additional information you are required to calculate payback period and suggest which equipment should be preferred ? why ? Years 1 2 3 4 5 A(
Rs.) 10,500 8,000 6,000 7,500 12,000 CFAT B(Rs.) 3,000 6,000 8,000 12,000 80,000 9.
From the following information calculate pay back period and Accounting Rate of Return. Projects Original Investment CFAT(Rs)
Economic life A B C D E 25,000 3,000 12,000 20,000 40,000 3,000 1,000 2,000 4,000 8,000 10 5 8 10 2 10. Critically examine the advantages for the firms to use various techniques of capital budgeting. 11. Analyse the treatment given to working capital & the sunk costs in evaluating the capital budgeting. 12. Critically examine the deficiencies in the capital budgeting techniques.
210 Financial Management Answers: Self Assessment 1. (a) Non-liquid, long-term; (b) Capital budgeting; (c) Irreversible, loss; (d) Two, (e) Non-discounted; (f) Traditional (g) considered. 2. (a) F (b) T (c) T (d) T (e) F (f) T (g) T 9.12
Further Readings
Books
Sudhindra Bhat,
Financial Management, New Delhi, Excel Books, 2008. Van Horne, J.C. and Wachowicz, Jr, J.M., Fundamentals of Financial Management, New Delhi, Prentice Hall of India Pvt. Ltd., 1996, p. 2.
Chandra, P., Financial Management - Theory and Practice, New Delhi, Tata McGraw Hill
Publishing
Company Ltd., 2002, p. 3.
184
Financial Management 12.
Calculate the degree of operating leverage, degree of financial leverage, and the degree of
combined leverage
for the following firms and interpret the results:
Particulars P Q R Output (Units) 3,00,000 75,000 5,00,000 Fixed
Cost (

Answers: Self Assessment 1. T 2. F 3. T 4. T 5. T 6. T 7. F 8. T 9. T 10. T 11. T 12. T 8.7
Further Readings
Books
Sudhindra Bhat,
Financial Management, New Delhi, Excel Books, 2008. Van Horne, J.C. and Wachowicz, Jr, J.M., Fundamentals of Financial Management, New Delhi, Prentice Hall of India Pvt. Ltd., 1996, p. 2.
Chandra, P., Financial Management - Theory and Practice, New Delhi, Tata McGraw Hill
Publishing
Company Ltd., 2002, p. 3.
211
Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting Chapter 10:

Capital Rationing and Risk Factors in Capital Budgeting Objectives This chapter on Capital Rationing and Risk Factors in Capital Budgeting
covers 1.
Meaning of capital rationing 2. Objective and the effects of capital rationing 3. Steps involved in capital rationing 4. Risk analysis in capital budgeting 5. Techniques used for in corporation of risk factor in capital budgeting decision
Introduction Theoretically speaking, a concern should accept all profitable capital projects which add to the wealth of the owners and increase the market value per share. The profitability of a capital project can be determined under any of the discounted cash flow techniques, such as the net present value method, profitability index method or internal rate of return method. The acceptable criteria under these methods are: 1. In the case of net present value method, the net present value of the project must be more than zero. 2. In the case of profitability index method, the profitability index must be more than 1. 3. In the case of
internal rate of return method, the internal rate of return
should be more than the cost of capital. No doubt, if a concern has more funds it can accept and implement all profitable projects. However, in real situation, a concern may not have enough funds to undertake all profitable projects. Further, there may be restrictions imposed by the management on the amount of funds that could be used for financing capital projects during a specified period. In such a situation, there arises the need for rationing of capital. That is, in such a situation, all the profitable investment
proposals or projects cannot be taken up. Only some of the profitable proposals or projects have to be taken up and the other profitable proposals have to be given up. So, capital rationing arises in a situation where a concern has more profitable investment proposals than it can finance. 10.1 Meaning of Capital Rationing
Capital rationing means the allocation of the limited funds available for financing the capital projects to only some of the profitable projects in such a manner that the long-term returns are maximized.
In other words, it means the selection of only some of the profitable investment proposals or projects out of the several profitable investment proposals available. In short, it means the selection of only some of the profitable investment proposals and the rejection of the other profitable investment proposals due to limited availability of funds or other considerations, say, the desire of the management to keep the growth of the firm within limit, the preference of the management to safety and control as compared to profit. 10.2 Objective of Capital Rationing The main objective of capital rationing is, to ensure the selection of only those profitable investment proposals that will provide the maximum long-term returns. In short, the objective of capital rationing is to maximise the value of the firm.
212 Financial Management 10.3 Effect of Capital Rationing The effects of capital rationing are: 1. When there is capital rationing, a firm will not be able to undertake all the profitable investment proposals. It has to accept only some of the profitable investment proposals and reject the other profitable investment proposals. 2. When there is capital rationing, it will be possible for the firm to maximize the wealth of the owners and to maximize the market value per share. 10.4 Steps
Involved in Capital Rationing Capital rationing involves two important steps. They are: 1.
Ranking of the different investment proposals: First, the different investment proposals or capital projects available, should be ranked on the basis of their profitability (i.e., on the basis of their net present value or profitability index or the internal rate of return), in the descending order. 2.
Selection of some of the profitable investment proposals: Then, on the basis of their profitability in the descending order, the selection of that combination of profitable investment proposals, which would provide the highest profitability, should be made subject to the budget constraint for the period.
Illustration 1: A firm has the following investment opportunities: Proposal Initial outlay (Rs.) Profitability index 1 3,00,000 1.20 2 1,50,000 1.15 3 2,50,000 1.10 4 2,00,000 1.05 The available fund amount is Rs. 4,00,000. Which proposals the firm should accept? Solution: First Step: Ranking of the proposals in the descending order of their Profitability Index. Proposal Profitability index Rank 1 1.20 I 2 1.15 II 3 1.10 III 4 1.05 IV Second Step: Selection of the proposals: Here, the profitability index of all the proposals is above unity, i.e., above one. As such, all the proposals are profitable or acceptable. However, as the funds available are limited, there should be capital rationing and only the most profitable combination of the proposals should be accepted. For determining the most profitable combination of proposals, first, we should determine the net present value of the various acceptable proposals. The net present value of each of the various acceptable proposals
can be computed with the help of the following formula:
Net present value of a proposal = Initial capital cost of a project × Profitability index of the proposal – 1
213
Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting

Accordingly, the net present value of each of the various investment proposals is: Proposal Net Present Value of the Proposal 1 3,00,000 × (1.20 – 1) i.e. = Rs. 60,000 2 1,50,000 (1.15 – 1) i.e. = Rs. 22,500 3 2,50,000 (1.10 – 1) i.e. = Rs. 25,000 4 2,00,000 (1.05 –1) i.e. = 10,000 After the ascertainment of the net present value of each of the various profitable proposals, the selection of the combination which will yield the highest total net present value has to be made. Such a combination of proposals can be: Various Possible
Combination of Proposals 1. Proposal involving a capital outlay of Rs. 3,00,000 and yielding a net present value of Rs. 60,000. 2. Proposals 2 and 3 involving capital outlay of Rs (1,50,000 + 2,50,000) 4,00,000
and yielding total net present value of Rs (22,500 + 10,000) 32,500. 3. Proposals 2 and 4 involving capital outlay of Rs. (1,50,000 + 2,00,000) 350,000 and yielding a net present capital outlay of Rs. (22,500 + 10,000) 32,500. Of the three possible combinations, the net present value of the first combination is the highest. So, this combination has to be selected. Note: It is assumed that the uninvested capital of
Rs. (4,00,000 – 3,00,000) 1,00,000
has a net present value of zero. Illustration 2: A firm has
Rs. 5,00,000
available for investment. The firm's cost of capital 10%. The investment opportunities available are as follows: Proposal Cost of the Project (Rs.)
Internal Rate of Return Net present value (Rs.) 1 1,50,000 5% -14,000 2 2,00,000 11% 3,000 3 1,80,000 12% 18,000 4 1,90,000 20% 1,20,000 5 1,00,000 18% 70,000 6 1,50,000 9% 12,000 Solution: First Step: Ranking of the proposals in the descending order of Internal Rate of Return Proposal Internal Rate of Return Taking 10% as Cut-off Rate
Rank 1 5% - 2 11% IV 3 12% III 4 20% I 5 18% II 6 9% - Note: the internal rate of return of proposals 2,3,4 and 5 is above the cut-off rate or firm'
s cost of capital of 10%, and the internal rate of return of proposals 1 and 6 is less than the cut-off rate of 10%. So, proposals 2,3,4 and 5 are profitable or acceptable and proposals 1 and 6 are not acceptable (i.e., to be rejected). Second Step: Selection of the proposals: Here, though proposals 2,3,4 and 5 are acceptable or profitable, all these proposals cannot be selected because of the limited availability of funds and credit rationing. Under credit rationing, only that combination

of acceptable proposals, which will yield the highest total net present value has to be selected. Accordingly, here, only the combination of proposals 4,5, and 3 involving a capital expenditure of
Rs. (1,90,000 + 1,00,000 + 1,80,000) 4,70,000 and yielding a total net present value of Rs. (1,20,000 + 70,000 + 18,000) 2,08,000
should be selected. Note: It is assumed that the uninvested capital of Rs. (5,00,000 – 4,70,000) 30,000 has zero net present value. Illustration 3: A firm having Rs. 15,00,000 to invest wishes to select from the following project those that maximize the present value of cash inflows: Project Initial Cost Investment (Rs.) B/C Ratio 1 6,00,000 1.20 2 2,00,000 1.40 3 3,00,000 1.10 4 8,00,000 1.30 5 5,00,000 1.50 6 4,00,000 1.20 7 9,00,000 1.30 8 7,00,000 1.45 1. Calculate the present value of cash flow of each project. 2. Using a trial and error approach, select the group of projects that maximize the firm's present value of cash inflows. The firm earns zero return on any uninvested portion of the budget. Solution: First Step : Ranking of the proposals in the descending order of their profitability.
Proposal or Project
B/C Ratio or Profitability Index of the Proposal Rank 1 1.20 V 2 1.40 III 3 1.10 VI 4 1.30 IV 5 1.50 I 6 1.20 V 7 1.30 IV 8 1.45 II Note: Here, the B/C ratio or the profitability index of all the projects is above unity, i.e., above 1. That means, all the projects are profitable or acceptable. Second Step: Selection of the proposals: Here, no doubt, all the projects are acceptable. But the funds available for capital investment are limited. So, there should be capital rationing. Under capital rationing, only the most profitable group or combinations or proposals should be selected. For selecting the most profitable group of proposals, first, we should ascertain the net present value of each of the various proposals. The net present value of each of the various proposals can be ascertained as follows:

Initial cost of the project × (Profitability of index – 1). Accordingly the net present value of the various proposals is as follows: Proposal Net
Present Value of the Proposal 1 6,00,000 × (1.20 – 1) = Rs. 1,20,000 2 2,00,000 × (1.40 – 1 = Rs. 80,000 3 3,00,000 × 1.10 – 1) = Rs. 30,000 4 8,00,000 × (1.30–1) = Rs. 2,40,000 5 5,00,000 × (1.50–1) = Rs. 2,50,000 6 4,00,000 × (1.20–1) = Rs. 80,000 7 9,00,000 × (1.30–1) = Rs. 2,70,000 8 7,00,000 × (1.45–1) = Rs. 3,15,000
After ascertaining the net present value of the various proposals, the selection of the most profitable combination or group of proposals has to be made. Such a combination of proposals, in this case, are 5, 8 and 2 involving the capital expenditure of

Rs. (5,00,000 + 7,00,000 + 2,00,000) 14,00,000 and yielding the highest
total net present value of Rs. (2,50,000 + 3,15,000 + 80,000) 6,45,000. Note: It is assumed that the uninvested capital of Rs. (15,00,000 - 14,00,000) 1,00,000 has zero net present value. 10.5
Risk Analysis in Capital Budgeting 10.5.1 Need for Risk Analysis in Capital Budgeting If a capital budgeting decision is made on the assumption that the capital project or investment proposal does not involve any risk (i.e., there is certainly regarding the future estimate of cash
inflows from capital project during its estimated life), then, there is no question of risk analysis is capital budgeting. However, in real saturation, the assumption that the investment proposal does not involve any risk does not hold good. In real situation, owing to a number of reasons, such as technical, economic, political, cyclical fluctuation, financial, foreign exchange, taxation etc., the actual return from an investment proposal will be usually different from the estimated returns. In other words, there is uncertainly regarding the future estimation of cash inflows from capital project. In short, there is risk in capital budgeting or investment decision. (Of course,
the risk from one investment proposal to another.
Some proposals will be less risky and some may be more risky.) As risk is involved in every investment proposal, in real situation, it is necessary to take into account the risk factor, while taking the capital budgeting decision.
Meaning of
Risky Investment Proposal Risk in an investment refers to the variability that is likely to future between the estimated returns and the actual returns
from the proposal. The greater is the variability between the two returns, the more is the risk involved in the project, and vice versa. 10.5.2 Incorporation
of the Risk in Investment Proposal As stated earlier, risk is involved in very capital budgeting decision. As risk is involved in every capital budgeting proposal, the management of a firm must take the risk factor into account, while determining the returns or cash inflows and the profitability of a project for the purpose of capital budgeting. It, may be noted that the incorporation of the risk factor in capital budgeting decisions is a difficult task.
216 Financial Management Caution There are a number of techniques used for the incorporation of the risk factor in capital budgeting decisions. The most popular techniques are: 1. Ordinary techniques or general techniques, such as (a) risk adjusted discount rate and (b) certainly equivalent coefficient. 2. Quantitative techniques such as (a) sensitivity analysis, (b) probability assignment, (c) standard deviation, (d) coefficient of variation and (e) decision tree. Now, let us consider the various techniques used for the incorporation of the
risk
factor in capital budgeting decisions. 10.6 General Techniques 10.6.1
Risk Adjusted Discount Rate Method Under the risk adjusted discount rate method, the future cash flow
from capital projects are discounted at the risk adjusted discount rate and decision regarding the selection of a project is made on the basis of the net present value of the project computed at the
risk adjusted discount rate. The risk adjusted discount rate is based on the assumption that investors
expect a higher rate of return on more risky projects and a lower rate of return on less risky projects, and so, a higher discount rate is used for discounting the cash flows of more risky project and a lower discount rate is used for discounting the cash flows of less risky project. The risk adjusted discount rate comprises two rates, viz., 1. risk-free rate, normal rate, usual discount rate or unity rate that takes care of time element and 2. risk premium rate, surplus rate or extra rate that takes care of the risk factor. So, the risk adjusted discount rate is the usual or normal discount rate for the time factor plus the extra or additional discount rate for the risk factor. Risk-free rate is
the rate at which the future cash flows of a project which is not subject to risk are discounted.
In short, it is the normal or usual discount rate at which the future cash flows of a risk less project are discounted. Risk premium rate is the extra or additional discount rate at which the future cash flows of a risky project are discounted. The risk-premium rate or the extra discount rate for the risk factor varies with the degree of risk involved in the capital projects. So, for a less risky investment proposal, the extra discount rate will be lower and for a more risky investment proposal, the extra discount rate for the risk factor will be more. Let us consider the risk-adjusted discount rate with an example. Suppose there are two investment proposals, X and Y. Proposal X is less risky, and Proposal Y is more risky. The normal discount rate for the time factor is 5%. The extra discount rate for the risk factor is 5% for proposal X and 10% for proposal Y. In this case, the
risk-adjusted discount rate for proposal X will be 10% (i.e., the normal
discount
rate of 5% plus the extra discount rate for the risk factor 5%) and the risk-adjusted discount rate for proposal Y will be 15% (i.e., the normal discount rate of 5% plus the extra discount rate for the risk factor 10%).

Merits of Risk adjusted Discount Rate Method 1. It is easy to understand and simple to calculated. 2. The risk-premium rate included in the risk adjusted rate takes care of the risk element in the future cash flows of the project. 3. It takes into account the risk averse attitude of investors. Demerits of Risk adjusted Discount Rate Method 1. The risk-premium rates, determined under this method, are arbitrary. So, this method may not give objective results.
217 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting 2. It is the future cash flows which are subject to risk and not the discount rate. So, the future cash flows must be adjusted and not the discount rate. But, under this method, it is the discount rate that is adjusted and not risk, and not the future cash flows. Thus, this method adjusts the wrong element. 3. Under the method, the risk is compounded over time, since the risk premium is added to the discount rate. Which means, this method presumes that the risk necessarily increases with the passage of time. But this may not happen in all situations or cases. 4. This method presumes that investors are averse to risk (i.e., investors avoid facing risk). This may not be true in all cases. There are many investors who would like to take risks and are prepared to pay premium for taking risk. Illustration 4: From the following data, state which project is preferable: A(Rs.) B (Rs.) Year 1 6,000 8,000 Year 2 5,000 6,000 Year 3 4,000 5,000 Initial cost of the project 12,000 12,000 Riskless discount rate is 5%. Project A is less risky as compared to project B and so, the management considers risk premium rates at 5% and 10% respectively as appropriate for discounting the cash inflows. Note: The discount factors at 10% and 15% are: Year 10% 15% 1 0.909 0.876 2 0.826 0.756 3 0.751 0.650 Solution: First Step: Calculation of Risk-Adjusted Discount Rate For Project A Riskless discount rate 5% Add: Risk-premium rate 5% Risk adjusted discount rate 10% For Project B Riskless discount rate 5% Add: Risk premium rate 10% Risk-adjusted discount rate 15% Second Step : Calculation of discounted cash inflows (i.e., present value and net present value of the projects): Year Project A Project B Discounted Cash Inflows at 10% (Rs.) Discounted Cash Outflows at 15% (Rs.) 1 (6,000 × .909) 5,454 (8,000 × .876) 7,008 2 (5,000 × .826) 4,130 (6,000 × .756) 4,536 3 (4,000 × .751) 3,004 (5,000 × .658) 3,250 12,588 14,794 Less: Initial outlay 12,000 12,000 Net present value 588 2,794 Comment: The

So, Project B is preferable.
218 Financial Management 10.6.2
Certainty Equivalent Coefficient Method Introduction: Certainty equivalent co-efficient method is a method which makes adjustment against risk in the estimates of future cash inflows for a risky capital investment project. Features of certainty equivalent coefficient method: Under this method, adjustment against risk is made in the estimates of future cash inflows of a risky capital project by adjusting (i.e, reducing) to a conservative level the estimated cash flows of a capital investment proposal by applying a correction factor termed as certainty equivalent coefficient. The certainty equivalent coefficient is the ratio of riskless cash flow to risky cashflow. Riskless cash flow means the cash flow which the management expects, when there is no risk in investment proposal. Risky cash flow means the cash flow which the management expects when there is risk in investment proposal. The certainty equivalent coefficient
can be calculated with the help of the following formula:
Riskless cash flow Certainty equivalent coefficient = Risky cash flow Suppose the risky cash flow is
Rs. 20,000
and the riskless cash flow is Rs. 14,000. 14,000 The certainty equivalent co-efficient is : =0.7 20,000
Steps involved in certainty equivalent coefficient method: The various steps involved in the certainty equivalent coefficient method are: 1. First, the certainty equivalent coefficient has to be calculated for each year of a project. 2. Secondly, the risk-adjusted cash flow of a project for each year has to be calculated. The risk-adjusted cash flow of a year can be calculated as follows: Estimated cash flow for the year × Certainty equivalent coefficient. Suppose the estimated cash flow of a project for a year is Rs. 20,000 and the certainty equivalent coefficient for the cash flow of that year is 7, the risk adjusted cash flow for the year will be: 20,000 × .7 = Rs. 14,000. 3. Thirdly, we have to find out the present value of the capital project. The present value of the capital project can be found by adopting the following procedure. First, the risk-adjusted cash flow for each year should be multiplied by the present value factor applicable to that year to get the present value of the risk-adjusted cash flow of each year. 4. Fourthly, we have
to
ascertain the net present value
of the project. The net present value of the
project will be:
Rs. Present value of the project _____ Less: Initial investment on the project _____ Net present value of the project _____ 5. After the net present value of

a project is computed, decision is taken as to the selection of the project. The selection of a project is, usually, made on the following lines: (a) Generally, a project becomes acceptable, if it has a positive (i.e., +) net present value. (b) If there are two or more mutually exclusive projects, generally, the project whose net present value is higher (if there are only two projects) or highest (if there are three or more projects) is selected. Merit of this method: This method is an improvement over the previous method, as it provides for adjustment against risk. Demerit: Even this method is not strictly objective, as an element of subjectivity is bound to arise while converting risky cash flows into riskless cash flows. 219 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting Illustration 5: Two mutually exclusive investment proposals, X and Y are under consideration before the management of a company. The initial outlay of each project is Rs. 30,000. Both the projects are estimated to have a useful economic life-span of 5 years. The estimates of cash inflows and their certainty equivalent coefficient are as follows: Year Project Project Estimated Cash Flows (Rs.) Certainly Equivalent Coefficient (C.E.C.) Estimated Cash Flow (Rs.) Certainly Equivalent Coefficient (C.E.C.) 1 2 3 4 5 25,000 30,000 20,000 15,000 10,000 .7 .5 .4 .3 .2 30,000 35,000 25,000 12,000 10,000 .6 .5 .4 .2 .1 The cost of capital for the company is 15%. Compare the net present value of the two projects and suggest which project should be accepted by the management. Note: The present value factor at 15% is: Year Present Value Factor at 15% 1 .870 2 .756 3 .658 4 .572 5 .497 Solution: First Step: Computation of the net present value of the projects: Project X Years Estimated cash Flows (Rs.) Certain Equivalent Coefficient (C.E.C.) Risk Adjusted Cash Flows (Rs.) Present Value Factor at 15% Present Value (Rs.) 1 25,000 0.7 (25000 × .7)17,500 0.870 (17,500 ×.870) 15,225 2 30,000 0.5 (30,000 × .5)15,000 0.756 15,000 ×.756) 11,340 3 20,000 0.4 (20,000 × .4)8,000 0.658 (8,000 ×.658) 5,264 4 15,000 0.3 (15,000 × .3)4,500 0.572 (4,500 ×.572) 2,574 5 10,000 0.2 (10,000 × .2)2,000 0.497 (2,000 ×.497) 994 Gross present value 35,397 Less: initial capital outlay 30,000 Net present value 5,397 Project X Years Cash Flows (Rs.) (C.E.C.) Risk Adjusted
Cash Flows (Rs.) Present Value Factor at 15% Present Value (Rs.) 1 30,000 0.6 (30,000 × .6)18,000 0.870 (18,000 ×.870) 15,660 2 35,000 0.5 (35,000 × .5)17,500 0.756 15,000 ×.756) 13,230 3 25,000 0.4 (25,000 × .4)10,000 0.658 (10000 ×.658) 6,580 4 12,000 0.2 (12,000 × .2)2,400 0.572 (2,400 ×.572) 1,373 5 10,000 0.1 (10,000 × .2)1,000 0.497 (1,000 × .497) 497 Present value of
the project 37,340 Less: initial capital outlay 30,000 Net present value of the project 7,340
220 Financial Management Second Step: Decision-making as to selection of the project: Here, both the projects have positive net present value. So, both are acceptable. However, the net present value of Project Y is more than that of Project X. That means, project Y is preferable. 10.7 Quantitative Techniques 10.7.1 Sensitivity Analysis Introduction: While making capital investment decision, if we consider only one figure of estimated cash inflows, there are chances of estimation errors creeping into the capital investment decision. So, to avoid this, the sensitivity analysis has been introduced. The sensitivity analysis tries to check the estimation errors creeping into the capital investment decision by providing more than one estimate of cash inflows of a project. Meaning of Sensitivity Analysis: Sensitivity analysis is a way of analyzing the changes in the net present value or the internal rate of return of a project to a given change in one of the variables of capital investment proposal like the estimated cash inflows of the project, the rate of return or the estimated economic life of the project. It indicates how sensitive is a projects net present value to a change in any particular variable of investment proposal. Under the sensitivity analysis, usually, estimation of the cash inflows of a project is made under three assumptions or situations, viz, (i) pessimistic, (ii) most likely and (iii) optimistic outcomes associated with the project. After estimating the cash inflows and determining the net present value of the project under the three different situations, conclusion is drawn about the riskiness of the project. Under this analysis, it is usually concluded that the larger is the difference between the

more is the risk of the project and vice versa. Notes Steps Involved in the Technique of Sensitivity Analysis The technique of sensitivity analysis involves three steps. They are: 1. Identification of all the variables which have influence on the project's net present value or internal rate of return. 2. Determination of the mathematical relationship between the various variables which affect the project's net present value or internal rate of return. 3.

net present value or internal rate of return. Advantages of the Techniques of Sensitivity Analysis: The technique of sensitivity analysis has certain advantages. They are: 1. It is a popular method of assessing the risk associated with a project. 2. It shows how sensitive a project is to a change in any variable influencing the investment proposal. 3. It is helpful to locate and assess the impact of risk on a project's profitability. Disadvantages of the Technique of Sensitivity Analysis: The technique of sensitivity analysis is not free from drawbacks. It suffers from the following drawbacks: 1. Unless the combined effect of changes in a set of inter-related variables is examined, the technique of sensitivity analysis will be useless. Single variable sensitivity testing may lead to wrong conclusion. 2. Examination of the combined effect of changes in a set of variables is a very complex process.
221 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting Caselet Brickwork Ratings B angalore Brickwork Ratings has assigned BWR AA- (Pronounced BWR Double A Minus) for Tourism Finance Corporation of India Ltd. (TFCI) proposed unsecured Bond Issue of RS 50 Crore upto ten year duration. Brickwork Ratings 'BWR AA-' stands for an Instrument that is considered to offer High credit quality in terms of timely servicing of principle and interest obligations. The rating factors TFCI's, comfortable capital adequacy, gearing ratios, liquidity profile, prudential accounting policies, financial support to projects in the vital tourism sector of the economy and management quality. BWR has relied on the audited financial results, projected financial figures, information and clarification provided by TFCI to arrive at the rating. Source: financialexpress.com Illustration 6: A company has under consideration, two mutually exclusive projects X and Y for increasing its plant's capacity. Each project requires net investment of Rs. 10,000. Each project has an economic life of 10 years. The company's cost of capital is 10%. The management of the company has made the following

90%	MATCHING BLOCK 64/151	SA	JSNR_SSOU_BBA_Introduction to Financial Managm ... (D27370343)

pessimistic, most likely and optimistic estimates of the annual cash inflows associated with each project.

Estimated annual cash inflows Projected A (Rs.) Projected B (Rs.) Pessimistic 2,000 1,000 Most likely 2,500 2,500 Optimistic 3,000 5,000 1. Determine the net present value of each project. 2.

100%	MATCHING BLOCK 65/151	SA	JSNR_SSOU_BBA_Introduction to Financial Managm ... (D27370343)

Which project do you consider should be selected by the

management. Note: The present value factor of an annuity of Re. 1/- at 10% for 10 years is Rs. 6.145. Solution: First Step: Computation of the net present value of the Projects: Project A Situation Cash Inflows of the Project (Rs.) Discount Factor at 10% Present Value of the Project (Rs.) Net Present value of the Project Pessimistic Most likely Optimistic 2,000 2,500 3,000 6.145 6.145 6.145 12,290 15,363 18,435 (12,290 – 10,000) 2,290 (15,363–10,000) 5,363 (18.435–10,000) 8,435 Project B Situation Cash Inflows of the Project (Rs.) Discount Factor at 10% Present Value of the Project (Rs.) Net Present value of the Project Pessimistic Most likely Optimistic 1,000 2,500 5,000 6.145 6.145 6.145 6,145 15,363 30,725 (6,145 – 10,000) –3,855 (13,363–10,000) 3,363 (30.725–10,000) 20,725
222 Financial Management Second Step: Decision-making regarding the selection of the project: The difference between the pessimistic net present value and optimistic net present value of Project A is Rs. (8,435 – 2,290) 6,145 and of project B is Rs. (20,725 + 3,855) 24,580. The difference between the pessimistic net present value and the optimistic

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net present value of Project B is more than that of Project A.

Hence, Project B is more risky than Project A. So, Project A may be selected. 10.7.2 Probability Assignment Method Introduction: Sensitivity analysis method suffers from a limitation. It, no doubt, provides cash inflow estimates under three different assumptions or situations, viz.,

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pessimistic, most likely and optimistic. But it does not indicate the chances of occurrence of

each of these three estimates. That is, it does not indicate how far these three cash flow estimates would come true. A better capital budgeting decision may be made only if one can assign approximate probabilities to these three cash inflow estimates. The cash inflows as adjusted by probabilities will give a more precise estimates of the likely cash inflows as compared to the cash inflows which are not adjusted by probabilities. This realization has contributed to the introduction of probability assignment in capital budgeting decisions. Features of Probability Assignment Approach: Under the probability assignment approach, probabilities are assigned to the various cash inflow estimates and the expected monetary values for the various cash inflow estimates are ascertained. On the basis of the sum total expected monetary values of the various cash flow estimates of each project, decision-making as to the selection of a project is made. Generally, a project whose expected monetary value is greater or greatest is selected. Meaning of Probability: Probability means the degree of likelihood of occurrence of even in future. When an event is said to have '1' probability, it means that it is bound to occur. If an event is said to have '0' (zero) probability, it means that the event is not going to occur. The probability of an event is determined on the basis of repeated observation of the event under identical situations over a period of time. Probability may be objective or subjective: An objective probability is based on a larger number of observations under independent and identical conditions repeated over a period of time. Objective probability is of little utility in a capital budgeting decision. As no two independent investment situations can be identical. A subjective probability is not based on a large number of observations under independent and identical conditions repeated over a period of time. It is based on the personal judgment of the person concerned. For this reason, a subjective probability is also known as personalized probability. In capital budgeting decisions, probabilities are of subjective type. Steps Involved in Probability Assignment Approach: The various steps involved in the probability assignment approach are: 1. Probabilities are assigned to a series of cash inflow estimates (i.e., cash inflow estimates for different events) for each year. 2. The expected monetary value of each figure of the cash inflow estimate is computed. The expected monetary value of each figure of the cash inflow estimate can be calculated as follows: Each figure of cash flow estimate x probability assignment to each figure of cash flow estimate. 3. The total monetary value of the project is computed by adding the monetary values of the various figures of cash inflow estimates. 4. Lastly, decision-making as to the selection of the project is made. Generally, the project whose total expected monetary value is higher or highest is preferred. Illustration 7: A company has two capital investment proposals, A and B under consideration. Both the projects require investment of Rs. 6,000.

223 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting The following are the details of possible events, cash inflows and probability assignments: Project A Project B Possible Events or Series of Probable Cash Inflows Cash Inflows (Rs.) Probability Assignments Cash Inflows (Rs.) Probability Assignments A 5,000 0.20 10,000 0.15 B 6,000 0.30 8,000 0.25 C 8,000 0.40 8,000 0.30 D 8,000 0.20 6,000 0.25 E 10,000 0.10 5,000 0.20 You are required to give your opinion regarding the selection of the project. Solution: First Step: Computation of expected monetary value of the project: Project A Possible Events or Series of Probable Cash Inflows Cash Inflows (Rs.) Probability Assignments Expected Monetary Value (Rs.) A 5,000 0.20 (5,000 × .20) 1,000 B 6,000 0.30 (6,000 × .30) 1,800 C 8,000 0.40 (8,000 × .40) 3,200 D 8,000 0.20 (8,000 × .20) 1,600 E 10,000 0.10 (10,000 × .10) 1,000 Total expected monetary value 8,600 Project B Possible Events or Series of Probable Cash Inflows Cash Inflows (Rs.) Probability Assignments Expected Monetary Value (Rs.) A 10,000 0.15 (10,000 × .15) 1,500 B 8,000 0.25 (8,000 ×.25) 2,000 C 8,000 0.30 (8,000 × .30) 2,400 D 6,000 0.25 (6,000 × .25) 1,500 E 5,000 0.20 (5,000 × .20) 1,000 Total expected monetary value 8,400 Second Step: Decision-making as to the selection of the project: The expected monetary value of Project A is more than project B. So, Project A is preferable. 10.7.3 Standard Deviation Approach Introduction: Probability assignment approach is, no doubt, a good technique of risk analysis in capital budgeting. But it does not give precise results about the extend of variability of cash inflows. So, to overcome this drawback of probability assignment method, standard deviation method or approach has been introduced. Standard deviation method is a statistical technique of risk measurement in capital budgeting. It is regarded as an improvement over the probability assignment method. Meaning and Features of Standard Deviation Approach: Standard deviation is the square root of the squared deviations calculated from the mean. This measure (i.e., standard deviation) is used to compare the variability of probable cash inflows of different projects from their respective mean or expected values. This technique indicates that a project having a larger standard deviation will be more risky as compared to a project having smaller standard deviation.

224 Financial Management Steps Involved in the Calculation of Standard Deviation: A number of steps are involved in the calculation of standard deviation. They are: 1. First, we have to compute the mean value (i.e., the arithmetic average) of the projected cash inflows. 2. Second, we have to square up the deviations between the mean value and the projected cash inflows. 3. Third, we have to square up the deviations so arrived at. This gives squared deviations. 4. Fourth, we have to multiply the squared deviations by the assigned probabilities. This gives weighted squared deviations. 5. Fifth, we have to total up the weighted squared deviations. 6. Lastly, we have to find out the square root of the total weighted squared deviations. The resulting figure is the standard deviation. 7. The formula for calculating standard deviation is: 2 pdcf S Where, '?' means standard deviation 'p' means probability assigned. 'dcf' means deviation from the mean (i.e., the expected monetary value). Advantage of Standard Deviation Approach: The main advantage of standard deviation approach is that it gives a precise measure of risk associated with a project. It indicates that a project having higher standard deviation is more risky as compared to a project having a lower standard deviation. Drawback of Standard Deviation Approach: No doubt, standard deviation approach is an improvement over the probability assignment approach. But it suffers from a drawback. That is, it is only an absolute measure of dispersion or variation and not a relative measure of variation. As a result, when the values of mean expected monetary value show wide variations in the case of two or more projects, the results shown by the standard deviation method may not be precise. Illustration 8: A company has two Projects A and B, under consideration. Both the projects involve an equal initial investment of Rs. 6,000. The following particulars are available:

Project A Project B Possible Events Cash Inflows (Rs.) Probability Assigned Cash Inflows (Rs.) Probability Assigned A 5,000 0.2 12,000 0.20

B 7,000 0.15 10,000 0.20 C 9,000 0.3 9,000 0.40 D 9,000 0.2 8,000 0.15 E 10,000 0.1 6,000 0.10

Find out which project is more risky by adopting standard deviation

approach

225 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting Solution: Computation of Standard Deviation Project A Possible Events Cash Inflow Deviation from the Arithmetic Mean of Rs 8,000 Deviations Squared up Probability Assigned Product of Squared Deviations and Probability (Squarred deviations x probability assigned) A 5,000 (8,000 – 5,000) = 3,000 3,000 × 3,000 = 90,00,000 0.20 (90,00,000×.20) 18,00,000 B 7,000 (8,000 – 7,000) = 1,000 1,000 × 1,000 = 10,00,000 0.15 (10,00,000×.15) 1,50,000 C 9,000 (9,000 – 8,000) = 1,000 1,000 × 1,000 = 10,00,000 0.30 (10,00,000×.30) 3,00,000 D 9,000 (9,000 – 8,000) = 1,000 1,000 × 1,000 = 10,00,000 0.20 (10,00,000×.20) 2,00,000 E 10,000 (10,000 – 8,000) = 2,000 2,000 × 2,000 = 40,00,000 0.10 (40,00,000× .10) 4,00,000 28,50,000 Standard Deviation: Square root of 28,50,000, i.e., 28,50,000 = 1688.19 Note: In this case, the arithmetic mean of cash inflows is calculated as follows: Total cash inflows of five events Rs. A 5,000 B 7,000 C 9,000 D 9,000 E 10,000 Total 40,000 Arithmetic mean or Average: 40,000/5 = Rs. 8,000. Project B Possible Events Cash Inflow Deviation from the Arithmetic Mean of Rs. 9,000 Deviations Squared up Probabiliy Assigned Product of Squared Deviations and Probability (squared deviations × probability assigned) A 12,000 (12,000–9,000) = 3,000 3,000×3,000 = 90,00,000 0.20 (90,00,000×.20) 18,00,000 B 10,000 (10,000–9,000) = 1,000 1,000×1,000 = 10,00,000 0.20 (10,00,000×.20) 2,00,000 C 9,000 (9,000–9,000) = 0 0 0.40 0 D 8,000 (8,000–9,000) = 1,000 1,000×1,000 = 10,00,000 0.15 (10,00,000×.15) 1,50,000 E 6,000 (6,000–9,000) = 3,000 3,000×3,000 = 90,00,000 0.10 (90,00,000×.10) 9,00,000 30,50,000 Standard Deviation Square Deviation Square root of 30,50,000, i.e., 30,50,000 = 1,746.42

226 Financial Management Note: In this case, the arithmetic mean of cash inflows is cash as follows: Total Cash Inflows of Five Events Rs. A 12,000 B 10,000 C 9,000 D 8,000 E 6,000 Total 45,000 Arithmetic mean or average: 45,000/5 = Rs. 9,000 Comment: The standard deviation of Project B is more than that of Project A. That means the variability of cash flow is more in the case of Project B than in the case of Project A. So, Project B is more risky. 10.7.4 Coefficient of Variation Approach Introduction: Standard Deviation is an absolute measure. It is not suitable for comparison, particularly when investment proposals involve different capital outlay or different monetary values of probable cash inflows. In such cases, a relative measure of dispersion should be employed for comparison. For comparison in such cases, coefficient of variation approach is the best measure. This realization is responsible for the emergence of coefficient of variation approach in capital risk analysis. Coefficient of variation approach is a relative measure of dispersion. It is considered superior to standard deviation approach in capital risk evaluation associated with investment proposals. Features of Coefficient Variation Approach: There may be cases where the standard deviations of two investment projects are the same, but the expected monetary values of probable cash flows of the two projects differ. Again, there may be cases where the expected monetary values of probable cash flows of two projects are the same, but the standard deviations of the projects may be different. In such cases or situations, the coefficient of variation of each of the investment projects is computed to get a more precise relative measure of risk. Coefficient of variation is found by dividing the standard deviation by the mean. (i.e., the arithmetic mean of the estimated cash inflows). The formula for the calculation of coefficient of variation is: Coefficient of variation = Standard Deviation Mean (i.e., the arithmetic mean of the estimate cash inflows) Advantages of Coefficient of Variation Approach: The Coefficient of variation is a relative measure. It is quite useful for comparison where the projects involve different cash outlays or different monetary values of cash inflows. The coefficient of variation suggests that, the more is the coefficient of variation of a project, the greater is the risk associated with that project. Illustration 9: Taking the illustration given under standard deviation approach,
calculate the coefficient of variation and suggest which project is more risky. Solution: The
coefficient of deviation (i.e., variation) of the projects is: Project A Standard Deviation of the Project i.e.1688.19 = 0.21 Arithmetic mean of the estimated cash inflows of the project, i.e., Rs. 8,000
227 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting Project B Standard Deviation of the Project i.e.1746.42 = 0.19 Arithmetic mean of the estimated cash inflows of the project, i.e., Rs. 9,000 Comment The coefficient of deviation of Project B is more than that of project A. That means, Project B is more risky. In this context, It may be noted that with higher risk, the profitability of the project is also higher. As such, the selection of a project depends upon the capacity of the investor to bear risk. If the investor is not averse to risk, he may prefer project B and in case he is averse to risk he may prefer Project A. 10.7.5 Decision Tree Analysis Introduction: Investment decisions are, generally, sequential in nature. That is, they involve a sequence of decisions over time. An investment decision taken at one point of time results in a series of decision alternatives at some other time in future, depending upon the nature and extent of outcomes and events. As a result investment decisions become complex. The complex investment decisions can be handled through the technique of decision tree analysis. The technique of decision tree analysis can be employed effectively to analyse and evaluate sequential investment decisions. It is an important technique for taking risky capital investment proposals. Meaning of Decision Tree Analysis: A present decision depends upon the future events, and the alternatives of a whole sequence of decisions in future are affected by the present decision and the future events. That means, there is inter-relationship between the decision made at the present moment and the future probable decision alternatives emerging out of the sequential outcomes of the original decision. The

consequences can be displayed graphically or pictorially. The graphic display of the relationship between a present decision and the possible future events, future decisions and their consequences is shown in a format resembling the branches of a tree. Such an analysis is called decision tree analysis, and the graph is called decision tree. So, decision tree analysis is a graphic or pictorial representation in tree form, which presents the

consequences. This is clear from the definition of decision tree as given by Prof. Hampton. In the words of

sequences. The sequences of events is mapped out over time in a format resembling branches of a tree". Steps Involved in the Decision Tree Process: A number of steps are involved in the decision tree process. The major steps are: 1. Defining the investment opportunity or proposal: First, the investment opportunity or proposal must be clearly defined or determined. The investment proposal may be to enter a new market, to introduce a new product line, etc. The investment proposal may be sponsored by any department say, the marketing department or the production department or any other department. 2. Identification of alternatives: Every investment proposal will have at least two alternatives, i.e.. acceptance or rejection of the proposal. But most investment proposals have more than two alternatives. For instance, when a firm is considering the purchase of a new plant for the manufacture of a new product, it may have four alternatives, viz., (i) not to purchase the plant, (ii) to purchase a small plant, (iii) to purchase a medium-sized plant and (iv) to purchase a large plant. As every investment proposal has two or more alternatives, once a proposal has been defined, the various decision alternatives have to be identified and analysed thoroughly. 3. Delineation of the decision tree: After the identification of the various decision alternatives, the delineation of the decision tree must be taken up. Delineation of the decision tree involves the layout of the decision points. Decision branches, chance events and other data. The decision points represent various offshoots requiring varying amount of

 cash outlays. The decision branches represents the various alternatives which are available. The decision points, decision branches, chance events and other data are required to be determined, as they are to be laid down in the decision tree graph. 4. Forecasting cash flows and probability assignment: Once the decision tree has been delineated, the next step is to make a forecast of probable cash flows which are likely to emerge from each decision branch (i.e., decision alternative). Probabilities should also be assigned to each cash flow. 5. Computation of the expected monetary values: On the basis of the forecasted probable cash flows and the probabilities assigned to them, the expected monetary value (i.e., expected present values) have to be computed. As the final decision rests on the total expected monetary values, the computed monetary values have to be totalled. 6. Evaluating or analyzing the results and choosing the best alternative: After computing the expected monetary values, the results of the various alternatives have to be evaluated or analysed and on the basis of the profitability, the best (i.e. the most profitable alternative) has to be chosen. Advantages of the Technique of Decision Tree Analysis: The technique of decision tree analysis has certain advantages. They are: 1. This technique facilitates investment decisions in a scientific way. 2. This technique gives an overall view of all the possibilities associated with a project, helps the management to take decisions keeping the entire picture in mind. 3. As this technique links the probable outcomes of a decision one after another in an inter-related manner along with probabilities assigned to each sequential outcome, it is very useful in tackling investment situations requiring decisions to be taken in a sequence. Disadvantages of the Technique of Decision Tree Analysis: The technique of decision tree analysis is not free from drawbacks. It suffers from the following drawbacks: 1. A prime decision may have a number of sequential decision points and each one of such decision points may have numerous decision branches or decision alternatives. 2. The decision tree analysis becomes very complex, when a project has a life of more than 2 years. For instance, when a project has a life of 3 years, with three possible outcomes, the number of decision branches or paths may be as many as 27. In such situation, it becomes almost impossible to understand and derive proper conclusion from the decision tree analysis. So, it is necessary that out of the numerous decision alternatives of choices, only a few have to be selected through the process of elimination. In other words, there should be pruning or decision alternatives. "Decision trees are like grape vines, they are production only if vigorously pruned". (Myers) otherwise, the decision tree will become unwieldy, resulting in confusion. Illustration 10: M.Ltd. is considering the purchase of a new plant, requiring a cash outlay of Rs. 20,000. The plant is expected to have a useful life of 2 years without any scrap value. The cash flows and their associated probabilities for the two years are as follows: 1 st Year Cash flow Probability (i) Rs. 10,000 0.2 (ii) Rs. 15,000 0.4 (iii) Rs. 18,000 0.4

229 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting 2 nd year If cash flows in 1st year is: Rs.10,000 Rs.15000 Rs.18,000 Cash Flow Probability Cash Flow Probability Cash Flows Probability (i) Rs. 8,000 0.3 Rs. 12,000 0.4 Rs. 15,000 0.3 (ii) Rs. 12,000 0.4 Rs. 15,000 0.4 Rs. 20,000 0.5 (iii) Rs. 15,000 0.3 Rs. 20,000 0.2 Rs. 25,000 0.2 Presuming that 10% is the cost of capital, plot the above data in the form of a decision tree and suggest whether the project should be accepted or not. Note Discount factor 10% 1 st Year .909 2 nd Year .826 Solution: First Step: Computation of Net Present Value Alternatives Cash Inflow First Year (Rs.) Second Year Rs. Present Values at 10% First Year Cash Inflow × 0.909 (Rs.) Second Year Cash Inflow × 0.826 (Rs.) Total Present Value of Two Years (Rs.) Total Present Value – cost of the Project = NPV (Rs.) (a) (i) 10,000 8,000 9,090 6,608 15,698 -4,302 (ii) 10,000 12,000 9,090 9,912 19,002 -998 (iii) 10,000 15,000 9,090 12,390 21,480 1,480 (b) (i) 15,000 12,000 13,635 9,912 23,547 3,547 (ii) 15,000 15,000 13,635 12,390 26,025 6,025 (iii) 15,000 20,000 13,635 16,520 30,155 10,155 (c) (i) 18,000 15,000 16,362 12,390 28,752 8,752 (ii) 18,000 20,000 16,362 16,520 32,882 12,882 (iii) 18,000 25,000 16,362 20,650 37,012 17,012 Second Step: Construction of Decision Tree Year First Year Second Year Probability Cash Inflows (Rs.) Probability Cash Inflows (Rs.) Net present value of the project (as calculated Earlier) (Rs.) Joining Probability (Probability of first Year & probability of second Year) (Rs.) Expected net Present Value (Net present value × joint Probability) 0.3 8,000 – 4302 0.06 -258 0.2 10,000 0.4 12,000 – 998 0.08 -80 Cash Outlay 0.3 15,000 1,480 0.06 89 0.4 15,000 0.4 12,000 3,547 0.16 568 Rs. 20,000 0.4 15,000 6,025 0.16 964 0.4 18,000 0.2 20,000 10,155 0.08 812 0.3 15,000 8,752 0.12 1,050 0.5 20,000 12,882 0.20 2,576 0.2 25,000 17,012 0.08 1,361 1.00 7,082

230 Financial Management Decision-making: The above decision tree analysis indicates that the project gives a positive expected net present value of Rs. 7,082 at 10% discount factor. That means the Project may be accepted. Task Discuss the steps involved in the process of measuring risk and return. How does portfolio diversification help in reducing
risk?

Case Study Mavis Machine Shop T he case is set in an metalworking shop in West Virginia, one of whose products is drill bits for oil exploration. The time is 1980, in the midst of an oil drilling boom resulting from the oil crises of 1974 and 1979. Early in 1980, Tom Mavis, President of Mavis Machine shop was considering a project to modernize his plant facilities. The company operated out of a large converted warehouse in Salem, West Virginia. It produced machinery or assorted machined metal parts for the oil and gas drilling and production industry in the surrounding area. One of Mavis major customer was Buckeye Drilling, Inc., which purchased specialized drill bits and replacement parts for its operations. Mavis had negotiated an annual contract with Buckeye to supply its drill bit requirements and related spare parts in each of the past 8 years. In 1978 and 1979 the requirements had been about 8,400 bits per year. All Buckeye's rigs were busy. Mavis knew, there were 30 rigs operating in the state and that it had resin up from 17 in 1972. Wells drilled was up even more, from 679 in 1972 to 1,474 last year. The arrangement of the machine shop included four large manual lathes currently devoted to the Buckeye business. Each lathe was operated by a skilled worker, and each bit required mechanical keep. Mavis was considering replacing these manual lathes with an automatic machine, capable of performing all four machinery operations necessary for a drill bit. This machine would produce drill bits at the same rate as the four existing lathes, and would only require one operator. Instead of skill in metalworking, the job would now involve more skill in computerized automation. The four existing manual lathes were 3 years old and had cost a total of $590,000. Together they produced 8,400 drill bits on a two-shift, 5-day/week basis. The useful life of these lathes, calculated on a two-shift/day, 5 day/week basis, was estimated to be 15 years. The salvage value at the end of their useful life was estimated to be $5,000 each. Depreciation of $114,000 had been accumulated on the four lathes. Cash for the purchase of these lathes had been partially supplied by a 10-year, unsecured, 10% bank loan, of which $180,000 was still outstanding. The best estimate of the current selling price of the four lathes in their present condition was $240,000, after dismantling and removal costs. The loss from the sale would be deductible for tax purposes, resulting in a tax savings of 46% of the loss. The automatic machine being considered needed only one skilled operator to feed in raw castings, observe functioning, and make necessary adjustments. It would have an output of 8,400 drill its annually on a two-shift, 5 –day basis. As it would be specially built by a machine tool manufacturer, there was no catalogue price. The cost was estimated to be $680,000, delivered and installed, the useful life would be 15 years. Using a 12-year life (the remaining life of the current lathes). The estimated salvage value would be 10% of the cost. The automatic lathe was first introduced in1975 at a cost of $ 750,000. It was expected that as the manufacturing techniques became more generally familiar, the price would continue to drop over the next few years. This price decline was in stark contrast to the inflation in oil services products and supplies which was 18% in both, 1978 and 1979. A study prepared by the cost accountant to help decide, what action to take, showed the following information. The direct labour rate for lathe operations was $10 per hour including fringe benefits. Pay rates for operators would not change as a result of machining changes. The new machine would use less floor space, which would save $15,000 annually on the allocated charges for square footage of space used, although the layout of the plant was such that the left space unoccupied would be difficult to utilize and no other use was planned. Miscellaneous cash expenses for supplies, maintenance, and power would be $20,000 less per year, if the automatic machine were used. The purchase price was subject to 10% investment tax credit that did not reduce the depreciable cost.

Contd....

231 Chapter 10: Capital Rationing and Risk Factors in Capital Budgeting

Exhibit 1: Mavis Machine Shop Selected Financial Information Condensed Income Statement, 1979 Neat Sales : 85,364,213 Cost of Goods Sold : 3,494,941 Selling, General & Administrative : 643,706 Profit before Taxes : 81,225,566 Income Taxes : 602,851 Net Income : 8622,715

Condensed Balance Sheet, 12/31/79 Cash 8532.122 Current liabilities 8930.327 Accounts Receivable 622.107 long-Term Notes Outstanding (at 10%) 500.000 Inventory 1,858.120 Common Stock 1,000,000 Property Assets 4,390.701 Retained Earnings 5,011,723 87,442,050 87,442,050

Questions 1. Summarize the net cash flows for the proposed project. 2. For the project, calculate the internal rate of return, the accounting rate of return, the payback period, the net present value and the profitability index. 3. What qualitative factors should be considered in evaluating this project? 4. What decision would you recommend? 10.8 Summary ?

Capital

rationing means the selection only some of the profitable investment proposals out of the several profitable investment proposals available. ? Capital rationing involves two important steps: (i) ranking of the different investment proposals, and (ii) selection of some of the profitable investment proposals. ?

There are several techniques used for incorporation of risk factors in capital budgeting decisions. ? General Technique are- (a) Risk adjusted discounting rate & (b) Certainty equivalent coefficient ? Quantitative Techniques includes sensitivity analysis, probability assignment, standard deviation, coefficient of Variation & decision tree. 10.9 Keywords

Capital Rationing: The allocation of the

limited funds available for financing the capital projects to only some of the profitable projects in such a manner that the long term returns are maximized.
Risky Investment: Risk in an investment refers to the variability that is likely to occur between the estimated returns and the actual returns.
Risk-free Rate: The rate at which the future cash flows of a project which is not subjected to risk are discounted.
Risk Premium Rate: The extra at which the
future cash flows of a
risky project are discounted. Certainty Equivalent Coefficient: It is the ratio of the riskless cash flows.

Riskless Cash Flows: The cash flows which the management expects when there is risk in investment proposal.
Adjusted Discount Rate Method: The future cash flow from capital projects are discounted at the risk adjusted discount rate and decision regarding the selection of a project is made on the basis of the net present value of the project computed at the risk adjusted discount rate.
Certainty Equivalent Coefficient Method: A method which makes adjustment against risk in the estimates of future cash inflows for a risky investment project. 10.10
Self Assessment
State whether the following statements are
true or false: 1.
Capital
rationing has no effect on the maximization of the shareholders wealth. 2. NPV of the project must be more than zero for the project to be accepted. 3. Capital rationing is the selection of the most profitable investment projects with maximum long term returns. 4.
Due to absence of risk in certain projects, there is absolute certainty about the cash inflows estimation in those projects. 5. For the project to be accepted, the PI should not be more than zero. 6. Investors expect a higher rate of return on more risky projects. 7. Risk premium rate is the additional discount rate at which present cash flows of a risky project are discounted. 8.
There is no statistical technique for risk measurement in capital budgeting. 9. The effect of change in NPV or IRR by change in one of the variable of capital investment proposal can be estimated by sensitivity analysis. 10.
Risk-free rate is
the rate at which the future cash flows of a project not subject to risk are discounted. 11.
Projects having larger standard deviation are more risky. 12. Decision tree approach maps the sequential investment decision. 10.11 Review Questions 1.
Compare the risk factor of two capital projects with the help of standard deviation techniques. 2. Elucidate the technique of "Certainty Equivalent Coefficient". 3. A company has 2 projects C & D under consideration. Both the projects have equal initial cash outlay of Rs. 8000/- details given are: Project C Project D Possible events Cash inflows (
Rs.) Probability assigned Cash inflows (Rs.) Probability assigned A 5000 0.3 10000 0.18
B 8000 0.4 8000 0.5 C 4000 0.12 9000 0.19 D 3000 0.6 7000 0.1 E 8000 0.1 5000 0.4 Find out which project is more risky by adopting standard deviation technique. 4. Critically examine the ways in which you will use the "Decision Tree Analysis" approach in investing in a project.
 5.
Taking the example of Ques.3, calculate the coefficients of variation & suggest which project is more risky. 6. Examine the ways in which capital projects be ranked under capital rationing. 7.
Mr. Rajan is considering investing in new machinery requiring cash outflow of Rs. 50,000 & the expected life of the asset is 2 years. The cash flows & probabilities are as follows for years. 1st year Cash flow Probability i Rs.10,000 0.2 ii Rs.12000 0.4 iii Rs.18000 0.5 2nd year If cash flows in 1st year is: Rs.10000 Rs.12000 Rs.18000 Cash Flows Probability Cash flows Probability Cash flows Probability i Rs.8000 0.2 Rs.12000 0 Rs.20000 0.3 ii Rs.15000 0.5 Rs.20000 0.7 Rs.15000 0.6 iii Rs.12000 0.3 Rs.15000 0.2 Rs.20000 0.1 If cost of capital is 10%, suggest whether the machinery should be purchased or not, using decision tree approach. 8. Critically examine the steps involved in decision tree analysis approach. 9. The Sloan Company produces three products. It is currently considering whether or not to continue producing one of these products, A. The following table shows some relevant data for A and the firm's other two products. Product Line Profits for Sloan Corporation A B C Sales revenue 3,50,000 4,00,000 7,50,000 Variable operating Expenses 1,60,000 2,70,000 3,65,000 Contribution Margin 1,90,000 1,30,000 3,85,000 Fixed operating Expenses 2,15,000 55,000 -2,68,000 Pre-tax operating Income -25,000 75,000 117,000 Level of working Capital Investment 14,000 12,000 45,000 In answering the following questions, assume that

the firm's marginal tax rate is 40% and the appropriate discount rate for the

decision is 15%. (a) Suppose the machinery used to produce A has a book value of 1,20,000 and a market value, if sold today, of 90,000. Annual depreciation expenses of 30,000 in each of the next four years will be charged to A and are included in the fixed operating expenses shown in the table. The machine will have zero salvage value if used for an additional four years. If A is abandoned, the firm will sell the assets and can avoid all of the fixed costs associated with A. Sales of C, a complementary product, will, however, fall by 15%. Sales of B, a similar product would increase by 4%. The working capital investment for each product is proportional to sales. Looking at the abandonment decision as a four-year project, would it be profitable to abandon A? (To answer this question, first determine the change in operating cash flows if A is abandoned. Then calculate the NPV of all incremental cash flows). (b) Suppose instead that the assets used to produce A are at the end of their useful life, have been fully depreciated, and have no salvage value. To continue producing A would require an investment of 1,20,000 in machinery with a four- year life. The machinery would be depreciated on a straight-line basis to a zero salvage value. (The depreciation
234 Financial Management expenses would be in addition to the fixed operating expenses shown in the table). If the firm does not buy the equipment, A will not be produced and sales of B will fall by 12% and sales of C will increase by 4%. Should the firm invest in new equipment or A? (To answer, calculate the NPV of a decision to keep A.) 10. Which technique in your opinion is best suited to the industries in today's competitive environment. 11. The Oxford Company is trying to choose between two machines it can use to produce one of its products. Both machines are capable of producing sufficient quantities to maintain annual sales of 2,20,000. Machine X costs 1,80,000 and has a four- year economic life. If this machine is used, net operating expenses will be 55,000 per year. Machine Y costs 2,80,000 and has a five year economic life. If this machine is used, net operating expenses are expected to be 40,000 per year. Either machine will be depreciated on a straight-line basis for tax purposes to a zero salvage value. The firm's cost of capital is 12% and its marginal tax rate is 40%. Suppose the product the Oxford Corporation is planning to produce is expected to have only a sever-year life. The expected salvage value of Machine X after three years of use is 30,000; the expected salvage value of Machine Y after three years of use is 1,80,000. Which machine should the Oxford Corporation purchase, assuming the same machine will be replaced during the project life? 12. If an equipment costs Rs.10 lakhs and lasts for 10 years, what should be the minimum annual net cash inflow before it is worthwhile to purchase the equipment? Assume that the cost of capital is 12%. Answers: Self Assessment 1. F 2. T 3. T 4. F 5. F 6. T 7. F 8. F 9. T 10. T 11. T 12. T 10.12 Further Readings
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235
Chapter 11: Working Capital Management & Financing Chapter 11: Working Capital Management & Financing Objectives This chapter on Working Capital Management & Financing covers 1.
Meaning, definition, concepts and kinds of working capital 2. Components of working capital 3. Need for maintaining adequate working capital and list out
the dangers of excessive and inadequate working capital 4. Operating and cash cycle 5.
Sources of working capital
finance 6. Approaches available for the fair finance mix of
working capital Introduction
Working capital management is significant in financial management due to the fact that it plays a vital role in keeping the wheel of the business running.
Every business requires capital, without which it cannot be promoted. Investment decision is concerned with investment in current assets and fixed assets. There are two assets required to be financed by fixed capital and working capital. In other words, the required capital can be divided into two categories, such as fixed capital and working capital. Fixed capital required for establishment of a business, where as working capital required to utilize fixed assets. Fixed assets cannot be utilized without current assets. It is just like a blood in the human body, without which there is no body.

Working capital plays a key role in a business enterprise just as the role of heart in human body. It acts as grease to run the wheels of fixed assets. Its effective provision can ensure the success of a business while its inefficient management can lead not only to loss but also to the ultimate downfall of what otherwise might be considered as a promising concern. In other words, efficiency of a business enterprise depends largely on its ability to manage its working capital. Working capital management, therefore, is one of the important facets of a firm's overall financial management. 11.1 Concepts of Working Capital Working capital refers to short-term funds to meet operating expenses. To quote Ramamoorthy, "It refers to the funds, which a company must possess to finance its day-to-day operations". It is concerned with the management of the firm's current assets and current liabilities. It relates to the with the problems that arise in attempting to manage the current assets, current liabilities and their inter-relationship that exists between them.

If a firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy.

Caution The concept of working capital has been a matter of great controversy, among the financial wizards and they view it differently. There is no universally accepted definition of working capital. Broadly, there are two concepts of working capital commonly found in the existing literature of finance such as: 1. Gross Working Capital (Quantitative Concept), and 2. Net Working Capital (Qualitative Concept).

Both these concepts of working capital have operational significance. The two concepts are not to be regarded as mutually exclusive. Each has its relevance in specific situations from the management point of view. Each concept of working capital has its own significance – the 'gross concept' emphasising the 'use' and the 'net concept' the 'source' – an integration of both these concepts is necessary in order to understand working capital management in the context of risk, return and uncertainty.

11.1.1 Gross Working Capital Concept According to this concept, the total current assets are termed as the gross working capital or circulating capital. Total current assets include; cash, marketable securities, accounts receivables, inventory, prepaid expense, advance payment of tax; etc. This concept also called as 'quantitative or broader approach'. To quote Weston and Brigham, "Gross Working Capital refers to firm's investments in short term assets such as cash, short term securities, accounts receivables and inventories". The concept helps in making optimum investment in current assets and their financing. According to Walker, "Use of this concept is helpful in providing for the current amount of working capital at the right time so that the firm is able to realise the greatest return on investment". The supporters of this concept like Mead, Field, and Baker and Malott, argue that the management is very much concerned with the total current assets as they constitute the total funds available for operating process. Significance Gross Working Capital Concept focuses attention on the two aspects of current assets management, they are: 1. Optimum Investment in Current Assets: Investment in current assets must be just adequate to the needs of the firm. In other words, current assets investment should not be inadequate or excessive. Inadequate working capital can disturb production and can also threaten the solvency of the firm, if it fails to meet its current obligations. On the other hand, excessive investment in current assets should be avoided, since it impairs the firm's profitability. 2. Financing of Current Assets: Need for working capital arise due to the increasing level of business activity. Therefore, there is a need to provide/arrange it quickly. Similarly, some times surplus funds may arise, thus they should be invested in short-term securities. They should not be kept as idle. 11.1.2 Net Working Capital Concept As per this concept, the excess of current assets over current liabilities represents net working capital.

Similar view is expressed by Guthmann and Dougall, Gerstenberg, Goel, Park and Gladson, Kennedy and McMullen, and Myer in their distinguished works. 'Accounts Hand Book' has also fully supported this view. The famous economists like, Sailer , Lincoln, and Stevens, fully supported this concept and viewed that the net working capital helps creditors and investors to judge the financial soundness of a firm. Net Working Capital Concept represents the amount of the current assets, which would remain after all the current liabilities were paid. It may be either positive or negative. It will be positive, if current assets exceed the current liabilities and negative, if the current liabilities are in excess of current assets. Another alternative definition is that net working capital refers to
that portion of firm's current assets, which financed with long-term funds.
Net Working Capital
Concept indicates or measures the liquidity and also suggests the extent to which working capital needs may be financed by
the permanent source of funds. To quote Roy Chowdary, "Net Working Capital indicates the liquidity of the business whilst gross working capital denotes the quantum of working capital with which business has to operate". Significance Net Working Capital Concept focuses attention on the two aspects of current assets management, they are: (i) Maintaining liquidity position, and (ii) To decide upon the extent of long-term capital in financing current assets. 1. Maintaining Liquidity Position: For maintaining liquidity position there is a need to maintain current assets sufficiently in excess of current liabilities. In other words, excess current assets helps in meeting its financial obligation within the operating cycle of the firm. Generally for every one rupee of current asset there will be one rupee of current liability. As discussed above, negative and excess working
capital
both are bad to the firm. 2. To decide upon the Extent of Long-term Capital in Financing Current Assets: Net Working Capital (NWC) means the portion of current assets that should be financed by long-term funds. This concept helps to decide the extent of long-term funds required in finance current assets. For example, if there are
Rs. 1,00,000 current assets and
Rs. 75,000
current liabilities, the extent of current assets should be decided by the NWC base. The NWC is the difference between current

assets and current liabilities. In the above example NWC is
Rs. 25,000.
This is the amount that is supposed to be financed by long-term funds. Hence, NWC helps management to decide the extent to which current assets should be financed with equity capital and borrowed
funds. 11.2
Kinds of Working Capital The categorization of working capital can be made either based on its concept or the need to maintain current assets either permanently and/or temporarily. As per conceptual view, it may be classified into gross working capital or net working capital, which were already explained in detail. Gerstenberg has conveniently classified the working capital into regular or permanent working capital and temporary or variable working capital. The variable working capital is again bifurcated into seasonal and special working capital. See Figure 11.1.
Working Capital Concept Base Time Base Gross Working Capital or Quantitative Networking Capital or Qualitative Permanent or Regular Working Capital Temporary or Variable Working Capital
Figure 11.1: Kinds of Working Capital 11.2.1 Permanent
Working Capital Permanent working capital is the minimum investment kept in the form of inventory of raw materials, work-in-process, finished goods, stores and spares, and book debts to facilitate uninterrupted operation in a firm. Though this investment is stable in short run, it certainly varies in long run depending upon the expansion programmes undertaken by a firm. It may increase or decrease over a period of time.
The minimum level of current assets maintained in a firm is usually known as permanent or regular working capital. 11.2.2 Temporary Working Capital A firm is required to maintain an additional current assets temporarily over
and above permanent working capital to satisfy cyclical demands.
Any additional
working capital apart from permanent working capital required to support the changing production and sales activities is referred to as temporary or variable working capital.
In other words, an
amount over and above the permanent level of working capital is temporary, fluctuating or variable working capital. At times, additional working capital is required to meet the unforeseen events like floods, strikes, fire, and price hike tendencies and contingencies. Distinction between Permanent and Temporary Working Capital
The difference between permanent and temporary working capital can be

shown in the following Figures 11.2 and 11.3.
238
Financial Management Temporary or Variable Permanent or RegularWorkingCapital(Rs.) Time Figure 11.2
The above figure depicts the permanent or regular working capital that is stable over a period, where as temporary or variable working capital is oscillating, or showing ups and down – some times working capital requirement has increased or decreased. The above Figure 11.2 will hold good to those firms, where there is no development and have seasonal or cyclic fluctuations. But for the growing firms Figure 11.3 will be suitable as follows:
Time Temporary or Variable Permanent or Regular WorkingCapital(Rs.)
Figure 11.3 Over a long period, permanent working capital also changes with the additional funds, required for expression programs. 11.3
Components of Working Capital Efficient management of working capital involves effective control over the current assets and current liabilities, which are the main components of working capital. 1. Components of Current Assets:
Current assets are those assets that in the ordinary course of business, can be
or will be turned into cash within an accounting period (not exceeding one year) without undergoing diminution in value and without disrupting the operations. Total current assets consists of cash, marketable securities, inventories, sundry debtors, one year fixed deposits with banks, and prepaid expenses. 2. Components of
Current Liabilities:
Current liabilities are those liabilities intended to be paid in the ordinary course of business within a
reasonable period (normally
within a year) out of the current assets or revenue of the
business. The current liabilities consist of sundry creditors, loans and advances, bank over-draft, short-term borrowings, taxes and proposed dividend.
239
Chapter 11: Working Capital Management & Financing 11.4
Importance of Working Capital Working capital is considered as central nervous system of a firm. The importance of working capital management is reflected in the fact that financial managers spend most of their time in managing current assets and current liabilities. Adequate working capital needs to be maintained in order to discharge day-to-day liabilities and protect the business from adverse effects in times of calamities and emergencies. It aims at protecting the purchasing power of assets and maximise the return on investment. In other words, the goal of working capital management is to minimize the cost of working capital while maximizing a firm's profits. Management is
required to be vigilant in maintaining appropriate levels in the various working capital accounts.
The working capital management is concerned with determination of relevant levels of current assets and their efficient use as well as the choice of the financing mix. "The
efficiency of firm to earn profits depends largely on its ability to manage working capital. Working capital management has acquired paramount importance in the recent past, especially in view of tight money conditions prevailing in the economy". Working capital management policies have a crucial effect on firm's liquidity and profitability. Thus, working capital plays a crucial role in earning a reasonable rate of return. Hence, working capital has to be effectively planned, systematically controlled and optimally utilised. 11.5
Aspects of Working Capital Management Management of working capital involves the following
four aspects: 1. Determining the total funds required to meet the current operations of the firm (i.e., determination the level of current assets); 2. To decide the structure of current assets (i.e., the proportion of long-term and short-term capital to finance current assets); 3. To evolve suitable policies, procedures and reporting systems for controlling the individual components of current assets (Mainly cash, receivables and inventory); and 4. To determine the various sources of working capital. For determining the sources of working capital (short-term and long-term) capital the net concept becomes useful. However, for determining the level and composition of working capital it is the gross concept, which becomes more meaningful. 11.6 Objectives of Working Capital Management The objectives of working capital management could be stated as, 1. To ensure optimum investment in current assets. 2. To strike a balance between the twin objectives of liquidity and profitability in the use of funds. 3. To ensure adequate flow of funds for current operations. 4. To speed up the flow of funds or to minimize the stagnation of funds. 11.7 Operating Cycle and Cash Cycle
Maximization of shareholders' wealth of a firm is possible only when there are sufficient returns from their operations.
But profits can be earned will naturally depend, among other things,
upon the magnitude of the sales. In other words, successful sales activity is necessary for earning profits.
Sales do not convert into
cash immediately. There is invisible time lag between the sale of goods and receipt of
cash.
There is, therefore, a need for working capital. In other words, sufficient working capital is necessary to sustain sales activity. The operating cycle concept penetrates to the heart of working capital management in a more dynamic form.

The time that elapses to convert raw materials into cash is known as operating cycle.
In other words
the time that elapses between the purchase of raw materials and the collection of cash for sale is referred to as the operating cycle.
To quote Joy,
The continuing flow from cash to suppliers, to inventory, to accounts receivables and back into cash is what is called the operating cycle. The
operating cycle involves the following procedure: 1. Conversion of cash into raw materials.
240
Financial Management 2.
Conversion of raw materials into work-in-process. 3.
Conversion of work-in-process into finished goods. 4. Conversion of finished goods
into
sales [debtors and
cash]. If firm sells good on cash basis with (4) operating cycle then returns to the operating cycle (1). But if, firm sells goods on credit basis then there will be another cycle that is, Conversion of debtors into cash. The following Figure 11.4 shows the operating cycle.
Cash Raw Material's Debtor Work-in- Process
Sales Finished goods
Stock of raw material is held in order to ensure smooth production. Similarly, stocks of finished goods have to be carried to meet the demand from the consumers on the continuous basis. Goods are sold on credit for competitive reasons. Thus, adequate amount of funds has to be invested in current assets for a smooth and uninterrupted production and sales process. The operating cycle will be different in different types of business units: 1. Operating Cycle of Manufacturing Firm: The above stated cycle will be suitable to a manufactures firm. 2. Operating Cycle of a Non-manufacturing Firm:
Non-manufacturing firms are wholesale sellers and retailers, which do not have manufacturing process. They will have the direct conversion of cash into finished goods and then into cash. In other words, they will purchase finished goods from manufacturing firm and sell them either on cash or credit. If they sell goods on credit, the following Figure 11.5 gives their operating cycle.
Cash Receivables Stock of finished goods 11.7.1
Cash Conversion Cycle
The amount of time a firm's resources are tied up calculate by subtracting the average payment period from the operating cycle. In other words the time period between the dates
from when pays it
suppliers to the date till it receives the cash from its customers.
Figure 11.4 Figure 11.5
241 Chapter 11:
Working Capital Management & Financing Calculation of Cash Conversion Cycle (CCC) [See Figure 10.6].
CCC = OC – APP
where:
OC = Operating Cycle APP = Accounts Payable Period OC = AAI + ARP.
AAI = Average Age of Inventory ARP = Account Receivables Period.
From the financial statements, it can be determined as the constituents of Cash Conversion Cycle i.e., AAI, ACP, APP: Average
Inventory AAI = Cost of Goods Sold/365 Average Accounts Receivables ARP = Annual Sales/365 Average Accounts Payables APP = Cost of Goods Sold/365 Figure 11.6: Depicts Operating and Cash Cycle Purchase of Raw Materials on Credit Sales of Goods on Credit Collection of Accounting Receivables
Accounts Payable Period (APP) Receipt of Invoice Operating Cycle (OC) Cash Conversion Cycle (CCC)
Payment to Suppliers Average Age of Inventory (AAI) Accounts Receivables Period (ARP) 11.8
Need to Maintain Balanced Working Capital For maximization profits or minimization of working capital cost or to maintain balance between liquidity and profitability, there is a need to maintain a balance in working capital. It should not be excessive or inadequate. In other words, it should manage adequate working capital to run its business. Excessive or inadequate working capital both
are dangerous from firm's point of view. Excessive working capital means idle funds
that can earn no profit but involve costs, and inadequate working capital disturbs production and impairs the firm's profitability. 11.8.1 Dangers of Excessive Working Capital The dangerous
excessive working capital are as follows: 1. It results in unnecessary accumulation of inventories,

which leads to mishandling of inventories, waste, theft and losses in
increase. 2. It is indication of defective credit policy and slack in collection period.
These lead to higher bad debt losses that reduce profits.
242
Financial Management 3.
It makes management complacent which degenerates in to managerial inefficiency. 4. Accumulation inventories tend to make speculative profits grow. This type of speculation makes the firm to follow liberal
dividend policy and difficult to cope with in future is unable to make speculative profits. 11.8.2
Dangers
of Inadequate Working Capital The following are
the dangers of inadequate working
capital: 1.
It stagnates growth. It becomes difficult for the firm to undertake profitable
or the firm to undertake profitable of
the firm to understand profitable projects for non-availability of working capital. 2.
It becomes difficult to implement operating plans and achieve the firm's target profit. 3. Operating inefficiencies creep in when it becomes difficult even to meet day-to-day commitments. 4.
It leads to inefficient utilisation of fixed assets. Thus, firms profitability would deteriorate. 5.
It renders
the firm to avail attractive credit opportunities etc. 6.
Firm loses its reputation when it is not in
a position to honor its short-term obligations. Therefore, firm should maintain the right amount of working capital on a continuous basis. 11.9
Factors Influencing Working Capital A business undertaking should plan its operations in such a way that it should have neither too much nor too little working capital. There are no set of
rules or formulae to determine the working capital requirements of a
firm.
The total
working capital requirement is determined by a wide variety of factors.
These factors, however, affect different firms' differently. Also the relative importance of these factors changes even in the same firm in course of
time. Therefore, an analysis of relevant factors should be made in order to determine
the total investment in working capital.
A brief description of the general factors influencing
the working capital needs of a firm are as follows: 1. Nature of Business: The amount of working capital is basically related to the nature of business.
The proportion of current assets needed in some lines of business activity varies from other lines.
For instance,

they require more working capital. In contrast, public utility concerns rendering public services require huge investment in fixed assets.
The requirement of current assets in such concerns is usually less due to cash nature of business and selling service. In trading concerns, the amount of working capital required is less than the manufacturing concern, since there is no production of goods and services involved, but in service industry like banks the amount of working capital required is very high. The relative importance of current assets to total assets will indicate the required intensity of planning and control efforts in working capital management area. 2.
Size of Business: It may be argued that a firm's size, measured in
terms of assets or sales, affects need for working capital.
Size may be measured in terms of a scale of operation.
A firm having with large-scale operations will need more working capital
required then a small firm having small-scale operations.
A small firm may use extra current assets as a cushion against cash flow interruptions.
Bigger firms have

many sources of funds, thereby it will require less amount of working capital as compared to the smaller ones. 3. Production Cycle Process: This is another factor, which has bearing on the quantum of working capital, is the production cycle. The term production or manufacturing
cycle refers to the time
involved in the manufacturing of goods.
It covers the time span between the procurement of raw materials and the completion of the manufacturing process leading to
the production of
finished goods. Longer the
production cycle, the higher will be the working capital requirement and vice versa.
Manufacturing
firms have large production cycle, so they require high working capital, but in the case of short production cycle firms require less working capital. Working capital requirements can be reduced with the help of certain policy steps, like terms of credit for raw materials and the suppliers. Unless the sequences of production process leading to conversion into finished goods are kept under close observation to achieve better production and productivity,
243 Chapter 11: Working Capital Management & Financing more and more working capital funds will be tied up. In this context, it should be noted that production planning and control are vital. 4.
Production Policy: Production policy means whether, it is continuous or seasonal demand for products. What kind of production policy should be followed in above cases? There are two options to such companies, either they confine their production only to periods when goods are purchased or they follow a steady production policy throughout the year and produce goods at a level to meet peak demand.
Suppose in the case where, production and sales goes simultaneously, the amount of working capital required is less (example is FMCG goods business), but the sales will be only seasonal and production will take place throughout the year thus continuously the amount of working capital required is very high. (Umbrella business). 5.
Credit Policy or Terms of Purchase and Sales: The credit policy relating to sales and purchases also affects the working capital. If a company purchases raw materials in cash and sells goods on credit, it will require larger amount of working capital.
On the contrary, a concern having credit facilities for the purchase of raw materials and allowing no credit to its customers,
will require lesser amount of working capital. 6. Business Cycle: The amount of working capital requirements of a firm varies with every movement of business cycle.
The variations in business conditions may be in two directions (a) Upward phase – when boom conditions prevail, in this case more working capital is required to cover the lag between the increased sales and receipt of cash as well as to finance purchase of additional material. (b) Downswing phase – in this case, the need for working capital will be very less, since there is no growth in sales. 7.
Growth and Expansion: As company grows, it is logical to expect that a larger amount of working capital in required.
It is very difficult to determine
the relationship between the growth in the volume of business
of a company and increase in its working capital
required.
Other things being equal, growth industries require more working capital than those the static.

the growth in business activities but proceeds it. Advance planning of working capital is therefore, a continuing necessity for a growing concern, or else, the company may have substantial earnings but little cash. 8.
Scarce
Availability of Raw Materials: The availability of certain raw materials on a continuous basis without interruption would sometimes affect the working capital requirement.
There may be some materials, which cannot be procured easily either because
of
either their sources are few or they are irregular. Therefore, the firm might be compelled to purchase
more than required to manage smooth production. In this case, the amount of working capital required is large.
In other case, the availability of raw materials are easy and there is no fluctuations thus the amount of working capital required is less. 9.

Profit Level: Firms may differ in their capacity to generate profit from business. Some firms enjoy a dominant position, due to quality product or good marketing management or monopoly power in the market and earn a high profit margin. Other firms may earn low profits. The net profit is a source of working capital to the extent that it has been earned in cash.

A firm with high profit level requires less working capital and vice versa. 10.
Level of Taxes: The net profit is calculated after deduction
of tax. The amount of taxes to be paid is determined by the tax
authorities. So the management has no discretion in this respect.
Hence, companies
very often pay taxes in advance on the basis of the profit of the
previous year. Therefore, tax is an important aspect of working capital planning. If tax liability increases, it leads to an increase in the requirement of working capital and vice versa. So tax planning can, therefore, be said to be an integral part
of working capital planning. 11.
Dividend Policy: Dividend has a bearing on working capital, since it is appropriation profits. The payment of dividend reduces cash resources and thereby, affects working capital to that extent.
Conversely, if the firm does not pay dividends but retains profits, the working capital increases. In other words, declaration of dividends leads to more working capital requirement and vice versa. 12.
Depreciation Policy: It is also exerts an influence on the quantum of working capital required. Depreciation charge is out of pocket cost. The affect of depreciation policy on working capital is indirect. More depreciation provisions reduce the amount of required working capital and vice versa.
244 Financial Management 13. Price Level Changes: Increasing prices necessitate the use of more funds for managing an existing level of activity. In the same level of current assets, higher cash outlays are required. The effect of raising prices is that a higher the amount of working capital is required. However, in the case of companies, which can raise their prices proportionately, there is no serious problem regarding working capital required. Moreover, the price rise does not have a uniform effect on all commodities. The effects of raising price levels will be different for different firms depending upon their pricing policies, nature of the product etc. 14.
Operating Efficiency: The operating efficiency of the firm relates to the optimum utilisation of resources at minimum costs.
Efficiency
of operations accelerates the pace of cash cycle and involves the working capital turnover. In this case the amount of working capital needed is less since it releases pressure by improving profitability and improving the internal generation of funds. 15. Availability of Credit: The need for working capital in
a firm will be less, if it avails liberal credit facilities. Similarly, the availability of credit from banks also influences the working capital needs of the firm. A firm enjoying bank credit
facilities can secure funds to finance its working capital requirement very easily, whenever it requires. It can therefore, perform its business activities with less working capital than a firm without such credit facility. 16.
Other Factors: In addition to the above factors, there are a number of other factors, which affect the requirement of working capital. Some of them are: close co-ordination between production and distribution policies, an absence of specialization in the distribution of products, the means of transportation and communication, the hazards and contingencies inherited in a particular type of business, credit policy of RBI and so on.
The amount of working capital is also influenced by the inventory policies, depreciation policies, management attitude and wages and government policies. 11.10
Determination of Required Working Capital
Working capital is equal to the current assets minus current liabilities. In other words, working capital consisting two components, such as current assets and current liabilities. Hence, for estimation of working capital, there is a need to follow the following Four-step procedure: 1. Estimation of cash cost of the various current assets required by the firm. 2. Estimation of spontaneous current liabilities of the firm. 3. Compute net working capital by subtracting the estimate current liabilities (step 2) from current assets (step 1). 4. Add some percentage (given in the problem) of net working capital if there is any contingency or safety working capital required, to get the required working capital.

Caselet Satyam Board may Finalise Working Capital Needs T he newly constituted Satyam Board is expected to finalise on Tuesday arrangements for getting short-term loans from certain banks to part-finance the company's salary obligations for the next few months. The Board is in talks with at least three banks to raise short-term loans against the collateral of certain "unencumbered immovable properties", a person familiar with the situation said. "We hope to fulfill the salary obligations from collections (receivables) and also from fund infusion of banks," Mr. T. N. Manoharan, Board Member, Satyam Computer Services, said, when asked if any consortium of banks was being put in place to take care of the working capital needs of the company. The salary bill for Satyam Computer Services for January is estimated at $100 million. Mr. Manoharan said that most of Satyam's immovable properties (like buildings) were free of encumbrances and this was a positive for the company. Source: thehindubusinessline.com

 Statement of Working Capital Needed Particulars Amount (in Rs.)

Amount (in Rs.) A. Estimation of Current Assets: i) Raw materials ii) Work-in-process Raw materials (full cost) XX Direct labour (to the extent of completed stage) XX Overheads (to the extent of completed stage) XX iii) Finished goods inventory iv) Debtors v) Cash balance required XXX

XXX XXX XXX XXX Total Current Assets XXX B. Estimation of Current Liabilities i) Creditors ii) Expenses Overheads XX Labour XX XXX XXX Total Current Liabilities XXX

C. Working Capital (A-B) Add: Contingency (Percentage on working capital)

XXX XXX D. Working Capital Required XXXX Estimation

of Working Capital (Formulae) Working capital required is calculated based on the assumption that the production or sales is carried on evenly throughout the year and all costs accrue similarly. Exclusion of depreciation is necessary from sales price since it is out of profit costs, it does not involve cash outflow. In other words, computation of working capital required is based on the cash cost only.

Symbols used in the formulas: BP = Budgeted Production (in units) RMC = Raw Materials Cost per unit ARM HP = Avg. Raw Materials Holding Period EWIP = Estimated Work-in-Process cost per unit ATSWIP = Avg. Time Span of Work-in-Process inventory CGP = Cost of Goods Produced (excluding depreciation) per unit FGHP = Finished Goods Holding Period BCS = Budgeted Credit Sales in units CS = Cost of Sales (excluding depreciation) per unit ADCP = Avg. Debt Collection Period CPAS = Credit Period Allowed by Suppliers DWC = Direct Wages Cost per unit LPW = Lag in Payment of Wages OHC = Overhead Cost per unit of production LPOH = Lag in Payment of Overheads

Estimation of components of current assets and current liabilities: 1. Estimation of Current Assets: (a) Investment in Raw Materials Inventory: BP (in units) × RMC per unit × ARM HP (months/days) ÷ 12 months/365 days. (b) Investment in Work-in-process Inventory: Work-in-process cost (permit) is proportionate share of the cost of direct materials and conversion costs. Conversion costs include labor and manufacturing overheads costs excluding depreciation, since it is out of pocket cost. Generally, raw materials cost is fully considered, if there is no information about the raw materials requirement. With regards to the share of labor and overhead cost, it is based on the work completion stage. For example if the work is completed to the extent of 50 per cent then only 50 per cent labour cost and overhead cost is taken into consideration for estimation of work-in-process cost. If there is no information about the completion stage then the option is left out to the estimation of working capital (it is better to consider that work completion stage is 50 per cent). BP (in units) × EWIP per unit × ATSWIP (months/days) ÷ 12 months/365 days (c) Investment in Finished Goods Inventory: BP (in units) × CGS per unit × FGHP (months/days) ÷ 12 months/365 days (d) Investment in Debtors: BCS (in units) × CS per unit × ADCP (months/days) ÷ 12 months/365 days (e) Cash and Bank Balance: Maintenance of minimum working capital includes a minimum cash balance, but it is very difficult to calculate minimum cash balance required. Generally determination of minimum cash balance would be based on the motives for holding cash of business firm, attitude of management towards risk, accessibility of the firm to the sources of finance, when needed and past experience etc. Generally in examinations the minimum cash balance will be provided. 2. Estimation of Current Liabilities: (a) Trade Debtors: BP (in units) × RMC per unit production × CPAS (months/days) ÷ 12 months/365 days. (b) Direct Wages: BP (in units) × DWC per unit × LPW (months/days) ÷ 12 months/365 days. (c) Overheads: BP (in units) × OHC per unit of production × LPOH (months/days) ÷ 12 months/365 days. Illustration: From the following information of VSGR Company Ltd.,

estimate

the working capital needed to finance a level of activity of 1,10,000 units

of

production

after adding a 10 per cent safety contingency. Amount (

per unit) Raw materials 78 Direct labour 29 Overheads (excluding depreciation) 58

Total cost 165 Profit 24 Selling price 189 Additional information: Average

raw materials in stock: One month Average materials-in-process (50 per cent completion stage): Half a month Average finished goods in stock: One month Credit allowed by suppliers: One month Credit allowed to customers: Two months Time lag in payment of wages: One and half weeks Overhead expenses: One month

One-fourth of the sales is on cash basis. Cash balance is expected to be Rs. 2,15,000. You may assume that production is carried on evenly throughout the year and wages and overhead expenses accrue similarly.

Solution: Estimation of Working Capital Needed Particulars Amount (Rs.) Amount (Rs.) A. Estimation of Current Assets: i) Raw materials inventory: One month: (1,10,000 × 78 × 4/52) ii) Work-in-process inventory: Half a month Raw materials (1,10,000 × 78 × 2/52) = 3,30,000 Direct labour (1,10,000 × 14.5 × 2/52) = 61,346.15 Overheads (1,10,000 × 29 × 2/52) = 1,22,692.31 iii) Finished goods inventory: One month: (1,10,000×165×4/52) iv) Debtors: Two months: (82,500 × 165 × 8/52) v) Cash balance required 6,60,000 5,14,038.46 13,96,153.85 20,94,230.77 2,15,000 Total Current Assets 48,79,423.08 B. Estimation of Current Liabilities: i) Creditors: One month: (1,10,000 × 78 × 4/52) ii) Expenses: Overheads (1,10,000 × 58 × 4/52) = 4,90,769.23 Labour (1,10,000 × 29 × 3/104) = 92,019.23 6,60,000 582,788.46 Total Current Liabilities 12,42,788.46 C. Working Capital(A-B) Add: 10% Contingency 36,36634.62 3,63,663.46 D. Working Capital Required 40,00,298.08 11.11 Financing of Working Capital Needs There are three financing policies vis-a-vis to financing current assets. Adoption of the specific policy is left out to the firm. The three financing policies are: 1. Short-term Financing: Generally current assets should be financed by only short-term financial sources. Short-term finance is obtained for a period of less than one year. The sources of short-term finance are loans from banks, public deposits, commercial papers, factoring of receivables, bills discounting, retention of profits etc., a firm, which required short-term finance, can go for any one of these sources. In other words, a firm that required short term finance can raise through any one of the sources. 2. Long-term Financing: Net current assets or permanent current assets or working capital are supposed to be financed by long-term sources of finance.

Long-term finance is raised for a period of more them five years. Long-term finance sources include, ordinary share capital, preference share capital, debentures, long-term loans from bankers, and surpluses (includes retained earnings).

A firm that needs to finance net current assets can go for any of these sources, but it depends on company's attitude towards risk or control over the company, companies earnings, capacity and period of loan reserved. 3. Spontaneous Financing: It refers to the automatic sources of short-term funds arising in the normal course of a business.

The source includes trade credit (suppliers') and outstanding expenses. Spontaneous sources of finance is available at no cost. A firm that wishes to maximize owner's wealth, it must and should utilize these sources to the fullest extent. The real choice of financing current assets, is between short-term and long-term sources. In other words, some extent of current assets can be financed with the use of spontaneous source, and the requiring current assets should be financed with the combination of long-term and short-term sources of finance.

248 Financial Management 11.12 Approaches for Financing Current Assets As we have seen in above discussion there are three types of sources for financing the working capital, such as short-term financing, long-term financing and spontaneous financing. But financing of working capital, there are only two sources available, short-term and long-term sources. What should be the proportion on of working capital to be financed by short term and long term sources? They are three approaches available for a company which are Matching, Conservative and Aggressive approach. Adoption of a particular technique depends on the company's attitude towards risk and return. The following Figure 11.7 depicts the three approaches available to finance working capital. 11.12.1 Matching or Hedging Approach Matching approach is that approach in which, the expected life of an asset is matched with the source of finance period with which an asset is financed. For example, an asset, which is having an expected life of 15 years, should be financed only through 15 years loan, or 15 years debentures, or 15 years redeemable preference shares. In other words, the life of an asset should match with the maturity of source of funds. Hence, it is known as matching approach. The term hedging is used in the sense of a

matching of financial needs. Fixed assets and

should be financed by short-term funds. The same can be shown in the following Figure 11.8: Assets Time Temporary Current Assets Long-term financing Permanent Current Assets Fixed Assets Short-term financing The above figure says that there is a need to match the period of source of finance and the assets life, which is financed by funds. But it may not be possible to match, because of uncertainty of assets expected life. As the level of assets increases, the amount of finance also increases in both assets. Figure 11.7: Approaches for Financing Working Capital Matching or Hedging Approach Conservative Approach Aggressive Approach Financing Working Capital Approached for Financing Working Capital Matching or Hedging Approach Conservative Approach Aggressive Approach Figure 11.8
249 Chapter 11: Working Capital Management & Financing 11.12.2 Conservative Approach According to this approach, a firm depends more on long-term funds for financing needs. In this plan, the firm finances its regular or permanent current assets and a part of temporary or variable current assets with long term source of funds. In the year, when the firm has no need of funds

so that the firm conserves liquidity. Figure 11.9 shows the conservative policy. Assets Fixed Assets Permanent Current Assets Time Temporary Current Assets (a) (b) Short-term financing Long-term financing A firm, that follows this policy/approach will be under less risk since, it relies an long-term finance but the returns are also less. 11.12.3

hedging approach or matching approach. In other words, a firm's finances are a part of its regular or permanent current assets with short-term sources of funds. A firm, which follows this approach, is under more risk, but it will prove to have more returns. Figure 11.10 explains the aggressive approach. Time Fixed Assets Permanent Current Assets Temporary Current Assets Short-term financing Long-term financing Assets (a) (b) Figure 11.9: Conservative Approach Figure 11.10: Aggressive Approach

250 Financial Management 11.13 Trade-off between Profitability, Risk and Liquidity Liquidity Profitability Liquidity versus Profitability Principle There is a trade-off between liquidity and profitability; gaining more of one ordinarily means giving up some of the other. Liquidity Having enough money in the form of cash, or near-cash assets, to meet your financial obligations. Alternatively, the ease with which assets can be converted into cash. Profitability A measure of the amount by which a company's revenues exceed its relevant expenses. 'Liquidity' as being on one end of a straight line and 'Profitability' on the other end of the line. If you are on the line and move towards one, you automatically move away from the other. In other words, there is the trade-off between liquidity and profitability. This is easy to illustrate with a simple example. The items on the asset side of a company's balance sheet are listed in order of liquidity, i.e., the ease with which they can be converted into cash. In order, the most important of these assets are: 1. Cash 2. Marketable Securities 3. Accounts Receivable 4. Inventory 5. Fixed Assets Notice that as we go from the top of the list to the bottom, the liquidity decreases. However, as we go from top to bottom, the profitability increases. In other words, the most profitable investment for company is normally in its fixed assets; the least profitable investment is cash. Bankruptcy Risk Is it possible for a company to go bankrupt if it has a lot of cash but is not profitable? Sure it is! It may take a while, but if it remains unprofitable, it will eventually go bankrupt. Its available cash will be used to finance the losses, but when the cash runs out, the assets of the company will have to shrink because there will be insufficient funds to replace them as they wear out. The company will become smaller and smaller and will eventually fail. Is it possible for a company to go bankrupt if it is very, very profitable but is not very liquid (i.e., does not have much cash)? Certainly! For example, if a company expands so rapidly that it is constantly building new buildings and buying new equipment, it may very well get behind on its payments to the contractors and vendors due to the lack of cash. In other words, the company is spending money much faster than it is making it, even though it is making a lot. Eventually, the creditors (i.e., contractors and vendors) will demand their money and,

up, the creditors will take the company to court. A judge may very well decide that the creditors are entitled to their money and will start selling off the assets of the company in order to raise cash to pay them. (Half-finished construction projects don't bring in much cash at a sheriff's auction). At that point, the owners of the company have lost control and may very well be forced into bankruptcy.

251 Chapter 11: Working Capital Management & Financing So, you can see that it's dangerous to be on either extreme of the line: (1) highly liquid but not very profitable, and (2) highly profitable but not very liquid. There's a broad middle ground between the two extremes where the company wants to reside. Managing Current Assets and Liabilities 1. The greater the firm's investment in current assets, (a) the greater its liquidity, the lower the illiquidity risk 2. However, current assets (cash, marketable securities) earn very low or no income, (a) trade-off between low income and low illiquidity risk Working-capital Management and the Risk-return Trade-off 1. Working Capital = the firm's total investment in current assets or assets which is (a) expects to be converted into cash within a year or less. 2. Risk-Return Trade-off in managing working capital is (a) trade-off between the firm's liquidity and its profitability Large Investment in Current Assets (Cash, Inventories) 1. reduces the chance of production stoppages, lost sales, and inability to pay bills on time 2. no corresponding increase in profits 3. return on investments drops (asset increases, profit is the same) Larger the firm's reliance on short-term debt or current liabilities in financing its asset investments, 1. the greater the risk of illiquidity 2. but short-term is less costly and more flexible than long-term Working Capital The firm's total investment in current assets or assets that it expects to be converted into cash within a years or less. Net Working Capital The difference between the firm's current assets and its current liabilities. Frequently when the term working capital is used, it is actually intended to mean net working capital. The Risk-Return Trade-Off in Managing a Firm's Net Working Capital Firm Profitability Firm Liquidity Investing in additional marketable securities and inventories Lower Higher Increasing the use of short-term versus long-term sources of financing Higher Lower Task "

Working capital deals with the decisions regarding the appropriate mix and level of current assets and current liabilities". Elucidate that statement.

252 Financial Management

Case Study Creative Promotion Company

M r. Bhatt is a young man of bright ideas. Although he is employed as an engineer in one of the large engineering concerns in Lahore (Pakistan), he spends all his spare time developing new products in his private laboratory at home. Currently, he has commercially provided a domestic appliance called Lavex, which would be a great convenience kitchen to help housewives. He is not interest in manufacturing and selling his new products; his only interest in developing new products is to make money by way of selling patent rights to some established concerns. However, he releases that till he succeeds in selling the patent rights at the price he expects, he has to manufacture and sell the new products on ad hoc basis so as to demonstrate the commercial superiority of his products and thereby, to induce the parties to buy the patents from him. With this objective, he is currently thinking of manufacturing and selling 'Lavex'. He will not give up his
full-time
job; he will supervise and guide 'Lavex' production and sales during his spare time. Bhatt has already spent
Rs. 30,000
in developing the product. He proposes to buy the component from other parties and keep the production activity to a minimum. The minimum equipment required would cost
Rs. 11,000. He would need to rent a small place for Rs. 1,200
per month for production. He proposes to use his residence as office for sales activity. Bhatt proposes to introduce the product in Chennai city only. His sales projections are as follows: January 60 February 40 March 110 April 140 May 220 June 180 He is not interested in pushing sales beyond 220 units per month as he cannot cope with the production. He has budgeted Rs. 20,000 for sales promotion, which will be spent mostly for demonstration in leading department stores in the city. The promotion budget is scheduled as follows : Rs. January 7,000 February 7,000 March 3,000 April 3,000 This selling price per units will be
Rs. 280
and the dealers will be given 15 percent trade discount. He calculates that about 50 unit will be needed for "demonstration and display" in the leading sores at his cost. Although the sales to dealers will be made on one month's credit, he knows that the actual collections will be realized in about 4 weeks time. He rules out cash sales. Assembling is one of the activity in the production process. Components and materials, which will be purchased from outside parties strictly on 30 days credit will cost Rs. 160 per unit. Wages per month will be
Rs. 6000.
The production capacity per month will be 220 units. Wages will be paid weekly. Overhead expenses are estimated at
Rs. 2800
per month. Materials and components need to be ordered at least one month in advance. There will be inventory of finished goods or goods in process as the production will be strictly against firm orders. Bhatt proposes to employ a full-time production, sales supervisor for
Rs. 880
per month. Mr. Bhatt wants to know how much finance will be needed for his first six months of operation and when, so that he may plan accordingly. Questions 1. Discuss the nature of the financial problem involved. 2. Prepare the monthly cash budget for the first six months period of the proposed venture. 3. How can the above-mentioned problem be sorted out?
253
Chapter 11:
Working Capital
Management & Financing 11.14
Summary ?
Working capital management
is concerned with the
problems that arise in attempting to manage
the current assets, current liabilities and their inter-relationship that exists between them. ?
Working capital
management
goal is maintain a satisfactory level of working capital. ? Gross working capital concept focuses attention on the two aspects of current assets management; they are
optimum investment in current assets, and financing of current assets. ? Net working capital
concept focuses attention on maintaining liquidity position, and to decide upon the extent of long-term capital in financing current assets. ? Permanent working capital
refers to the minimum level of current assets maintained in a firm. ? Temporary working capital refers to additional current assets temporarily over and above permanent working capital to satisfy cyclical demands. ?

The working capital management is concerned with determination of relevant levels of current assets and their efficient use as well as the choice of the financing mix. ? The time that elapses to convert raw materials into cash is known as operating cycle ?
Cash Conversion Cycle (CCC) is

CCC = OC – APP. ? There are three financing policies vis-à-vis, to finance current assets. ?
They are three approaches available for companies, that are matching, conservative and aggressive approach. ? Matching or Hedging Approach, is
that approach in which, the expected life of an assets is matched with the source of finance period with which the asset is financed. ? Conservative Approach, according to this approach a firm depends more on long-term funds for financing needs. ?

hedging approach or matching approach. 11.15 Keywords
Working Capital: It refers to short-term funds to meet operating expenses.
Gross Working Capital:
The total current assets are termed as
the gross
working capital.
Net Working Capital:
The excess of current assets over current liabilities
represents net working capital.
Permanent Working Capital: It is the minimum investment kept
in the form of inventory of raw materials, work in progress, finished goods, stores and spares,
and book debts to facilitate uninterrupted operation in a firm.
Temporary Working Capital: Any additional working capital apart from permanent working capital required to support the changing production and sales activities
is referred to as temporary working capital.
Hedging Approach: That approach in which, the expected life of an asset is matched with the source of finance period with which an asset is financial.
Conservative Approach: According to this approach, a firm depends more on long-term funds for financing needs.

hedging or matching approaches.
254 Financial Management 11.16 Self Assessment 1. Fill in the blanks: (a)
Total of all current assets ..... (b) The excess of current assets over current liabilities ..... (c)
Gross operating cycle equal to inventory conversion period plus ..... (d) The time elapses between the receipt of raw materials and payment to suppliers ..... (
e) Net operating cycle equal to gross operating cycle less ..... (
f)
A firm's
financial plan that matches the expected life of assets with the expected life of funds raised to finance
that asset is referred as ..... (g) A firm when depends on more long-term funds for financing needs
..... 2.
State whether the following statements are true or false: (a)
Working capital is the part of current assets that are supposed to be financed by long-

term
sources of finance. (
b)
Net
working capital is the excess of current assets over current liabilities. (
c) Negative
working capital
is
the excess of current assets
over current liabilities. (
d) Trade credit is the source of working capital. (e) Operating cycle and cash cycle both are one and the same. (
f) Depreciation is source of working capital. (g)
In boom period working capital requirement is less. (h) Manufacturing companies require less amount of working capital.
11.17
Review Questions 1.
From the following information RRR Company Ltd., for the next year,
you are required to estimate the working capital needed to finance a level of activity of 2,08,000 units
of
production
after adding a five per cent safety contingency. Amount (
per unit) Raw materials 160 Direct labour 60 Overheads (including depreciation of
Rs.10) 130
Total cost 350 Profit 50 Selling price 400 Additional Information
Average raw materials in stock: one month Average materials-in-
process (50
per cent completion stage):
half a month Average
finished goods
in stock: one
month Credit allowed by suppliers: one month Credit allowed to customers: two months Time lag in payment of
wages:
one and half weeks

All sales are credit sales. Cash balance
is expected to be Rs. 75,000.
You may
assume that
production is carried on evenly throughout the year and
wages and
overhead
expenses accrued similarly. 2.
DP Mills Limited has the following information as for the year 2003.
Sales – Rs 3782.79
lakhs Cost of Goods sold – Rs 3444.47 lakhs Opening inventory – Rs 856.25 lakhs closing inventory Rs 1037.73 lakhs
Accounts Receivables: Opening – Rs 852 lakhs, Closing – Rs 636.88
lakhs
Accounts Payables: Opening: Rs 832.96 lakhs Closing: 84689 lakhs Calculate (a) OC and (b) CCC 3.
You are the businessman. Analyse the factors you will consider in determine the working capital requirement of your
business. 4.
While preparing a project report on behalf of a client, you have collected
the following information. Estimate working capital required (for
the level of activity 1,50,000 units)
for the firm after adding 10% contingency.
You may
assume that
production is carried on evenly throughout the year and

wages and
overhead
expenses accrued similarly.
Amount (
per unit) Raw materials 38.5 Direct labour 11.8 Overheads (including depreciation
Rs.5) 32.0
Total cost 823 Profit 17.7 Selling price 100
Additional Information Average raw materials in stock: four weeks; average materials-
in-process (50
per cent completion stage):
half a month;
average
finished goods
in stock: four weeks;
credit allowed by suppliers: one month;
credit allowed to debtors: eight weeks; lag in payment of
wages:
two weeks. Cash at bank is expected to be Rs.1,00,000.
All sales are credit
sales. 5.
Mr. X is running a business & has problem of inadequate working capital problems. Analyse the problems he must be facing due to inadequate
working capital. 6. "Working capital must be adequate but at the same time not excessive". Comment. 7.
Is there any significant difference in the concepts of gross working capital & net working capital?
Justify. 8. Analyse the options available to the firm for the financing of working capital. 9. Compare and contrast matching and conservative approaches. 10. What is hedging approach of current assets financing? Discuss

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the basic premise of the hedging approach to finance funds requirements. What are the effects of this approach on the profitability and risk? 11. Examine the

significance of distinguish in financing working capital needs of a firm. 12. Analyse the different stages of operating cycle in a business. Answers: Self Assessment 1. (a) Gross working capital (b) Net working capital (c) Debtors collection period (d) Cash cycle (e) Payables differed period (f) Matching (g) Conservative
256 Financial Management 2. (a) True (b) True (c) False (d) True (e) False (f) True (g) False (h) False 11.18
Further Readings
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257
Chapter 12: Receivable Management Chapter 12: Receivable Management Objectives This chapter on Receivable Management covers 1.
Accounts receivables and their characteristics 2. Accounts receivables management 3. Objectives, benefits, and costs of receivables management 4.
Modes of payment of credit 5. Types of credit policies with their advantages
and disadvantages Introduction

Accounts Receivables occupy an important position in the structure of current assets of a firm. They are the outcome of rapid growth of credit sales granted by the firms to their customers. Credit sales are reflected in the value of Sundry Debtors [SDs in India]. It is also known as Trade Debtors (TDs), Accounts Receivables (ARs), Bills Receivables (BRs) on the asset side of balance sheet. Trade credit is most prominent force of modern business. It is considered as a marketing tool acting as a bridge between production and customers. Firm grants credit to protect its sales from the competitors and attract the potential customers. It is not possible to increase sales without credit facility; increase in sales also increases profits. But
investment on
accounts receivables involves certain costs and risks. Therefore, a great deal of attention is normally paid to the effective and efficient management
of
accounts receivables.
The term receivable is defined as "
debt
owed to the firm by customers arising from sale of goods or services in the ordinary course of business".
When
the firm
sells its
products services on credit, and it does not receive cash for it immediately, but would be collected in near future.
Till collection they form as current assets. 12.1
Characteristics of Receivables
The accounts receivables arising out of credit sales have the following characteristics: Caution 1. Risk Involvement: Receivables involve risk, since payment takes Bajaj in future, and future is uncertain so they should carefully analyze. 2. Based on Economic Value: Accounts receivables are based on economic value. The economic value in goods or services passes to the buyer currently in return the seller expects an equivalent value from the buyer latter. 3. Implies Futurity: Buyer will make cash payment of the goods or services received by him/her in a future period, i.e. generally after credit period. 12.2 Accounts Receivables Management Accounts Receivable Management means making decisions relating to the investment in
these
current assets as an integral part of operating process, the
objective being
maximization of return on investment in receivables. In other words, accounts receivables management involves maintenance of receivables of optimum level, the degree of credit sales to be made, and the
debtors collection. In simple words, the key function of credit management is to optimize the sales at the minimum possible cost of credit. According to Joseph, "The purpose of any commercial enterprise is the earning of profit. Credit in itself is utilized to increase sales, but sales must return a profit". The offer of goods on credit should not only optimise sales but also lead to
258
Financial Management
maximization of overall return on investment. Management of
receivable, therefore, should be based on sound credit policies and practices. 12.3
Objectives of Accounts Receivables Management The following are the main objectives of accounts receivables management: 1. Maximizing the
Value of the Firm: The basic objective
of debtors' management is to maximise the value of the firm
by achieving a trade off between liquidity (risk) and
return. The main purpose of receivables management is to minimise the risk of bad debts and not maximisation of order. Efficient management of receivables expands sales by retaining old customers and attracting new customers. 2. Optimum Investment in Sundry Debtors: Credit sales expand, but they involve block of funds, that have an opportunity cost, which can be reduced by optimum investment in receivables. Providing liberal credit increases sales consequently profits will increase, but increasing investment in receivables results in increased costs. 3. Control and
Dr. Bhatt the
Cost of Trade Credit: When there are no credit sales, there will not be any trade credit cost. But credit sale increases profits. It is possible only when the firm is able to keep the costs at minimum. The costs are discussed below. 12.4

Costs of Accounts Receivables Management Management of accounts receivables is not cost free. The following are the main costs associate with accounts receivables management: 1. Opportunity Cost/Capital Cost: Providing goods or services on credit involves block of firm's funds. In other words, the increased level of accounts receivables is an investment in current assets. These blocked funds or investment in receivables need to be financed, by shareholders funds or from short-term borrowings. They involve some cost. If receivables are financed by shareholder funds, there involves opportunity cost to shareholders. If they are financed by borrowed funds, it involves payments of interest, which is also a cost. 2. Collection Cost: Collection of receivable is one of the tasks of receivables management. Collection costs are those costs that are increased in collecting the debts from the customers to whom the credit sales have been granted. The collection costs may include, staff, records, stationary, postage they are related to maintenance credit department, and exposes details involved in collecting information about prospective customers, from specialized agencies, for evaluation of prospective customer before going to grant credit. 3. Bad Debts: Some times customer may not be able to honour the dues
to the firm because of the inability to pay.
Such costs are referred as bad debts, and
they have to be written off, because they cannot be
collected. These costs can be reduced to some extent, if the firm properly evaluates customer before granting credit, but complete avoidance is not possible. 12.5
Benefits of Accounts Receivables Management Accounts receivables management involves not only costs but also benefits. The benefits are: Caution 1. Increased Sales: Providing goods or services on credit expands sales, by retaining old customers and attraction of prospective customers. 2. Market Share Increase: When the firm's able to retain old customer and attract new customer automatically market share will be increased to the extent of new sales. 3. Increase in Profits: Increased sales, leads to increase in profits, because, it need to produce more products with a given fixed cost and sales of products with a given sales network, in both cost per unit comes down and the profit will be increased.
259
Chapter 12: Receivable Management 12.6
Modes of Payment After evaluation and selection of individual customers or accounts, the firm may decide to provide credit facility, it may be unlimited or limited. The economic value of goods or services that have
provided under credit, will be paid in future. If the firm is financially sound it may extend liberal credit to the buyer and vice versa. Investment in receivable will be financial by three
people-buyer,
seller and financial intermediary. Buyer pays a part of goods or services purchased seller puts his/her own amount a part and the remaining by financial institute all these financing will be done in the trade cycle. The economic value of goods or services sold on credit will be paid by adoption of different modes. 12.6.1
Cash Mode
Whenever a firm sells goods or services on cash terms, the value of goods or services will be received either cash in advance (before the goods are shifted) or on delivery (after the goods are delivered). Receipt of advance is necessary whenever the goods are manufactured on a special order. It is for financing productions and to avoid the non-acceptability goods ordered by the order or buyer. Immediate cash payment will take Bajaj only when the seller has high bargaining power due to monopoly power or the customer is risky customer. 12.6.2 Open Account Majority of the credit sales takes Bajaj on an open account mode. Open account means, after the sale and purchase agreement between seller and buyers, the seller first shifts goods and he sends the invoice (bill), which consists of credit terms, credit period allowed, cash discount for early payment, and the period of cash discount offer, quantity of goods with their total value and so on. The invoice is generally acknowledged by the buyer. Credit Period: It is the period allowed by seller to customer to pay economic value of goods. Cash Discount: It is the discount [some percentage] allowed to buyer for an early payment. For example, a seller has given "2/15, not 45". It means that discount of 2 per cent is allowed; if the payment is made on or before 15th days, other wise full payment is due by the 45th day. 12.6.3 Bill of Exchange A bill of exchange represents an unconditional order issued by the seller asking the buyer to pay the amount maintained on it as per demand at a certain future date. This type of demand is made only when the seller does not have strong evidence of the buyer's
obligation. Hence, there is a need of secured arrangement in the form of bills of exchange. In other words, if the seller wants a clear commitment from the buyer, before he/she delivers the goods, seller can arrange a commercial draft. Generally, the bill accompanied by documents (shipping or some other transport documents) that are delivered to the drawee when he/ she pays or accepts the bill. When the buyer accept a bill than it becomes a trade acceptance, which may be hold till the maturity or get it discounted. The advantages of bills of exchange are (i) It represents negotiable instrument. (ii) It serves as a written evidence of a definite obligation. (iii) It helps in reducing cost of finance to some extent, since it can be discounted.

Caselet Govt Waives Stamp Duty on Usance Bills for Exporters I n an export friendly move, the Finance Ministry has decided to refrain from exacting the whole of the stamp duty chargeable on the usance bills of exchange executed by an exporter in an export transaction. This move, which has come into effect from July 8, of the revenue department spells good news for the exporting community. Exporters have been demanding waiver of stamp duty on foreign bills. In the run up to the Union Budget, the President of the Federation of Indian Export Organisations (FIEO), Mr Rafeeque Ahmed, had urged the Finance Minister, Mr P. Chidambaram, to withdraw this levy on exporters. Exporters are required to affix foreign bill stamps on their usance bills of above 90 days and up to 180 days. Source: thehindubusinessline.com
260 Financial Management 12.6.4 Letter of Credit
Letter of credit
is a formal document issued by a bank on behalf of customer, stating the conditions under which the bank will honor the commitments of its customer (buyer).
Payment through the letter of credit arises whenever trade takes Bajaj at international level, but now days it has been used in domestic trade also. In other words, whenever trade takes Bajaj in the absence of Bajaj-
to-
Bajaj unknown people, issue of letter of credit [L/C] arises.
Functions of the letter of credit are, (i) It eliminates risk, since letter of credit issued by good standing bank. (ii) It reduces uncertainty, as the seller knows the conditions that should be fulfilled to receive payments. (iii) It provides safety to the buyer, who wants to ensure that payment is made only in conformity with the conditions of the letter of credit. 12.6.5 Consignment In consignment business, consignor (seller) sends goods to consignee (agent of the seller). In this case goods sent are just shipped but not sold to the consignee since the consignor retains the title of the goods till they sold by the consignee to a third party. In this consignment only sales proceeds are remitted to the consignor by the consignee. 12.7
Factors Influencing the Size of
Investment in Receivables The level of investment in receivables is affected by the following factors: 1.
Volume of Credit Sales: Size of credit sale is the prime factor that affects the level of investment in receivables. Investment in receivable increase when the firm sells major portion of goods on credit base and vice versa. In other words an increase in credit sales, increase the level of receivables and vice versa. 2.
Credit Policy
of the Firm:
There are two types of credit policies such as lenient
and stringent credit
policy. A firm that is following lenient credit policy tends to sell
on credit to customers very liberally, which will
increase the size of receivables. On the other hand, a firm that following stringent credit policy will have low size of receivables because the firm is very selective
in providing of
stringent credit. A firm that is providing string one credit, may be able to collect debts promptly this will keep the level of receivables under control. 3.
Trade Terms:
It
is the most important factor (variable) in determining the level of investment in receivables. The important credit terms are credit period and cash discount. If credit period is more when compared to other companies/ industry, then the investment in receivables will be more.
Cash discount reduces the investment in receivables because it encourages early
payments. 4.
Seasonality of Business: A firm doing seasonal business has to provide credit sales in the other seasons. When the firm provides credit automatically the level of investment in receivables will increase with the comparison of the level of receivables in the season; because in season firm will sell goods on cash basis only. For example, refrigerators, air-cooling
products will be sold on credit in the winter season, and on cash in summer season. 5. Collection Policy: Collection policy is needed because all customer do not pay the firm's bill
in
time. A firm's liberal collection policy will not be able to reduce investment in receivables, but
in future sales may be increased. On the other hand, a firm that follow stringent collection policy will definitely reduce receivables, but it may reduce

future sales. Therefore, the collection policy should aim at accelerating collections from slow payers and reducing bad debt base. 6. Bill Discounting and Endorsement: Bill discounting and endorsing bill to the third party, which the firm has to pay, will reduce the size of investment in receivables. If the bills are dishonored on the due date, again the investment in receivable will increase because discounted bills or endorsed bills have to be paid by the firm. 12.8
Credit Policy A firm'
s credit policy regarding its credit standards, credit period, cash discounts, and collection procedures. The credit policy may be lenient or stringent (tight).
261
Chapter 12: Receivable Management 12.8.1
Lenient Credit Policy It is that policy where the seller sells goods on very liberal credit terms and standards. In other words, goods are sold to the customers whose creditworthiness is not up to the standards or whose financial position is doubtful.
Advantages of Lenient Credit Policy 1. Increase in Sales: Lenient credit policy expands sales because of the liberal credit terms and favorable incentives granted to customers. 2. Higher Profits: Increase in sales leads to increase in profits, because higher level of production and sales reduces permit cost. Disadvantages of Lenient Credit Policy Apart from the advantages it has some disadvantages: 1. Bad Debt Loss: A firm that follows lenient credit policy may suffer from bad debt losses that arise due to the non-payment credit sales. 2. Liquidity Problem: Lenient credit policy not only increases bad debt losses but also creates liquidity problem, because when the firm is not able to receive the payment at a due date, it may became difficult to pay currently maturing obligations. 12.8.2
Stringent Credit Policy Stringent credit policy
seller sells goods on credit on a highly selective basis only i.e., the customers who have proven creditworthiness and financially sound.
Advantages
of Stringent Credit Policy 1. Less Bad Losses: A firm that adopts stringent credit policy will have minimum bad debt losses, because it had granted credit
only
the customers who are creditworthy. 2. Sound Liquidity Position: The firm that follows stringent credit policy will have sound liquidity position, due to the receipt of all payments from customers on due date, the firm can easily pay the currently maturing obligations. Disadvantages of Stringent Credit Policy 1. Less Sales: Stringent credit policy restricts sales, because it is not extending credit to average creditworthiness customers. 2. Less Profits: Less sales automatically reduces profits, because firm may not be able to produce goods economically, and it may not be able to use resources efficiently that leads increase in production cost per unit. In fact,
firms follow credit policy that lies between lenient and stringent credit policy.
In other words, they follow optimum credit policy.
Optimum credit policy involves a balance between costs and benefits. The major considerations in costs are liquidity and opportunity costs.
The
optimum credit policy
occurs at point where there is a trade off between liquidity and
profitability.
Therefore, the management has to strike a balance between easy credit to promote sales and profit and tight credit to improve liquidity.
The important variables of credit policy should be identified before establishing an optimum credit policy.
Optimum credit policy is one, which maximizes firm's operating profit. For establishing optimum credit policy, the financial manager must consider the important decision variables, which have bearing on the level of receivables. In other words, the credit policy variables have bearing on level of sales, bad debt loss, discounts taken by customers, and the collection expenses.
262 Financial Management 12.8.3 Credit Policy Variables The major credit policy variable includes the following: (a) Credit Standards, (b) Credit Terms, and (c) Collection Policy and Procedures. 1.
Credit Standards: Firm has to select some customers for extension of credit. For this firm has to evaluate the customer. In evaluation of customers what standards should be applied?
Credit standards refer to the minimum criteria for the extension of credit to
a customer. Credit
ratings, credit references, average payment periods, and certain financial ratios provide a quantitative basis for establishing and enforcing credit standards.

The firm's decision, to accept or reject a customer, and to extend credit depends on credit standards. Firms may have more number of standards in this respect, but at one point it may decide not to extend credit to any customer, even though his/her credit rating is strong. On the other point, firm may decide to provide goods on credit to all customers irrespective of their credit creditworthiness. Practical ones lies between these two points. Adoption of liberal credit standards increases sales by attracting more customers, but these credit standards increase bad debt loss, loss of opportunity cost and higher collection costs. On the other hand, rigid credit standards, opposite effects. They reduce sales, bad debt loss, save opportunity cost due less investment in receivables. Whenever firms plans to go for new standards (generally liberalization of standards) they have to determine the changes in net profit after taking into consideration all the benefits and costs of the change of policy. If the change in net profit is positive, it is better to go for new standards and vice versa. Calculation of Change in Net Profit Particulars Amount (Rs.) Increase in Sales Less: Variable Cost Contribution Less: Bad debt loss on new sales

Earnings Before Tax (EBT) Less: Tax Earnings After Tax (EAT)

Less: Opportunity cost Change in Net Profit
X X X X X X X X X X
XX XXX XX XXX XX XXX (a) Calculation of Bad Debt Loss on New Sales Increase in Sales × Ratio of bad debt loss on sales Or Bad Debt Loss with proposed credit period XXXX Less: Bad Debt Loss with proposed credit period XXXX Bad Debt Loss on New Sales XXXX (b) Opportunity Cost = Increase in Investment × Cost of Capital Increase in Investment = (Increase in Sales ÷ 365) × Average Collection Period × Ratio of Variable Cost to Sales Or = Cost of Sales ÷ Receivables Turnover Or = Total Variable Cost of Annual Sales ÷ Receivables Turnover Receivable Turnover = 365 ÷ Average Collection Period Average Collection Period = (Trade Debtors × No. of Working Days) ÷ Net Credit Sales
263 Chapter 12: Receivable Management Illustration 1: Dream Well Company's present annual sales are Rs. 5,00,000, cost of capital is 15% and the company is in the 40% tax bracket. Company categorized its customers into four categories, viz., C1, C2, C3 and C4 (C1 customer have the highest credit standing and those in C4 have lowest credit standing). At present, Company has provided unlimited credit to categories C1 and C2, where as limited credit facility to Category C3 and no credit to Category C4, since their credit standing (rating) is very low. Due to the present credit standards the company foregoing sales to the extent of Rs. 50,000 to the customers in category C3 and Rs. 40,000 to the C4 category customers. To attract for the foregoing sales to the C3 and C4 category customers, company is considering to relax, credit standards, thus C3 customers would be provided unlimited credit facility and C4 category would be provided limited credit facility. As a result of relaxation in credit standards the sales are expected to increase by Rs. 75,000 and it involves 12 per cent bad debt loss on increased sales. The estimated contribution margin ratio is 25 per cent and average collection period if 50 days. Determine the change in net profit and suggest whether the company consider the relaxation of credit standards or not. Solution: Calculation of Change in Net Profit Particulars Amount (Rs.) Increased Sales Less: Variable Cost (Rs.75,000 × 0.75) Contribution Less: Bad debt loss on new sales (Rs.75,000 × 0.12) Earnings Before Tax (EBT) Less: Tax at 40% Earnings After Tax (EAT) Less: Opportunity cost (See Note) Increase in Net Profit 75,000 56,250 18,750 9,000 9,750 3,900 5,850 1,156 4,694 Note: Calculation of Opportunity Cost: Opportunity Cost = Increase in Investment × Cost of Capital Increase in Sales = Avg. Collection Period × Ratio of Variable Cost to Sales × Cost of Capital (75,000 ÷ 365) 50 × 0.75 × 0.15 = Rs.1,156 Suggestion: The firm can relax its credit standards since the change in net profit is positive. Illustration 2: Good Luck Ltd.'s present sales are Rs. 5,00,000 annual. Company categorized its customers into four categories, viz., A1, A2, A3 and A4 (A1 customer have the highest credit rating and those in A4 have lowest credit rating). At present, Company has provided unlimited credit to categories A1 and A2, where as limited credit facility to Category A3 and no credit to Category A4, since their credit rating is very low. Presently the Company's bad debt loss percentage is 10%. Due to the present credit standards, the company is foregoing sales to the extent of Rs. 50,000 to the customers in category A3 and Rs. 40,000 to the A4 category customers. To attract the foregoing sales to the A3 and A4 category customers, company is considering to relax credit standards, under that category A3 customers would be provided unlimited credit facility and customers in A4 category would be provided limited credit facility. As a result of relaxation in credit standards the sales are expected to increase by Rs. 75,000 and it involves a bad debt loss ratio of 20%. Variable cost to sales ratio is 80% and average collection period if 50 days. It required rate of return is 20% and the company's tax rate is in the 35%. Assume 360 days year. You are required to suggest whether the company consider the relaxation of credit standards or not.

264 Financial Management Solution: Calculation of Change in Net Profit Particulars Amount (Rs.) Increased Sales Less: Variable Cost (Rs.75,000 × 0.80) Contribution Less: Bad debt loss on new sales (Note –1) Earnings Before Tax (EBT) Less: Tax at 35 % Earnings After Tax (EAT) Less: Opportunity Cost (Note –2) Increase in Net Profit 75,000 60,000 15,000 65,000 – 50,000 ------- – 50,000 1,667 – 51,667 Notes: 1. Calculation of Bad debt loss: Rs. Bad debt loss with new policy (5,75,000 x 0.20) 1,15,000 Less: Bad debt loss with present policy (5,00,000 x 0.10) 50,000 Increase in Bad debt loss 65,000 2. Calculation of Opportunity Cost: Opportunity Cost = Increase in Investment × Cost of Capital Increase in Sales = Avg. Collection Period x Ratio of Variable Cost to Sales × Cost of Capital (75,000 ÷ 360) 50 × 0.80 × 0.20 = Rs.1666.667 or Rs. 1667. Suggestion: The proposed policy is not feasible, since the change in net profit is negative (i.e., net loss). 2.
Credit Terms: The second decision criteria in receivables management are the credit terms.
Credit terms means the stipulations under which goods or services are sold on credit.
Once
the credit terms have been established and the credit worthiness of the customers has been assessed, then the financial managers has to decide the terms and conditions on which the credit will be granted. The credit terms specify the lengthy of time over which credit is extended to a customer and the discount, if any, given for early payment. Credit terms have three components such as: (i) credit period, (ii) cash discount, and (iii) cash discount period. (
a) Credit Period: The period of time, for which credit is allowed to a customer to economic value of purchases.

70%	MATCHING BLOCK 85/151	SA	SLM FM 01-01-2019.docx (D46702128)

It is generally expressed in terms of a net data [i.e., if a firm's credit terms are "net 60"], it

is understandable that payment will be made within 60 days from the date to credit sales. Generally the credit period is decided with the consideration of industry norms and depending on the firm's ability to manage receivables. A decision regarding

73%	MATCHING BLOCK 86/151	SA	FF credit and SLM-DSC3.pdf (D165131346)

lengthening of credit period increases sales by inducing existing customers to purchase more and attracting new customers.

But it also increases investment in receivables and lowers the quality of trade credit. In other words, it increases investment in receivables and bad debt loss. On the other hand, shortening of the credit period (existing) will lead to lower sales, decrease investment in debtors, and reduce the bad debt loss. A firm should finalize the decision relating to credit period [either lengthening or shortening credit period] only after cost, benefit analysis. If the change in net profit is positive, it is better to go for credit period and vice versa.
265 Chapter 12: Receivable Management Calculation of Change in Net Profit Particulars Amount (Rs.) Increase in Sales Less: Variable Cost Contribution Less: Bad debt loss on new sales

100%	MATCHING BLOCK 87/151	SA	Financial Management BBAS 42.docx (D162572120)

Earnings Before Tax (EBT) Less: Tax Earnings After Tax (EAT)

Less: Opportunity Cost · Change in Net Profit
X X X X X X X X X X
XX XXX XX XXX XX XXX Opportunity Cost = Increase in Investment × Cost of Capital Increase in Investment is the sum of average investment with present credit period plus incremental investment with new proposed credit period. In other words, average investment with proposed credit period less average investment with present credit period. Increase in Investment = (DOS × NACP) + (DVCIS × ACP n) Or (Daily Old Sales × Net Avg. Collection Period) + (Daily Variable Cost of Incremental Sales × New Avg. Collection Period) Where: DOS = Daily Old Sales = Old Sales ÷ 365 NACP = Net average collection period = New ACP – Old ACP DVCIS = Daily variable cost of incremental sales = (Incremental Sales × Variable Cost Per Unit) ÷ 365 ACP n = New average collection period Illustration 3: Long Lost Pvt. Ltd., currently provides 20 days of credit to its customers. Its current sales level is Rs. 4,00,000.

83%	MATCHING BLOCK 88/151	SA	Adv. Fin. Mgt.M.com I semester.docx (D146751116)

The company's cost of capital is 12% and the tax rate is 40%.

The
ratio of variable cost to sales is 75%. Long Lost is considering extending its credit period by 40 days, such an extension is expected to increase sales by Rs. 1,00,000, and also increases the bad debt portion on new sales would be 5%. Determine the change in net profit and suggest whether the company should consider the relaxation of credit period or not. Solution: Calculation of Change in Net Profit Particulars Amount (Rs.) Increased Sales Less: Variable Cost (Rs.1,00,000 × 0.75) Contribution Less: Bad debt loss on new sales (Rs.1,00,000 × 0.05) Earnings Before Tax (EBT) Less: Tax at 40% Earnings After Tax (EAT) Less: Opportunity Cost (See Note) Increase in Net Profit 1,00,000 75,000 25,000 5,000 20,000 8,000 12,000 6,740 5,260 Note: Opportunity Cost = Increase in Investment × Cost of Capital Increase in Investment = (DOS × NACP) + (DVCIS × ACP n)
266 Financial Management = (1095.89 × 40) + (205.48 × 60)= Rs.56,164.3 DOS = Rs. 4,00,000 ÷ 365 = Rs.1,095.89 NACP = 60 – 20 = 40 Days DVCIS = (Rs.1,00,000 × 0.75) ÷ 365 = Rs.205.48 Opportunity Cost = Rs.56,164.3 × 0.12 = Rs.6,739.7 Suggestion: Extension of credit period is feasible, since the change in net profit is positive. (b) Cash Discount: The second part of credit terms is cash discount. Cash discount
represents a percent reduction in sales or purchase price allowed for early payment of invoices.
It is an incentive for credit customers to pay invoices in a timely fashion. In other words, it encourages the customers to pay credit obligations within a specified period of time, which will be less than the normal credit period. It is generally stated, as a percentage of sales. Cash discount terms specify, the repayment terms required of all credit customers, which involve rate of cash discount. For example, '2/20 net 60', which means creditor (sells) grants 2 per cent discount, if debtor (buyer) pays his/her accounts with 20 days after beginning of the credit period. Financial managers before going to offer cash discount, he/she is suppose to estimate the change in net profit, it is positive, then he can go for providing cash discount and vice versa. Calculation of Change in Net Profit Particulars Amount (Rs.) Increase in Sales Less: Variable Cost Contribution Less: Increase in Discount Cost (?CDC)

100%	MATCHING BLOCK 89/151	SA	Financial Management BBAS 42.docx (D162572120)

Earnings Before Tax (EBT) Less: Tax Earnings After Tax (EAT)

Add: Savings on Investment (K?I) Change in Net Profit
X X X X X X X X X X
XX XXX XX XXX XX XXX Notes: (i) Calculation of Increase in Cash Discount Cost (?CDC) = NCDC – OCDC Where: NCDC = New cash discount cost OCDC = Old cash discount cost NCDC = Total Sales × New Cash Discount × New Percentage of Availing Cash Discount OCDC = Old Sales × Old Cash Discount × Old Percentage of Availing Cash Discount (ii) Opportunity Cost = Increase in Investment × Cost of Capital Increase in Investment = (DOS × NACP) – (DVCIS × ACP n) DOS = Old Sales ÷ 365 NACP = Old ACP – New ACP DVCIS = (Incremental Sales × Variable Cost Per Unit) ÷ 365 Illustration 4: 2/10, net 30 is the present credit term of Well Do Company Ltd. Its present level of sales are Rs.6,00,000, with an average collection period of 30 days. The contribution margin ratio

83%	MATCHING BLOCK 90/151	SA	FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

is 15%. The proportion of sales on which currently customers take discount is 1%.

The Company's cost of capital is 10%. Now the Company is considering to increase the discount term to 4/10, net 30, which is expected to push up sales to Rs. 6,50,000 and reduces the average collection period by 10 days. Such relaxation increases the proportion of discount sales to 2%. Determine the change in net profit with the assumption of 40% tax rate.

267 Chapter 12: Receivable Management Solution: Calculation of Change in Net Profit Particulars Amount (Rs.) Increased Sales Less: Variable Cost (Rs.50,000 × 0.85) Contribution Less: Increase in Discount cost (?CDC) (Note 1) Earnings Before Tax (EBT) Less: Tax at 40 % Earnings After Tax (EAT) Add: Savings on Investment (K?I) (Note –2) Increase in Net Profit 50,000 42,500 7,500 400 7,100 2,840 4,260 1,411 5,671 Notes: (i) Increase in Cash Discount Cost (?CDC) = NCDC – OCDC = Rs.520 – Rs. 120 = Rs. 400 Where: NCDC = New cash discount cost OCDC = Old cash discount cost NCDC = Total Sales × New Cash Discount × New Percentage of Availing Cash Discount NCDC = Rs. 6,50,000 × 0.04 × 0.02 = Rs. 520 OCDC = Old Sales × Old Cash Discount × Old Percentage of Availing Cash Discount OCDC = Rs. 6,00,000 × 0.02 × 0.01= Rs.120 (ii) Opportunity Cost = Increase in Investment × Cost of Capital Increase in Investment = (DOS × NACP) – (DVCIS × ACP n) = (1,643.84 × 10) – (116.44 × 20) = Rs.1,6438.4 – Rs.2,328.8 = Rs.14,109.6 DOS = Old Sales ÷ 365 = 6,00,000 ÷ 365 =Rs.1,643.84 NACP = Old ACP – New ACP = 30 – 20 = 10 Days DVCIS = (Incremental Sales ÷ Variable Cost Per Unit) ÷ 365 = (50,000 × 0.85) ÷ 365 = Rs. 116.44 Opportunity Cost = Rs.14,109.6 × 0.10 = Rs. 1,410.96 (

from collection of receivable and is influenced by the cash discount period. Extension of cash discount period may prompt some more customer to avail discount and more payments, which will release additional funds. But extension

the customer who are able to pay will have less cash discount thus now they may delay their payments. It will increase collection period of the firm. Hence, financial manager has to match

Collection Policy: This is the third aspect in receivables management.
The
collection of a firm
is the procedures passed to collect amount receivables, when they become due.
It
is needed because all customers do not pay the bill receivables in time
collection procedures includes
monitoring the state of receivables, dispatch of letters to customers whose due date is approaching, electronic and telephonic advice to customers around the due date,
threat of legal action to overdue customers, and legal action against overdue accounts. Customers may be divided into two categories. Such as slow payer and non-payers. Hence, there is a need for accelerating collections from slow payers and reduce bad debt losses. Collection policies may be divided into two categories.
268
Financial Management (i) strict/rigorous, and (
ii) lenient/lax collection policy. Adoption of strict collection policy tends to decrease sales, reduces average collection period, bad debt percentage, and increases the collection expenses. On the other hand, lenient collection policy will increase sales average collection period, bad debt losses, and reduce collection expenses. Financial manager has to see the benefits and costs from adopting one credit policy, if the change in net profit is positive, he/she has to go with new credit policy and vice versa.
Calculation of Change in Net Profit Particulars Amount (Rs.) Increased Sales Less: Variable Cost Contribution Less: Increase in bad debt cost Earnings Before Tax (EBT) Less: Tax at 40% Earnings After Tax (EAT) Less: Opportunity Cost (K?I) Increase in Net Profit
X X X X X X X X X

XX XXX XX XXX XX XXX Note: Calculation of Bad Debt Loss on New Sales Bad Debt Loss with proposed credit period XXXX Less: Bad Debt Loss with proposed credit period XXXX Bad Debt Loss on New Sales XXXX Increase in Investment = (DOS × NACP) + (DVCIS × ACP n) Or (Daily Old Sales × Net Avg. Collection Period) + (Daily Variable Cost of Incremental Sales × New Avg. Collection Period) Where: DOS = Daily old sales = Old Sales ÷ 365 NACP = Net average collection period = New ACP – Old ACP DVCIS = Daily variable cost of incremental sales = (Incremental Sales × Variable Cost Per Unit) ÷ 365 ACP n = New average collection period Illustration 5: Honey Well Company is contemplating to liberalize its collection effort. Its present sales are Rs. 10 lakhs, its average collection period is 30 days, its expected variable cost to sales ratio is 85 per cent and its bad debt ratio is 5 per cent. The Company's
cost of capital is 10 per cent and tax rate is 40 per cent. The
proposed liberalisation in collection effort increases sales to Rs. 12 lakhs, increases average collection period by 15 days, and increases the bad debt ratio to 7 per cent. Determine the change in net profit. Solution: Calculation of Change in Net Profit Particulars Amount (Rs.) Increased Sales Less: Variable Cost (Rs.2,00,000 × 0.85) Contribution Less: Increase in bad debt cost (Note 1) Earnings Before Tax (EBT) Less: Tax at 40% Earnings After Tax (EAT) Less: Opportunity Cost (K?I) (Note 2) Increase in Net Profit 2,00,000 1,70,000 30,000 34,000 – 4,000 ----- ----- 3,465 – 7465
269 Chapter 12: Receivable Management Notes: 1. Calculation of Bad debt loss: Rs. Bad debt loss with new policy (Rs.12,00,000 × 0.070) 84,000 Less: Bad debt loss with present policy (Rs.10,00,000 × 0.05) 50,000 Increase in Bad debt loss 34,000 2. Calculation of Opportunity Cost = Increase in Investment × Cost of Capital Increase in Investment = (DOS × NACP) + (DVCIS × ACP n) = (2,739.73 × 5) + (465.75 × 45) = 13,698.65 + 20,958.75 = Rs.34,657.4 DOS = Rs.10,00,000 ÷ 365 = Rs.2,739.73 NACP = 45 – 30 = 15 Days DVCIS = (Rs.2,00,000 ÷ 0.85) ÷ 365 = Rs.465.75 Opportunity Cost = Rs.34,657.4 × 0.1 = Rs.3,465.74 12.9
Credit Evaluation of Individual Accounts Receivables management requires a lot of decision making exercises, setting credit standards, identifying credit terms (credit period and cash discount), collection policy, evaluation of individual accounts. Evaluation of individual accounts is the prime activity, which affects firm's profitability. In this, firm should develop procedures for evaluating credit applicants and consider the possibilities of bad debt or slow payment. Mere determination of appropriate credit policy will not serve the purpose of minimizing investment in receivables and reducing bad debt losses, without credit evaluation of individual accounts and identification of their credit worthiness. In other words, the firm has to evaluate the customers before extension of credit. The credit evaluation procedure involves three related steps: (i) obtaining credit information, (
ii) analyzing the information, and (iii) making the credit decision. 1. Obtaining Credit Information: Credit should be granted to those customers who have ability to make payment on time. To ensure this, a firm should evaluate an individual's accounts properly, for which it require information. Hence, there is a need to obtain information. Collection of credit information involves some cost. Some accounts, small accounts, the cost of collecting information may outweigh the potential profitability of the account. In addition, the cost, the firm must consider the time factor in collecting information. The decision to grant credit to a customer cannot be delayed unnecessarily due to long time involved in collecting information. Hence, while collecting information there is a need to consider cost and time. Depending on these two factors, the credit analyst may use one or more of the following sources of information. The information may be divided into two sources, such as (a) internal source and (b) external source. The following secondary sources are available for the collection of credit information. (a) Internal Sources: Internal source is that source that is available with in an organization and it provides information free of cost. This type of source is useful only while evaluating existing customers. A particular customer may have enjoyed credit facility in the past. Now for extension of credit period or cash discount firm may ask the internal receivable department to provide this past record, based on which firm may make decision. (b) External Sources: External sources of information are very important when a firm is planning to evaluate a new customer. Secondary source of information is available based on the development of institutional agencies facilities and industry practices. India, has little progress in the matter of developing the sources of credit information in the name of secrecy and confidentiality. But in advanced countries, there are number of independent information agencies, banks, fellow business undertakings and associates, competitors, suppliers etc. Based on the availability, the following are the secondary sources information that can be used to obtain information: (i) Financial Statements or Annual Reports: Financial statements are the profit & loss account and balance sheet that give the prospective customer's financial condition in terms of financial viability, liquidity, profitability

270 Financial Management and debt capacity. They are dumb figures, proper analysis provides vivid stories of the prospective customer, which is very much helpful in determining the credit standing position of the prospective customer. There are difficulties in obtaining financial statements of partnership firms or individuals and small private firms. (ii) Bank References: This is another secondary source to credit information. Bank references means collection of information about prospective customer from the bank where the customer is maintaining account. Here the firm is required to write a letter to the bank requesting for a credit report on the prospective customer, the bank may, at its sole discretion, decide to send a report and oblige the firm (seller). Information collected from bank may not be useful, because banker's written report may not provide much of the desired clue, or even a small clue, due to the use of certain self-terminologies, which may have different bases and connotations. These may vary from bank to bank. Some times, they give information favourable to its customers, it cannot be relied upon in granting credit. Firm may require more information from other sources, which may be supplemented. In advanced countries like USA, many banks have separate credit departments that provide detailed information required by the firm that can be believed and can take base for credit granting. (iii) Trade References: Trade reference is the source of information from firm's with whom the prospective customer has dealings. Firms magnify the applicant to give the names of references. This is useful and cost free source. If the firm feels that the information given by the applicant in application is misleading then the firm may need to go to trade references, where all the relevant information may be obtained. Firm should examine honesty and seriousness of the references and may insist on furnishing the references of reputed people. (iv) Credit Rating Agencies: This is the suitable source of information, when the customer insists to give products on credit immediately. Then financial managers cannot spend much time in collection of financial statements. At that time reports of credit rating agencies can be collected and can relieve upon them. In India, there are three important credit rating agencies, such as CRISIL, ICRA, and CARE. But in developed counties like USA, Credit Bureau Reports are an important source of information. 2. Analysis of Information/Credit Analysis: After having collected the required information about applicant from different sources, the information should be analyzed to determine the credit worthiness of the prospective customers. There are no tailored made procedures to analyze the credit information that are suitable to one. The analysis should cover two aspects. (a) Quantitative, and (b) Qualitative. (a) Quantitative: This type of assessment is very much useful, which is done on the basis of financial statements, and firm's past records. Preparation of aging schedule is the prime one. Aging schedule is statement showing age-wise distribution of receivables (Bills). It gives a clear picture about the past payment patterns of the applicant. Next the firm can go for ratio analysis, where it can study, liquidity, profitability and debt capacity of the perspective customer. Calculated ratios must be compared with industry ratios (standards). (b) Qualitative: Evaluation of prospective customer from the quantitative analysis point, some times it should be fortified by qualitative analysis for interpretation of credit worthiness. Qualitative analysis would cover the aspects relating to quality of management, management philosophy, management vision etc. The stated external sources may form the basis for conclusion to be drawn. The above mentioned are the two, methods of evaluation. But in traditional credit analysis takes 6Cs into consideration. (i) Character: It is the prime C' in as much as it means the moral integrity and noble intentions and willingness in the part of the prospective buyers to honor the obligation of making the full payments on the due date because, there may be cases, where the buyer may be able to pay but may not have the good intention to do so. (ii) Capacity: It means the ability of prospective customers to pay. In other words, customers capacity as the financial capability to make the payment on the due date. It may be ascertained from the net cash position, after assessing the cash inflows and cash out flows.

271 Chapter 12: Receivable Management (iii) Capital: It refers to the capital base and capital structure of the company. If the applicant is a person then capital refers the personal assets value of financial reserve value of the customer. In any case, the value should be more than the goods are going to be sold on credit. It may be required when the customer has difficulties in meeting obligations out of the current generation of surplus, it may offered to make the payment out of its resources and surplus, till its present financed position improves. (iv) Collateral: It means offering assets as a pledge against providing credit. It acts as a cushion, when the above three Cs are not sufficient to take decision. The assets generally may be security deposits of bank sureties, these are movable. (v) Conditions: The term 'condition' here refers to the economic conditions and climate providing at the material time, which may have favourable or unfavourable impact on the financial position and prospects of the prospective customer. (vi) Case History [past expense]: If the credit extension decision to a existing customer than these is a need to go back to old needs and check customs record. The past date may be reliable for decision-making. 3. Making Credit Decision: The prime objective of evaluation of prospective customer credit worthiness is to asset whether he/she is worthy of granting the credit or not. Actual credit worthiness is compared with the predetermined standards, if the actual are up to the standards or above to the standards, goods would be provided on credit, and vice versa. Credit decision is difficult to make when the credit worthiness is marginal. Decision can be taken only, after comparing the benefits of credit extension with likely bad debt losses. In case, where customers credit worthiness is less than the standards, firm may not reject the customer, but it may give

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some alternative facilities. Customer may be asked to pay after delivery of goods, or invoices may be sent through bank and

it may release after collecting dues on basis of a third party guarantee. This will help to the firm to retain the present or old customs and continuation delays may help in receiving their requests (credit facilities) at a future date. 12.10 Monitoring Accounts Receivables Just evaluation of individual accounts does not help in efficient accounts receivables management without continuous monitoring and control of receivables. In other words success of collection effort depends on
mp/
monitoring and controlling receivables. Then how to monitor and control receivables? There are traditional techniques available for monitoring accounts receivables. They are (a) Receivables turnover, (b) Average Collection period, (c) Aging Schedule and (d) Collection matrix. 1. Receivables Turnover:
Receivables turnover provides relationship between credit sales and debtors (receivables) of a firm. It indicates how quickly receivables or debtors are converted into cash.
Ramamurthy observes "collection of debtors is the concluding stage for process of sales transaction". The
liquidity of receivables is therefore, is measured through the receivables (debtors) turnover rate.
Debtors or
Receivables Turnover Rate = Credit Sales ? Average Debtors or receivables. Debtors turnover rate is expressed in terms of times. Analyst may not be able to access credit sales information, average debtors and bills receivables. To avoid of non-availability of
the above information and to evaluate receivables turnover there is another method available for analyst. Debtors or Receivables Turnover Rate = Total Net Sales ? Average Debtors (including receivables). 2. Average Collection Period (ACP): Turnover rate converted into average collection period is a significant measure of the collection activities of debtors.
Average collection period is a measure of how long it takes from the time sales is made to the time to cash is collected from the customers. ACP = 365 ÷ Debtors or Receivables turnover. Illustration 6: A company's credit sales are
Rs. 20 lakhs
in

97% **MATCHING BLOCK 95/151** SA FF credit and SLM-DSC3.pdf (D165131346)

a year. The opening debts are Rs.2 lakhs and closing debtors are Rs.2,10,000. Determine Debtors turnover and ACP.
272

Financial Management

100% **MATCHING BLOCK 96/151** SA FF credit and SLM-DSC3.pdf (D165131346)

Solution: Debtors Turnover Ratio = Rs. 20,00,000 × (Rs.2,00,000 + Rs.2,10,000)/ 2 = 9.75 times ACP = 365 × 9.75 = 37.43 Days 3.

Aging Schedule: As we have seen in the above average collection period measures quality of receivables in an aggregate manner, which is the limitation of ACP. This can be overcome by preparing aging schedule. Aging schedule
is a statement that shows age wise grouping of debtors.
In other words, it breaks down debtors according to the length of time for which they have been outstanding. A hypothetical aging schedule is as follows: Age Group (in days) Amount Outstanding (
Rs.)
Percentage of Debtors to total Debtors Less than 30 31 – 45 46 – 60 Above 60 40,00,000 20,00,000 30,00,000 10,00,000 40 20 30 10 Total 1,00,00,000 100
Aging schedule

is helpful for identifying slow paying debtors, with which firm may have to encounter a stringent collection policy. The

actual aging schedule of the firm is compared with industry standard aging schedule or with bench mark aging schedule for deciding whether the debtors are in control or not. 4.

Collection Matrix: Traditional methods (debtors turnover rate, average collection period) of receivables management are very popular, but they have limitations, that they are on aggregate data and fail to relate the outstanding accounts receivables of a period with credit sales of the same period. The problem of aggregating data can be eliminated by preparing and analyzing collection matrix. Collection matrix is a method (statement) showing percentage of receivables collected during the month of sales and subsequent months. It helps in studying the efficiency of collections whether they are improving or deteriorating. Following table shows hypothetical

collection matrix. Percentage of Receivables collected During the April May June July August Sales (Rs. Lakhs) Month of Sales First Month following Second Month following Third Month following Fourth Month following Fifth Month following 350 10 30 25 20 15 - 340 12 38 24 26 10 - 320 14 40 22 22 02 - 300 11 30 20 19 15 05 250 08 34 21 18 20 09

From the above table, it may be read for April sales are Rs. 350 lakhs. The pattern of collections are 10 per cent in the same month (April), 30 per cent of sales in May, 25 per cent of sales in June, 20 per cent of sales in July and the remaining 15 per cent in the August. Task

Green Land Company Ltd., is considering to tighten

up its credit standards by reducing credit period from 40 days to 20 days. Such tight credit policy would be to reduce sales from

Rs. 15 lakhs to Rs. 13

lakhs and bad-debt loss ratio also reduces from 3% to 1%. The company's variable cost ratio to sales is 70%, tax rate is 40% and required rate of return is 10%. Determine change in net profit.

273

Chapter 12: Receivable Management Case Study Agarwal O n

August 30, 2006, Agarwal Cast Company Inc., applied for a $200,000 loan from the main office of the National bank of New York. The application was forwarded to the bank's commercial loan department.

Gupta, the President and Principal Stockholder of Agarwal cast, applied for the loan in person. He told the loan officer that he had been in business since February 1976, but that he had considerable prior experience in flooring and carpets since he had worked as an individual contractor for the past 20 year. Most of this time, he had worked in Frankfert and Michigan. He finally decided to "work for himself" and he formed the company with Berry Hook, a former co-worker. This information seemed to be consistent with the Dun and Bradstreet report obtained by the bank.

According to Gupta, the purpose of the loan was to assist him in carrying his receivables until they could be collected. He explained that the flooring business required him to spend considerable cash to purchase materials but his customers would not pay until the job was done. Since he was relatively new in the business, he did not feel that he could compete if he had to require a sizeable deposit or payment in advance. Instead, he could quote for higher profits, if he were willing to wait until completion of the job for payment. To show that his operation was sound, he included a list of customers and projects with his loan application. He also included a list of current receivables. Gupta told the loan officer that he had monitored his firm's financial status closely and that he had financial reports prepared every six months. He said that the

would send a copy to the bank. In addition, he was willing to file a personal financial statement with the bank. Question Prepare your recommendation on Agarwal Cast Company. 12.11

Summary ?

Accounts Receivables occupy an important position in the structure

of current assets of a

firm. ?

The term receivable is defined as

debt

owed to the firm by customers arising from sale of goods or services in the ordinary course of business. ?

The management of accounts receivables is not cost free. It involves cost and its association with accounts receivables results in: Opportunity Cost/Capital Cost, Collection Cost, and Bad Debts. ? Liberal credit policy is that policy where the seller sells goods on very liberal credit terms and standards, which increase in sales, higher profits. ? Stringent credit policy seller sells goods on credit on a highly selective basis only, which reduces bad losses, sound liquidity position. ? Firms should follow optimum

credit policy that lies between lenient and stringent credit policy. ?

Optimum credit policy
occurs at point where there is a trade off between liquidity and
profitability. ?
The
firm's decision, to accept or reject a customer to extend credit depends on
credit standards. ? Credit term
means the stipulations under which goods or services are sold on credit. ?
The
collection policy of a firm
is the procedures passed to collect amount receivables, when they become due. ?
Collection policies may be divided into two categories--strict/rigorous, and lenient/lax collection policy.
274
Financial Management 12.12
Keywords
Receivables: It
is
defined as
debt
owed to the firm by customers arising from sale of goods or services in the ordinary course of business.
Receivables
Management:
It involves decision areas: credit standards, credit period, cash discounts and collection procedures.
Credit Terms: It means the stipulations under which goods or services are sold on
credit.
Stringent Credit Policy: Seller sells goods on credit on a highly selective basis.
Lenient Credit Policy: It is that policy where the seller sells goods on very liberal credit terms and standards.
Collection Policy: It is the procedures passed to collect amount receivables, when they become due.
Credit Standards: It
refers to the minimum criteria for the extension of credit to a customer. 12.13
Self Assessment 1. Fill in the blanks: (a)
In India accounts receivables are known
as ..... (b)
Debt
owed to the firm by customers arising from sale of goods or services in the ordinary course of business
is known as ..... (
c) .....
involvement is one of the characteristic features of receivables. (d) .....
is a formal document issued by a bank on behalf of its customers, stating the conditions under which the bank will honor the commitments of the customer (Buyer). (
e)
Credit terms have three components ....., ... and ..... (
f) .....
represents a percentage of reduction in sales or purchase price allowed for early payment of invoices. (
g) "2/10, net 60" – 2 denotes ..... 2. State whether the following statements are true or false: (a)
Receivables constitute to a significant potential current assets. (b) Credit period is one of the terms of credit. (c) Letter of credit is one of the modes of payment. (
d) "Net 60", means payment will be made within 60 days from the date of credit sale. (e)
Optimum credit policy occurs where there is a trade of between liquidity and profitability. (f) Bad debt loss is the losses of receivables management. (
g) In "2/10, net 30", 10 denotes credit period. (h)
Credit standards, Credit period, Cash discount and Collection are the variables of credit policy. 12.14
Review Questions 1.
Analyse the benefit of the receivables management to the corporates. 2.
Hare Ram & Co, produces 1,00,000 units and sells at Rs.80 per unit. 70 per cent of sales are credit sales. Average receivables amount is
Rs.2,00,000.

Determine average collection period (ACP). 3. Calculate the interest cost (on annual percentage basis) associated with the following credit terms for the sellers and to the buyers. (a) 2/10 net, 50 (b) 2/15 net, 45 (c) 2/5 net, 25 and (d) 3/20 net, 80

 4.
Dream Well Company's credit sales for the year 2004 are
Rs. 1,50,000.
The company was started 2004 year with opening balance of receivables
Rs.15,000 and 2004 year business is closed with Rs.11,000 receivables. Calculate receivables turnover and ACP. 5. " The credit policy of a firm is criticized because the bad debt losses have increased". Discuss under what situations this criticism may not be justified. 6.
VST Co. produces plastic home
appliances and it has annual credit sales of
Rs. 20 lakhs, the average accounts receivables amount
to Rs.4,00,000. Compute ACP assuming 365 day year. 7. Elucidate the consequences of liberal versus stiff credit standards. 8. Critically examine the effects of liberating cash discount policy. 9.
Examine the different sources of credit information to the corporates & to the agencies. 10. Examine
the factors that influence the size of investment in receivables. 11.
Good Life Corporation is considering relaxing its collection effort. The following is the information. The present sales are Rs. 20 lakhs, its contribution margin ratio is 0.70, its cost of funds is 12% and its bad debt ratio is 2%. The proposed relaxation in collection effort is expected to increases sales to Rs. 28 lakhs, increases average collection period to 30 days, and increase the bad debt ratio to 4%. Determine the change in net profit with 40% tax rate. 12. STC Corporation is considering extending its credit period from 35 to 50 days the corporation's expected sales to increase from Rs. 15 lakhs to Rs. 20 lakhs and the average collection period increases from 30 to 45 days. The bad debt loss ratio and collection costs ratio are expected to remain at 5 % and 8%, respectively. The corporation's contribution margin ratio is 20%. Calculate increase in net profit with the assumption of 40% tax rate and 15% cost of capital. Answers: Self Assessment 1. (a) Sundry debtors (b) Bills receivables (c) Risk (d) Letter of credit (e) Credit period; Cash discount, Cash discount period (f) Cash discount (g) Discount 2. (a) True (b) True (c) True (d) True (e) True (f) True (g) False (h) True 12.15

Further Readings

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Chapter 13: Inventory Management Objectives This chapter on Inventory Management covers 1.
Meaning and components of inventory 2. Objectives and need for balanced investment in inventory 3. Various techniques to manage
inventory Introduction Inventory management occupies the most significant position in the structure of working capital. Management of inventory may be
defined as the sum of total of those activities necessary for the acquisition, storage, disposal or use of materials. It is one of the important component of current assets.
Inventory management is an important area of working capital management, which plays a crucial role in economic operation of the firm. Maintenance of large size of inventories by a
firm required
a considerable amount of funds to be invested on them. Efficient and effective inventory management is necessary in order to avoid unnecessary investment and inadequate investment.
A considerable amount of funds is required to be committed in inventories. It is absolutely imperative to manage inventories efficiently and effectively in order to optimize investment in them. Prudent
inventory management is one of the challenging tasks of the financial manager. Efficient management of inventory reduces the cost of production and consequently increases the

profitability of the enterprise by minimizing the different types of costs associated with holding inventory. An undertaking, neglecting the management of inventories, will be jeopardizing its long term profitability and may fail ultimately. It is possible for a firm to reduce its level of inventories to a considerable degree, i.e., 10 to 20 per cent of current assets without adverse effects on production and sales by using simple inventory planning and control techniques. If business planning can be perfect, a firm may succeed even in attaining the "Zero inventories" norm which as the Japanese management seems to suggest, is not too unrealistic a
goal. The reduction in inventories carries a favourable impact on the company's profitability. The efficiency of inventory management in any firm depends on the inventory management practices adopted by it. 13.1
Inventory The term "Inventory" is originated from the French word "Inventaire" and the Latin "Inventariom", which implies a list of things found. The term inventory has been defined by the American Institute of Accountants as the aggregate of those items of tangible personal property which (
a) are held for sale in the ordinary course of business, (b) are in the process
of production for such sales, or (c) are to be currently consumed in the production of goods or services to be available for sale.
The term
inventory refers to the stockpile of the products a firm is offering for sales and the components that make up
the product.
Inventories are
the stocks of the product of a company, manufacturing for sale and the components that make up
the product.
The various
forms in which inventories exist in a manufacturing company are: (i) raw materials, (ii) work-in process, (iii) finished goods, and (iv) stores & spares. However, in commercial parlance, inventory usually includes stores, raw materials, work-in-process and finished goods. The term inventory includes materials - raw materials in process, finished packaging, spares and others stocked in order to meet an unexpected demand or distribution in the future. 13.2 Components of Inventory From the above definitions, we can draw the
components of inventory. The various forms in which inventories exist in a manufacturing firm are,
raw materials, work-in-process, finished goods, and stores & spares.
The
following Figure 13.1 gives the components: 1.
Raw Materials: Raw materials are those inputs
that are converted into finished goods through a manufacturing or conversion process.
These form a major input for manufacturing a product. In other words, they are very much needed for uninterrupted production.
 2.
Work-in-Process: Work-in-process is a stage of stocks between raw materials and finished goods. Work-in-process inventories are semi-finished products. They represent products that need to under go some other process to become finished goods.
Inventory Raw Materials Finished Products Stores & Spares
Work-in-Process 3.
Finished Products: Finished products are those products, which are completely manufactured and
ready for sale. The stock of finished goods provides a buffer between production and market. 4.
Stores
and Spares: Stores and
spares inventory (include
office and plant cleaning materials like, soap, brooms, oil, fuel, light, bulbs etc.) are purchased and stored for the purpose of maintenance
of machinery. 13.3
Inventory Management Motives
Managing inventories involves lack of funds and inventory holding costs. Maintenance of inventory is expensive, then why should firms hold inventories?
Caution
There are three general motives for holding
inventories: 1. Transaction Motive: Transaction motive includes production of goods and sale of goods. Transaction motive facilitates uninterrupted production and delivery of order at a given time (right time). 2.

Precautionary Motive: This
motive necessitates the holding of inventories for unexpected changes in demand and supply factors. 3.
Speculative Motive: This compels to hold some inventories to take the advantage of changes in prices and getting quantity discounts. 13.4
Inventory Management – Objectives
The objectives of inventory management may be viewed in two
ways and
they are operational and financial. The operational objective is to maintain sufficient inventory, to meet demand for product by efficiently organizing the firm's production and sales operations, and financial view is to minimise inefficient inventory and reduce inventory-carrying costs. These two conflicting objectives of inventory management can also be expressed in terms of costs and benefits associated with inventory. The firm should maintain investments in inventory which implies
that maintaining an inventory involves cost, such that smaller the inventory
the
lower the carrying cost and vice versa. But inventory facilitates (benefits) the smooth functioning of the production. An effective inventory management should: 1. Ensure a continuous supply of raw materials and supplies to facilitate uninterrupted production. 2.
Maintain sufficient stocks of raw materials in periods of short supply and anticipate price changes. 3.
Maintain sufficient finished goods
inventory for smooth sales operation, and efficient customer service.
Figure 13.1: Component of Inventory
278 Financial Management 4.
Minimize

Need for Balanced Investment in Inventory
Management of optimum level of inventory investment is the prime objective of inventory management. Inadequate or excess investment in inventories is not healthy by for any firm.
In other words a firm should avoid inadequate (under) investment or excess (over) investment in inventory. The investment in inventories should be sufficient. The optimum level of
investment in inventories lies between excess investment and inadequate investment. 1.
Dangers of Excessive (over) Investment in Inventory: The following are the dangers of excessive investment in inventory: (a) The excessive level of inventories consumes funds of the company, they cannot be used for any purpose since they have locked in inventory, and they involve an opportunity costs. (b) The excessive investment in inventory increases carrying cost that includes cost of storage, capital cost (interest on capital in inventories, insurance, handling, recording, inspection, obsolescence cost, and taxes. These costs will reduce the firm's profits). (c)
Carrying excessive inventory over a long-period leads to the loss of liquidity. It may not be possible to sell the inventories in time without loss. (d) Another danger of carrying excessive inventory is the physical deterioration of inventories while in storage. In case of certain goods or raw materials deterioration occurs with the passage of time or it may be due to mishandling and improper storage facilities. (e) Excess purchases or storage leads to theft, waste and mishandling of inventories. 2. Dangers of Inadequate Investment in Inventories: Under investment in inventory is also not healthy one. It has some negative points, they are: (a) Inadequate raw materials and work-in-progress
inventories will disturb production. (b) When the firm is not able to produce goods without interruption, that leads the inadequate storage of finished goods. If finished goods are not sufficient to meet customer demand, the customers may shift to the competitors, which will lead to loss of customers permanently. 13.6

Costs of Holding Inventories Minimizing cost is one of the operating objectives of inventory management. The costs (excluding merchandise cost), there are three costs involved in the management of inventories. 1. Ordering Costs: Ordering costs are those costs that are associated with the acquisition of raw materials. In other words, the costs that are spend from placing an order to raw materials to the receipt of raw materials. They include the following: (a) Cost of requisitioning the items (raw materials).

b) Cost of preparation of purchase order (i.e., drafting typing, dispatch, postage etc.). (c) Cost of sending reminders to get the dispatch of the items expedited. (d) Cost of transportation of goods (items). (e) Cost of receiving and verifying the goods. (f) Cost of in unloading of the (items) of goods. (g) Storage and stocking charges.

However, in case
of items manufactured in house the ordering costs would comprise the following costs: (a) Requisitioning cost, (b) Set-up cost, (c) Cost of receiving and verifying the items, (d) Cost of placing and arranging/stacking of the items in the store etc.

Ordering costs are fixed as per order placed, irrespective of the amount of the order but ordering costs increases in proportion to the number of orders placed. If the firm maintains small inventory levels, then the number of orders will increase, there by ordering cost will increase and vice versa. 2.

Inventory Carrying Costs: Inventory carrying costs are those costs, which are associated in carrying or maintaining inventory. The following are the carrying costs of inventory: (

a) Capital cost [interest on capital locked in the inventories] (b) Storage cost [insurance,
maintenance on building, utilities serving costs] (c) Insurance [on inventory - against fire and theft insurance] (

d) Obsolescence cost and deterioration (e) Taxes Carrying costs usually constitute to around 25 per cent of the value of inventories held. 3. Shortages Costs [Costs of stock out]: Shortage costs are those costs that arise due to stock out, either shortage of raw materials or finished goods. (a) Shortage of inventories of raw materials affects the firm in one or more of the following ways: (

i)

The firm may have to pay some higher prices, connected with immediate (cash) procurements. (ii) The firm may have to compulsorily resort to some different production schedules, which may not be as efficient and economical. (

b)

Stock of finished goods - may result in the dissatisfaction of the customers and the resultant lead, to loss of rules. Thus, with a view to keep inventory costs of minimum level, we may have to arrive at the optional level of inventory cost, its total order's cost plus carrying costs
are minimum.

In other words, we have to determine Economic Order Quantity (EOQ), at that level in which the total inventory [ordering plus carrying less] cost is minimum. 13.7

Risks of Holding Inventory Holding of inventories involves above said cost, they also exposes the firm to take some risks. Risk in inventory management refers to
the chance that inventories cannot be turned over into cash through normal
sales without loss. Risks associated with inventory management are as follows:

 1.

Price Decline: Price decline is the result of more supply and less demand. In other words, it may be the result due to introduction of competitive product. Generally, prices are not controllable in the short-run by the individual firm. Controlling inventory is the only way that a firm can counter act with these risks. On the demand side, a decrease in the general market demand when supply remains the same way also cause prices to decrease. This is also a long run management problem, because, decrease in demand may be due to change in consumer buying habits, tastes and incomes. 2.

Product
Deterioration: Holding of finished goods for a long period or storage under improper conditions of light, heat, humidity and pressure lead to product deterioration. For example: Cadbury's chocolate. Recently, there were some live worms in the chocolate; it was due to improper storage. Deterioration usually prevents selling the product through normal channels. 3.

Product Obsolescence: Product may become obsolete due to improved products, changes in customer tastes, particularly in high style merchandise, changes in requirements etc. This risk may prove very costly for the firms whose resources are limited and tied up in slow moving inventories. Obsolescence cost risk is least controllable except by reduction in inventory investment.

Thus, inventories are risk assets to manage in an effective way by minimizing risks. 13.8 Benefits of Holding Inventory

Optimum level of inventory is that level where the total costs of inventory
is less. The major benefits of inventory are the basic function of inventory. Proper management of inventory will result in the following benefits to a firm: 1. Inventory management ensures an adequate supply of materials and stores, minimizes stock outs and shortages and avoids costly interruptions in operations. 2. It keeps down investment in inventories; inventory carrying costs, and obsolescence losses to the minimum. 3. It facilitates purchasing economies through the measurement of requirements on the basis of recorded experience. 4. It eliminates duplication in ordering stocks by centralizing the source from which purchase requisitions emanate. 5. It permits better utilisation of available stocks by facilitating inter-department transfers within a firm. 6. It provides a check against the loss of materials through carelessness or pilferage. 7.
Perpetual inventory values provide a consistent and reliable basis for preparing financial statements a better utilisation.
13.9
Tools and Techniques of Inventory Management/Control Financial manager should aim at determination of optimum inventory level based on costs and benefits to maximize shareholders' wealth. In other words, determination and maintenance of optimum inventory level, helps to maximize owner's wealth. Inventory management problems can be handled by sophisticated/refined mathematical techniques. The major problem areas are (a) classification problem to determine the type of control required, (b) the order quantity problem, (c) the order point problem, and (d) determination of safety stocks. But these are more suitable parts of production and operations management, and out of the scope of this book. In other words, they are out of the area of financial manager. Financial manager needs to be familiar with these techniques because inventory management involves financial costs. Use of a particular technique depends on the convenience of the company. Whatever the techniques may used by the firm the ultimate objective of inventory control programme is to provide maximum customer service at a minimum cost. In the following,
some of the inventory control techniques are discussed: 13.9.1 ABC Analysis This is the one of the widely used technique to identify various items of inventory for the purpose of inventory control. In other words, it is very effective and useful tool for classifying, monitoring and control of inventories. The firm should not keep same
281
Chapter 13: Inventory Management
degree of control on all the items of inventory. It is based on Pareto's Law. It is also known as Selective Inventory Control. The firm should put maximum control on those items whose value is the highest, with the comparison of the other two items. The technique
concentrates on important items and is also known as Control by Importance and Exception [CIE].
Usually a firm has to maintain several types of inventories, for proper control of they, firm should have to classify inventories in the instance of their relative value. Hence it is also known as Proportional Value Analysis (PVA). The higher value items are classified 'A items' and would be under tight control. At the other end of the classification, we find category 'C items', on this type of inventory, we cannot afford expenses of rigid controls, frequent ordering and expending, because of the low value or low amounts in this area. Thus with the 'C items', we may maintain somewhat higher safety stocks, order more months of supply, expect lower levels of customer service, or all the three. 'B items' fall in between 'A item' and 'C item' and require reasonable attention of management. According to this technique the task of inventory management is proper classification of all inventory items into three categories namely A, B and C category. The
ideal categorization of inventory items is shown in Table 13.1. Category No. of Items (%) Item value (%)
A 15 70 B 30 20 C 55 10 Total 100 100 The above table indicates that only 15 per cent of the items may account for 70 per cent of the value (A category items), on which greater attention is required, where as 55 per cent of items may account for 10 per cent of the table value of inventory (C category items), will be paid a reasonless attention. The remaining 30 per cent of inventory account for 20 per cent of total value of inventory (B category items) will be paid a reasonable attention as this, category value lies between the two other categories.
The above data can be shown by the following Figure 13.2. 0 20 40 60 80 100 120 10 20 30 40 50 60 70 80 90 No of Items (%) ItemC ValueofItems(%) ItemBItemA 100 In the above figure number of items (%) are shown on 'X' axis and value of items (%) are represented on 'Y' axis. Greater attention will be paid on category 'A' item, because of greater benefit. The control of 'C' items may be released due to less benefits (some times control cost may exceed benefit of control) and reasonable attention should be paid to category 'B' items. Table 13.1 Figure 13.2

282 Financial Management Caselet FAPCCI Calls for ABC Analysis of Sick SSIs T he Federation of Andhra Pradesh Chambers of Commerce and Industry (FAPCCI) has called for an ABC analysis while taking up revival of sick small-scale units. Banks could closely monitor the financial status, clearly manifested through companies' ability to pay back, and alert the authorities concerned in order to save them from going sick, Mr O.P. Goenka, President of FAPCCI, told Business Line. If the ABC analysis of a unit gave any hope of revival, stakeholders should step in to revive it, Mr Goenka said in an interview. "If there's no scope, one should better go for an exit option." He , however, put the onus on the entrepreneur in question because it was he/she who knew best the status of the unit. Development of clusters would help the industry in several ways. For one, setting up a treatment plant in a cluster would benefit a number of units that could not have set up a treatment facility individually. Source: thehindubusinessline.com 13.9.2 Economic Order Quantity (EOQ) Once categorization of inventory items is completed, then the next question is how much inventory should be bought in one order on each replenishment? Should quantity to be purchased be large or small? Buying inventory items in large quantities has its own virtues, but it increases carrying costs. Then what is the solution for the determination of an order where the total inventory costs are minimum? To this problem the answer is Economic Order Quantity (EOQ). Meaning of
EOQ
Economic order quantity refers
to that level of inventory at which the total cost of inventory
is minimum. The
total inventory cost comprising ordering and carrying
costs. Shortage costs are excluded in adding total cost of inventory due to the difficulty in computation of shortage cost. EOQ also known as Economic Lot Size (ELS).
Assumptions of EOQ Model
The following assumptions are implied in the calculation of EOQ: 1. Demand for the product is constant and uniform throughout the period. 2. Lead time (time from ordering to receipt) is constant. 3. Price per unit of product is constant. 4. Inventory holding cost is based on average inventory. 5. Ordering costs are constant. 6. All demands for the product will be satisfied (no back orders are allowed). EOQ Formula EOQ can be obtained by adopting two methods (a) Trial and Error approach and (b) Short cut or Simple mathematical formula. Here for calculation of EOQ we have adopted simple short cut method.
The formula is:
EOQ = 2AO CC
Where: A = Annual usage, O = Ordering cost per order CC = Carrying cost per
unit
CC = Price per unit × Carrying cost per unit in percentage
283
Chapter 13: Inventory Management
The above simple formula will not be sufficient to determine EOQ when more complex cost equations are involved. EOQ is applicable both to single items and to any group of stock items with similar holding and ordering costs. Its use causes the sum of the two costs to be lower than under any other system of replenishment.
Notes Limitations of EOQ Apart from the above application it has its own limitations that are mainly due to the restrictive nature of the assumptions on which it is based. 1. Constant Usage: This may not be possible to predict, if usage varies unpredictably, as it often does, no formula will work well. 2. Faulty Basic Information: Ordering and carrying costs is the base for EOQ calculation. It assumes that ordering cost is constant per order is fixed, but actually varies from commodity to commodity. Carrying cost also can vary with the company's opportunity cost of capital. 3. Costly Calculations: In many cases, the cost estimation, cost of possession and acquisition and calculating EOQ exceeds the savings made by buying that quantity. Illustration 1:
XYZ Company buys 75,000 glass bottles per year. Price of each bottle is
Re.0.90. Cost of purchase is Rs. 100
per order; Cost of holding one bottle per year is
Re. 0.20.
Bank interest is 15 per cent including a charge for taxes and insurance.
Find out EOQ quantity. Solution:
Annual usage – 75,000 units; Cost of placing and receiving one order – Rs. 100 Cost of
bottle –
Re. 0.90 per bottle; Annual carrying cost of one bottle – Re. 0.20 per bottle 2 ? ? EOQ AO CC (2 x 75,000 x 100) 0.335* 6,691.50 units. ? ? ? EOQ * Inventory carrying cost = Re. 0.20 + [Re.0.90 x 0.15] = Re.0.335 Illustration 2: A company uses annually 25,000 units of raw materials, which costs
Rs. 1.75 per unit. Cost of placing an order is Rs. 30 and carrying cost is 8 per cent per year.

Find out EOQ. Solution: Annual usage – 25,000 units;
Cost of placing and receiving one order – Rs. 30; Cost of bottle – Rs. 1.75 per unit. Annual carrying cost of one unit – (
Rs.1.75 x 0.08 per cent) = Re. 0.14 2 ? ? EOQ AO CC (2 x 25,000 x 30) 0.14 3,273 units. ? ? ? EOQ Illustration 3: The demand for a certain item is random. It has been estimated that the monthly demand of the item has a normal distribution with a mean of 780 and a standard deviation of 140 units. The unit price of the item is Rs. 25. Ordering cost is Rs. 28 and the inventory carrying cost is estimated to be 35 per cent per year. Determine EOQ.
284 Financial Management Solution: Mean of monthly demand = 780 units; Annual demand–780 x 12 months = 9,360 units Ordering cost – Rs. 28 per order; Cost per item – Rs. 25 per unit Inventory carrying cost of one unit – (Rs.25 x 0.35 per cent) = Rs. 8.75 2 ? ? EOQ AO CC (2 x 9,360 x 28) 8.75 244.75 or 245 units. ? ? ? EOQ Illustration 4: AIM Company

cent per year. Calculate EOQ. Solution: Annual usage – (50,000 x 4 Quarters) = 2,00,000 units Cost of raw materials – Rs. 100 per unit; ordering cost – Rs. 100 per order Carrying cost of one unit – (Rs.100 x 0.09 per cent) = Rs. 9 2 ? ? EOQ AO CC (2 x 2,00,000 x 100) 9* 2,108 units. ? ? ? EOQ * Inventory carrying cost = Rs. 100 x 0.09 = Rs 9. Illustration 5: Best of Luck Company Ltd., uses annually 80,300 units of raw materials at a price of
Rs. 8
per unit. Its estimated carrying cost is 14 per cent and its ordering cost is
Rs. 20
per order. What
will be the economical number of units to order and how often will an order needs to be placed?
Solution: Annual usage – 80, 300 units; Cost of raw materials – Rs. 8 per unit Ordering cost – Rs. 20 per order; Carrying cost of one unit – (Rs.8 x 0.14 per cent) = Rs. 1.12 2 ? ? EOQ AO CC (2 x 80,300 x 20) 1.12 1,693 units ? ? ? EOQ Ordering period: Time after which an order to be placed is determined by the following formula: Ordering period = [EOQ ÷ Consumption per day] Consumption per day = Annual Consumption ÷ 365 = 80,300 ÷ 365 = 220 units Ordering period = [1,693 ÷ 220] = 7.695 days or approximately 8 days Illustration 6: Hindustan
Engineering Factory consumes 75,000 units of a component per year. The ordering, receiving and handling costs are Rs. 6 per order
while transportation cost is Rs.24 per order. Depreciation and obsolescence cost Re. 0.008 per unit per year; interest cost Re. 0.12 per unit per year; storage cost Rs. 2,000 per year for 75,000 units. Calculate EOQ.
285 Chapter 13: Inventory Management Solution: Annual usage – 75,000 units; Cost of raw materials – Rs. 8 per unit Ordering cost = (Ordering cost + Transportation cost) = (Rs. 6 + Rs. 24) = Rs. 30 Carrying cost of one unit: Interest cost 0.120 Deterioration and obsolescence cost 0.008 Storage cost (2,000 ÷ 75,000) 0.026 Total carrying cost 0.154 (2 x 75,000 x 30) 0.154 5, 406 units ? ? ? EOQ 13.9.3
Order Point Problem After determination of EOQ, then at what level should the order be placed?
If the inventory level is too high, it will be unnecessary
blocks the capital, and if the level is too low, it will disturb the production by frequent stock out and also involves high ordering cost. Hence, an efficient management of inventory needs to maintain optimum inventory level, where there is no stock out and the costs are minimum. The different stock levels are (
a) Minimum level, (b) Reorder level, (c) Safety level, (d) Maximum level, (e) Average stock level, and (f) Dangers level. 1. Minimum Level: Minimum stock is that level that must be maintained always production will be disturbed, if it is less than the minimum level. How to fix minimum level? While determination of minimum stock level, lead time, consumption rate, the material nature must be considered. (
a)
Lead-time is the time taken to receive the delivery after placing orders with the supplier. In other words, the number of days required to receive the inventory from the date of placing order. Lead time also called as procurement time of inventory. (
b) The average quantity of raw materials consumed daily. The consumption rate is calculated based on the past experience and production plan. (c) Requirement of materials for normal or regular production or special order production. If the material is required for special order production, then the minimum stock level need not maintain.
Formula for Calculation Minimum Stock Level
Minimum stock level = Re-order level – [Normal
Usage × Average delivery time] 2. Reordering Level: Reorder level

is that level of inventory at in weeks, which an order should be placed for replenishing the current stock of inventory. Generally, the reorder level lies between minimum stock level and maximum stock level. Re-order point = Lead time (in days) × Average Daily usage The above formula is based on the assumption that (a) Consistent daily usage, and (b) Fixed lead-time. 3. Safety Stock: Prediction of average daily usage and lead-time is difficult. Raw materials may vary from day-to-day or from week-to-week, it is in the case of lead-time also.
Lead-time may be delayed, if the usage increases then the company faces problem of stock out. To avoid stock out firm may require to maintain safety stock. Formula (under uncertainty of usage and lead time). Re-order point = Lead time (in days) × Average usage + Safety stock 4. Maximum Level: Maximum level of stock, is that level of stock beyond which a firm should not maintain the stock. If the firm stocks inventory beyond the maximum stock level it is called as overstocking. Excess inventory (overstock) involves heavy cost of inventory, because it blocks firms funds in investment inventory, excess carrying cost, wastage, obsolescence, and theft cost. Hence, firm should not stock above the maximum stock level. Safety stock is that minimum additional
286 Financial Management inventory to serve as a safety margin or better or buffer or cushion to meet an unanticipated and increase in usage resulting from an unusually high demand and or an uncontrollable late receipt of incoming inventory. Maximum Stock Level = Reorder Level + Reorder Quantity - (Minimum Usage × Minimum Delivery Time) 5. Average Stock Level: Average Stock Level = Minimum level + [Reorder Quantity ÷ 2] 6. Danger Stock Level: Danger level is that level of materials beyond which materials should not fall in any situation. When it falls in danger level it will disturb production. Hence, the firm should not allow the stock level to go to danger level, if at all falls in that level then immediately stock should be arranged even if it costly. Danger Level = Average Usage × Minimum Deliver Time [for emergency purchase] 13.9.4 Two-bin Technique It is the oldest techniques of inventory control. Generally, it is used to control 'C' category inventories.
According to this technique, stock of each item is separated into two piles, bins or groups.
First bin contains stock, just enough to last from the date a new order is placed until it is received for inventory. The second bin contains stock, which is enough to meet current demand over the period of replenishment. First stock is issued from first bin whenever the first bin is completed, then an order for replenishment is placed, and the stock in the second is utilized until the ordered material is received. 13.9.5 VED Classification According to this classification, inventories are grouped based on the effect of production and inventories are grouped into three, they are Vital, Essential and Desirable inventories. It is specially used for classification of spare parts. If a part is vital, in
production, then it is classified as 'V', if it is essential, then it is assigned 'E' and if it is not so essential, desirable
that is given 'D'. 'V' category item are stocked high and category 'D' items are maintained at minimum level. Just in Time (JIT) Popularly known in its acronym JIT. JIT may be applied for either raw materials purchase or producing finished goods. From raw materials purchases it means that no inventories are held at any stage of production and the exact requirement is bought in each and every successive stage of production of the right time. In other words, maintenance of a minimum level of raw materials, where by the inventory carrying cost could be minimized, and the risk of loss due to stock-out position could be well avoided. From production of goods view, JIT means goods are produced only when the orders are received, there by no storage of finished goods, can avoid costs of carrying finished goods. JIT is also known as "Zero Inventory Production System" (ZIPS), Zero Inventories (ZIN), Materials as Needed (MAN), or Neck of Time (NOT). 13.9.6
HML Classification Here the materials are classified based on the unit value and not on the annual usage value. The inventory is classified into three categories such as High, Medium, and Low, as it is adopted in selective inventory control (ABC) technique. The

This classification is useful for keeping control over consumption at departmental levels, for deciding the frequency of physical verification, and for controlling purchases. 13.9.7 SDE Classification This SDE classification is made based on the availability of materials. It is very much useful in the case

item, generally imported and those, which are in short supply category referred to as 'D' - 'difficult' inventory item

Chapter 13: Inventory Management 13.9.8 FSN Classification Under this technique inventory is classified based on movement of inventories

This technique particularly involved in inventory useful for avoiding obsolescence. For determination whether a particular inventory is fast moving or not the date of receipt or the last date of the issue, whichever is later, is taken, which have lapsed since the last transaction. The items are usually grouped in periods of 12 months. Active moving items need to be reviewed regularly and surplus items, which have

Order Cycling System In this system, periodic reviews are made of each item of inventory and orders are placed to restore stock to a prescribed supply level. What is the frequency of review? Frequency of review depends upon the criticality of the inventory item. At each review date the required number of items are ordered to bring the inventory to the predetermined supply level. Approaches to Inventory Systems: There are two general approaches to inventory system, such as (a) Fixed Order Quantity System ('Q' system) and (b) Fixed Order Periodic System ('P' system). Under fixed order quantity system, a fixed quantity of materials is ordered whenever the stock level researches to the re-order level. It is nothing but EOQ. Where in Fixed order periodic system, stock position of each item of material is reviewed periodically. The frequency of reviews varies from company to company and also depending on the importance of materials. Task
A company received an order for 15,000 units at the rate of 1,000 units per order. The production cost per unit is
Rs. 24 per unit – Rs. 10 for raw materials and Rs. 14
as overhead cost. It costs Rs. 1,500
to set up for one run of 1,000 units and inventory-carrying cost is 20 per cent of the production cost. Since the customer may buy at least 15,000 this year, the company would like to avoid making five different production runs. Determine most economic production run.
Case Study Inventory Levels T he
Storage Corporation currently carries Rs 25 million of inventory. The finance manager is considering whether to recommend a reduction in inventory costs at the following information about inventory costs at various levels. The company's after-tax discount rate that is used to evaluate current asset policies is 6%. The company earns a contribution margin of 20% on sales.
Rs 25 million Rs 23 million Rs 21 million Storage costs 7,50,000 7,25,000 7,10,000 Spoilage costs 4,00,000 3,75,000 3,67,000 Daily
sales 1,20,000 1,19,000 1,14,500 (
a)
Would it be profitable for the company to reduce its inventory from
Rs 25
million to
Rs 23 million? (Calculate the change in after-tax income). (
b) Would it be profitable for the company to reduce its inventory to
Rs 21 million? (Calculate the change in after-tax income.) Contd...
288 Financial Management (a) Reducing inventory from Rs 25 to Rs 23
million causes net income to: ?Storage cost = (Rs 7,50,000 – Rs 7,25,000)(0.60) = Rs 15,000 ?Spoilage cost = (Rs 4,00,000 – Rs 3,75,000)(0.60) = 15,000 ?Financing cost = (Rs 20,00,000)(0.06) = 1,20,000 ?Profit on sales = (Rs 1,20,000 – 1,19,000)(365)(0.20)(0.60) = (43,800) ?Net Profit = Rs 1,06,200 (b)
To determine if it is profitable to reduce inventory to

Rs 21
million, determine the change in profits associated with reducing from
Rs 23 million. That is, you know that Rs 23 million is better than Rs 25
million and the decision is now whether to reduce it further to
Rs 21
million. Remember that decisions depend on incremental costs and benefits. Reducing inventory from
Rs 23 to Rs 21 million causes net income to: ?Storage cost = (Rs 7,25,000 – Rs 7,10,000)(0.60) = Rs 9,000 ?Spoilage cost = (Rs 3,75,000 – Rs 3,67,000)(0.60) = 4,800 ?Financing cost = (Rs 20,00,000)(0.06) = 1,20,000 ?Profit on sales = (Rs 1,19,000 – 1,14,500)(365)(0.20)(0.60) = (1,97,100) ?Net
Profit = (Rs 63,300) Given the choices, Rs 23
million is the most profitable level of inventory. Question Fabrication Company requires steel for its fabrication work. The probability distributions of the daily usage rate and the lead time for procurement are given below:
These distributions are independent Daily usage Probability Lead time in days Probability
rate in tonnes 4 0.3 5 .6 6 0.5 10 .2 8 0.2 15 .2 The stockout cost is estimated to be Rs.4,000 per tonne. The carrying cost is Rs.1,000 per tonne per year. Required : (a)
What is the optimal level of safety stock? (c) What is the probability of stockout?
Source: Nitin Balwani, Accounting and Finance for Managers, Excel Books, New Delhi. 13.10
Summary ?
Inventory
management occupies the most significant position in the structure of working capital. ? Management of inventory may be defined as the sum of total of those activities necessary for the acquisition, storage, disposal or use of materials. ?
Efficient management of inventory reduces the cost of production and consequently increases the
profitability of the enterprise by minimizing the different types of costs associated with holding inventory.
289
Chapter 13: Inventory Management ?
An effective inventory management should ensure a continuous supply of raw materials and supplies to facilitate uninterrupted production. ?
Management of optimum level of inventory investment is the prime objective of inventory management. ? Inadequate or excess investment in inventories is not healthy by for any firm. ?
The optimum level if investment in inventories lies between excess investment and inadequate investment. ?
Minimizing cost is one of the operating objectives of
inventory management. ?
Perpetual inventory value provides a consistent and reliable basis for preparing financial statements a better utilisation. ?
The most widely used inventory control technique is ABC Analysis [classification problem]. ?
Economic Order Quantity (EOQ) [
Order Quantity Problem] refers
to that level of inventory at which the total cost of inventory
is minimum. ? The
total inventory cost comprising ordering and carrying
costs. 13.11
Keywords
Inventory:
The stockpile of the products
a firm is offering for sales and the components that make up
the product.
Work-in-
progress: It is the
stage of stocks between raw materials & finished goods.
Raw materials: It is the input that is converted into finished goods through a manufacturing or conversion process.
Optimum level of inventory: It is the level where
the total costs of inventory is less.
Economic Order Quantity (EOQ): It
refers
to that level of inventory at which the total cost of inventory
is minimum
Shortage costs: It is the cost
that arises due to stock out, either shortage of raw material or finished goods.

Two-Bin Technique:
According to this technique, stock of each item is separated into two piles, bins or groups.
VED Classification: According to this classification, inventories are grouped into: Vital, Essential and Desirable. 13.12 Self Assessment 1. Fill in the blanks: (a)
Inventory is one of components of ..... assets. (b) The term inventory is originated from the ..... "Inventoried", and the Latin ..... (
c)
Raw materials, work-in-process, finished goods and stores and spares are the components of ..... (
d) .....
motive necessitates the holiday of inventories for unexpected changes in demand and supply factors. (
e)
The time required to process and execute an order is called ..... time. (
f) .....
costs are those costs that are associated with the acquisition of raw materials. (
g) .....
refers to the
level of inventory at which the total
inventory cost is minimum. 2.
State whether the following statements are true or false: (
a)
Holding of
inventories to take the advantages of changes in prices and getting quantity discounts
are known as speculative motive. (b) Inventory carrying costs are those costs that are associated with the carrying of goods from supplies to the firm.
290 Financial Management (c) Price decline, product deterioration, and product obsolescence are the risks of holding inventory. (
d) Classification of inventor, order quantity, and order point are the three problems of inventory management. (e) ABC Analysis is also known at PAV. (f) In EOQ Formula, 'A' stands for Annual usage. (g) VED classification is applied to spare parts. (h) Just in time system was developed in Japan by Taichi Okno. 13.13 Review Questions 1. From the following information of VST Company, compute re-order
level, minimum level, maximum level, and average stock level. The company uses two components X and Y for manufacturing a product.
Normal usage = 100 units per week; Minimum usage = 50 units per week Maximum usage = 150 per week
Re-order period = Component X : 4 to 10 weeks; Component Y : 2 to 8 weeks Re-order quantity = Component X : 600 units; Component Y : 900 units 2. "There are two dangerous situations that management should usually avoid in controlling inventories". Explain. 3.
The Management of Shesha Sai Textiles has predicted sales of 1,00,000 units of a product in the next 12 months. The product cost is Rs.18 per unit. Its estimated carrying cost is 25 per cent of inventory value and ordering cost is
Rs.10
per order. What is the EOQ? 4. Analyse the technique for the computation of EOQ. 5.
A manufacturing company has an expected usage of 1,00,000 units of certain product during the next year. The cost of an order is Rs. 40 and carrying cost is
Re. 0.5
per
unit for one year. Lead-time on an order is five days and company will keep a reserve supply of two days' usage. You are required to calculate (a) EOQ and (b) the Re-order point (assuming 250-day year). 6.
Best of Luck Company Ltd., uses annually 80,300 units of raw materials at a price of
Rs. 8
per unit. Its estimated carrying cost is 14 per cent and its ordering cost is
Rs. 20
per order. What
will be the economical number of units to order and how often will an order needs to be placed? 7.
Finance Department of RRR Cement Company gathered the following information. You are required to compute EOQ, number of orders in a year, the time gap between
the two orders and the total cost of ordering and carrying. Monthly usage 150 units, ordering cost
Rs 20,
cost of purchase of the component Rs 5 and carrying cost are 16 per cent. 8. Analyse the

importance of JIT system in inventory management. 9.
Bharath Engineering Factory consumes 3,00,000 units of a component per year. The ordering, receiving and handling costs are Rs. 60 per order and the firm is estimating its carrying cost at 20 per cent. Component cost per unit is Rs. 20. Calculate EOQ. 10.
A company received an order for 15,000 units at the rate of 1,000 units per order. The production cost per unit is Rs. 24 per unit – Rs. 10 for raw materials and Rs. 14
as overhead cost. It costs Rs. 1,500
to set up for one run of 1,000 units and inventory-carrying cost is 20 per cent of the production cost. Since the customer may buy at least 15,000 this year, the company would like to avoid making five different production runs. Determine most economic production run. 11.
Elucidate the factors that resulted in the need for the balanced investment in inventory.
291 Chapter 13: Inventory Management Answers: Self Assessment 1. (a) Current (b) French; Inventariom (c) Inventory (d) Precautionary (e) Lead (f) Ordering (g) EOQ 2. (a) True (b) False (c) True (d) True (e) False (f) True (g) True (h) True 13.14 Further Readings
Books
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Financial Management, New Delhi, Excel Books, 2008. Van Horne, J.C. and Wachowicz, Jr, J.M., Fundamentals of Financial Management, New Delhi, Prentice Hall of India Pvt. Ltd., 1996, p. 2.
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292
Financial Management
Chapter 14: Cash Management Objectives This chapter on Cash Management covers 1.
Objectives of cash management 2. Aspects of cash management 3. Factors determining cash needs 4. Cash budget, procedure and purpose of cash budget 5.
Types of cash forecasting 6. Strategies for accelerating cash inflows, and slowing down payments 7. Investment avenues for investing surplus
cash Introduction Cash
is one of the components of current assets. It is a medium of exchange for purpose of goods and services and for discharging liabilities.
Cash management is one of the key areas of working capital management
as cash is
both beginning and the
end of working capital
cycle-cash, inventories, receivables and cash. It is the
most liquid asset and
the basic input required to keep the business running on a continuous basis.
To quote Gitman, "liquid assets provide a pool of funds to cover unexpected outlays, thereby reducing the risk of a liquidity crisis". It is
like blood stream in the human body, gives vitality and strength to
the firm. Adequate availability of cash is essential to meet the business needs.
Efficient management of the inflow and outflow of cash plays a crucial role in the overall performance of a firm. Shortage of cash will disrupt the firm's manufacturing process while excess cash will remain idle without any contribution towards profit. Cash is not an end itself, but is a means to achieve the end. To quote Brigham, "Cash is a non-earning asset, so excessive cash balance simply lowers the total assets turnover, thereby reducing both the rate of return on net worth and the value of the stock." The
steady and healthy circulation of cash
throughout the entire business operation is the business solvency.
Therefore, effective management of cash
involves an effort to minimise investment in cash without impairing to liquidity of the firm. It implies a proper balancing between the two conflicting objectives of the liquidity and profitability. 14.1
Nature of Cash Cash is the medium of exchange for purchase of goods and services, and for discharging liabilities.
In cash management the term cash has been used in two senses: 1. Narrow Sense:

Under this cash covers currency and generally accepted equivalents of cash, viz., cheques, demand drafts and banks demand deposits. 2. Broad Sense: Here, cash includes not only the above stated but also cash assets. There are bank's time deposits and marketable securities. The marketable security can easily sold and converted into cash. Here, cash management is in broader sense. 14.2
Motives for Holding Cash Cash is the most crucial component of the working capital of a firm,
as every transaction results either in an inflow or outflow of cash.
Cash has no earning power, then why does a firm need cash? John Maynard Keynes puts forth that there are three possible motives for holding cash.

Cash Management 14.2.1 Transaction Motive This motive arises
due to the necessity of having cash for various disbursements like purchase of raw materials, payment of business expenses,
payment of tax, payment of dividend
and so on. The need to hold cash would not arise, if there
is perfect synchronization between the cash receipts and the cash payments. Hence, the firm must have an adequate cash balance particularly when payments are in excess of receipts to meet its obligations. The requirement of cash to meet routine cash needs is known as the transaction motive and such
motive refers to the holding of cash to meet anticipated obligations whose timing is not perfectly synchronized with each receipts.
The transaction motive, thus,
refers to the holding of cash to meet
anticipated obligations whose timing is not perfectly synchronized with cash receipts. 14.2.2
Precautionary Motive Apart from the non-synchronization of anticipated cash flows in the ordinary course of business, firm may
require cash for the payment of unexpected disbursements.
The unexpected cash needs at short-notice may be the result of floods, strikes
and failure of important customers,
bills may be presented for settlement earlier than expected, slow down in collection of accounts receivables, sharp increase in cost of raw materials.
It provides a cushion or buffer to withstand some unexpected emergency. The precautionary balance may be held in near-money assets like marketable securities. The amount set aside for precautionary motive is not expected to earn anything. As matter of abundant caution, many companies had learnt the art of 'cultivating the rich uncle', by establishing and maintaining good lasting link with progressive banking institutions. Ready borrowing power is the best antidote to emergency cash drains and facilities release available cash resources for remunerative applications. 14.2.3
Speculative Motive It
refers to the desire of a firm to take advantage of opportunities, which present themselves at unexpected moments and that are typically outside the normal course of business.
In simple words, it is a
motive of holding cash relates
for investing in profitable opportunities as and when they arise.
In other words, this motive comes from a desire of holding cash to gain in speculative transactions such as, purchase of raw materials at reduced price on payment of immediate cash, dealing in commodities in bulk purchasing and selling when rates are considered favourable. Hence firms, which have
such speculative dealings, may carry additional liquidity. 14.3
Objectives of Cash Management One of the prime responsibilities of the financial manager
is that managing cash to make balance between profitability and liquidity. In other words, he/she has to maintain optimum cash balance. Optimum cash means it should not be excess or inadequate. Maintenance of excess cash reserve to meet the challenges, the excess cash will remain idle, and idle cash earn nothing, but involves cost. So it will reduce profit. On the other
hand, having inadequate cash balance will affect the liquidity of the firm. Hence, there is need to maintain balance between profitability and liquidity. In other words, there should not be excess cash or inadequate cash. Caution From the above, we can trace the following as the
objectives of cash management: 1. To meet cash payment needs, and 2. To maintain minimum
cash

balance. 14.3.1 To Meet Cash Payments The prime objective of cash management is to meet various cash payments needed to pay in business operations. The payments are like payment to supplier of raw materials, payment of wages and salaries, payment of electricity bills, telephone bills and so on. Firm should maintain cash balances to meet the payments; otherwise it will not be able to run business. To quote Bollen,

Cash is an oil to lubricate the ever-turning wheels of business: without it, the process grinds to a stop". Hence, one of the cash management objectives is to meet the payments with the maintenance of sufficient cash. 14.3.2 To Maintain Minimum Cash Balance (Reserve) This is second important objective of cash management. It means the firm should not maintain excess cash balances. Excess cash balance may ensure prompt payment, but if the excess balance will remain idle, as cash is a non-earning asset and the firm will have to forego profits. On the other hand, maintenance of low level of cash balance may not help to pay the obligations. Hence, the aim of cash management is to maintain optimum cash balance. 14.4 Aspects of Cash Management The aspects or problems of cash management can be examined under three heads, such as: 1. Cash inflows and outflows, 2. Cash flow within the firm, and 3. Cash balances held at the point of time. Cash inflows (receipts) and outflows (payments) may not match, they may be excess or less over cash outflows. Surplus cash arise when the cash inflows are excess over cash outflows and deficit will arise when the cash inflows are less than the cash outflows. The balance known as synchronization firm should develop appropriate strategies for resolving the uncertainty involved in cash flow prediction and in balance between cash receipts and payments.

Notes Firm has to come up with some cash management strategies regarding the following four facets of cash management. 1. Cash Planning: Cash planning is required to estimate the cash surplus or deficit for each planning period. Estimation of cash surplus or deficit can be arrived by preparation of cash budget. 2. Cash Flows Management: Cash flows means cash inflows and cash outflows. The cash flows should be properly managed that the cash inflows should be accelerated (collected as early as possible) and cash outflows should be decelerated (cash payments should be delayed without affecting firm name). 3. Determination of Optimum Cash Balance: Optimum cash balance is that balance at which the cost of excess cash and danger of cash deficiency will match. In other words, it is the cash balance at that the total cost (total cost equals to transaction cost and opportunity cost) is minimum. Firm has to determine optimum cash balance. 4. Investment of Surplus Cash: Whenever there is surplus cash it should be properly invested in marketable securities, to earn profits. Firms should not invest in long-term securities; they cannot be converted into cash within a short period. 14.5 Factors Determining Cash Needs From the above, we can say that a firm has to decide the cash balance based on their needs, which is determined after taking into consideration of the following factors: 1. Synchronization of Cash Flows: Synchronization of cash flows arises only when there is no balance between the expected cash inflows and cash outflows. There is no need to manage cash balance, if there is perfect match between cash inflows and cash outflows. Otherwise, there is a need to manage cash balance for managing synchronisation. This synchronisation is forecasted through the preparation of cash budget for a period of 12 months or the planning period. A well-prepared cash budget will definitely point out the months or periods when the firm will have surplus or deficit cash.

2. Short Costs: This is another factor to be considered while determining the cash needs. Short costs are those costs that arise with a short fall of cash for the firm requirements. Shortage of cash can be found through preparation of cash budget. Cash shortage is not cost free, it involves cost whether it is expected or unexpected shortage. The expenses incurred as a result of shortfall are called short costs. They include the following: (a) Cost of Transaction: Whenever there is a shortage of cash it should be financed. Financing may be done through the borrowings from banks or sale of marketable securities (if the firm have). If the firm is planning to finance the deficit cash by sale of marketable securities, then the firm is expected to spend some expenses for brokerage. (

b)

Cost of Borrowing: If the firm does not have marketable securities with it, then it prefers borrowing as a source of financing, shortage of cash. It involves costs like interest on loan, commitment charges and other expenses relating to the loan. (

c) Cost of Deterioration of the Credit Rating: Generally credit rating is given by credit rating agencies (CRISIL, ICRA and CARE). Low credit rating firms may have to go for bank loans with high interest charges, since they cannot raise the required amount from the public. Low credit rating may also leads to the stoppage of supplies, demands for cash payment refusal to sell, loss of image and attendant decline in sales and profits. (
d) Cost of Loss of Cash Discount: Sufficient cash helps to get cash discount benefits, but shortage of cash cannot help to obtain cash discounts. (e) Cost of Penalty Rates: Whenever there is shortage of cash firm may not be able to honor currently returned obligations, which in turn demand penalty. 3. Surplus Cash Balance Costs: It is self-explanatory. It means that the cost associated with excess or surplus cash balance. Cash is not an earning asset. Surplus cash funds are idle, an impact of idle cash
is that the firm losses opportunities to invest those funds and thereby lose interest, which would otherwise have been earned. 4. Management Costs: Management costs are those costs involved with setting up and operating cash management staff. These
cost
are generally fixed over a period, and are mainly include staff, salary, storage, handling cost of security and so on. 14.6 Cash Planning or Cash Budget Cash planning and control of cash is the central point of finance functions. Maintenance of adequate cash
is one of the prime responsibilities of financial manager. It is possible only through preparation of cash planning.
Cash control is also included in cash planning. Since planning and control are the twins of management.
Cash planning is a technique to plan and control the use of cash.
A projected cash flow statement
prepared based on
expected cash receipts and payments, is the anticipation of the
financial condition of the firm. Cash planning may be prepared on daily, weekly, monthly or quarterly basis. The period for which the
cash planning is prepared depends on the size of the firms and managements philosophy. Large firms, prepare daily and weekly forecasts. Medium size firms prepare weekly and monthly forecasts. Small firms may not prepare cash forecasts due to non-availability of data and less scale of operations. But in a short period they may service but over a long period they have to prepare cash planning for the success of the firm. 14.6.1
Cash Forecasting and Budgeting Cash forecast is used as a method to predict future cash flow because it deals with the estimation of cash flows (i.e., cash in flows and cash outflows) at different stages and offers the management an advance notice to take appropriate and timely action.
Cash budget is an important tool for the flow of cash in any firm over a
future period of time. In other words,
it is a statement showing the estimated cash inflows and cash outflows over
a planning period. It pinpoints the
surplus or deficit cash
of a firm as it moves from one period to another
period. The surplus of deficit data
helps the financial manager to determine the future cash needs of the firm,
plan for the financing of those needs and exercise control over the cash and liquidity of the firm.
Cash budget is also known as short-term cash forecasting.
 14.6.2 Purpose of Cash Budget Cash budget
has proved to be of great help and benefit in the following areas: 1. Estimating cash requirements 2. Planning short-term finance planning 3. Scheduling payments, in respect of acquiring capital goods 4. Planning and phasing the purchase of raw materials 5. Evolving and implementing credit policies 6. Checking and verifying the accuracy of
long-term cash forecasting. 14.6.3 Preparation of Cash Budget or Elements of Cash Budget The
above benefit areas clear that the main aim of preparing cash budget is to predict the cash flows over a given period of time and to determine whether at any point of time there is likely to be surplus or deficit
of cash. Preparation of cash budget involves the following steps: Step 1: Selection of period of time (planning horizon). Planning horizon is that period for which cash budget is prepared. There are no fixed rules for cash budget preparation. Planning horizon of a cash budget may differ from firm to firm, depending upon the size of the firm. Cash budget period should not be too short or too long.

If it is too short many important events may come out in the planning period and cannot be accounted for the preparation of cash budget, which becomes expensive. On the other hand, if it is too long the estimates will be inaccurate. Then how to determine planning horizon? It is determined on the basis of situation and the necessity of a particular case. A firm whose business is affected by seasonal variations may prepare monthly cash budgets. If the cash flow fluctuates, daily or weekly cash budgets should be prepared. Longer period cash budgets may be prepared when the cash flows are stable in nature.

Step 2: Selection of factor that has bearing on cash flows. The factors that generate cash flows are divided into two broad categories: (a) Operating, and (

b) Financial. Caution 1. Operating Cash Flows: Operating cash inflows are cash sales, collection of accounts receivables and disposal of fixed assets and the operating cash outflows are bills payables, purchase of raw materials, wages, factory expenses, administrative expenses, maintenance expenses and purchase of fixed assets. 2. Financial Cash Flows: Loans and borrowings, sale of securities, dividend received, refund of tax, rent received,

interest

received and issue of new shares and debentures cash outflows are redemption of loan, repurchase of shares, income tax payments, interest paid and dividend paid.

Illustration 1: From the following information prepare cash budget for VSI Co. Ltd.: Particulars Jan Feb March April Opening cash balance 20,000 Collection from customer 1,30,000 1,60,000 1,65,000 2,30,000 Payments: Raw materials purchase 25,000 45,000 40,000 63,200 Salary and wages 1,00,000 1,05,000 1,00,000 1,14,200 Other expenses 15,000 10,000 15,000 12,000 Income tax 6,000 ---- ---- ---- Machinery ---- ---- 20,000 ----

The firm wants to maintain a minimum cash balance of

Rs. 25,000

for each month. Creditors are allowed one-month credit. There is no lag in payment of salary, other expenses. Solution: Cash Budget for the Period Jan. to April (Rs.) Particulars

Jan Feb March

April Opening cash balance 20,000 29,000 49,000 34,000 Cash collection from customer 1,30,000 1,60,000 1,65,000 2,30,000 (A) Total receipts 1,50,000 1,89,000 2,14,000 2,64,000 Payments : Raw materials ---- 25,000 45,000 40,000 Salary 1,00,000 1,05,000 1,00,000 1,14,200 Other expenses 15,000 10,000 15,000 12,000 Income tax 6,000 ---- ---- ---- Machinery ---- ---- 20,000 ---- (B)

Total payments 1,21,000 1,40,000 1,80,000 1,66,200 Closing Balance (A – B) 29,000 49,000 34,000 97,800

Illustration 2: Prepare cash budget for the 3 months

ending on 30-06-2004 from the following information. 1. (Amount in Rs.) Month Sales Materials Wages Overheads Feb 14,000 9,600 3,000 1,700 March 15,000 9,000 3,000 1,900 April 16,000 9,200 3,200 2,000 May 17,000 10,000 3,600 2,200 June 18,000 10,400 4,000 2,300 2. Credit terms are: Sales/Debtors - 10 per cent, sales are on cash, 50 per cent of the credit, sales are collected next month and the balance in the following month. (a) Creditors (suppliers) - 2 months (b) Wages - ¼ month; overheads - ½ month 3. Cash and Bank balance as on 1st April 2004 is expected to be Rs. 6,000. 4. Other information: Machinery will be installed in Feb.'04 at a cost of Rs. 96,000. The monthly installment of Rs. 2,000 is payable from April onward. Dividend at 5 per cent on preference share capital of Rs. 2,00,000 will be payable on 1st June. Advance to be received for sale of vehicles Rs. 9,000 in June. Dividends from investments amounting to Rs. 1,000 are expected to be received in June. Income tax (advance) to be paid in June is 2,000.

298 Financial Management Solution: Particulars April May June (A) Opening balance 6,000 3,950 3,000 Receipts: Sales Note (1) 14,650 15,650 16,650 Dividend ---- ---- 1,000 Advance ---- ---- 9,000 (B) Total receipts 14,650 15,650 26,650 Payments: Creditors 9,600 9,000 9,200 Wages Note (2) 3,150 3,500 3,900 Overheads Note (3) 1,950 2,100 2,250 Installment (on machinery) 2,000 2,000 2,000 Dividend ---- 10,000 Tax ---- ---- 2,000 (C) Total payments 16,700 16,600 29,350 (D) Surplus / Deficit (B – C) (2,050) (950) (2,700) (E) Balance cash (A – B) 3,950 3,000 300 Working Notes: 1. Cash collection from Sales Particulars April May June Feb (14,000 – 10% of 14,000) 50% 6,300 ---- ---- March (15,000 – 10% of 15,000) 50% 6,750 6,750 ---- April (10% of 16,000) 1,600 ---- ---- (16,000 – 10% of 16,000) 50% ---- 7,200 7,200 May (10% of 17,000) ---- 1,700 ---- (17,000 – 10% of 17,000) 50% ---- ---- 7,650 June (10% of 18,000) ---- ---- 1,800 14,650 15,650 16,650 2. 75 per cent of the April + 25 per cent of the previous month 3. 50 per cent of the month + 50 per cent of the previous month 14.7

After estimation of cash flows, then the next financial manager's job is to ensure that there should not be more deviation between the projected cash flows and the actual cash flows, for that efficient cash management is must. That financial manager will have the control on collection of receipts and cash disbursements. As the objectives of cash management is to accelerate cash receipts as much as possible and decelerate or delay cash payments as much as possible. In other words, the various collection and disbursement methods can be employed to improve cash management efficiently constitutes two sides of the same coin. Both collections and disbursements exercise a joint impact on the overall efficiency of
cash management. The idea is that speed collection of accounts receivables so that the firm can use money sooner; otherwise, it has to borrow money, wherein costs are involved. Conversely, firm wants to pay accounts payables late without affecting credit standing with suppliers, so that firm can make use of the money it already has. Hence, for efficient
cash management firm has (A) to collect accounts receivables as early as possible, and (B)
it has to delay the accounts payables without affecting credit standing.
299
Chapter 14: Cash
Management 14.7.1 Accelerating Cash Collections Accelerating
speedy cash collection can conserve cash and reduce its requirements for cash balances of a firm. Cash inflow process can be accelerated through systematic planning. The following are the methods of
accelerating
cash collections: 1. Prompt Payment of Customers: In speed collection, the first hurdle could be the firm itself. It may take a long time to process the invoice.
Prompt payment by customers will be possible by prompt billing. The seller has to inform to
customers about the amount of payment
and period of payment in advance.
Automation of billing and enclosure of self- addressed enveloped, will be helpful for
speed payment of cash. The other way of prompting customers to pay earlier is to offer cash discount. Cash discount helps customer to save money and they would readily avail discounts. 2.
Early Conversion of Payments into Cash: After using cheques by customer in favour of the firm collections can be quickened. Conversion of cheques into cash is the second hurdle. There is a
time
lag between the time a cheque is prepared by customer and the time the funds are
credited to firm's account. It is also known as cash cycle.
Cash cycle is the time required to convert the
raw materials into cash. There are three steps involved in the cash cycle,
viz., (i)
Mailing time-The time taken by the
post offices in transferring the cheques from the customer to the firm. The time lag is
referred to as "postal float". (
ii) Lethargy - time taken in processing the cheques within the
company and sending them to bank for
deposit and (
iii) Bank Float -
Collection within the bank or the
time taken by the bank in collecting the payment from the customer's bank.
The postal float, lethargy and bank float-collectively known as "deposit float".
To quote Rama Moorthy, deposit float as the sum of cheques written by the customer that are not yet usable by the firm. In India deposit float can assume sizeable opportunities as cheques normally take a longer time to get realised than in most countries. Accelerated
collection of cash is possible when a firm reduces the transit, lethargy and bank float.
How can the deposit float be reduced? It is possible through the options of decentralised collection policy. There are two important methods available to use in a decentralised collection network, they are concentration banking and Lock-Box system. 3. Concentration Banking or Decentralised Collections: A firm operating its business spread over a vast area and its branches located at different places would do well to decentralise its collections. The decentralised collection procedure in US is called as "concentration banking." Concentration banking
is a system of operating through a number of collection centers, instead of a single collection
centre centralised at the company's head office

premises. Under this system, a firm will have a large number of bank accounts in the operated areas, but all the areas may not have collection centres. Opening it collection centre depends on the volume of business. In
this system, the customers' are instructed to send their payments to the collection centre covering the area under which they come and these are deposited in the local account of the concerned collection centre.
On realisation of the proceeds of the cheques, these may be remitted for credit to the Head Office Account, by way of telegraphic transfer, daily or weekly, as per the quantum of collections and the local requirements of funds for expenses. Hence, concentration banking reduces float, which saves time and reduces in the operating cash needs. This system should be adopted only when the savings are higher than the cost. 4.
Lock-Box System: This is another technique of accelerating collection of cash. It is more popular in USA and European countries. Under this arrangement, a firm rents a post office box and authorises its bank to pick up remittances in the box. The boxes will be placed at different centres on the basis of number of consumers. Customers are billed with instructions to mail remittances
to the box. The local authorised bank of the firm, at the respective places
pick
up the mail several times a day and the same deposits into the firm's account. After the
collection of cheques the bank,
send a deposit slip along with the list of payments and other required encloses.
Advantages of Lock-box system are: 1. The bank handles the remittances prior to deposit at a lower cost; 2. The process of collection through the banking system begins sooner the receipt of cheque and saves time;
300 Financial Management 3. Lock-box system involves cost, since the services provided by the bank are chargeable or requires maintaining a minimum cash balance that involves an opportunity cost. A financial manager has to compare the benefits derived from use of lock-box system and when benefits are higher than the cost involved then it should be adopted. 14.7.2 Slowing Down Cash Payments Operating cash requirement can be reduced by accelerating cash collections and slowing down cash payments. Increased availability of cash depends on the combination of speed collections and slow payments. Following methods can be used to showing down the payments: 1. Paying on Last Date: A prudent businessman would always prefer to make the payment only on the last day, when it is due and never earlier. But early payments entitle a firm to cash discounts. If there is no discount offer on early payments of accounts payables has no advantage, but delayed beyond trade credit period affects the firms credit standing that makes difficult to get trade credit in future. Hence, a firm would be well advised to pay payments only on the last dates. 2. Centralised Payments: Under this system, all payments are made from one central place that is Head Office. The benefits of centralised payment system are: (a) It increases the transit time. In other words, payment from a centralised place takes more time to send the cheques to customers. (b) Reduction in operating cash requirement since the firm has centralised bank account, a relatively smaller total cash balance will be needed. (c) Controlled schedules and payments made exactly on the last day. 3. Paying

In simple words, float refers to
the

There is a time lag between issue of cheque by the company and its presentation to the bank by the customer's bank for collection of money, where cash is required later when the cheque is presented for collection. So, firm can issue cheque without having sufficient cash in its bank account at the time of its issue to its customers, because by the time of presentation of the Cheque for encashment, firm can arrange funds. Use of float in this way referred to as cheque kiting. Cheque kiting can be done in two ways: (a) paying from a distant bank and (b) cheque encashment analysis. (a) Paying From a Distant Bank: As discussed in centralised payments. (b) Cheque Encashment Analysis: On the basis of firm's past experience (if firm has been paying from a few years onward), it can find out the lag in the issue of cheques and their encashment. If more time lags are there then the firm will pay with delay and vice versa. It will help the firm to save cash. Caselet Cash in Balance Sheet Stays High for IT Firms T op IT firms gave more cash to shareholders. They also used cash to buy companies. Still, at the end of March 2004, the cash sloshing around in their balance sheet was high. Infosys, Satyam and Wipro hold about Rs 1,500 crore or more in cash, bank balances, term deposits and mutual fund units. Cash and their equivalents as a proportion of net worth range between 30 and 60 per cent for prominent IT firms. Yields on this cash hoard have been below 4 per cent for these firms in 2003-04. The large cash position pulls down the return on net worth, which measures the profitability of firms. Hence, the return on the net worth of IT firms is far lower than that of the return on invested capital. (Invested capital is net worth minus cash and cash equivalents.) As the gap between return on invested capital and return on net worth increases, it means that the company has invested less in operations and has more cash idling. Source: thehindubusinessline.com

301 Chapter 14: Cash Management 14.8

Computation of Optimum Cash Balance A firm has to maintain

sufficient liquidity by managing minimum cash balance. Firm needed cash to pay suppliers of raw materials, pay salaries and other expenses as well as paying interest, tax and dividends. Sufficient liquidity means the availability of cash to pay the firm obligations in time. Generally, the minimum cash balance is equal to the cash needed for transaction plus safety cash that can be maintained based on firm's past experience. Maintenance of cash balance provides sufficient liquidity but involve opportunity cost (loss of interest), whereas less cash balance maintenance weakens liquidity and involves profitability.

A firm has to maintain optimum cash balance.

Optimal cash balance is that cash balance where the firm's opportunity cost equals

to transaction cost and the total cost are minimum. Then how to determine optimum cash balance? Optimum cash balance can be determined by a number of mathematical models. But here the most important two models are discussed. They are: 1. Baumol Model (Inventory Model) 2. Miller

and

Orr Model (Statistical Model) 14.8.1 Baumol Model This model was developed by Baumol. This model is suitable only when the cost flows are predictable (under certainty). It considers optimum cash balance similar to the economic order quantity, since it is based on EOQ Concept and also in both the cases there is trade off between cost of borrowing (sale of securities cost) and opportunity the cost. The point where the total cost is minimum. Figure 14.1 shows Baumol model. Assumptions:

Baumol model is based on the following: 1. The firm knows its cash needs with certainty. 2. The cash payments (disbursement) of the firm occur uniformly over a period of time and is known with certainty. 3.

The opportunity cost of holding cash is known and it remains stable over time. 4. The

transaction cost is known and remains

stable. Elements of Total Cost The total cost associated with management of cash under this model involves two elements (a) Conversion cost (transaction cost) and (b) Opportunity cost (interest cost). 1. Conversion Cost (Transaction Cost): Conversion costs are those costs that are associated with sale of marketable security and raise whenever firm converts marketable security into cash. Conversion Cost (C) = C [F/M]. Where: C = Cost per conversion F = Expected cash need for future period M = Amount of marketable securities sold in each sale. 2. Opportunity Cost: Is the (cost benefit) foregone by holding idle cash. In other words, opportunity cost is the interest forgone on an average cash balance. Symbolically, Opportunity cost (O) = I (M ÷ 2) Where, I = Interest rate that could have been earned M ÷ 2 = Average can balance [(Opening cash + Closing cash)/2] Total cost = Conversion cost + Opportunity cost

302 Financial Management = C (F/M) + I (M ? 2) Cash Conversion Size Cost Opportunity Cost (Interest Cost) Total Cost Conversion (Transaction) cost Economical (optimal) Conversion lot size: ECL = 2CF O Where, ECL = Economic Conversion Lot F = Expected cash needed for future period C = Cost per conversion O = Opportunity cost Illustration 3: VS International Coy Ltd., estimated cash needs of

Rs. 20

lakhs for a year. Cost of transaction of marketable securities is Rs. 2000 per lot. The company has marketable securities in lot sizes of

Rs. 1,00,000, Rs. 2,00,000, Rs. 4,00,000, Rs. 5,00,000 and Rs. 10,00,000.

Determine economic conversion lot size if 20% is the opportunity cost. Solution: ECL = 2×2000×20,00,000 0.20 = Rs. 2,00,000 14.8.2 Miller and Orr Model The Miller and Orr model is in fact an attempt to make Baumol model more elastic with regards to the pattern of periodic changes in cash balances. Baumol's model is based on the assumption that uniform and certain level of cash balances. But
in practice firms do not use uniform cash balances nor are they able to predict daily cash inflows and outflows. The Miller Orr Model overcomes
the limitations of Baumol model. It's augmented on the Baumol Model and came out of a statistical model. That is useful for the
firms with uncertain cash flows. The Miller and Orr
model provides two control limits-the
upper control limit and the lower control limit along with a return point.
The
following Figure 14.2 shows the two control limits and return point.
Figure 14.1: Baumol Model
303 Chapter 14: Cash Management Upper Control Limit (UCL) Return point (RP) Lower Control Limit (LCL) Purchase of securities Time Cash (Rs.) Sale of securities
According to this model, cash balance fluctuates between LCL and UCL. Whenever, cash balance touches UCL then the firm purchases sufficient (UCL - RP) marketable securities to take bank cash balance to return point. On the other hand when the firm touches the lower control limit, it will sell the marketable securities to the extent of (RP - LCL), take back cash balance to return point. The cash balance at the lower control limit (LCL) is set by the firm as per requirement of maintaining minimum cash balance. The cash balances at upper control limit (UCL) and record points will be determined on the basis of the transaction cost (C), the interest rate (O) and standard deviation (?) of net cash flows.
The following formula is used to determine the spread between UCL and LCL (called Z) as per MO model 2(RP) = 1 3 2 2 3 3Cσ 3 Cσ +LCL or × +LCL 4O 4
O æ ö ç ÷ è ø
Where: Z = Control limit of cash balance (or) return point C = Transaction cost ? = Variance of net cash flow LCL = Lower control limit O = Opportunity cost or interest rate earned on marketable security 14.9
Investment of Surplus Funds Components may have surplus (excess cash) funds in several occasions that are required after sometime. Therefore, it would be an efficient decision, if the excess cash invested in some investment avenues that may be safe and liquid, and which may even earn some reasonable interest too, during the holding period. A number of marketable securities available to the firm, depending upon the varying degree of risks and liquidity and the matching income generation. The financial manager must decide the portfolio of marketable securities in which the firm's excess cash (surplus funds) should be invested. 14.9.1 Selecting Investing (Avenues) Securities A firm can invest surplus funds in any types of short-term marketable securities, but it has to take into considerations the prime criterion in security, liquidity and interest. Thus in selecting an investment avenue among available alternatives the firm has to examine four basis features of safety, marketability, yield and maturity. 1. Safety: Safety refers to the likelihood of getting back principle that is originally invested. Usually, a firm would be interested in receiving as high return on investments, but the higher the return securities are relatively more risky and vice versa. For safety of the investment, the firm should invest in safe securities. 2. Marketability: Marketability of securities refers to the owner's ability to convert the securities into cash on short notice. The two important aspects of marketability are price and time. If the security can be sold within short period without loss, it is highly liquid asset. Firm has to invest its surplus finds only in marketable securities. Figure 14.2: Two Control Limits and Return Point
304 Financial Management 3. Yield: The yield or return, on a security is related to the interest and appreciation of principle amount invested on a security. Some securities do not pay interest, since they are sold at discount (Treasury bills). If the firm prefers return it may require to bare risk. 4.

paid. Almost all the short-term securities are having different maturity periods. Financial manager has to decide in which securities surplus cash should be invested. 14.9.2 Money Market Instruments or Marketable Securities Money market refers to the market for short-term securities. It has no physical market place and it consists of a loose agglomeration of banks and dealers linked together by telex, telephones and computers. A huge volume of securities is regularly traded on the market and the competition is energetic. The following are most prominent short-term securities available for investment of surplus cash. 1. Units of Unit 1964 Scheme: This scheme is one of the units of Unit Trust of India (UTI), it is known as the Unit Scheme 1964 (in short US 64). It is the most popular mutual fund scheme in India, which comprises the following features: (i) it is an open ended scheme - as it can be purchased and sold back to the UTI itself on the continuous basis, (ii) the units have face value of Rs. 10 for sale and the purchase of units are not determined on the basis of the Net Asset Value (NAV) of the units, as should be the case for a truly open-ended scheme. It is instead, they are determined administratively by the UTI taking into account the element of accrued interest, from time to time, usually at monthly intervals. Thus the units of the US 64 scheme offer a convenient and attractive investment avenue for short-term funds for the following reasons: (i) Existence of active secondary market, (ii) Units appreciates over time in a fairly predictable manner as the UTI makes a gradual upward revision in its selling and repurchase price from July to June, each year. 2. Ready Forward (RFs or repos): In the ready forward deal, a commercial bank or some other organisation may enter into an arrangement with a company, intending to park its surplus funds for a short period, under which the bank may sell some securities to one company and repurchases the same securities at prices (i.e., both buying and selling prices) determined as mutually agreed. Hence, it is termed as 'ready forward'. Ready forwards, are however, permitted only in a limited number of specified securities. Ready forward does not provide any income to the company in the form interest, but the company's income is the difference between the buying and selling prices. The income earned on the ready forward is taxable as usual. The rate of return on a ready forward deal is closely related to the market conditions prevailing in the money market, which is generally tight during the busy season, also at the time of the annual closing. 3. Treasury Bills: Treasury bills are the obligations of the government for a short-term period of less than one year, ranging from 91 days to its multiple like 182 days and 364 days. They are sold at a discount rate and redeemed at the face value and the difference between the rates constitutes to the income. In other words, they are not issued at any interest rate. The yield on treasury bills is low, when compared to other gainful short-term investment avenues. But it has several attractive features, like First, they are issued in a bearer form, which makes them easily transferable mere by delivery of the documents, without any endorsement. Second, the secondary market for bills makes them highly liquid, and also allows to purchase of bills with very short maturities. Third, they are risk free since they are having financial backing of the government. 4. Commercial Papers (CPs): Commercial paper is short-term, unsecured promissory note issued by large companies. It was introduced in 1990 with a view to enabling the highly rated corporate borrowers to diversify the sources of their short-term borrowings, as also provide an additional instrument to the investors, to park their surplus funds for a short period. Eligibility, any firm which planning to issue of commercial papers is has to fulfill the guidelines given by RBI, such as: (i) the tangible net worth of the issuing company should not be

75%	MATCHING BLOCK 108/151	SA	Adv. Fin. Mgt.M.com I semester.docx (D146751116)

less than Rs. 4 crore, as per latest balance sheet, (ii) the company should have

been sanctioned a working capital limit by the

56%	MATCHING BLOCK 109/151	SA	FMG-301 Corporate Finance.pdf (D164737021)

bank(s) or all India Financial Institutions (IFIs), (iii) the company should have been classified as a Standard Asset by the financing

bank(s) financial institutions, and (iv) a minimum credit rating of P-2 of CRISIL (Credit Rating Information Services of India Limited), or such equivalent rating by any other agency approved by RBI (like ICRA - Investment Information and Credit Rating Agency of India Limited, CARE - Credit Analysis and Research Limited).

Chapter 14: Cash Management Mode of Issue: Commercial papers can be directly (companies with high credit rating) issued or through dealers. These are generally sold at a discount (in bearer form) to the face value, as determined by the buyer, but some times they can be issued carrying interest and made payable to the order of the investor. Commercial paper should not be under written or co-accepted. They can be issued with a maturity of minimum period of 15 days (reduced from 30 days) to a maximum period of up to one year. They are issued in the denomination of Rs. 5 lakh or multiples thereof. Any single investor has to invest a minimum amount of Rs. 5 lakh. The main attraction of CPs is interest rate that is typically higher than that offered by the treasury bills or certificates of deposits. The only disadvantage is that it does not have an active secondary market. 5. Certificate of Deposit (CDs): Certificate of deposit represents the receipts of funds deposited with a bank specified period, like the bank term deposits, but the only difference is CDs are negotiable. CDs may be issued in registered form or bearer form. The later form is more popular since, it can be transacted more easily in the secondary market. Not like treasury bills (issued at discount) CDs are issued at an explicit rate of interest. On maturity, the investor gets the principle amount along with interest accumulated. Certificate of deposits are popular form of short-term investment of surplus funds for companies due to the following reasons: (i) these can be issued by banks in the required denominations and maturities period suits to the needs of investors, (ii) CDs are fairly liquid, (iii) They are virtually risk-free and (iv) CDs generally offer higher rate of interest then the treasury bills and even bank term deposits. 6. Banker's Acceptance: Banker's acceptances are time drafts drawn on a bank by a firm (the drawer or exporter) in order to obtain payment for goods that he/she has shipped to a customer which maintains an account with that specific bank. In other words, it is a short-term promissory trade note for which a bank (by having 'accepted' them) promises to pay the holder the face amount at maturity. The draft guarantees payment by the accepting bank at a specific point of time. Hence, the acceptance becomes a marketable security. The document is not issued in specialized denominations, since one party uses acceptances to finance the acquisition of good. The size of bank acceptances is determined by the cost of goods being purchased. They serve a wide range of maturities and are sold on a discount basis, payable to the bearer. There is no secondary market for acceptances of large banks. Due to their greater financial risk and lesser liquidity, acceptances provide investors a yield advantage over treasury bills of same maturity. Acceptances of major banks are safe investment. 7. Inter-corporate Deposits (ICDs): This is a popular short-term investment avenue for companies in India. As the name itself suggests, an inter-corporate deposit is that deposit made by one corporate body (company) with another corporate company. The deposits are usually made for a maximum of six months. There are three types' inter-corporate deposits: (a) Call Deposits: These types of deposits are expected to be paid on call, which is whenever its repayment is demanded. Generally, these deposits are called back giving a day's notice. But in actual practice the lender has to for at least three days. (
b) Three-month Deposits: These are more popular among the corporate bodies for parking the surplus funds correspondingly for tiding over the short-term financial crunch faced by some others. (c) Six-month Deposits: Generally, inter-corporate deposits do not extend beyond six months period. This type of deposits is usually made with 'A' category companies only. Inter-corporate deposits are in the nature of unsecured deposits. Hence, due care has to be taken to asses and ascertain the credit worthiness and willingness of the company concerned, with whom it is intended to be made. In addition, it must make sure that it adheres the following requirements, as stipulated by sections 370 and 372 of the Company's Act, 1956 which states a company cannot lend more than 10 per cent of its net worth without prior approval of the central government and a special resolution permitting such excess lending. 8. Badla Financing: A company providing badla financing is essentially lending money to a stock market operator who wishes to carry forward his/her transaction from one settlement period to another. Generally, such finance is provided through a broker and that too against the security of the shares already brought by the stock market operator. Badla has single greatest advantage that it offers very attractive rate of interest. But it is coupled with gain there are several risks like the stock market broker may not honor his commitment, or the broker may become a defaulter. Soothe following precautionary and safety measures should borne in mind while providing badla financing: (i) provide finance only for
306 Financial Management reputed and financially strong stockbroker, (ii) select intrinsically sound shares, (iii) ask or keep adequate margin, if share is highly volatile, and (iv) secure possession of share certificates. 9. Bills Discounting: Generally bill arises out of trade transaction. Bill is drawn by the seller (drawer) on the buyer (drawee) for the value of goods delivered to him. During the pendency of the bill, if the seller needs finds he/she may get it discounted. On the maturity, the bill is presented to the drawee for payment. A bill of exchange is a self-liquidating instrument. Discounting is superior to the inter-corporate deposits. While participating in bill discounting a company should ensure that the bill is trade bill and not accommodation bill, try to go for bills backed by letters of credit rather than open bills as the former are more secure. Task A company
estimates its total cash requirement as Rs. 10 crore in the next year. Rs. 500 is the conversion cost of securities in cash on which the firm was earning 15 per cent interest per annum. Determine the optimum cash balance.
Case Study Bajaj Electronics – Cash Forecasting T

his case tests the reader's ability to develop a basic cash forecast for a firm and prepare a recommendation for backup financing over a period of 12 months. A leading producer of telecommunications components and a major contender in shorter antennas is Bajaj Electronics Company. Bajaj's business has grown tremendously in recent years despite increased competition. The primary reasons for increased growth are technological advancement that have expanded production capacity, an aggressive marketing effort, and a reputation for quality products and excellent service. Loofer the financial analyst for the company, has been assigned the task of preparing a quarterly cash forecast for the next fiscal year. After checking with marketing, he was given a monthly breakdown of actual sales for last month and the current month and the current month and a forecast for the next 12 months. These are given in Table 1 and reflect the somewhat seasonal nature of the firm's marketing activities. Table 1: Actual and Forecast Sales from Marketing Month Actual Credit Sales
Forecast Sales November $ 4,338,000 December 5,204,000 January $ 4,600,000 February 4,500,000 March 4,500,000 April 52,00, 000 May 5, 000, 000 June 4,700, 000 July 6, 000, 000 August 6,000,000 September 5,800,000 October 4,500,000 November 4,600,000 December 4,600,000 From the accounting department, Loofer obtained information on the historical mix of sales and collection information. During the first half of the year, credit sales generally mad up about 80 per cent of all sales. In the second half, this
Contd...
307 Chapter 14: Cash Management
dropped to 75 per cent. With respect to the credit sales, collection patterns varied seasonally. This information is contained in Table 2. Once again, the collection pattern is also seasonal Note, however, that the collections do not total to 100 per cent of credit sales. This is the case because the firm allows a margin for bad debts and unexpected collection costs. The firm follows a unique and highly controlled system for its trade payables. Each month during the first half of the year, the accounts payable section pays suppliers cash equal to 50 per cent of the monthly sales. During the second half of the year, this rises to 55 per cent. Over a full year, this pattern of payment seems to be adequate to pay all bills. At times, suppliers are pressing for more payments and some maneuvering is needed. Still, this policy assists the firm's cash management during the busy third quarter and will be followed next year. Cash operating expenses are paid as they occur. During the first and fourth quarters, they are estimated at 50 per cent of sales. During the second and third quarters, they rise to 55 per cent of sales. Loofer knows that the firm includes the impact of interest and taxes in its operating cash flow forecasts. The levels of such debt, along with the forecasted average interest rate for each month, are given in Table 3. Interest will be calculated to reflect changes in debt levels. The firm pays estimated tax payments monthly at a 35 per cent rate. It uses a cost of goods sold estimate at 50 per cent of sales, not including depreciation. Loofer assumes that monthly depreciation for the next year will be $ 185,000. Table 2: Collection Pattern of Receivables Percent of Credit Sales
Months
Collected in Same Month Collected One Month Later Collected Two Months Later November 0.20 December 0.60 0.15 January 0.20 0.60 0.15 February 0.30 0.60 0.50 March 0.25 0.60 0.10 April 0.25 0.60 0.10 May 0.15 0.60 0.20 June 0.20 0.60 0.15 July 0.10 0.60 0.25 August 0.20 0.60 0.15 September 0.15 0.60 0.20 October 0.20 0.60 0.15 November 0.15 0.60 December 0.10 Table 3: Debt Forecast, Last Day of Each Month, and Average Monthly Interest Rates Months Interest-Bearing Debt (,000s) Interest Rate
December 1600 January 1800 0.120 February 1500 0.100 March 1600 0.110 April 1500 0.100 May 1600 0.110 June 1500 0.100 July 1500 0.090 August 1400 0.080 September 1300 0.090 October 1400 0.080 November 1200 0.095 December 1600 0.095
Contd...
308 Financial Management
The final information for the forecast involves establishing a safety level. The firm requires cash or equivalents equal to 20 per cent of the monthly cash operating expenses. The firm began the year with $6,10,000 in the form of cash and equivalents. Question Prepare a statement showing cash forecast for the next 12 months, and in case where firm needs additional cash, draw the recommendation with the tune of credit that must be arranged from bank. 14.10
Summary ?
Cash is one of the
components of current assets and it is a medium of exchange for purpose of goods and services and for discharging liabilities. ?
Cash
management is one of the key areas of working capital management
as cash is
both beginning and the
end of working capital cycle – cash, inventories, receivables and cash. ? It is the
most liquid asset and

the basic input required to keep the business running on a continuous basis. ?
Efficient management of cash involves an effort to minimise investment in cash without impairing to liquidity of the firm. ? Objectives of cash management are to meet cash payment needs; and to maintain minimum
cash balance. ? Cash planning is a technique to plan and control the use of cash. ?
A projected cash flow statement
prepared based on
expected cash receipts and payments, anticipation the financial condition of the firm. ?
Cash budget is a statement showing the estimated cash inflows and cash outflows over
a planning period. ?
A firm has to maintain
optimal cash balance is that cash balance where the firm's opportunity cost equals
to transaction cost and the total cost are minimum. ?
A firm can invest surplus funds in any types of short-term marketable securities, but it has to take into considerations the prime criterion in security, liquidity and interest. ? Money market refers to the market for short-term securities. ? The most prominent short-term securities available for investment of surplus cash are: Units of Unit 1964 Scheme, Ready Forward (RPs or repos), Treasury Bills, Commercial Papers (CPs), Certificate of Deposits (CDs), Banker's Acceptance, Inter-Corporate Deposits (ICDs), Badla Financing, and Bills Discounting. 14.11
Keywords
Cash: It is one of the components of current assets and a medium of exchange for the purpose of transactions.
Cash Planning:
It is a
technique to plan and control the use of cash.
Money market: It refers to the market for short-term securities.
Cash
Budget:
It is a statement showing the estimated cash inflows and cash outflows over
a planning period.
Float: It is
the
amount of the
money tied up in cheques that have been written but
not yet collected.
Conversion Costs: It is the cost that are associated with the sales of marketable security.
Opportunity Costs: It is the forgone cost benefit by holding idle
cash.
Optimal Cash Balance: It is that cash balance where the firm's opportunity cost equals transactions cost and the total cost is minimum.
309
Chapter 14: Cash Management 14.12
Self Assessment 1. Fill in the blanks: (a) Cash is one of the components of ..... (b)
Cash is the most ..... asset. (c) The two types of cash forecasting are ..... and ..... (
d) Surplus cash is ..... (e) .....
is
the
time taken by the bank in collecting the payment from the customer's bank. (
f) ..... the
time taken in processing the cheques within the company and sending them to bank for
deposit. 2.
State whether the following statements are true or false: (a)
There is no time gap between cash inflows and outflows. (
b)
The time taken by post offices in transferring the cheques from the customer to the firm is referred to as postal float. (c)
There are four motives for holding cash. (
d)
Conversion cost is the cost of converting securities into cash. (

e) Cash management is a trade off between the liquidity and profitability. (f) Baumol model cash is based on statistical technique. (g) A cash budget is an account of the expected cash receipts and cash payments. (h) Safety, marketability, yield and maturity are the factors that should be considered while selecting investing securities. 14.13 Review Questions 1. "
Cash budgeting or short-term cash forecasting (budgeting)
is the principal tool of cash management." Discuss. 2.
ABC Ltd., estimates its total cash requirement as Rs. 5 crore in the next year. Rs. 300 is the conversion cost of securities in cash on which the firm was earning 15 per cent interest per annum. Determining the optimum cash balance. 3.
Rama & Co.,

of the changes in daily cash flowing is Rs. 20,000. Rs. 75 is the transaction cost. The company has 10 per cent short-term marketable security in different lot sizes. You are required to determining the ULC and Z or RP as per Miller Orr model (assuming 360 year). 4.
Efficient cash management will aim at maximizing the cash inflows and slowing cash outflows".
Discuss. 5.
Best of
Luck Co. Ltd., firm estimated its total cash requirements of
Rs. 2,00,000
for next six months. The firm has to spend Rs. 200 as conversion cost, if it wants to convert its securities into cash. The firm has 10 per cent securities. What is the economic conversion size of cash. Assume the firm has securities in the lot sizes of
Rs. 20,000, Rs. 40,000, Rs. 60,000, Rs. 80,000 and Rs. 1,00,000. 6. "
Management
of cash flows plays a very important role in
cash
management". Discuss. 7. Briefly discuss the various avenues or opportunities available to the companies to park their surplus funds for a short- term. 8.
Analyse the importance of the preparation of the cash budget for the
corporates. 9.
Venkat & Co., expects its cash flow to behave in a random manner, as it was assumed by Miller Orr model. Venkat & Co. requested you to set an UCL and RP, with the following information. The management of firm would like to maintain a
310 Financial Management minimum cash balance of
Rs. 70,000. The standard deviation its daily cash balances in Rs. 7,000.
Firm earns a 12 per cent yield on its short-term marketable securities. Conversion of securities into cash is net cost free it involves
Rs. 120 (Assume 366 days a year). 10.
You have to determine the cash balance for your organisation that is optimal for covering all transactions & costs. How will you do that? 11.

Softeck Ltd., commences business on 1st April 2003 and deposits Rs. 1,00,000 in the SBI. The sum deposited would not be sufficient to finance its operations over a period of four months. As a company secretary, prepare a cash budget from 1st April 2003 to 31st July 2003, to ascertain company's bankers. Additional data: Furniture purchases – Rs. 10,000 prepared to be made in April 2003. Sales are made to one distributor only on 30 days terms 2 per cent discount and cheques are received on the first date of the following due date. Budgeted figures: Particulars April May June July Materials purchases 50,000 40,000 30,000 40,000 Cash expenses 4,000 5,000 4,000 4,000 Salaries 40,000 50,000 40,000 40,000 Sales 60,000 70,000 80,000 80,000 All purchases are made on net 30 days terms and cheques are posted to creditors on the last day of the month due. 12. Well Do Coy, has a policy to maintain a cash balance of Rs. 20,000 at the end of each quarter. Cash can be borrowed or repaid in multiplies of Rs. 500 at an interest rate of 10 per cent. Management does not want to borrow cash more than what is required and wants to repay as early as possible. In any event, loans cannot be extended beyond four quarters. Interest is computed and paid when the principal is repaid. Assume the borrowing take place at the beginning and repayments are made at the end of the quarters. Budget expenses: 1 st Qtr. 2 nd Qtr. 3 rd Qtr. 4 th Qtr. Opening cash balance 10,000 --- --- --- Collections 1,25,000 1,50,000 1,00,000 2,21,000 Raw materials 20,000 35,000 35,000 54,200 Other expenses 25,000 20,000 20,000 17,000 Wages 90,000 95,000 95,000 1,09,200 Income tax 5,000 --- --- --- Machinery --- --- --- 20,000 Prepare cash budget. Answers: Self Assessment 1. (a) Current assets (b) Liquid (c) Short-term, Long-term (d) Unproductive (e) Bank float (f) Lethargy 2. (a) False (b) True (c) False (d) True (e) True (f) False (g) True (h) True

Further Readings Books

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Chapter 15: Management of Surplus & Dividend Policy Objectives

This chapter on

Management of Surplus & Dividend Policy covers 1. Management of profits 2. Dividend policy 3. Different types of dividend policies,

advantages and dangers of stable dividend policy 4. Factors that influence a firm's dividend policy 5. Forms of dividend payment 6. Meaning of stock split 7. Bonus share and stock split

Introduction Finance is the life-blood of business, without which a firm cannot promote, maintain and expand and achieve its predetermined objective. Whether it is big, medium or small it needs finance.

Profit is the primary motivating force for any economic activity, a business enterprise essentially being an economic organization, it has to maximise the welfare of its stakeholders. To this end, the business undertaking has to earn profit from its operations. Profit is the excess of revenue over expenses on conducting operations. In fact, profits are useful intermediate beacon towards which a firm's capital should be directed. In this connection McAlpine rightly remarked that profit cannot be ignored since it is both, a measure of the success of business and the means of its survival and growth. To quote Bradly, "if an enterprise fails to make profit, capital invested is eroded and if this situations, prolongs the enterprise ultimately ceases to exist." A well organised profit planning programme will help towards maintaining a level of profit, which will ensure the concentration

of the business and fulfillment of other responsibilities. Certainly, profit growth coupled with high level of profit and the ability to maintain reasonable profit will help towards: 1. Ensuring that shareholders receive an adequate dividend; 2. Preserving the assets worth of the business; 3. Generating a sufficient cash flow out of profits to provide capital for expansion; and 4. Providing funds for research, and development of new and improved products to replace the existing products before they decline. 15.1

Management of Profits From the point of view of dividend decision it is better to call management of profits as management of earnings. Earnings mean net earnings available to equity shareholders from where a firm actually declares dividends or retain profits for financing of investment opportunities. Net earnings = Operating Profit – (Interest + Tax + Preference Dividend) Management of earnings means, how the earnings of a firm are determined and how they are utilised or appropriated or allocated or distributed. In other words, how the business firm apportions their earnings is between dividends and retentions for financing of investment opportunities. Retention of earning's also known as plough back of profits. Management of earnings is an important finance activity of a business undertaking. Since proper management of earnings helps to maximise shareholder's wealth. Particularly in Joint Stock companies where owners are different from the management team, who are selected/appointed by owners. Usually management team or Board of Directors (BoDs) does not distribute the total net earnings to the shareholders as dividends. They may retain a part of it for financing of investment opportunities or expansion

programmes by keeping future growth of the firm in mind. Management of earnings policy must maximise value of the firm, thereby maximise benefits to its owners. On the other hand improper retained earnings and absence of financial control measures are the indicators of inefficient management of earnings that may not help to maximise value of the firm, but they may lead to the liquidation of the company. When a corporation makes a profit, it can spend that profit in two ways: 1. Return the profits to stockholders by way of dividends, share buy-backs or bonus issues; 2. Use the money to increase the profitability of the company Example: A company makes a profit of

Rs.100.

It can pay this entire amount to stockholders who can then use that money as they think fit - spend on consumer items, make further investments, whatever. Or the company can use all that profit to invest in the business with a view to increasing profits in future years. Or the company can do a bit of both.

Surplus is the amount of profit remaining after tax and distribution to stockholders that is retained in a business and used as a reserve or as a means of financing expansion or investment. When sizing up a company's fundamentals, investors need to look at how much capital is kept from shareholders. Making profits for shareholders ought to be the main objective for a listed company and, as such, investors tend to pay most attention to reported profits. Sure, profits are important. But what the company does with that money is equally important. Typically, a portion of the profit is distributed to shareholders in the form of a dividend. What gets left over is called retained earnings or retained capital. Savvy investors should look closely at how a company puts retained capital to use and generates a return on it. It is sometimes rather loosely stated in management texts and business journals that 'retained profits are reinvested in the assets of the company' or that 'profits are ploughed back', thus giving management a reasonably cheap and easily accessible source of funds to finance growth. These 'internally generated funds' are easily accessible provided a company makes good profits, because directors can, within limits, choose dividend levels. They can choose to retain and use (reinvest) the resulting increase in company assets. The funds are also cheap because there are no costs involved in issuing more shares and no borrowing costs. What this really means is that the managers of profitable businesses have more assets to use in productive activities. Sometimes companies will convert part of retained profits into permanent share capital by issuing bonus shares to existing shareholders, free of any cash contribution (because the increase in assets from profit making has already been received). From a company viewpoint bonus shares have no effect on financing or investing activities The ability to use retained earnings wisely is a sign of good company management. If the company management cannot do any better with earnings than he can, then he is better off if the company pays him the full amount in dividends. In broad terms, capital retained is used to maintain existing operations or to increase sales and profits by growing the business. Some companies need large amounts of new capital just to keep running. Others, however, can use the capital to grow. When you invest in a company, you should make it your priority to know how much capital the company appears to need and whether management has a track record of providing shareholders with a good return on that capital. Fortunately, for companies with at least several years of historical performance, there is a fairly simple way to gauge how well management employs retained capital. Simply compare the total amount of profit per share retained by a company over a given period of time against the change in profit per share over that same period of time. When evaluating the return on retained earnings, you need to determine whether it's worth it for a company to keep its profits. If a company reinvests retained capital and doesn't enjoy significant growth, investors would probably be better served if the board of directors declared a dividend. Another way to evaluate the effectiveness of management in its use of retained capital is to measure how much market value has been added by the company's retention of capital. Suppose shares of Company A were trading at Rs.10 in 1993, and in 2003 they traded at Rs.20. Thus, Rs.5.50 cents per share of retained capital produced Rs.10 per share of increased market value. In

 other words, for every Rs.1 retained by management, Rs.1.82 (Rs.10 divided by Rs.5.50)

of market value was created. Impressive market value gains mean that investors can trust management to extract value from capital retained by the business. Managing and improving your cash flow should result in a cash surplus for your business. A cash surplus is the cash that exceeds the cash required for day-to-day operations. How you handle your cash surplus is just as important as the management of money into and out of your cash flow cycle. Caution Two of the most common uses of extra cash are: 1. Paying down your debt 2. Investing the cash surplus Like so many other things you do for your business, deciding where to use your cash surplus requires some planning and your better judgment. 1. Paying Down Debt: Paying down any debt you may have is generally the first option considered when deciding what to do with a cash surplus. Rightfully so because a short-term investment of your cash surplus is not likely to yield a return equal to or greater than the rate of interest on any of your debt. It doesn't make any sense to invest a cash surplus at 5 percent when you can pay down a bank loan that is charging interest at 12 percent. However, the decision to automatically pay down debt may not be correct in all cases. One of the key advantages of managing your cash flow is the ability to predict the future cash requirements for your business. That is, it should help you determine when your business may need to rely on external financing as a source of cash. The need for external financing may be the result of expanding your business, purchasing new property or equipment, or just getting you through a normal seasonal down period. Whatever the reason, preparing a cash flow budget is the best way of predicting these future needs for cash. With at least some indication of your future cash needs, you can then make some decisions regarding the best way to finance those needs. Example: You may feel that interest rates are relatively low at this time and that you look for them to rise in the near future. Therefore, instead of using your cash surplus to pay off a two-year loan at 10.5 percent, it may be beneficial to invest the surplus temporarily, and avoid a much higher interest rate on a bank loan one year from now. 2. Investing the Cash Surplus: When investing a cash surplus, it's only natural to seek the highest rate of return for your investment. Four factors must be considered when making your investment decisions: (a) Risk (b) Liquidity (c) Maturity (d) Yield Each factor plays an important role in determining the rate of return you receive on your invested cash surplus. These factors can also help you determine how much to invest and when to invest your surplus. There are many investment opportunities available for your cash surplus. You must consider the advantages and disadvantages as well as the levels of risk, maturity, liquidity, and the yields of each of your investment opportunities. The following are just a few of the investment opportunities you may have: (a) Checking accounts with interest (b) Sweep accounts (c) Treasury bills and notes (d) Certificates of deposit (CDs) and money market funds

Risk in Investing Surplus The investment of your cash surplus should never be speculative - that is, high risk. As in most businesses, your cash surplus may only be a temporary surplus of cash inflows over your cash outflows. Any permanent losses resulting from a high risk investment could be devastating, even to the point of making you unable to continue your business. The level of risk you are willing to accept ultimately determines the yield of your investment. A higher level of risk will generally provide you with a higher yield. On the other hand, a low level of risk will result in a lower yield on your investment. In some cases, you choose to invest in an investment with a higher level of risk to gain a higher yield. But as a rule, a conservative approach to the level of risk is recommended when investing your cash surplus. 15.2 Dividend Policy Since, management of earnings means allocation of earnings among dividends and plough of profits. The term 'dividend' refers to that portion of company's net earnings that is paid out to the equity shareholders (not for preference shareholders, since they are entitled to have a fixed rate of dividend). Dividend policy of a firm decides the portion of earnings is to be paid as dividends to ordinary shareholders and the portion that is ploughed back in the firm for investment purpose. The total net earnings of equity may be paid as dividends (100% dividend payout ratio), which may consequently result in slower growth and lower market price
or a part of net earnings may be paid as dividends, higher capital gains and higher market price. When a company uses a part of its net earnings for dividend payments then, the remaining earnings are retained.
Thus, there is an inverse relationship between retained earnings and
payment of cash dividend-the larger the cash dividends and lesser the retention, smaller the cash dividends and larger retentions.
Hence, the alternative use of net earnings or net profit dividends and retained earnings are competitive and conflicting. Dividend decision affects the value of the firm.
The cash available for the payment of dividends is affected by the firm's investment decision, and financing decision. A decision,
which is related to investment leads to less cash available for payment of dividends. Thus, there is a relation between investment decision and financing decision. Distribution of net earnings between dividends and retention would obviously affect owners' wealth. Now the company is in dilemma which alternative is consistent to maximise shareholders wealth. The firm has to pay dividends to shareholders if dividends lead to the maximisation of wealth for them, otherwise the company should retain them for financing profitable investment opportunities. 15.3 Types of Dividend Policies

Dividend decision of a firm is taken after taking into consideration, its operating and financial condition. When there are variations in these conditions the firm may require to adopt the one that is suitable for the present conditions. What are the different types of dividend policies available to the financial manager? The types of dividend policies are as follows: Stable Dividend Policy

stable dividend
means

Rs. 2 as a dividend on the face value of share of Rs. 10 each. The level of earnings would not affect this policy or the dividend payments. This type of dividend policy is more suitable for the company whose earnings are stable over a number of years. Stability of dividend does not mean stagnation in dividend payout. In fact, the prime feature of this policy is to study positive change.
316
Financial Management 2.
Constant
Payout Ratio:
The ratio of dividend to earnings is known as payout ratio.
In other words, dividend per share is divided by earnings per share to get dividend payout ratio. It is also known as constant percentage of net earnings. In this policy a fixed percentage of earnings are paid as dividends each year. Here the ratio is fixed or constant, but dividend per share varies according to the fluctuations in the earnings. Example: It a company follows a 30 per cent payout ratio it means for every one rupee of net earnings,
Re. 0.30, paid as dividends. Assume if a company earned Rs. 10 last year and Rs. 15
in the current year. Then the dividend amount for last year is Rs. 3 (10 × 30/100) and Rs. 4.5 (15 × 30/100) for the current year. The relationship between EPS and DPS is shown in Figure 15.1.
EPS EPS and DPS DPS (Rs.)
This policy is suitable for a company that is not confident getting stable earnings. 3. Stable Rupee Dividend plus Extra Dividend: Under this policy the management fixes the minimum dividend per share to reduce the possibility of net paying dividend. An extra dividend is paid in the years of prosperity. This type of policy is more suitable to the company having minimum earnings and over the minimum, the earnings may fluctuate. Advantages of Stable Dividend Policy A stable dividend policy is advantageous for both the company and the shareholders because: 1. Building Confidence among Investors: Payment of stable dividends may help the company in creating and building confidence among shareholders with regard to regularity. A company that follows stable dividend policy
will not change the amount of dividends, even though there are any variations in its earnings. Thus, when the earnings of a

firm go down, the company does not cut the amount of dividend. But to its presents investors, a very bright future, and thus, gains confidence of the shareholders. 2. Investors Desire for Current Income: A company may have many investor categories, of them a few groups of investors depend on dividend income to meet their portion of living expenses. Investor group may include old and retired persons etc., who require the current income. Their living expenses are fairly stable from the period to period increase over time. Therefore, sharp changes in dividend income may create a need to sell shares to get funds in order to meet current expenses and vice versa. Sale of securities involves inconvenience and it involves transaction costs. Stable dividend policy avoids sale of securities, which automatically avoids inconvenience and transaction cost, hence, such investors may prefer stable dividends. 3. Information about Firms Profitability: There is another reason for adopting a stable dividend policy that is, investors are thought to use dividends and the fluctuation in dividends as a source of information about the company's profitability. A growth in dividends indicates improved earnings prospects, a downward trend in dividends implies less earnings and stable dividends means unchanged prospects. In other words, the dividend decision of a firm resolves uncertainty in the minds of investors. Variation in dividend policy cannot resolve uncertainty in the investor minds. Hence, companies may tries to change dividend policy in response to a certain long-term changes in future prospects. 4. Institutional Investors Requirements: Companies shares are not only purchased by individuals but also institutional investors like LIC companies, GIC, MFs, educational institutes and social institutes. Normally, companies are very much

Figure 15.1: Relationship between EPS and DPS

interested to have these institutional investors in the list of their investors. Generally, this type of institutional investors have large size of their ingestible funds, these funds will be invested in the shares of those companies that have the record of paying stable dividends. So, to attract institutional investors a firm may prefer to adopt a regular or stable dividend policy. 5. Raising Additional Finances: This is another advantage to the company that is following a stable dividend policy, in raising external finance. Shares of this type of company appear as investment rather than a speculation. Investors, who invest in this type of company's shares, hold them for a long period of time and their loyalty and goodwill towards the firm increase by adoption of stable dividend policy. If the company wants to raise additional funds by issuing shares to the public, they would be more receptive to that offer. Example: Recently in beginning of the year 2004, the public issues of ONGC, ICICI, IPTCL, GAIL are over subscribed. Thus, rising of additional funds required by the firm becomes very easy, even with high premium. 6.

Stability in Market Price of Shares: Other things remains unchanged, the market price of shares varies with the stability in dividend rates. The share price of a firm having stable dividend policy may not have wide fluctuation on even if the earnings of the firms less than the past year. Thus, this is good for investors and the company. 7. Easy Availability of Debt Funds: If the company feels raising additional funds by issue of equity shares, leads to loss of control over the firm, it can easily raise funds from debt source. Because, the firm has been paying dividends regularly with stability, it becomes an assurance to the debenture holders, financial institutions and public (to invest in public deposits).

Limitations of Stable Dividend Policy In spite of the above discussed advantages the stable dividend policy suffers from certain limitations. They are: 1. Difficult to Change: Once

a stable dividend policy is established, it cannot be changed without affecting investors' attitude and financial position of the

company, in the minds of investor. 2. Adverse Effect on Market Price of Share: As we have discussed in the advantages, about the investors desire for current income to meet their living expenses, the investors who prefer or depend on stable dividends, may feel bad, when the firm cuts dividend, consequently they may sell some of their shares to fulfill the gap between expected dividend and the actual dividend received (negative dividend. This leads to the reduction in the share price. Hence, directors have to maintain stability in dividends, in lean years. 3. Long-Run Effect on Company: When a firm maintains stable dividend policy in lean years over a period of time with borrowed funds it may lead to death in the long-run. 15.4

Factors Influencing Dividend Policy Maximisation of owners' wealth is the objective of the financial manager's job. Whatever decision he/she takes, whether it is investment decision, financing decision or dividend decision, he/she has to maximise value of the firm. There is a positive relation between dividend policy of a firm and value of the firm that is payment of dividend affects the value (increases) of the firm. Dividend policy means, the formation of a policy by the company regarding the payment of dividend from profits to ordinary shareholders year to year. It determines the ratio between dividend and retained earnings. Then, what type of dividend policy do firms adopt? Whether it is 20 per cent, or 40 per cent or 80 per cent or any other percentage of earnings available to shareholders? The two important dimensions of dividend policy are, what should be the dividend payout ratio? How stable should the dividends be over time? The policy relating to dividend payout ratio and earnings retention varies not only from industry to industry but also among companies within a given industry and within a company from time to time. These variations are because of factors influencing/ affecting dividend policy. But financial executives have to make a balanced judgement between the financial needs of the company and desires of the shareholders. In other words, financial executive have to determine optimum dividend policy that
318 Financial Management should strike the

The determinants of dividend policy will vary from firm to firm.
The following are the various factors that have a bearing on the dividend policy: 1. Nature of Business: The nature of business has an important bearing on the dividend policy. The industrial units that are having stability of earnings may formulate (adopt) stable or a more consistent dividend policy than other that are having unstable earnings, because they can predict easily their earnings. Firms that are involved in necessities suffer less from stable incomes than the firms that are involved in luxury goods.
The industries/firms that are having stable earnings can adopt stable or high dividend policy, while the other firms that are having instable earnings should follow a variable or low dividend policy. 2.
Age of Company: The age of company has more impact on distribution of profits as dividends. A newly started and growing company may require much of its earnings for financing expansion programs or growth requirements and it may follow rigid dividend policy,
where in, most of the earnings are retained while an old company with good track record and good name in the public can formulate a clear cut and more consistent dividend policy. This type of companies may even pay 100 per cent dividend payout ratio and the required amount for growth can be raised from the public. 3.
Liquidity Position of Company: Generally dividends are paid in the form of cash, hence, it entails, cash.
Although, a firm may have sufficient profits to declare dividends, but
it may not
have sufficient cash to pay dividends. Thus,
availability of cash and sound financial position of the firm is an important factor in taking dividend decision.
The liquidity of a company depends very much on the investment and financial decisions of a firm, while in turn determining the rate of expansion and the manner of financing. If cash position of a firm is weak, stock dividend will be better and if cash position is good it can go for payment of dividend by cash. 4.
Equity Shareholders Preference for Current Income:
Legally, the Board of Directors has discretion to decide the distribution of the earnings of a firm. The shareholders who are legal owners of the
firm appoint the (BoDs). Hence, directors have to take into consideration owners' preferences, while deciding dividend payment.
Shareholders' preference for current dividends or capital gains, that is,

When shareholders' have more preference

policy, on the other hand if shareholders have preferred capital gains (it may be due to tax or economically sound) than the current dividend, then the firm may be required to retain more earnings. 5. Requirements of Institutional Investors: Institutional investors like LICs, GICs and Mutual Funds (UTI), have investment policy, which says that these type of institutes have to invest only in companies that have a continuous dividend payment record with stability. These purchase large blocks of shares for relatively, to hold a long period of time. Hence, they represent a significant force in the financial markets, and their demand for company's securities may increase the share price and there by owners' wealth. To attract institutional investors firms may require to follow stable dividend policy. Apart from theoretical postulates for the desirability of stable dividends, there are also many empirical studies, classic among them being that of Lintner, to support the viewpoint that companies pursue a stable dividend policy. Most firms are in favour of stable dividend per share but they are very careful not to raise dividends per share a level that can safely be sustained in, the future. This cautious creep up of dividends per share results in, stable dividend per share pattern during fluctuating earnings per share periods, and a rising step function pattern of dividends per share during increasing earning per share periods. 6.
Legal Rules: Legal rules restrictions are significant as they provide framework within which dividend policy is formulated. In other words, dividend policy of a firm has to be evolved within the legal framework and rules and regulations. The legal rules have to do with capital impairment rule, net profits and insolvency rule. (
a) Capital Impairment Rule: First these provisions require that,
the dividend can be paid from earnings either from current years earnings or from past years earnings and be reflected in the earned surplus.
If firm pays dividend out of capital, that adversely affects the security of its lenders. The purpose of this rule is to protect creditors (preference shareholders and creditors of the firm) by providing sufficient equity base because they have originally relied on that base. Therefore, the financial manager should keep in mind the legal rules while declaring dividends.
319 Chapter 15: Management of Surplus & Dividend Policy (b) Net Profits: This rule is essentially a result of the earlier rule.

According to
Sec. 205
of

recovery of depreciation'. But Central Government. is empowered to all (only in public interest)

A firm can take profits of past years if the current year's profits are not sufficient to maintain stable dividend policy. If there are any losses that are to be carried forward, they should be set apart from current years earnings before declaration of dividends. So financial manager has to strong within the boundaries, at the same time has

c) Insolvency Rule: A firm is said to be insolvent in two cases. One, in a legal sense, the recorded value of liabilities exceeding the recorded value of assets, or two, as in a technical sense, as the firm's inability to pay its creditors as obligations came due.

the payment of dividends. The rationale of this rule is to protect the creditors. 7. Contractual Requirements: Generally lenders may put conditions in a bond indenture or loan agreement often includes a restriction of the payment of dividend. This is done

The restrictions may be in three forms. Firstly, firms may be prohibited from paying dividends in excess to a certain percentage say 10 per cent. Secondly, a ceiling in terms of net profits that may be used for dividend payment may be laid down. Say only 50 per cent of net profits or a given absolute amount of net profits can be paid as dividends. Finally, dividends may be restricted by insisting upon a minimum of earnings to be retained. Reinvestment reduces debt equity ratio, which enhances the margin of pillow for the lenders. Therefore, keeping in mind all the restrictions of lenders dividend declaration should be done. 8.
Financial Needs of the Company: This is one of the key factors, which influence the dividend policy of a firm. Financial needs means funds required for foreseeable future investment.
The required funds may be determined with the help of long-term financial forecasts. A firm that has sufficient profitable investment opportunity, should follow low dividend payout ratio. On the other hand, a firm that has no profitable investment opportunities or few investment opportunities adopts high dividend payout ratio policy (that low retention) because owners can reinvest dividends elsewhere at higher rate of return then the firm can do, and nominal retention of profit is required to replace the modernize firm's assets. 9.
Access to the Capital Market (External Sources): Access to the capital market means the firms ability to raise funds from the capital market. A company, which has easy access to the capital market provides that flexibility in deciding dividend policy. Easy access is possible only to the companies that are well established and hence here a profit track record. Generally dividend policy and investment decisions are interrelated, but in this situation they are independent. The management may tempt to declare a high rate of dividend that attract investors and maintain existing shareholders. On the other hand, a firm that has difficulty in accessing capital market to raise required funds, will not be able to pay more dividends. It has to depend on internal funds, so management should follow a conservative dividend policy by maintaining a low rate of dividend and plough back a sizeable portion of profits to face any contingency. Likewise, the lending financial institutions advance loans in stiffer terms, it may be desirable to rely on internal sources of financing and accordingly conservative dividend policy should be pursued. 10.
Control Objective: Control over the company is also an important factor, which influences dividend policy. When a firm distributes more earning as dividends in the form of cash it reduces
its cash position. As a result, the firm will have to issue shares to
the public to raise funds required to finance investment opportunities that leads to loss of control, since, the existing shareholders will have to share control with new owners. Financing investment projects by way of internal source avoids, loss of control.
Hence, if the shareholders and management of the firms are reluctant to dilution of control, thus the firm should retain more earnings for investment programmes, by following conservative dividend policy. 11.
Inflation: Inflation is the state of economy in which the prices of products or goods have been increasing. Inflation is a factor that influences dividend policy indirectly. Indian accounting system is based on historical costs. The funds accumulated from depreciation may not be sufficient to replace the absolute asset or equipment, since depreciation is provided based on historical costs. Consequently, to replace assets and equipment, firm has to depend upon retained earnings, this leads to the payment of low dividend, during inflation period.
320 Financial Management 12. Dividend Policy of Competitors: Keeping one eye on competitors' dividend policy is very important. If the firm wants to retain the existing shareholders or it want to maintain share price in the market, and if it is planning to raise funds from public for expansion programs, it has to pay dividends at par with its competitors. Hence, it is one of the factors that influence dividend policy of a firm. 13.

Past Dividend Rates of the Company: This is the factor that influences the dividend policy of an existing company (that has already paid dividends). Owners' and prospective investors prefer stability in dividends. Stability of dividends means the payment of dividend regularly, at a constant dividend per share (it may be a fixed percentage on book value or a fixed percentage on earnings available to equity shareholders). Generally firms' tries to maintain stability in dividends that is based on past dividend rates of the company. Hence, directors will have to keep in mind the past dividend rates. 14. Others: Apart from the above discussed, there are some other factors, which influence dividend policy of a firm, such as Trade Cycles, Corporate taxation policy, attitude of investors group and repayment of loan. Caselet Rising Dividends can Support Valuations A a an investor, you would definitely savour this statistic if this stock were in your portfolio. General Electric, the American conglomerate, has paid quarterly dividends without interruption since 1899. Dividends at General Electric have been rising for 29 consecutive years now. A news report quoting the company's spokesman says that the policy followed by the company is for 'dividend growth in line with earnings growth'. In India, though, there are few companies that are as consistent in dividend payments, even over the past five years. Over the next few years, however, companies cannot afford to ignore dividends. There is even a case for higher dividend growth relative to profit growth, going forward. That could support valuations that have risen significantly over the past few years and produce long-term returns that are superior to debt and beat inflation. Source: thehindubusinessline.com 15.5
Forms of Dividends Dividend is the portion of earnings available to equity shareholders that equally (per share bias) is distributed among the shareholders.
General practice is to pay dividends in cash, this form may take place when the cash is available or during liquidity of the company. Sometimes firms may declare dividends in the form of Scrip, bond, stock and property dividends.
The following discussion deals with the different forms of dividends: 1. Cash Dividend: Generally many companies pay dividends in the form of cash. But payment of dividend in the form of cash requires enough cash in the bank or in hands. In other words, there should not be any shortage of cash for payment of dividends. Sufficient cash is available only when a company prepares cash budget to estimate the required amount for the period for which the budget is prepared. If the company finds any shortage of cash, it should make arrangements to borrow funds. But it may be difficult to prepare a cash budget with the expected amount needed for payment of dividends. 2. Scrip Dividend: In this form of dividends, the equity shareholders are issued transferable promissory notes for a shorter maturity period that may or may not be interest bearing. It is a simple payment of dividends in the form of promissory notes. Payment of dividend in this form takes place only when the firm is suffering from shortage of cash or weak liquidity position. Payment of dividends in the form of cash is justifiable only when the company has earned profits and it will take some time to convert current assets into cash. 3. Bond Dividend: Both scrip dividend and bond dividend are same, but they differ in terms of maturity. Bond dividends caries longer maturity whereas, scrip dividend carries shorter maturity. The effect of both forms of dividends on the company is the same. Bond dividend bears interest.

Property Dividend: The name itself suggests that payment of dividend takes place in the form of property. In other words, payment of dividends in the form of assets. This form of dividends takes place only when a firm has assets that are no longer necessary in the operation of business and shareholders are ready to accept dividend in the form of assets. This form of dividend payment is not popular in India. 5. Stock Dividend (Bonus Shares): Stock dividend is the payment of additional shares of common stocks to the ordinary shareholders. In other words, distribution of bonus shares to the stockholders instead of cash dividend.
It is known as stock dividend in USA to the existing shareholder. Bonus shares are shares issued to the existing shareholders as a result of capitalisation of resources.

reduces retention of earnings. But there would not be any change in net worth. Issue of bonus shares increases the number of outstanding shares. Distribution

When there is no wealth maximisation why do firms pay dividend in the form of bonus shares? 15.6 Reasons or Objectives for Issuing the Stock Dividend

Payment of dividend through issue of bonus share is a financial gimmick, since it will not affect the owners' wealth. Payment of dividend
through issue of bonus share by a firm takes place due to following reasons or objectives: 1. Issue of

issue

It increases the paid up

Recently, in 2004 Infosys has issued 3 bonus shares for every one-bonus share to the existing shareholders. 15.7 Advantages of Issue of Bonus Share As we have read in the above discussion, that

But in practices, it carries some advantages for both, to the company and to the shareholders. 1. Advantages to the Company: The following are some of the advantages enjoyed by the issuing company. (a) Conversion of Cash/Maintenance of Liquidity Portion: Issue of bonus share/stock will not reduce the cash position of firm. In other words, payment of dividend by way of stocks does not affect the cash position of the company. Through this form of dividends firms will be able to retain earnings and at the same time it can satisfy shareholders. So it can maintain liquidity position. (b) Only way to pay Dividends under Financial Difficulty and Contractual Restrictions: Some times companies when, there are no profits, will issue bonus shares just to justify the shareholders. Payment of dividend in the form of bonus shares at the difficult times does not convey the company's position to the shareholders and the investing community. This form of dividend payment is also necessary when there are restrictions from the loan granters to pay dividends in the form of cash. Hence, under the financial difficulty or contractual constraints from creditors to cash dividend, issue of stock dividend is needed to retain the confidence of the shareholders in the firm. (c) Attractive Share Price: Generally higher share price is attractive to investors, but it is not for small investors. Issue of bonus shares reduces market price of share and attracts small investors. Therefore, many companies follow issue dividends in the form of bonus shares. (d) Enhances Prestige: Though the payment of dividend by way of issue of stock, the company increases its borrowing capacity. The company, which pays stock dividend will increase credit standing in the market and it also increases the borrowing capacity of the company in the eyes of lending institutions.

322 Financial Management (e) Widening the Share for Market: A company that is interested in widening ownership shares, may pay dividend by way of issue of stock. Because of increased prestige of the firm, there will be a good demand for the share of the company. (f) Availability of Funds for Expansion Programme: Through the retention of profits, expansion programmes can be financed. As the retention takes place through the issue of stock dividend it becomes a permanent part of the capital structure of a company. Hence, it helps for expansion programmes. 2. Advantages to Owners' or Ordinary Shareholders: The following are some of the advantages enjoyed by the owners: (a) Tax Savings: Receipt of cash dividend involves payment of tax according to ordinary tax rates. By receipt of dividends in the form of stock dividend, there is no payment of tax. (b) Indication of Future Benefits: As we have seen in the above features, issue of bonus shares is an indication of profiteering. With payment of stock dividend the existing owner receives more shares. If the company maintains the present rate of dividend, the shareholders receive more income since their number of shares are increased. (c) Psychological Value: Receipt of bonus shares may have a favourable psychological impact on the investors. 15.8 Disadvantages of Stock Dividend/Bonus Share Apart from the above advantages, payment of dividend by way of stock dividends will have the following disadvantages: 1. Disadvantages for the Company (a) Payment of dividend in the form of stock dividend is costly when compared to cash form of dividends. Stock dividend invokes administrative costs, like printing certificates, and posting them to lakhs of shareholders. (b) The most important demerit of issue of stock dividend is adjusting Earnings Per Share (EPS) and Price Earnings ratio (PE Ratio).

75%	MATCHING BLOCK 127/151	SA	Financial Management.pdf (D165672210)

Investment analysts do not adjust the EPS share for small issue of bonus shares,

as a recent PE Ratio would decrease since

85%	MATCHING BLOCK 128/151	SA	Financial Management.pdf (D165672210)

the measured growth in earning per share will be less than the true growth based on adjusted

EPS. (c) It may prevent new investors from becoming the shareholders of the firm. (d) It may lead to misuse of management power, since there is no dilution of control. 2. Disadvantages for Shareholders (a) Disappointment of shareholders, who prefer dividend in the form of cash. (b) Shareholders wealth remains unaffected-

100%	MATCHING BLOCK 129/151	SA	Financial Management.pdf (D165672210)

bonus shares represent simply a division of corporate pie into a large number of pieces. (

c) Stack dividend or bonus shares issue lowers the market value of existing shares too. (d) Less security to investors, done to reduction in reserves 15.9 Stock Dividend (Bonus Share) and Stock Splits (Shares) Stock dividend or bonus shares are issued by firm to existing shareholders by conversion of reserves into capitalisation. Stock splits are an increase in

88%	MATCHING BLOCK 134/151	SA	22DCMBA22 - FINANCIAL MANAGEMENT - SLM.pdf (D138710806)

the number of shares outstanding by reducing the face value of the stock.

Example: Shares of Rs. 10 may split into two shares of Rs. 5 each.
323 Chapter 15: Management of Surplus & Dividend Policy 15.9.1 Comparison between Bonus Issue (Stock Dividend) and Stock Split 1. Par Value of Share: Is unchanged in issue of bonus share, whereas it is reduced in stock split. 2. Capitalisation of Reserves: Capitalisation (part of reserves) takes place in issue of bonus shares, whereas there is no capitalisation in stock split. 3. Shareholders' Proportion: There is no change in the shareholders' proportion; it remains unchanged in both cases (bonus issue as well as stock split). 4. Book Value, Earnings and Market Price per Share: In both cases book value, earnings and market price per share decline. 5.

100% **MATCHING BLOCK 131/151** SA Financial Management.pdf (D165672210)

Market Price per Share: The market price per share is

brought within a popular trading range, where as in stock split it is brought within a more popular trading range. 15.9.2

66% **MATCHING BLOCK 132/151** SA Financial Management.pdf (D165672210)

Reasons for Stock Split The following are the reasons for splitting of a firm's ordinary (equity) shares: 1.

61% **MATCHING BLOCK 133/151** SA Financial Management.pdf (D165672210)

To Make Share Trading Attractive: The prime reason of stock split is to reduce the market price

to the share, to attract small investors. In other words, firm provides broader and stable market for its stock. With stock split, the shares are placed in a more popular trading range that helps in providing marketability and liquidity to the firm's shares. 2. Indication

41% **MATCHING BLOCK 137/151** SA EFIN542 - U01 - D - Finalized.docx (D142426455)

of Higher Profits in the Future: Share split sends wrong signals to the investors that the firm is expecting higher profits in near future.

Blue chip or high growth firm's share price (market price) goes up very fast, that puts the firm's shares out of the popular trading range. To put shares in a popular range firms split shares periodically. 3. To give Higher Dividends to Shareholders: Share split is the only way through which

79% **MATCHING BLOCK 135/151** SA Financial Management.pdf (D165672210)

a company can increase or reduce the cash dividend per share proportionately. However, the total dividends of a shareholder increase after a share split.

Reverse Split It is quite opposite to the share split, where a company reduces

83% **MATCHING BLOCK 136/151** SA Financial Management.pdf (D165672210)

the number of outstanding shares to increase the market price per share.

For example, a company has 8 lakhs outstanding shares (equity) of Rs. 10 each. If company

55% **MATCHING BLOCK 138/151** SA EFIN542 - U01 - D - Finalized.docx (D142426455)

declares a reserve split, two for four. Now the company will have 4 lakh shares of Rs. 40 per share. 15.10

Dividend Policy and Valuation of the Firm
There are conflicting opinions as far as
the impact of dividend decision

60% **MATCHING BLOCK 139/151** SA FMG-301 Corporate Finance.pdf (D164737021)

on the value of the firm. According to one school of thought, dividends are relevant to the valuation of the firm. Others opine that dividends does not affect the value of the firm

and market price per share of the company. 15.10.1 Relevant Theory
If the choice of the dividend policy affects the value of a firm, it is considered as relevant.

In that case a change in the dividend payout ratio will be followed by a change in the market value of the firm.
If the dividend is relevant there must be an optimum payout ratio.
If the dividend is irrelevant, there must be an optimum payout ratio. Optimum payout ratio is that which gives highest market value per share. 15.10.2
Walter's Model (Relevant) Prof. James E Walter
argues
that the choice of dividend
payout ratio
almost always affects
the value of the firm Prof. Walter has very scholarly studied
the significance of the relationship between
internal rate of return (R) and cost of capital (K)
in determining
optimum dividend policy which maximizes the wealth of shareholders.
324
Financial Management Walters models
is based on the following assumptions: 1.
The firm
finances
its entire investments by means of retained
earning only. 2.
Internal rate or
return (R) and cost of capital (K) of the firm remains constant. 3. The
firms earning
are
either distributed
as
dividend
or reinvested internally. 4. Beginning earnings and dividends
of the firm will never change. 5.
The firm has a very long or infinite life.
P = ( ) D + r/k E – D K
P = Market price per share. D = Dividend per share
E = Earning per share R = Interest rate
per capital K = Cost of capital. According to the theory,
the optimum dividend policy depends on
the relationship between
the firm's internal rate of return and cost of capital.
If R<K , the firms should retain the entire earnings.
Walter's view on optimum dividend payout ratio can be summarized as below: 1. Growth Firms (R<K): The firms having R<K may be referred to as growth opportunities. These firms naturally can earn a return which is more than what shareholders could earn on their own. So optimum payout ratio for growth firm is 0%. 2. Normal Firms (R = K): If R is equal to
K
the firm is known as normal firm. These firms earn a rate of return which is equal to that of shareholders in this case dividend policy will not have any influence on the price per share. So there is nothing like optimum payout ratio for a normal firm. All the payout ratios are optimum. 3. Declining
Firms (
R>K):
If the company earns a return which is less than, what
the
shareholders can earn on their investments, it is known as declining firm. Here it should not make any sense to retain the earnings. So entire earnings
optimum payout ratio for a declining firms is 100%. So according to Walter the optimum payout ratio is either 0% (when R<K) or 100% (when R>K). Criticisms Walter's model based on certain assumptions, which are true for walter but not true in the real world. The following are the limitations of the Walter's model. 1. Walter assumes that there is no external financing. When R<K,

the firm must issue additional security and finance its profitable investments, if the company uses only retained earnings, all the profitable investments cannot be undertaken. So the investment decision of the firm will be sub-optimum. 2. Constant R, Internal rate of return cannot remain same. It actually diminishes as and when we make more and more investments. 3. Constant K, Cost of capital of a company cannot remain same. Risk of the company definitely changes with additional investments of retained earnings. Illustration 1: Given the following information about Sunrise Industries Ltd. Show the effect of the dividend policy on the market price per share, using Walter's model. EPS =
Rs. 8
325 Chapter 15: Management of Surplus & Dividend Policy
Cost of capital (K) = 12% Assumed rate of return (a) 15% (b) 10% (c) 12%
Solution: To
show
the effect of different dividend policies on the shareholders of the firm
for 15% and 12%, let us consider 0%, 25%, 50%, 75% and 100% payout ratios. 1. When R < K (15 < 12. At 0% payout ratio (dividend = 0) P = ? ? / – ?D R K E D K = 0 0.15/0.12(8 – 0) 0.12 ? = Rs. 83.33 At 25% payout ratio. P = 2 0.15/0.12(8 – 2) 0.12 ? = Rs. 79.16 At 50% payout ratio P = 4 0.15/0.12(8 – 4) 0.12 ? = Rs. 75 At 75% payout ratio P = 6 0.15/0.12(8 – 6) 0.12 ? = Rs. 70.83 At 100% payout ratio P = 8 0.15/0.12(8 – 8) 0.12 ? = 66.67 Therefore, when R<K, price share will be maximum at 0% payout ratio.
Price per share decreases as and when payout ratio is increased. 2.
When R >
K (10% > 12%) At 0% payout ratio P = 0 0.10/0.12(8 – 0) 0.12 ? =
Rs. 55.55
326 Financial Management
At 25%
payout ratio P = 2 0.10/0.12(8 – 2) 0.12 ? = Rs. 58.33
At 50% payout ratio P = 4 0.10/0.12(8 – 4) 0.12 + = Rs. 61.11 At 75% payout ratio P = 6 0.10/0.12(8 – 6) 0.12 + = Rs. 63.88 At 100% payout ratio P = 8 0.10/0.12(8 – 8) 0.12 ? = Rs. 66.66 Therefore, when R > K,
price
per
will be maximum at 100% payout ratio. Price per share increases as and when
the
payout ratio is increased. 3. When
R =
K (12% = 12%) At 0% payout ratio P = 0 0.12/0.12(8 – 0) 0.12 ? =
Rs. 66.66 At 25% payout ratio P = 2 0.12/0.12(8 – 2) 0.12 ? = Rs. 66.66 At 50% payout ratio P = 4 0.12/0.12(8 – 4) 0.12 ? = Rs. 66.66
At 75% payout ratio P = 6 0.12/0.12(8 – 6) 0.12 ? = Rs. 66.66 At 100% payout ratio P = 8 0.12/0.12(8 – 8) 0.12 ? = Rs. 66.66 Therefore, when R = K,
price
per share remains the same at all payout ratios. So, there is no
one-payout ratio, which is optimum.
327 Chapter 15: Management of Surplus & Dividend Policy 15.10.3
Gordon's Model Another theory, which contents that dividends are relevant, is the
Gordon's model.
This model which opines that
dividend policy of a firm affects its value
is based on
the following: Assumptions 1. The firm is an all equity firm (no
debt). 2.
There is no outside financing
and all investments are financed exclusively by retained earnings. 3. Internal rate of return (R) of the firm remains constant. 4. Cost of capital (K) of the firm also remains same regardless of the changes in the risk complexion of the firm. 5.
The firm derives its earnings in perpetuity. 6.
The retention ratio (b) once decided upon is constant. Thus, the growth rate (
g) is
also constant (
g=

b r). 7. K < g. 8.
A corporate tax does not exist. Gordon used the following formula to find out price per share P = ? ? 1 1– – r E b
K b P = price per share K = cost of capital E 1 = earnings per share b = retention ratio (1 – b) = payout ratio g = b r growth rate. (
r = internal rate of return) According to Gordon,
when
R < K, the price per share increases as the dividend payout ratio decreases.
When
R > K the price per share increases as the dividend payout ratio increases.
When R = K the prices per share remains unchanged in response to the change in the payout ratio. Thus,
Gordon's view on the optimum dividend payout ratio can be summarized as below: 1.
The optimum payout ratio for a growth firm (R ? K) is
zero. 2. There is no
optimum ratio for a normal firm (R = K). 3. Optimum payout ratio for a declining firm R > K is 100%. Thus, the Gordon's Model's conclusions about dividend policy are similar to that of Walter. This similarity is due to the similarities of assumptions of both the models.
328
Financial Management Notes Bird in Hand Argument (Dividends and Uncertainty) Gordon revised this basic model later to consider risk and uncertainty. Gordon's model, like Walter's model, contends that dividend policy is relevant. According to Walter, dividend policy will not affect the price of the share when R=K. But Gordon goes one step ahead and argues that dividend policy affects the value of shares even when R=K. The crux of

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Gordon's argument is based on the following two assumptions: 1. Investors are risk averse and 2. They put a premium on a certain return

and discount (
penalise) uncertain return.

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The investors are rational. Accordingly they want to avoid risk. The term risk refers to the possibility of not getting

the return on investment. The payment of dividends now completely removes any chance of risk. But if the firm retains the earnings the investors can expect to get a dividend in the future. But the future dividend is uncertain both with

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respect to the amount as well as the timing. The rational investors, therefore, prefer current dividend

to future

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dividend. Retained earnings are considered as risky by the investors. In case earnings are retained, the price per share would be adversely affected. This behaviour of investor is described as "Bird in Hand Argument".

A

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bird in hand is worth two in bush. What is available today is more important than what may be available in the future.

So the rational investors are willing to pay a higher price for shares on which more current dividends are paid. Therefore, the discount rate (K) increases with retention rate. Thus Gordon concludes that dividend policy affects the values of the shares even in a situation where R = K Illustration 2: If K = 11% and earnings per share is Rs.15.
Calculate the price per share of Sushma Ltd. For r = 12%, 11% and 10% for the following levels of D/P ratios: D/P ratios Retention ratio 1. 10% 90% 2. 30% 70% 3. 50% 50% Solution: 1. If R < K (12% < 11%) P = ? ? 1 1– –
r E b
K b (a) D/P ratio of 10%. Retention ratio = 90% P = ? ? 15 1– 0.9 0.11– 0.9 0.12 ? = Rs. 750 (b) D/P ratio of 30%. Retention ratio = 70% P = ? ? 15 1– 0.7 0.11– 0.7 0.12 ? =
Rs. 173.08
329 Chapter 15: Management of Surplus & Dividend Policy (c)
D/P ratio of 50%. Retention ratio = 50% P = ? ? 15 1– 0.7 0.11– 0.7 0.12 ? = Rs. 125 2. If R = K (11% = 11%) (a) D/P ratio of 10%. Retention ratio = 90% P = ? ? 15 1– 0.9 0.11- 0.9 0.11 ? P = Rs. 136.36 (b) D/P ratio of 30%. Retention ratio = 70% P = ? ? 15 1– 0.7 0.11– 0.7 0.11 ? P = Rs. 136.36 (c) D/P ratio of 50%. Retention ratio = 50% P = ? ? 15 1– 0.5 0.11– 0.5 0.11 ? P = Rs. 136.36 3. If R > K (10% > 11%) (a) D/P ratio of 10%. Retention ratio is 90% P = ? ? 15 1–0.9 0.11–0.9 0.10 ? P = Rs. 75 (b) D/P ratio of 30%. Retention ratio is 70% P = ? ? 15 1– 0.7 0.11– 0.7 0.10 ? P = Rs. 112.50 (c) D/P ratio 50%. Retention ratio = 50% P = ? ? 15 1– 0.5 0.11– 0.5 0.10 ?
P = Rs. 125 From the above it is clear that,
when R < K, the price per share increases and the payout ratio decreases,
if R = K price per share remains same at all payout ratios. When R > K, the price per share increases with the increases in the payout ratio. 15.10.4 Modigliani-Miller Model Irrelevance Theory
According to MM,
the
dividend policy of a firm is irrelevant, as it does not
affect the wealth of
shareholders.
The model which is based on certain assumptions, sidelined the importance of the dividend policy and its effect thereof on the share price of the firm. According to the theory,
the value of a firm depends solely on its earnings power
resulting from the investment policy
and not influenced by the manner in which its earnings are split between dividends and retained earnings.
330
Financial Management Assumption 1. Capital markets are perfect: Investors are rational as information is freely available, transaction cost are nil, securities are divisible and no investor can influence the market price of the share. 2. There are no taxes: No difference between tax rates on divisible and capital gains. 3. The firm has a fixed investment policy: Which will not change. So if the retained earnings are reinvested, there will not be any change in the risk of the firm. So K remains same. 4. Floatation costs does not exist. The substance of MM arguments may be stated as below: If the company retains the earnings instead of giving it out as dividends, the share holders enjoy capital appreciation, which is equal to the earnings, retained. If the company distributes the earnings by the way of dividends instead of retention, the shareholders enjoy the dividend, which is equal to the amount by which his capital would have been appreciated had the company chosen to retain the earnings. Hence, the division of earnings between dividends and retained earnings is irrelevant from the point of view of shareholders. Criticisms MM theory of division irrelevance is based on some assumptions. When these assumptions hold good, the conclusions derived by them are logically consistent and intuitively appealing. But the assumption will not hold water in the real world. So MM theory lacks practical relevance. The following are some of the limitations. 1. Tax differentials:
MM's assumption that taxes does not exist is far from reality.
Dividends are not taxed where as tax is levied on capital gains. So the shareholders may prefer dividend to capital gains. 2. Floitation cost: MM argue that payment of dividend and raising external funds are equivalent. This is not true in practice due to the presence of flotation costs. So a rupee of dividend cannot be replaced by a rupee by external funds. So it is advantageous to retain the earnings. 3. Transaction costs: In the absence of transition cost a rupee of capital value can be converted into a rupee of current income and vice versa. This implies that if the dividends are not paid, the shareholders desiring current income can sell a part of their holdings without incurring transaction cost. Because of the presence of the transaction cost, investors may prefer current dividend than retained earnings. 4. Diversification: If the company retains the earnings, investors cannot diversify their portfolios. As the investors are willing to pay a higher value to the company which pays more current dividend. 5. Uncertainty: MM argues that the prices
of the 2 firms which are exactly identical in all the respect except with the
dividend policy cannot be different. But this is not true due to "bird in hand argument". 6.

Informational content of dividend: (Financial Signaling) - According to this argument dividends contain some information vital to the investors. The payment of dividends conveys the information from the managers to the shareholders about the prospects and profitability of the company. When the company changes its dividend policy, investor will assume that it is in response to the expected changes in the firms' profitability which will last long. An increase in the payout ratio implies a permanent increase in the firms expected earnings and vice versa. So dividend policy becomes relevant because of informational value. MM accept the informational content of a dividend but still argue that dividends are irrelevant and that dividends are merely proxy for the expected future earnings, which really determines values. Or in other words dividend reflects the profitability of the company. They cannot by themselves determine the market value of the shares.

331 Chapter 15: Management of Surplus &

Dividend Policy The following is the information relating to the acquiring company (A) and the Target Company (T): A T Earnings after Tax (EAT) (Rs). 50,00,000 10,00,000 Number of shares 5,00,000 2,00,000 Earnings per shares (Rs) 10 5 P/E Ratio 15 10 Market price per share (Rs) 150 50 Based on the evaluation of T, A has agreed to offer

Rs. 65 per share

to T. This is 30% premium over the pre-merger market price of Rs. 50. If the offer price is

Rs. 65,

exchange ratio is determined as below: ER = Offer price Share price of the acquires = 65 150 = 0.4333

share

So A will issue 0.4333 shares for every one share of the target company. The total number of shares to be issued is exchanged ratio × number of shares of T Company. 0.4333 × 2,00,000 = 86666 shares Earnings per shares of the surviving company after the merges is calculated as below. = Combined earnings Total number of shares = Rs. 60,00,000 5,00,000 +86666 In the above case the EPS of A has increased from Rs. 10 to

Rs. 10.22 Assuming that the offer price of Rs. 65

is rejected by the target company. So A company will offer Rs. 90 per shares to the target company. Now the exchange ratio would be: ER = 90 150 = 0.60

share

So 0.6 shares of A must be issued for every shares of T company. Total number of shares to be issued is 0.6 × 2,00,000 = 120,000 shares. Now EPS of the surviving company after the merger would be: EPS = 60,00,000 5,00,000 +1,20,000 = Rs. 9.67 So when the offer prices is

Rs. 90

per shares, the EPS of the A company falls to Rs. 9.67 from Rs. 10. 15.11

Criteria for Delusion in EPS The dividend policy of a company determines what proportion of earnings is distributed to the shareholders by way of dividends, and what proportion is ploughed back for reinvestment purposes. Since the main objective of financial management is to maximise the market value of equity shares, one key area of study is the relationship between the dividend policy and market price of equity shares. There are few models available to show the above relationship, these are briefly described as follows:

332 Financial Management 15.11.1 Dividend Policy-Stability Stability of dividends depends on the payout policy followed by the companies. 15.11.2 Stable Dividend Payout Ratio According to this policy, the percentage of earnings paid out as dividends remains constant irrespective of the level of earnings. Thus, as earnings of a company fluctuates, dividends paid by it also fluctuates accordingly. The following Figure 15.2 shows the behaviour of dividends in case this policy is adopted: Dividends Earnings Earnings/ Dividends Time 15.11.3 Stable Dividends/Steadily Changing Dividends According to this policy, dividends in rupee terms mostly remain constant irrespective of the level of earnings. Most of the times, it is gradually increased over a period. The following Figure 15.3 shows the profile of dividend payout according to this policy. Most of the business firms uses this policy. Dividends Earnings Earnings/ Dividends Time Rationale for Stability of Dividend Most of the firms follow stable dividends or gradually increasing dividends due to following reasons: 1. Many investors consider dividends

Hence, they prefer a predictable pattern of dividends rather than a fluctuating pattern. A fall in the dividend income may lead to sale of some shares, on Figure 15.2: Behaviour of Dividends Figure 15.3: Profile of Dividends

333 Chapter 15: Management of Surplus & Dividend Policy the other hand when the dividend income increases, an investor

the cases involve transaction cost and inconvenience for investor. Hence they, prefer regular dividends. 2. The dividend policy of firms

In addition, stable dividends are signs of stable earnings of the company. On the other hand, varying dividends lead to uncertainty in the mind of shareholders. 3. Certain investors mainly

they decide on the investment in that particular firm. 15.12 Practical Aspects of Dividend Policy While deciding on the dividend policy, firms face two questions: 1. What should be the average pay ratio? 2. How stable should the dividends be over time? Firms consider the following factors to determine the payout ratio: 1. Funds requirement: The dividend payout ratio of firms depends on the firm's future requirements for funds. Long term financial forecasting of funds can assess this requirement. Usually firms, which have plans for substantial financial investment, need funds to exploit the available opportunities. Thus, they keep their dividend payout ratio low. On the other hand, firms, which have very few investment avenues have larger dividend pay out ratio. 2. Liquidity: It is another factor which influences the dividend payout ratio as dividends involve cash payment. Firms, which desire to pay dividends may not do so, because of insufficient liquidity. This usually happens in the case of profitable and expanding firms, which have very low liquidity because of substantial investments. 3. Availability of external sources of financing: Firms which have easy access to external sources of funds enjoy a great deal of flexibility in deciding the dividend payout ratio. For such firms, dividend payout decision is somewhat independent of its investment decision as well as its liquidity position. Such firms are usually more generous in their dividend policies. While on the other hand, firms, which do not have an easy access to external sources of funds, have to rely on the internal sources of funds or investment purposes. Such firms are usually very conservative in their dividend policy decisions. 4. Shareholder preference: Preferences of shareholder are another major factor, which influence dividend payout. If shareholders prefer current income to capital gains, then the firm may follow the liberal dividend policy. While on the other hand, if they prefer capital gain to dividend income, then firms follow the conservative dividend policy. 5. Difference in the cost of external equity and retained earnings: The cost of equity in all cases except for those raised by way of rights issue is higher than the cost of retained earnings. Depending on the extent of this difference in cost, firms decide the relative proportion of external equity and the retained earnings to be used. This affects the dividend policy decision of the company. 6. Control: Raising money from external resources may lead to dilution of control, in case money is raised by issuing public equity. Internal financing on the other hand does not lead to any dilution of control. Hence, if management and shareholders are averse to dilution of control, then firms prefer to rely more on retained earnings. Thus, such companies may adopt, the conservative dividend policy. 7. Taxes: In India dividend income for the individuals is free, however capital gains are taxable. Thus, in that case shareholders who are in high tax bracket may prefer dividend income rather than capital gains. However, if tax on dividends is viewed from point of view of corporates, they have to pay dividend tax. Thus, this may influence the companies' dividend policy. 15.12.1 Employee Stock Option Plan (ESOP) ESOP (Employee Stock Option Plan) is a stock option conferring an employee the right to purchase the share of the company at a set price, after a set period of time.

334 Financial Management Advantages of ESOPs ESOPs provide advantages like aligning the interest of the managers with those of the owners. It is a non-cash compensation tool to compete for the best human resources. The main advantage is the accounting advantage that gives an opportunity to the corporate to pay, without a reduction in book profits. US GAAP (Generally Accepted Accounting Principles) laid by FASB (Financial Accounting Standard Board), is the standard setting body of the US. India also follows this standard for new instruments like ESOP. Variations in Option Value using Black and Scholes Model There are five variables that could change the option value: 1. Fall in the share price at the time of announcement of ESOP. 2. Increase of the exercise price. 3. Use of lower interest rate. 4. Use of lower standard deviation. 5. Use of shorter vesting period. Costs Companies may sell shares to their employees under ESOP in any of three ways: 1. Sell from treasury stocks 2. Sell after issuance of new shares 3. Buyback shares and sell. All these options either bear opportunity cost or borrowing cost. Any method will dilute control for the owners. In some cases, a corporate may resort to borrowing for buyback and get into a debt trap that is not beneficial. SEBI Guidelines A guideline issued by the SEBI for stock options requires companies to show expenses in either of the following ways: 1. Show in the form of option discount (difference between issue price and exercise price). 2. The fair value of the option measured by the Black and Scholes model. The accounting value as measured above should be accounted as employee compensation and has to be amortised on a straight- line basis over the vesting period. An individual should evaluate the choice of a stock option with respect to personal as well as external factors. Factors to Consider While Adopting ESOPS Personal Factors 1. Financial situation 2. Tax bracket 3. Net worth

335 Chapter 15: Management of Surplus & Dividend Policy 4. Objectives 5. Acceptable level of risk 6. Need for cash External Factors 1. Opportunity of investing in other instruments and their return in comparison to risk. 2. Prospects for an increase in value of the company's stock. Importance of Understanding ESOP As an employee of a company whose stock is publicly traded, you may earn benefits. However, choices are available with respect to: 1. The timing of your stock option exercises (say, you have 3 months exercise period for ESOP. You have to decide the time to exercise the option to the utmost profit) 2. Whether to hold or sell acquired shares (they affect your overall financial security.) Therefore, it is critical that you understand the potential effects of these decisions before taking actions. To Maximise the Benefits of ESOPs To maximise the potential benefit, you need to consider numerous factors: 1. Quantify the decision after factoring 2. Specific tax bracket 3. Anticipated values of company stock options 4. Targeted rate of return on other assets 5. Coordinate these decisions with respect to your overall financial needs and long-term goals 6. Facilitate wealth management, as company stock options will form a significant portion of your net worth Each corporate compensation award programme is unique. Likewise every individual has concerns specific to his/her financial situation. It is important to review your stock option awards in the context of your overall financial picture. 15.12.2 Shares Buyback The buying back of outstanding shares (repurchase) by a company in order to reduce the number of shares on the market. Companies will buyback shares either to increase the value of shares still available (reducing supply), or to eliminate any threats by shareholders, who may be looking for a controlling stake. A buyback is a method for company to invest in itself since it can't own itself. Thus, buybacks reduce

Buybacks can be carried out in two ways: 1. Shareholders may be presented with a tender offer whereby they have the option to submit (or tender) a portion or all of their shares within a certain time-frame and at a premium to the current market price. This premium compensates investors for tendering their shares rather than holding on to them. 2. Companies buy back shares on the open market over an extended period of time. Task Critically examine the legal and procedural aspects of dividends according to the company's law.

336 Financial Management

Case Study

Ramesh Products T his case allows the reader to apply the concept of future EPS in evaluating a course of action in terms of its effect on the market value of the firm's common stock. Ramesh Products (RKP) is a medium-sized producer of chemicals and vinyl coating used in a variety of industrial processes. The company's main facilities are located in an industrial park in East Baltimost, a central site by a rail line that is linking the firm with its major customers on the east coast. Last year the firm recorded over $200 million in sales, showed a net income of $53 million and concluded a very successful year. For the coming year, the firm expects a 15 per cent improvement in sales and operating income figures. The firm's management committee, consisting of the president and the vice-presidents of production, marketing, and finance, will be meeting with in a week to discuss a major new activity for the next year. Products has been invited to bid on a long-term contract to produce a line of plastics for a large chemical company in Wilmington, Delaware. It appears that the firm can easily get the $50 million contract which should yield an additional $14 million in operating income. These figures are for next year only, and the firm estimates even higher sales and profits in the future. Chowdhary vice-president of finance, has been studying the financial data related to the new line of plastics. The production manager knows of a small plastic company located about three miles from RKP's facilities. The plastics company has all the equipment needed to produce the new line of plastics; the company is for sale for $104 million. This price represents largely the value of the assets, since the company has lost its only large contracts. Chowdhary Prasad has discussed the purchase of this plastics company with a local real estate agent and has confirmed that it is available for $100 million. Chowdhary Prasad figures that RKP has sufficient working capital to add the new plastics line but does not have the cash to buy the 100 million of machinery and equipment needed to begin the production. Discussion with a representative of a large Baltimore bank reveals that RKP can borrow $39 million through a 12 per cent mortgage on its main facilities. A mortgage company has indicated that it would help finance the plastic machinery with a $51 million, 13.6 per cent mortgage. Chowdhary Prasad is considering these choices but knows that RKP has traditionally kept its debt-asset ratio below 41 per cent. He does not want to borrow if the additional debt causes the ratio to exceed 41 per cent. Chowdhary Prasad discussed equity financing with RKP's investment banker on a recent trip to New Jersy City. He learned that the firm could probably issue upto $150 million in 15 per cent preferred stock or class A common stock. If the common stock were offered, it could net $20 per share to RKP. Chowdhary Prasad called new Jersy and confirmed that these options were still open to the firm. In making decision on new investments, Chowdhary Prasad believes in the validity of the future-earnings per share technique. He knows that RKP has traditionally traded at a 6/1 price-earning multiple and he expects that this will hold. Thus, if a new project increases future earnings per share, it will increase the value of the firm for its shareholders. Question According to the future earning share approach and after detailed analysis what do you feel about the plastic project. Is it worth while to accept. 15.13

Summary ?

Profit is the primary motivating force for any economic activity, business enterprise. ?

Profit growth coupled with high level of profit and the ability to maintain reasonable profit will help towards ensuring that shareholders receive an adequate dividend. ?

Earnings mean net earnings available to equity shareholders from where a firm actually declares dividends or retain profits for financing of investment opportunities.

337

Chapter 15: Management of Surplus & Dividend Policy ?

Management of earnings means how the earnings of a firm are be determined and how they are utilized or appropriated or allocated or distributed. ?

The

term 'dividend' refers to that portion of company's net earnings that is paid out to the equity shareholders (not for preference shareholders, since they are entitled to have a fixed rate of dividend). ? Dividend policy of a firm decides the portion of earnings to be paid as dividends to ordinary shareholders and what portion is ploughed back in the firm for investment purpose. ?

Payment of dividend through issue of bonus share is a financial gimmick, since it will not affect the owners' wealth. ?

Stock dividend is advantages for company and the owners. ? Stock dividend is also beneficial to owners by tax savings, indication of future benefits, psychological value. ?

Stock split is done to make share trading attractive, indication

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of higher profits in the future, give higher dividends to shareholders. 15.14

Keywords Dividends: It refers to that portion of company's net earnings that is paid out to the equity shareholders.

Profit: It is the excess of the revenue over the expenses on conducting the operations.

Dividend Policy: It decides the portion of earnings to be paid as dividends to ordinary shareholders and what portion is ploughed back in the firm for investment purpose.
Stability: it
refers to the consistency or lack of variability in the stream of
dividend payments.
Payout
Ratio: The ratio of dividend to earnings is known as payout ratio.
Inflation: It
is the state of the
economy in which the prices of the products have been increasing.
Scrip Dividend: It is the dividend payment method in the form of promissory note. Stock Dividend: It is the payment of the additional shares of common stocks to the ordinary shareholders.
Capital Charge: It is the minimum rate of return necessary to compensate shareholders & lenders for the risk of their investment in a company. 15.15 Self Assessment 1. Fill in the blanks: (a)
Dividend refers to that portion of company's ..... that are paid out to the equity shareholders. (
b) Distribution of profits between dividends and retained earnings affects the ..... of the firm. (c) Investors' desire for current income is one of the advantages of ..... policy. (d) Making share trading attractive is one of the reasons of ..... (
e) .....
is the payment of additional shares of common stock to ordinary shareholders. (
f) ..... promises to pay the shareholders at a future date. (g) Usual forms of paying dividend is ..... 2. State whether the following statements are true or false: (a)
Capital impairment rule says that dividends can be paid from capital. (
b)
Sec. 205 of the Companies Act says that dividends can be declared only from current
year's profits or from past reserves after providing depreciation.
338 Financial Management (c)
Payment of dividend is prohibited when the firm is insolvent. (
d) Stock dividend affects the liquidity position of
the firm. (e) There is no relation between financing decisions and dividend decision. (
f)
Management of earnings has nothing to do with retention of profits. (
g) Reduction in the number of outstanding shares is known as reverse split. 15.16 Review Questions 1. Analyse the factors that affects the dividend policy of a firm. 2. Analyse the reasons why companies resort to the stock split. 3. '

the scrip dividend to the corporates & to the investors. 5. What is stable dividend policy? Discuss the different forms of stable dividend policy. 6.
Do you think payment of dividend is an obligation for the corporates? Justify. 7. '
Payment of dividend involves legal considerations'. Discuss. 8. '
Stock dividends are unfair to those stockholders who desire cash income'. Comment. 9.
Analyse the practical aspect of the dividend policy for the corporates. 10. Which dividend policy in your opinion is most favourable for the corporates? Why? 11. Analyse the relevance of different theories of dividend for a corporate. 12. "EVA has a closer correlation to changes in shareholders value when compared to EPS & ROE." Do you agree? Justify it.
Answers: Self Assessment 1. (a) Net earnings (b) value (c) Stable dividend (d) Stock split (e) Stock dividend (f) Scrip dividend (g) Cash 2. (a) F (b) T (c) T (d) F (e) F (f) F (g) T 15.17
Further Readings
Books
Sudhindra Bhat,
Financial Management, New Delhi, Excel Books, 2008. Van Horne, J.C. and Wachowicz, Jr, J.M., Fundamentals of Financial Management, New Delhi, Prentice Hall of India Pvt. Ltd., 1996, p. 2.
Chandra, P., Financial Management - Theory and Practice, New Delhi, Tata McGraw Hill
Publishing

Company Ltd., 2002, p. 3.

Hit and source - focused comparison, Side by Side

Submitted text As student entered the text in the submitted document.

Matching text As the text appears in the source.

1/151 **SUBMITTED TEXT** 23 WORDS **75%** **MATCHING TEXT** 23 WORDS

financial management. If the plan adopted, fails to provide adequate capital to meet the requirements of fixed and working capital and particularly the latter,

SA Financial management MBA.docx (D131769892)

2/151 **SUBMITTED TEXT** 19 WORDS **61%** **MATCHING TEXT** 19 WORDS

finance is required at each stage of the business such as promotion, incorporation, development, expansion and management of day-to-day

SA Financial management MBA.docx (D131769892)

3/151 **SUBMITTED TEXT** 35 WORDS **29%** **MATCHING TEXT** 35 WORDS

the management to evaluate the profitability of the plan in the given circumstances, so that a proper decision can be taken to minimize the risk. 4. Solutions to financial problems: Efficient Financial Management helps the top management

SA Financial Management BBAS 42.docx (D162572120)

4/151 **SUBMITTED TEXT** 80 WORDS **100%** **MATCHING TEXT** 80 WORDS

at the end of each year, for six years. The project thus involves a cash outflow of Rs. 1,00,000 in the 'zero year' and cash inflows of Rs. 20,000 per year, for six years. In order to decide, whether to accept or reject the project, it is necessary, that the present value of cash inflows received annually for six years is ascertained and compared with the initial investment of Rs. 1,00,000. The firm will accept the project only when the present value of

SA FMG-301 Corporate Finance.pdf (D164737021)

5/151 **SUBMITTED TEXT** 101 WORDS **70%** **MATCHING TEXT** 101 WORDS

Rs. 1,158 [Rs. 1000(1+0.05) 3] and so on. 0 1 2 3 4 5 Rs. 500 Rs. 1,000 Rs. 1,500 Rs. 2,000 Rs. 2,500.00 Rs. 2,100.00 Rs. 1,654.50 Rs. 1,158.00 Rs. 608.00 Rs. 8,020.50

SA JSNR_SSOU_BBA_Introduction to Financial Managment_Pages 250.pdf (D27370343)

6/151 **SUBMITTED TEXT** 14 WORDS **84%** **MATCHING TEXT** 14 WORDS

Time Value of Money: Time value of money is that the value of

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

7/151 **SUBMITTED TEXT** 24 WORDS **72%** **MATCHING TEXT** 24 WORDS

of Bills: Bills receivable arises out of sales transaction, where the seller of goods draws the bill on the purchaser. The bill may be

SA SLM FM 01-01-2019.docx (D46702128)

8/151 **SUBMITTED TEXT** 16 WORDS **65%** **MATCHING TEXT** 16 WORDS

of the bill, bank presents the bill to drawee (acceptor) for payment. If the bill is

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

9/151 **SUBMITTED TEXT** 36 WORDS **43%** **MATCHING TEXT** 36 WORDS

The following are the modes of security required by a bank: 1. Hypothecation: Under this arrangement, the loan applicant is provided money against the security of movable property, usually inventories. The owner/loan applicant does not transfer the

The following are the modes of security which a bank may require. Hypothecation Under hypothecation, the borrower is provided working capital finance by the bank against the security of movable property, generally inventories. The borrower does not transfer the

SA Financial Management.pdf (D165672210)

10/151 **SUBMITTED TEXT** 12 WORDS **100%** **MATCHING TEXT** 12 WORDS

is merely a charge against property for the amount of debt.

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

11/151 **SUBMITTED TEXT** 21 WORDS **65%** **MATCHING TEXT** 21 WORDS

dues to the bank, the banker may realize his due by sale of the goods hypothecated. 2. Pledge: Under this arrangement, the

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

12/151 **SUBMITTED TEXT** 16 WORDS **85%** **MATCHING TEXT** 16 WORDS

borrower is required to transfer the physical possession of the goods/property to the bank as security.

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

13/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

right of lien and can retain the possession of goods

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

14/151 **SUBMITTED TEXT** 53 WORDS **52%** **MATCHING TEXT** 53 WORDS

the hypothecation and pledge some times banks ask for mortgage as collateral security. Mortgage is the transfer of legal or equitable interest in a specific immovable property for the payment of a debt. In this arrangement, the possession of property remains with the owner/loan applicant, but the full legal title is transferred to the

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

15/151 **SUBMITTED TEXT** 14 WORDS **88%** **MATCHING TEXT** 14 WORDS

the bank can get decree from the court to sell the immovable property

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

16/151 **SUBMITTED TEXT** 10 WORDS **MATCHING TEXT** 10 WORDS

capital is one of the cheapest sources of long-term finance.

100%

SA Financial Management_COmpressed.pdf (D127714570)

17/151 **SUBMITTED TEXT** 38 WORDS **61%** **MATCHING TEXT** 38 WORDS

debentures, and they are treated as synonym. According to the Companies Act 1956, the term debenture includes, "debenture stock, bonds and other securities of a corporate concern, whether contributing a charge on the assets of a corporate or not".

SA 22DCMBA22 - FINANCIAL MANAGEMENT - SLM.pdf (D138710806)

18/151 **SUBMITTED TEXT** 15 WORDS **93%** **MATCHING TEXT** 15 WORDS

Life Insurance Corporation of India (LIC), General Insurance Corporation (GIC), Unit Trust of India (UTI),

Life Insurance Corporation of India (LIC) • General Insurance Corporation of India (Unit Trust of India (UTI) •

W http://www.sasurieengg.com/e-course-material/MBA/I-Year-Sem-2/BA7202%20FINANCIAL%20MANAGEMENT.pdf

19/151 **SUBMITTED TEXT** 14 WORDS **88%** **MATCHING TEXT** 14 WORDS

Trade Credit: It refers to the credit extended by the supplier of goods

SA FMG-301 Corporate Finance.pdf (D164737021)

20/151 **SUBMITTED TEXT** 13 WORDS **83%** **MATCHING TEXT** 13 WORDS

letter of credit is one that can be withdrawn by the issuing

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

21/151 **SUBMITTED TEXT** 47 WORDS **75%** **MATCHING TEXT** 47 WORDS

E(R i) = R f + ? i (R m – R f) Where, E(R i) = Expected rate of return of portfolio R f = Risk free rate of return

SA FMG-301 Corporate Finance.pdf (D164737021)

22/151 **SUBMITTED TEXT** 15 WORDS **70%** **MATCHING TEXT** 15 WORDS

return expected by the investor. The rate of return expected by the investor consists of

SA 023E1220, 119E1220,193E1220-Financial Management.pdf (D165201752)

23/151 **SUBMITTED TEXT** 22 WORDS **64%** **MATCHING TEXT** 22 WORDS

Price of the bond at the beginning of the year: Rs. 90, Price of the bond at the end of the year:

price of the share in the beginning of the year and P 1 is the price of the share at the end of the year.

SA Financial Management.pdf (D165672210)

24/151 **SUBMITTED TEXT** 16 WORDS **62%** **MATCHING TEXT** 16 WORDS

rate of return. The real rate of return is generally equal to the rate of return

SA Financial management MBA.docx (D131769892)

25/151 **SUBMITTED TEXT** 12 WORDS **88%** **MATCHING TEXT** 12 WORDS

the possibility that an investment's actual return will be different than expected.

SA FMG-301 Corporate Finance.pdf (D164737021)

26/151 **SUBMITTED TEXT** 14 WORDS **76%** **MATCHING TEXT** 14 WORDS

expected return is a weighted average of the expected returns of its securities,

Expected Return is the weighted average of the expected returns of the securities

W http://www.sasurieengg.com/e-course-material/MBA/I-Year-Sem-2/BA7202%20FINANCIAL%20MANAGEMENT.pdf

27/151 **SUBMITTED TEXT** 22 WORDS **54%** **MATCHING TEXT** 22 WORDS

Assets) The risk of a security is measured in terms of variance or standard deviation of its returns. The portfolio risk is

assets, the risk of a portfolio could be measured in terms of its variance or standard deviation. As stated earlier, the portfolio return is

SA Financial Management.pdf (D165672210)

28/151 **SUBMITTED TEXT** 15 WORDS **90%** **MATCHING TEXT** 15 WORDS

Risk means you have the possibility of losing some, or even all, of your original investment.

SA SLM FM 01-01-2019.docx (D46702128)

29/151	SUBMITTED TEXT	35 WORDS	52%	MATCHING TEXT	35 WORDS

of the market as a whole. The CAPM is usually expressed:
E(R i) = R f + ? i ?(E(R m) – R f) ?(

SA FMG-301 Corporate Finance.pdf (D164737021)

30/151	SUBMITTED TEXT	44 WORDS	50%	MATCHING TEXT	44 WORDS

R f +?? i (R m – R f) Where, E(R i) = Expected rate of return on any individual security (or portfolio of securities)
R f = Risk free rate of return

SA FMG-301 Corporate Finance.pdf (D164737021)

31/151	SUBMITTED TEXT	29 WORDS	84%	MATCHING TEXT	29 WORDS

Company has 50,000 preference shares of Rs. 100 at par outstanding at 11 per cent dividend. The current market price of the share is Rs. 90. What is its cost?

company has 100,000 shares of at par preference shares outstanding at 9.75 per cent dividend The current market price of the preference share is Rs 80. What is its cost? 4.

SA Financial Management.pdf (D165672210)

32/151	SUBMITTED TEXT	13 WORDS	87%	MATCHING TEXT	13 WORDS

Further, the weight given to each of these features will differ from

Further, the emphasis given to each of these features will differ from

SA Financial Management.pdf (D165672210)

33/151	SUBMITTED TEXT	15 WORDS	90%	MATCHING TEXT	15 WORDS

irredeemable debentures of Rs. 100 each for Rs. 10,00,000. The tax rate is 35

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

34/151	SUBMITTED TEXT	16 WORDS	96%	MATCHING TEXT	16 WORDS

A Company's expected net operating income (EBIT) is Rs. 1,00,000. The company has

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

35/151	SUBMITTED TEXT	22 WORDS	87%	MATCHING TEXT	22 WORDS

Value of debt (B) (Rs.) 5, 00,000 Total Value of the firm (S+B=V) (Rs.) 9,00,000 Overall cost of capital (EBIT/V) 11.1%

SA JSNR_SSOU_BBA_Introduction to Financial Managment_Pages 250.pdf (D27370343)

36/151	SUBMITTED TEXT	37 WORDS	32%	MATCHING TEXT	37 WORDS

is the required rate of return on equity, or cost of equity. 2. r 0 is the cost of capital for an all equity firm. 3. r D is the required rate of return

is the required rate of return or the cost of capital. In terms of Equation (1), the cost of capital is the internal rate of return,

SA Financial Management.pdf (D165672210)

37/151	SUBMITTED TEXT	30 WORDS	63%	MATCHING TEXT	30 WORDS

equity 0.17 Value of equity shares (S = NI / K e) (Rs.) 13,82,352 Value of debt (Rs.) 15,00,000 Value of the firm (V)(

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

38/151	SUBMITTED TEXT	21 WORDS	97%	MATCHING TEXT	21 WORDS

VL = VU + BT VL = Value of levered firm VU = Value of unlevered firm B = Amount of debt

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

39/151	SUBMITTED TEXT	19 WORDS	81%	MATCHING TEXT	19 WORDS

The value of a levered firm is: Value of unlevered firm + PV of tax shield - PV of financial distress 7.10

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

40/151 **SUBMITTED TEXT** 137 WORDS **97%** **MATCHING TEXT** 137 WORDS

Pecking order theory of capital structure states that firms have a preferred hierarchy for financing decisions. The highest preference is to use internal financing (retained earnings and the effects of depreciation) before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage. If a firm must use external funds, the preference is to use the following order of financing sources: debt, convertible securities, preferred stock and common stock (Myers, 1984). This order reflects the motivations of the financial manager to retain control of the firm (since only common stock has a 'voice' in management), reduce the agency costs of equity, and avoid the seemingly inevitable negative market reaction to an announcement of a new equity issue (

SA FMG-301 Corporate Finance.pdf (D164737021)

41/151 **SUBMITTED TEXT** 125 WORDS **98%** **MATCHING TEXT** 125 WORDS

the pecking order theory are two key assumptions about financial managers. The first of these is asymmetric information, or the likelihood that a firm's managers know more about the company's current earnings and future growth opportunities than do outside investors. There is a strong desire to keep such information proprietary. The use of internal funds precludes managers from having to make public disclosures about the company's investment opportunities and potential profits to be realized from investing in them. The second assumption is that managers will act in the best interests of the company's existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project's value to new shareholders at the expense of the old (

SA FMG-301 Corporate Finance.pdf (D164737021)

42/151 **SUBMITTED TEXT** 23 WORDS **80%** **MATCHING TEXT** 23 WORDS

x–I) (1–0.5) ES = 2 (x–1) (1–0.5) ES + x (1–0.5) (1,00,000 50000) = (x–50,000) (1–0.5) 1,00,000 0.5x 1,50,000 = 0.5x–25000 1,00,000 50,000x = 75,000x – 3,75,00,00,000 3,75,00,00,000 = 75,000x – 50,000x = 25,000x x = 3,75,00,00,000/25,000 x =

SA JSNR_SSOU_BBA_Introduction to Financial Managment_Pages 250.pdf (D27370343)

43/151 **SUBMITTED TEXT** 86 WORDS **64%** **MATCHING TEXT** 86 WORDS

an all equity structure, consisting of 15,000 equity shares of Rs. 100 each. The management is planning to raise another Rs. 25 lakh to finance a major expansion programme and is considering three alternative methods of financing. (a) To issue 25,000 equity shares of Rs. 100 each. (b) To issue 25,000, 8% debentures of Rs. 100 each. (c) To issue 25,000, 8% preference shares of Rs. 100 each. The company's expected EBIT will be Rs. 8 lakh. Assuming a corporate tax rate of 46 percent. Determine the EPS in each

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

44/151 **SUBMITTED TEXT** 58 WORDS **79%** **MATCHING TEXT** 58 WORDS

Interest (20,00,000 × 0.10) 2,00,000 EBT 2,00,000 180 Financial Management Operating leverage = Contribution ÷ EBIT = 12,00,000 ÷ 4,00,000 = 3 Financial leverage = EBIT ÷ EBT = 4,00,000 ÷ 2,00,000 = 2 Combined leverage = OL × FL = 3 × 2 = 6 The

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

45/151 **SUBMITTED TEXT** 11 WORDS **95%** **MATCHING TEXT** 11 WORDS

Self Assessment State whether the following statements are true or false: 1.

SA SLM FM 01-01-2019.docx (D46702128)

46/151 **SUBMITTED TEXT** 17 WORDS **100%** **MATCHING TEXT** 17 WORDS

Fixed Cost = Situation A, Rs. 1000; Situation B, Rs. 2000; Situation C, Rs. 3000 185

SA JSNR_SSOU_BBA_Introduction to Financial Managment_Pages 250.pdf (D27370343)

47/151 **SUBMITTED TEXT** 71 WORDS **77%** **MATCHING TEXT** 71 WORDS

Calculation of Cash Flows After Taxes (CFAT) Particulars Rs. Sales revenue Less: Variable cost xxx xxx Contribution Less: Fixed cost xxx xxx Earning Before Depreciation and Taxes (EBDT) Less: Depreciation xxx xxx Earning Before Taxes (EBT) Less: Taxes xxx xxx Earnings After Tax (EAT) Add: Depreciation xxx xxx Cash Flows After Tax (CFAT) or

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

48/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

It does not value projects of different economic lives. 4. It

SA 023E1220, 119E1220,193E1220-Financial Management.pdf (D165201752)

49/151 **SUBMITTED TEXT** 39 WORDS **88%** **MATCHING TEXT** 39 WORDS

Rs. 1,00,000. Its stream of income before depreciation and taxes during first year through five years is Rs. 1,00,000, Rs. 1,20,000, Rs. 1,40,0000, Rs. 1,60,000 and Rs. 2,00,000. Assume a 50 per cent tax rate and depreciation on straight-line basis.

Rs 40,000. Its stream of earnings before depreciation, interest and taxes (EBDIT) during first year through five years is expected to be Rs 10,000, Rs 12,000, Rs 14,000, Rs 16,000 and Rs 20,000. Assume a 50 per cent tax rate and depreciation on straight-line basis.

SA Financial Management.pdf (D165672210)

50/151 **SUBMITTED TEXT** 13 WORDS **100%** **MATCHING TEXT** 13 WORDS

It uses arbitrary cut-off as yardstick or standard for acceptance or rejection rule.

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

51/151 **SUBMITTED TEXT** 54 WORDS **65%** **MATCHING TEXT** 54 WORDS

Determine the accounting rate of return from the following data of two machines A and B. Machine A (Rs.) Machine B (Rs.) Original cost 56,125 56,125 Additional investment in networking capital 5,000 6,000 Estimated life in years 5 5 Estimated salvage value 3,000 3,000 Average income-tax rate (%) 55 55 Annual

SA fm final.pdf (D143651884)

52/151 **SUBMITTED TEXT** 23 WORDS **63%** **MATCHING TEXT** 23 WORDS

In case of NPV method, the discount rate is the required rate of return and that is predetermined, usually by cost of capital,

SA Financial management MBA.docx (D131769892)

53/151 **SUBMITTED TEXT** 52 WORDS **81%** **MATCHING TEXT** 52 WORDS

It may give results inconsistent with NPV method. This is especially true in case of mutually exclusive projects, i.e, projects where acceptance of one would result in the rejection of the other. Such conflict of results arises due to the following: (a) Differences in cash outlays (b) Unequal lives of projects (c) Different pattern of cash flows.

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

54/151 **SUBMITTED TEXT** 20 WORDS **57%** **MATCHING TEXT** 20 WORDS

But they differ in the sense, that the results regarding the choice of assets are under certain circumstances mutually contradictory.

SA FINANCIAL MANAGEMENT.docx (D133842920)

55/151 **SUBMITTED TEXT** 101 WORDS **88%** **MATCHING TEXT** 101 WORDS

characteristics should be possessed by a sound investment criterion. 1. It should consider all cash flows to determine the true profitability, 2. It should provide for an objective and unambiguous way of separating good projects from bad projects, 3. It should help ranking of projects according to their true profitability, 4. It should recognize the fact that bigger cash flows are preferable to smaller ones and early cash flows are preferable to later ones, 5. It should help to choose among mutually exclusive projects that particular project which maximizes the shareholders' wealth, 6. It should be a criteria, which is applicable to any conceivable investment project independent of others.

characteristics should also be possessed by a sound investment evaluation criterion: 18 ? It should consider all cash flows to determine the true profitability of the project. ? It should provide for an objective and unambiguous way of separating good projects from bad projects. ? It should help ranking of projects according to their true profitability. ? It should recognise the fact that bigger cash flows are preferable to smaller ones and early cash flows are preferable to later ones. ? It should help to choose among mutually exclusive projects that project which maximises the shareholders' wealth. ? It should be a criterion which is applicable to any conceivable investment project independent of others.

SA Financial Management.pdf (D165672210)

56/151 **SUBMITTED TEXT** 26 WORDS **88%** **MATCHING TEXT** 26 WORDS

be rejected. 5. The situations in which the two methods will give a concurrent accept or reject decision will be in respect of conventional and independent projects. 6.

SA MBAFT-6204 Corporate Finance.pdf (D164622149)

57/151 **SUBMITTED TEXT** 17 WORDS **87%** **MATCHING TEXT** 17 WORDS

Rs. 50000 and it generates cash inflows of Rs. 10000, Rs. 20000, Rs. 30000 and Rs. 10000.

SA 023E1220, 119E1220,193E1220-Financial Management.pdf (D165201752)

58/151 **SUBMITTED TEXT** 12 WORDS **76%** **MATCHING TEXT** 12 WORDS

the following: (a) Payback period (b) Average rate of return (c) Internal rate of return (

SA FF credit and SLM-DSC3.pdf (D165131346)

59/151 **SUBMITTED TEXT** 18 WORDS **61%** **MATCHING TEXT** 18 WORDS

company is considering the purchase of machines. Two machines P and Q each costing Rs. 50,000 are available.

SA fm final.pdf (D143651884)

60/151 **SUBMITTED TEXT** 29 WORDS **82%** **MATCHING TEXT** 29 WORDS

Rs.) 3,50,000 7,00,000 75,000 Variable Cost per unit (Rs.) 1.00 7.5 0.1 Interest Expenses (Rs.) 25,000 40,000 ---- Selling Price per unit (Rs.) 3.00 25.00 0.50

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

61/151 **SUBMITTED TEXT** 14 WORDS **88%** **MATCHING TEXT** 14 WORDS

net present value of Project B is higher than that of Project A.

SA fm final.pdf (D143651884)

62/151 **SUBMITTED TEXT** 12 WORDS **87%** **MATCHING TEXT** 12 WORDS

pessimistic and optimistic cash inflows and the resultant net present value, the

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

63/151 **SUBMITTED TEXT** 16 WORDS **100%** **MATCHING TEXT** 16 WORDS

Analysis of the impact of the change in each of the variables on the project's

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

64/151 **SUBMITTED TEXT** 14 WORDS **90%** **MATCHING TEXT** 14 WORDS

pessimistic, most likely and optimistic estimates of the annual cash inflows associated with each project.

SA JSNR_SSOU_BBA_Introduction to Financial Managment_Pages 250.pdf (D27370343)

65/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

Which project do you consider should be selected by the

SA JSNR_SSOU_BBA_Introduction to Financial Managment_Pages 250.pdf (D27370343)

66/151 **SUBMITTED TEXT** 13 WORDS **76%** **MATCHING TEXT** 13 WORDS

net present value of Project B is more than that of Project A.

SA fm final.pdf (D143651884)

67/151 **SUBMITTED TEXT** 15 WORDS **83%** **MATCHING TEXT** 15 WORDS

pessimistic, most likely and optimistic. But it does not indicate the chances of occurrence of

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Ouriginal by Turnitin

68/151	SUBMITTED TEXT	13 WORDS	88%	MATCHING TEXT	13 WORDS

relationship between a present decision and possible future events, future decisions and their

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

69/151	SUBMITTED TEXT	13 WORDS	88%	MATCHING TEXT	13 WORDS

relationship between a present decision and possible future events, future decisions and their

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

70/151	SUBMITTED TEXT	22 WORDS	79%	MATCHING TEXT	22 WORDS

Prof. Hampton, "Decision tree is a graphic display of relationship between a present decision and possible future events, future decisions and their

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

71/151	SUBMITTED TEXT	13 WORDS	88%	MATCHING TEXT	13 WORDS

trading and finance firms have a very small investment in fixed assets, but

Trading and financial firms have a very small investment in fixed assets, but

SA Financial Management.pdf (D165672210)

72/151	SUBMITTED TEXT	14 WORDS	75%	MATCHING TEXT	14 WORDS

the firm's marginal tax rate is 40% and the appropriate discount rate for the

SA FMG-301 Corporate Finance.pdf (D164737021)

73/151	SUBMITTED TEXT	17 WORDS	100%	MATCHING TEXT	17 WORDS

The critical fact, however is that the need for increased working capital funds does not follow

SA FMG-301 Corporate Finance.pdf (D164737021)

74/151	SUBMITTED TEXT	12 WORDS	100%	MATCHING TEXT	12 WORDS

A high net profit margin contributes towards the working capital pool.

SA SLM FM 01-01-2019.docx (D46702128)

75/151 **SUBMITTED TEXT** 41 WORDS **58%** **MATCHING TEXT** 41 WORDS

risk reducing investment strategy involving transactions of a simultaneous but opposing nature that counter balance the effect of each other with reference to finance mix, the term hedging can be said to refer to the process of matching maturing of debt with the

SA FMG-301 Corporate Finance.pdf (D164737021)

76/151 **SUBMITTED TEXT** 15 WORDS **65%** **MATCHING TEXT** 15 WORDS

for temporary current assets, the idle funds (long-term) can be invested in the marketable securities

for temporary current assets, the idle long-term funds can be invested in the tradable securities

SA Financial Management.pdf (D165672210)

77/151 **SUBMITTED TEXT** 13 WORDS **75%** **MATCHING TEXT** 13 WORDS

permanent current assets should be financed by long-term funds and temporary current assets

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

78/151 **SUBMITTED TEXT** 19 WORDS **65%** **MATCHING TEXT** 19 WORDS

Aggressive Approach A firm is said to be aggressive, when it uses more short-term funds than warranted by the

SA FMG-301 Corporate Finance.pdf (D164737021)

79/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

if the company does not have enough cash to pay

SA FINANCIAL MANAGEMENT.docx (D133842920)

80/151 **SUBMITTED TEXT** 18 WORDS **63%** **MATCHING TEXT** 18 WORDS

the time length between the payment for suppliers of raw materials and the collection of cash for sales,

SA fm final.pdf (D143651884)

81/151 **SUBMITTED TEXT** 20 WORDS **57%** **MATCHING TEXT** 20 WORDS

Aggressive Approach, a firm is said to be aggressive, when it uses more short-term funds then warranted by the

SA FMG-301 Corporate Finance.pdf (D164737021)

82/151 **SUBMITTED TEXT** 20 WORDS **65%** **MATCHING TEXT** 20 WORDS

Aggressive Approach: A firm is said to be aggressive, when it uses more short-term funds than warranted by the

SA FMG-301 Corporate Finance.pdf (D164737021)

83/151 **SUBMITTED TEXT** 25 WORDS **56%** **MATCHING TEXT** 25 WORDS

the basic premise of the hedging approach to finance funds requirements. What are the effects of this approach on the profitability and risk? 11. Examine the

SA FMG-301 Corporate Finance.pdf (D164737021)

84/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

Earnings Before Tax (EBT) Less: Tax Earnings After Tax (EAT)

SA Financial Management BBAS 42.docx (D162572120)

85/151 **SUBMITTED TEXT** 20 WORDS **70%** **MATCHING TEXT** 20 WORDS

It is generally expressed in terms of a net data [i.e., if a firm's credit terms are "net 60"], it

SA SLM FM 01-01-2019.docx (D46702128)

86/151 **SUBMITTED TEXT** 17 WORDS **73%** **MATCHING TEXT** 17 WORDS

lengthening of credit period increases sales by inducing existing customers to purchase more and attracting new customers.

SA FF credit and SLM-DSC3.pdf (D165131346)

87/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

Earnings Before Tax (EBT) Less: Tax Earnings After Tax (EAT)

SA Financial Management BBAS 42.docx (D162572120)

88/151 **SUBMITTED TEXT** 13 WORDS **83%** **MATCHING TEXT** 13 WORDS

The company's cost of capital is 12% and the tax rate is 40%.

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

89/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

Earnings Before Tax (EBT) Less: Tax Earnings After Tax (EAT)

SA Financial Management BBAS 42.docx (D162572120)

90/151 **SUBMITTED TEXT** 14 WORDS **83%** **MATCHING TEXT** 14 WORDS

is 15%. The proportion of sales on which currently customers take discount is 1%.

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

91/151 **SUBMITTED TEXT** 17 WORDS **90%** **MATCHING TEXT** 17 WORDS

c) Cash Discount Period: It refers to the duration in which the discount can be availed

SA FF credit and SLM-DSC3.pdf (D165131346)

92/151 **SUBMITTED TEXT** 12 WORDS **87%** **MATCHING TEXT** 12 WORDS

of cash discount period will result in late collection of funds, because

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

93/151 **SUBMITTED TEXT** 17 WORDS **100%** **MATCHING TEXT** 17 WORDS

the effect on collection period with the increased cost associated with additional customers availing the discount. 3.

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

94/151 **SUBMITTED TEXT** 21 WORDS **76%** **MATCHING TEXT** 21 WORDS

some alternative facilities. Customer may be asked to pay after delivery of goods, or invoices may be sent through bank and

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

95/151 **SUBMITTED TEXT** 18 WORDS **97%** **MATCHING TEXT** 18 WORDS

a year. The opening debts are Rs.2 lakhs and closing debtors are Rs.2,10,000. Determine Debtors turnover and ACP. 272

SA FF credit and SLM-DSC3.pdf (D165131346)

96/151 **SUBMITTED TEXT** 22 WORDS **100%** **MATCHING TEXT** 22 WORDS

Solution: Debtors Turnover Ratio = Rs. 20,00,000 × (Rs.2,00,000 + Rs.2,10,000)/ 2 = 9.75 times ACP = 365 × 9.75 = 37.43 Days 3.

SA FF credit and SLM-DSC3.pdf (D165131346)

97/151 **SUBMITTED TEXT** 19 WORDS **81%** **MATCHING TEXT** 19 WORDS

is helpful for identifying slow paying debtors, with which firm may have to encounter a stringent collection policy. The

SA FF credit and SLM-DSC3.pdf (D165131346)

98/151 **SUBMITTED TEXT** 133 WORDS **94%** **MATCHING TEXT** 133 WORDS

the carrying costs and time. 5. Control investment in inventories and keep it at an optimum level. Notes Apart from the above, the following are also objects of inventory management. Control of materials costs, elimination of duplication in ordering by centralization of purchasers, supply of right quality of goods of reasonable prices, provide data for short-term and long-term for planning and control of inventories. Therefore, management of inventory needs careful and accurate planning so as to avoid both excess and inadequate inventory in relation to the operational requirement of a firm. To achieve higher operational efficiency and profitability of a firm, it is very essential to reduce the amount of capital locked up in inventories. This will not only help in achieving higher return on investment by minimizing tied-up working capital, but will also improve the liquidity position of the enterprise. 13.5

SA Financial Management BBAS 42.docx (D162572120)

99/151 **SUBMITTED TEXT** 31 WORDS **100%** **MATCHING TEXT** 31 WORDS

Ltd. uses quarterly 50,000 units of raw materials. Cost of raw materials is Rs. 100 per unit, cost of placing an order is Rs. 100 and carrying cost is 9 per

SA FF credit and SLM-DSC3.pdf (D165131346)

100/151 **SUBMITTED TEXT** 25 WORDS **88%** **MATCHING TEXT** 25 WORDS

inventory items should be listed in the descending order of unit value and it is up to the management to fix limits for three categories.

SA Financial Management BBAS 42.docx (D162572120)

101/151 **SUBMITTED TEXT** 12 WORDS **87%** **MATCHING TEXT** 12 WORDS

of scarcity of supply of inventories. Here 'S' refers to 'scarce' inventory

SA FF credit and SLM-DSC3.pdf (D165131346)

102/151 **SUBMITTED TEXT** 25 WORDS **74%** **MATCHING TEXT** 25 WORDS

that are available indigenously but are difficult to procure. 'E' refers to items, which are easy to acquire and are available in the local markets. 287

SA FF credit and SLM-DSC3.pdf (D165131346)

103/151 **SUBMITTED TEXT** 14 WORDS **100%** **MATCHING TEXT** 14 WORDS

from stores. FSN stands for fast moving (F), slow moving (S), and non-moving (N).

SA FF credit and SLM-DSC3.pdf (D165131346)

104/151 **SUBMITTED TEXT** 16 WORDS **79%** **MATCHING TEXT** 16 WORDS

to be examined further. Non-moving items may be examined further and their disposal can be considered. 13.9.9

SA FF credit and SLM-DSC3.pdf (D165131346)

105/151 **SUBMITTED TEXT** 22 WORDS **84%** **MATCHING TEXT** 22 WORDS

the Float: Float is the amount of money tied up in cheques that have been written, but have yet to be collected.

SA Financial management MBA.docx (D131769892)

106/151 **SUBMITTED TEXT** 17 WORDS **85%** **MATCHING TEXT** 17 WORDS

difference between the balance in firms cash book (bank column) and balance in passbook of the bank.

SA GE Fundamentals of Financial Management Combine.pdf (D143725429)

107/151 **SUBMITTED TEXT** 15 WORDS **75%** **MATCHING TEXT** 15 WORDS

Maturity: Maturity refers to the time over which interest and principle amount are to

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

108/151 **SUBMITTED TEXT** 15 WORDS **75%** **MATCHING TEXT** 15 WORDS

less than Rs. 4 crore, as per latest balance sheet, (ii) the company should have

SA Adv. Fin. Mgt.M.com I semester.docx (D146751116)

109/151 **SUBMITTED TEXT** 21 WORDS **56%** **MATCHING TEXT** 21 WORDS

bank(s) or all India Financial Institutions (IFIs), (iii) the company should have been classified as a Standard Asset by the financing

SA FMG-301 Corporate Finance.pdf (D164737021)

110/151 **SUBMITTED TEXT** 16 WORDS **85%** **MATCHING TEXT** 16 WORDS

has a policy of maintaining a cash balance (minimum) of Rs. 1,00,000. The standard deviation

SA Financial management MBA.docx (D131769892)

111/151 **SUBMITTED TEXT** 21 WORDS **83%** **MATCHING TEXT** 21 WORDS

The term "stability" refers to the consistency or lack of variability in the stream of dividend payments. In more precise terms,

SA Financial management MBA.docx (D131769892)

112/151 **SUBMITTED TEXT** 37 WORDS **35%** **MATCHING TEXT** 37 WORDS

payment of a certain minimum amount of dividend regularly. There are three distinct forms of stability, they are: 1. Constant Dividend per Share: A company that follows this policy will pay a fixed amount per share as dividend. Example:

SA FMG-301 Corporate Finance.pdf (D164737021)

113/151	SUBMITTED TEXT	16 WORDS	100%	MATCHING TEXT	16 WORDS

depend on their economic status and the effect of tax differential on dividends and capital gains.

depend on their economic status and the effect of tax differential on dividends and capital gains.

SA Financial Management.pdf (D165672210)

114/151	SUBMITTED TEXT	43 WORDS	78%	MATCHING TEXT	43 WORDS

balance between current dividends and future growth which maximizes the price of the firm's shares. The dividend payout ratio of a firm should be determined with reference to two objectives - first maximisation of shareholders' wealth and second providing sufficient funds to finance growth.

SA FMG-301 Corporate Finance.pdf (D164737021)

115/151	SUBMITTED TEXT	15 WORDS	70%	MATCHING TEXT	15 WORDS

in current dividend than capital gains, the firm may be required to follow liberal dividend

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

116/151	SUBMITTED TEXT	18 WORDS	67%	MATCHING TEXT	18 WORDS

the Companies Act, 1956, dividends shall be declared or paid only from current profits or past profits after

the Indian Companies Act provides that dividend shall be declared or paid only out of the current profits or past profits after

SA Financial Management.pdf (D165672210)

117/151	SUBMITTED TEXT	18 WORDS	86%	MATCHING TEXT	18 WORDS

any company to pay dividends for any financial year out of profits of the company without providing depreciation.

any company to pay dividend for any financial year out of the profits of the company without providing for depreciation.

SA Financial Management.pdf (D165672210)

118/151	SUBMITTED TEXT	17 WORDS	75%	MATCHING TEXT	17 WORDS

to consider many financial variables and constraints in deciding the amount that is to be paid as dividends. (

to consider many financial variables and constraints in deciding the amount of earnings to be distributed as dividends.

SA Financial Management.pdf (D165672210)

119/151	SUBMITTED TEXT	18 WORDS	61%	MATCHING TEXT	18 WORDS

A firm can pay cash dividends within the limits of current profits plus accumulate balance of retained earnings.

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

120/151	SUBMITTED TEXT	13 WORDS	96%	MATCHING TEXT	13 WORDS

to protect their interests when the firm is experiencing low liquidity or profitability.

to protect their interests when the firm is experiencing low liquidity or low profitability.

SA Financial Management.pdf (D165672210)

121/151	SUBMITTED TEXT	12 WORDS	95%	MATCHING TEXT	12 WORDS

If the firm is insolvent in either sense, it is prohibited

SA Financial management MBA.docx (D131769892)

122/151	SUBMITTED TEXT	33 WORDS	54%	MATCHING TEXT	33 WORDS

of bonus shares is done proportionately. Payment of dividend in the form of bonus share does not affect the wealth of owners', since earnings per share and market price per share will fall proportionately.

of bonus shares increase the wealth of shareholders? Normatively speaking, the issue of bonus shares does not affect the wealth of shareholders. The earnings per share and market price per share will fall proportionately

SA Financial Management.pdf (D165672210)

123/151	SUBMITTED TEXT	14 WORDS	96%	MATCHING TEXT	14 WORDS

The declaration of bonus shares will increase the paid up share capital and

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

124/151 **SUBMITTED TEXT** 23 WORDS **63%** **MATCHING TEXT** 23 WORDS

bonus share tends to bring the market price per share within a more popular range. 2. It promotes more active trading, since the

SA FMG-301 Corporate Finance.pdf (D164737021)

125/151 **SUBMITTED TEXT** 21 WORDS **55%** **MATCHING TEXT** 21 WORDS

increases the number of outstanding shares. 3. It reduces the nominal rate of dividend, which may attract the impression of profiteering. 4.

SA FMG-301 Corporate Finance.pdf (D164737021)

126/151 **SUBMITTED TEXT** 51 WORDS **70%** **MATCHING TEXT** 51 WORDS

share capital and the company may achieve more respectable size in the eyes of the investors. 5. Shareholders regard a bonus issue as a firm indication that the prospects of the firm as brightened and they can reasonably look for an increase in total dividends. 6. It improves prospects of raising additional funds.

SA FMG-301 Corporate Finance.pdf (D164737021)

127/151 **SUBMITTED TEXT** 15 WORDS **75%** **MATCHING TEXT** 15 WORDS

Investment analysts do not adjust the EPS share for small issue of bonus shares,

investment analysts do not adjust the earnings per share for small issues of bonus shares.

SA Financial Management.pdf (D165672210)

128/151 **SUBMITTED TEXT** 17 WORDS **85%** **MATCHING TEXT** 17 WORDS

the measured growth in earning per share will be less than the true growth based on adjusted

the measured growth in the earnings per share will be less than the true growth based on the adjusted

SA Financial Management.pdf (D165672210)

129/151 **SUBMITTED TEXT** 14 WORDS **100%** **MATCHING TEXT** 14 WORDS

bonus shares represent simply a division of corporate pie into a large number of pieces. (

Bonus shares represent simply a division of corporate pie into a large number of pieces. 17

SA Financial Management.pdf (D165672210)

130/151 **SUBMITTED TEXT** 12 WORDS **100%** **MATCHING TEXT** 12 WORDS

issue of bonus shares does not affect the wealth of shareholders.

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

131/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

Market Price per Share: The market price per share is

market price per share. The market price per share is

SA Financial Management.pdf (D165672210)

132/151 **SUBMITTED TEXT** 17 WORDS **66%** **MATCHING TEXT** 17 WORDS

Reasons for Stock Split The following are the reasons for splitting of a firm's ordinary (equity) shares: 1.

Reasons for Share Split The following are reasons for splitting of a firm's ordinary shares: 19 19.

SA Financial Management.pdf (D165672210)

133/151 **SUBMITTED TEXT** 18 WORDS **61%** **MATCHING TEXT** 18 WORDS

To Make Share Trading Attractive: The prime reason of stock split is to reduce the market price

To make shares attractive The main purpose of a stock split is to reduce the market price

SA Financial Management.pdf (D165672210)

134/151 **SUBMITTED TEXT** 13 WORDS **88%** **MATCHING TEXT** 13 WORDS

the number of shares outstanding by reducing the face value of the stock.

SA 22DCMBA22 - FINANCIAL MANAGEMENT - SLM.pdf (D138710806)

135/151 **SUBMITTED TEXT** 23 WORDS **79%** **MATCHING TEXT** 23 WORDS

a company can increase or reduce the cash dividend per share proportionately. However, the total dividends of a shareholder increase after a share split.

a company reduce or increase the cash dividend per share proportionately. However, the total dividends of a shareholder increase after a share split.

SA Financial Management.pdf (D165672210)

136/151 **SUBMITTED TEXT** 12 WORDS **83%** **MATCHING TEXT** 12 WORDS

the number of outstanding shares to increase the market price per share.

the number of outstanding shares to prop up the market price per share.

SA Financial Management.pdf (D165672210)

137/151 **SUBMITTED TEXT** 24 WORDS **41%** **MATCHING TEXT** 24 WORDS

of Higher Profits in the Future: Share split sends wrong signals to the investors that the firm is expecting higher profits in near future.

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

138/151 **SUBMITTED TEXT** 20 WORDS **55%** **MATCHING TEXT** 20 WORDS

declares a reserve split, two for four. Now the company will have 4 lakh shares of Rs. 40 per share. 15.10

SA EFIN542 - U01 - D - Finalized.docx (D142426455)

139/151 **SUBMITTED TEXT** 32 WORDS **60%** **MATCHING TEXT** 32 WORDS

on the value of the firm. According to one school of thought, dividends are relevant to the valuation of the firm. Others opine that dividends does not affect the value of the firm

SA FMG-301 Corporate Finance.pdf (D164737021)

140/151 **SUBMITTED TEXT** 23 WORDS **71%** **MATCHING TEXT** 23 WORDS

Gordon's argument is based on the following two assumptions: 1. Investors are risk averse and 2. They put a premium on a certain return

SA fm final.pdf (D143651884)

141/151 **SUBMITTED TEXT** 21 WORDS **100%** **MATCHING TEXT** 21 WORDS

The investors are rational. Accordingly they want to avoid risk. The term risk refers to the possibility of not getting

SA Financial management MBA.docx (D131769892)

142/151 **SUBMITTED TEXT** 16 WORDS **78%** **MATCHING TEXT** 16 WORDS

respect to the amount as well as the timing. The rational investors, therefore, prefer current dividend

SA Financial management MBA.docx (D131769892)

143/151 **SUBMITTED TEXT** 33 WORDS **33%** **MATCHING TEXT** 33 WORDS

dividend. Retained earnings are considered as risky by the investors. In case earnings are retained, the price per share would be adversely affected. This behaviour of investor is described as "Bird in Hand Argument".

SA Financial management MBA.docx (D131769892)

144/151 **SUBMITTED TEXT** 23 WORDS **47%** **MATCHING TEXT** 23 WORDS

bird in hand is worth two in bush. What is available today is more important than what may be available in the future.

SA Financial management MBA.docx (D131769892)

145/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

as a part of regular income to meet their expenses.

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

146/151 **SUBMITTED TEXT** 11 WORDS **100%** **MATCHING TEXT** 11 WORDS

may invest some of the proceeds as reinvestment in shares. Both

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

147/151 **SUBMITTED TEXT** 23 WORDS **73%** **MATCHING TEXT** 23 WORDS

convey a lot to the investors. Increasing dividends mean better prospects of the company. On the contrary, decreasing dividends suggest bad earnings expectations.

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

148/151 **SUBMITTED TEXT** 12 WORDS **95%** **MATCHING TEXT** 12 WORDS

institutional, consider the stability of dividends as an important criteria before

SA FINANCIAL MANAGEMENT FINAL BOOK (3).pdf (D97169171)

149/151	SUBMITTED TEXT	17 WORDS	73%	MATCHING TEXT	17 WORDS

the number of shares outstanding on the market, which increases the proportion of shares the company owns.

SA fm final.pdf (D143651884)

150/151	SUBMITTED TEXT	21 WORDS	82%	MATCHING TEXT	21 WORDS

Bonus shares represent simply a division of corporate pie into a large number of pieces'. Explain. 4. Analyse the importance of

Bonus shares represent simply a division of corporate pie into a large number of pieces.' Explain. 10. What are the effects of

SA Financial Management.pdf (D165672210)

151/151	SUBMITTED TEXT	11 WORDS	95%	MATCHING TEXT	11 WORDS

of higher profits in the future, give higher dividends to shareholders. 15.14

SA EFIN542 - U01 - D - Finalized.docx (D142426455)