

Financial Management II

Course Material

(AcFn 2102, 3 cr.hrs)



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Introduction

This document is compiled to be used as a course material for undergraduate students taking financial management II. The primary goal of this material is to enable students continue studying the underlying theories, fundamental principles, and practices of financial management as a logical continuation of financial management part one.

The material contains five chapters. Chapter one is about dividend or profit allocation decision. Chapter two introduces principles of working capital management. In chapters three through five detail analyses is presented on how financial managers make decisions in the management of a firm's current assets; i.e., cash, marketable securities, receivables, and inventory. Chapter-end exercises are provided at the end of the material to help students evaluate their understanding of contents covered in each chapter.

Students are advised to attempt all multiple choice and discussion questions so that the learners will work more on the course consulting other reference materials as well. Answer key to chapter-end exercises will be provided once we resume classes. The material is mainly compiled from Rose 10th ed, Bringham 13th ed, and IM Pandey, 10th ed, and hence students could use them as reference materials to further their understanding and attempt the chapter-end exercises. Course plan is also attached in the annex part for a general overview of the course contents.



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Chapter One

Dividend Policy and Theory

1. Introduction

Successful companies earn income. That income can then be reinvested in operating assets, used to acquire securities, used to retire debt, or *distributed to stockholders as dividends*. If the decision is made to distribute income to stockholders, three key issues arise:

- (1) **How much should be distributed?**
- (2) **Should the distribution be as cash dividends**, or should the cash be passed on to shareholders by buying back some of the stock they hold?
- (3) **How stable should the distribution be?**
 - should the funds paid out from year to year be stable and dependable, which stockholders would probably prefer, or
 - be allowed to vary with the firms' cash flows and investment requirements, which would probably be better from the firm's stand point.

When deciding how much cash to distribute to stockholders, financial managers must keep in mind that the firm's objective is to **maximize shareholder value**. Consequently, the **target payout ratio**—defined as the **percentage of net income to be paid out as cash dividends**, should be based in large part on investors' preferences for dividends versus capital gains. That is, do investors prefer:

- (1) to have the firm distribute income as cash dividends, or
- (2) to have it either repurchase stock or else invest the earnings back into the business, both of which should result in capital gains?

If the company increases the payout ratio, this raises dividend paid at the end of the year. This increase in dividend, taken alone, would cause the stock price to rise. However, if dividend is raised, then less money will be available for reinvestment which will cause the firm's expected growth rate to decline, and that will tend to lower the stock's price. Thus, any change in payout policy will have *two opposing effects*: rising stock's price due to increase in dividends and later

lowering the price due to decline in expected growth rate. Therefore, the firm's **optimal dividend policy** must strike a balance between current dividends and future growth so as to maximize the stock price.

Meaning of Dividend

✚ **Dividend** refers to the business concerns net profits distributed among the shareholders. It may also be termed as that part of the profit of a business concern which is distributed among its shareholders.

✚ **Dividend decision** of a business is one of the crucial parts of the financial manager because it determines the amount of profit to be distributed among shareholders and amount of profit to be treated as retained earnings for financing its long term growth. Hence, dividend decision plays vital part in corporate financial management.

1.1 Dividend Classifications

Dividend may be distributed among the shareholders in various forms. The major categories Include:

- a. Cash dividend
- b. Stock dividend
- c. Bond dividend
- d. Property dividend

a) Cash Dividend

If the dividend is paid in the form of cash to the shareholders, it is called cash dividend. It is paid periodically out of the business concerns EAIT (Earnings after interest and tax). Cash dividends are common and popular types followed by majority of the business concerns.

Cash dividends come in several different forms. The basic types are:

- i. *Regular cash dividend*-A cash payment made by a firm to its owners in the normal course of the business, usually made *four times* a year. i.e, management sees nothing unusual about the dividend and no reason why it won't be continued.
- ii. *Extra dividend*-sometimes firms will pay a regular cash dividend and an extra cash dividend. Extra indicates that the extra part *may or may not be repeated* in the future. Companies with fluctuating earnings payout additional dividends when their earnings warrant it, rather than fighting to keep a higher quantity of regular dividends.

- iii. *Special dividend*- is unusual or onetime event, and won't be repeated. Generally company declares special dividend in case of abnormal profits.
- iv. *Liquidating dividend*-it happens when the board of directors wishes to return the capital originally contributed by shareholders as a dividend, known as liquidating dividend. These dividends are those which reduce paid-in capital, and it may be a precursor to shutting down the business.

b) Stock Dividend

Stock dividend is paid out in shares of stock due to increase in financing needs. Under this type, cash is retained by the business concern and stockholders are given additional shares of stock. It is not a true dividend because no cash leaves the firm rather a stock dividend increases the number of shares outstanding, thereby reducing the value of each share. A Stock dividend may be bonus issue. This issue is given only to the existing shareholders of the business concern. If the company issues less than 25 percent of the total number of previously outstanding shares, you treat the transaction as a stock dividend. If the transaction is for a greater proportion of the previously outstanding shares, then treat the transaction as a stock split (Financial Accounting).

The following are some of the advantages of stock dividends:

1. They can **preserve** a company's **cash position** if a substantial number of shareholders take up the share option.
2. Investors may be able to obtain **tax advantages** if dividends are in the form of shares.
3. Investors looking to **expand their holding** can do so **without incurring the transaction costs** of buying more shares.

c) Bond Dividend

Bond dividend is also known as scrip dividend. If the company does not have sufficient funds to pay cash dividend in the near future, the company promises to pay the shareholders at a future specific date with the help of issue of bonds or notes.

d) Property Dividend

Property dividends are paid in the form of some assets other than cash. A company will distribute such dividend under exceptional circumstances. This form of dividend is sometimes used by a business to deliberately issue property dividends in order to *alter* their taxable and/or reported income.

1.2 Types of Dividend Policy

Dividend policy depends upon the nature of the firm, type of shareholder and profitable position of the firm. On the basis of dividend *declaration* by the firm, the dividend policy may be classified under the following types:

- ↗ **Regular dividend policy**
- ↗ **Stable dividend policy**
- ↗ **Irregular dividend policy**
- ↗ **No dividend policy.**

Regular Dividend Policy

Dividend payable at the *usual rate* is regarded as regular dividend policy. Though the rate is usual, the dividends vary per income earned. This type of policy is suitable to the **small investors, retired persons** and companies which get regular earning. Regular dividend policy has several advantages, including:

1. Creating confidence among shareholders
2. Stabilizing market value of shares
3. Giving regular income to shareholders, etc

Stable Dividend Policy

Stable dividend policy means payment of certain *minimum amount* of dividend regularly. This dividend policy consists of the following three important forms:

- ↗ Constant dividend per share-irrespective of the level of earning year after year, fixed dividend is paid to owners. In case the earnings are not enough, companies create reserve fund to pay the fixed amount. This is suitable for companies having stable earning for a number of years.
- ↗ Constant payout ratio- this is a *fixed percentage of net income* to be paid as cash dividend every year. In this case, the amount of dividend fluctuates in a direct proportion to the earnings of the company. Since it relates to the ability of a company to pay dividends, it is preferable way.
- ↗ Stable Birr dividend plus extra dividend.

Irregular Dividend Policy

When companies are facing constraints of earnings and unsuccessful business operation, they may follow irregular dividend policy. It is one of the temporary arrangements to meet the

financial problems. Companies follow this type of policy due to uncertain earnings of the company, lack of liquid resources, and afraid of regular dividend.

No Dividend Policy:

Sometimes the company may follow no dividend policy because of the requirement of funds for the growth of the company or working capital requirements.

1.3 Factors Influencing Dividend Policy

Did you ever wonder why some companies pay dividends while others don't? There are several factors that influence whether or not a company pays a dividend and how much it chooses to pay. While there are too many possible factors to list here, these are some of the most influential.

- 1. Profitability Position of the Firm:** dividend decision depends on the profitability position of the business concern. When the firm earns more profit, they can distribute more dividends to the shareholders. Unprofitable companies cannot for ever go on paying dividends out of retained profits made in the past.
- 2. Uncertainty of Future Income:** future income is a very important factor, which affects the dividend policy. When the shareholder needs regular income, the firm should maintain regular dividend policy. But, if future income is uncertain, the amount and timing of dividend paid may vary.
- 3. Legal Constrains:** companies put several restrictions regarding payments and declaration of dividends.
- 4. Liquidity Position:** the firm's ability to pay cash dividend is constrained by the amount of liquid assets (such as cash and marketable securities) available. Liquidity position of a firm leads to easy payments of dividend. If firms have high liquidity, the firms can provide cash dividend otherwise, they have to pay stock dividend.
- 5. Sources of Finance:** the ease with which a company could raise **extra finance** from sources other than retained earnings affects its dividend policy. Small companies which find it hard to raise finance might have to rely more heavily on retained earnings than large companies.
- 6. Growth Rate of the Firm;** high growth rate implies that the firm can distribute more dividends to its shareholders. On the other hand, fast growing companies may choose to reinvest their earnings for further growth and expansion.

7. **Tax Policy:** tax policy of the government also affects the dividend policy of the firm. When the government gives tax incentives, the company pays more dividends.
8. **Capital Market Conditions:** due to the capital market conditions, dividend policy may be affected. If the capital market is perfect, it leads to improve the higher dividend.

1.4 Payment Procedures

Dividends are normally paid quarterly, and, if conditions permit the dividend is increased once each year. Take the following example to illustrate dividend payment procedures;

Example1: Assume that on January 15, 20xx the board of directors of XYZ Company met and decided to pay a dividend of \$1 per share on February 16, 20xx to all holders of record as of January 30, 20xx.

The actual payment procedures (chronologically) are as follows:

1. **Declaration date:** This is the day on which the board of directors declares payment of dividend. Based on the above example, the **declaration date** is January 15, 20xx. On this date the directors met and declared the regular dividend, and hence current liability will be recorded.
2. **Ex-dividend date** –is the date when the right to the dividend *leaves* the stock for new owner. This date is two business days before date of record. This date is specified to make sure that dividend checks go to the right people. In our example above, since the record date is on January 30, then the ex-dividend date is January 28, 20xx.
 - ❖ If you buy a stock (of XYZ) before January 28, then you are entitled to receive dividend.
 - ❖ If you buy the stocks on or after Jan. 28, then the previous owner will get the dividend.
3. **Holder-of-record date:** the company prepares a list of stockholders from the stock transfer book at the close of business on the date of record. All the stockholders of the record date are entitled to receive dividend declared by the board of directors. At the close of business on the **holder-of-record date**, January 30, the company closes its stock transfer books and makes up a list of shareholders as of that date.

4. **Payment date:** is the date when board of directors actually pays the dividend to the holders of shares on the record date. In the above example, payment date when checks are mailed to each recipient is February 16, 20xx.

1.5 The Effect of dividend policy on firm value

“Does a dividend policy really have any effect on the firm's value?”

Several theories have been documented on the relevance and irrelevance of dividend policy on firm value maximization. Here, we begin by describing the dividend irrelevance theory, developed by Merton Miller and Franco Modigliani (MM), which is used as a backdrop for discussion of the key arguments in support of dividend irrelevance and then those in support of dividend relevance will be presented.

1.5.1 Dividend Irrelevance Theories

According to professors **Modigliani and Miller (MM)**, a firm's dividend policy has no effect on firm value or its stock price. That is, there is no relation between the dividend rate and value of the firm. Modigliani and Miller contributed a major approach to prove the irrelevance dividend concept.

a. Modigliani and Miller's (MM) Approach

According to MM, under a perfect market condition, the dividend policy of a company is irrelevant to affect the value of the firm. “Under conditions of perfect market, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on the market price of shares”. MM proposed that in a tax-free world, shareholders are indifferent between dividends and capital gains, and value of a company is determined solely by the “earning power” of its assets and investments.

In other words, MM argued that the value of the firm depends only on the income produced by its assets, not on how this income is split between dividends and retained earnings. To understand MM's argument, recognize that any shareholder can in theory construct his own dividend policy. For example, if a firm does not pay dividends, a shareholder who wants a 5% dividend can “create” it by selling 5% of his stock.

Conversely, if a company pays a higher dividend than an investor desires, the investor can use the unwanted dividends to buy additional shares of the company's stock. If investors could buy and sell shares and thus create their own dividend policy without incurring costs, then the firm's dividend policy would truly be irrelevant.

Assumptions

MM approach is based on the following important assumptions:

1. Perfect capital market.
2. Investors are rational.
3. There are no taxes.
4. The firm has fixed investment policy.
5. No risk or uncertainty.

Proof for MM approach

MM approach can be proved with the help of the following formula:

$$P_o = \frac{D_1 + P_1}{(1 + K_e)}$$

Where,

P_o = Prevailing market price of a share.

K_e = Cost of equity capital.

D_1 = Dividend to be received at the end of period one.

P_1 = Market price of the share at the end of period one

P_1 can be calculated with the help of the following formula.

$$P_1 = P_o (1+K_e) - D_1$$

Hence, by replacing $P_1 = P_o (1+K_e) - D_1$ in the P_o formula, we get

$$P_o = \frac{D_1 + P_1}{(1+k_e)}$$

$$P_o = \frac{D_1 + P_o(1+K_e) - D_1}{(1+k_e)}$$

$\underline{P_o = P_o}$, which indicates that price of stock, remains constant regardless of the amount of dividends declared and paid by the company.

Criticism of MM approach

MM approach consists of certain criticisms. The following are the major ones.

- ↻ MM approach assumes that tax does not exist (or constant). It is not applicable in the practical life of the firm.
- ↻ MM approach assumes that, there is no risk and uncertainty of the investment. It is also not applicable in present day business life.
- ↻ MM approach does not consider floatation and transaction costs both of which affect value of the firm.
- ↻ MM approach assumes that, investor behaves rationally. But we cannot give assurance that all investors will behave rationally.

b. Residual Theory

Residual Theory is one school of thought that suggests the dividend paid by a firm be viewed as a residual, i.e. the amount leftover after all acceptable investment opportunities have been undertaken. According to this theory;

New equity capital is more expensive than capital raised through retained earnings. Hence, financing investments internally (through dividends) may be favored.

Using this approach, the dividend decision is done in three steps:

1. Determine the optimal level of capital expenditures;
2. Estimate the total amount of equity financing needed to support the expenditures;
3. Use reinvested profits to meet the equity requirement. If the available reinvested profits are in excess of the equity need, then the surplus, the residual, is distributed to shareholders as dividends. Therefore, according to residual theory, since dividend is paid only when all profitable investments are undertaken, the dividend paid will have no effect on the firm's value.

c. Dividend Clientele effect

If investors have own preferences, they will invest in firms having dividend policies consistent with their preferences.

The clientele effect says that dividend policy is irrelevant because investors that prefer high payouts will invest in firms that have high payouts, and investors that prefer low payouts will invest in firms with low payouts.

If a firm changes its payout policy, it will not affect the stock value; it will just end up with a different set of investors.

This is true as long as the “market” for dividend policy is in equilibrium.

d. Expectation theory

As the time approaches for management to announce the amount of next dividend, investors form expectations as to *how much* the dividend will be.

If the actual dividend is as expected, the market prices will remain unchanged; otherwise higher or lower than expected amounts will force investors to reassess their perception about the firm, and the value of its shares. It is the investors expectation as compared to actual dividend declared that affects the stock price, not the dividend policy itself.

1.5.2 Dividend Relevance Theories

According to this concept, dividend policy is considered to affect the value of the firm. Dividend relevance implies that shareholders prefer current dividend and hence there is direct relationship between dividend policy and value of the firm. Relevance of dividend concept is supported by two eminent persons: Walter and Gordon.

i. Walter's Model

Prof. James E. Walter argues that the dividend policy almost always affects the value of the firm. Walter's model is based on the relationship between the following important factors:

- Internal rate of return r
- Cost of capital (k)

Walter's model argues that:

- ❖ if $r > k$, the firm is able to earn more than what the shareholders could by reinvesting, if the earnings are paid to them,
- ❖ if $r < k$, the shareholders can earn a higher return by investing elsewhere,
- ❖ If the firm has $r = k$, it is a matter of indifference whether earnings are retained or distributed. The following table summarizes such relationships.

Relationship between r and k	Increase in Dividend Payout	Decrease in Dividend Payout
$r > k$	Value of the firm decreases	Value of the firm increases
$r < k$	Value of the firm increases	Value of the firm decreases
$r = k$	No change in the value of the firm	No change in the value of the firm

Assumptions

Walter's model is based on the following important assumptions:

1. The firm uses only internal finance.
2. The firm does not use debt or new equity finance.
3. The firm has constant return and cost of capital.
4. The firm has 100 percent payout/retention policy.
5. The firm has constant EPS and dividend.
6. The firm has an infinite life.

Walter has developed a mathematical formula for determining the value of market share.

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

Where, P = Market price of an equity share

D = Dividend per share

E = Earnings per share

K_e = Cost of equity capital

r = Internal rate of return

Which indicates that market price of a company's stock is the sum of the present value of dividends and capital gains on an investment.

Example2

From the following information given to you, ascertain whether the firm is following an optimal dividend policy as per Walter's Model?

Total Earnings	Rs. 2,00,000
No. of equity shares (of Rs. 100 each 20,000)	
Dividend paid	Rs. 1,00,000
P/E Ratio	10
Return Investment	15 %

The firm is expected to maintain its rate of return on fresh investments as well. Will your decision change if the P/E ratio is 7.25 and return on investment is 10%?

Solution

$$\text{EPS} = \frac{\text{Earnings}}{\text{No. of Shares}} = \frac{200000}{20000} = \text{Rs. } 10$$

$$\text{P/E Ratio} = 10$$

$$K_e = \frac{1}{\text{P/E Ratio}} \times \frac{1}{10} = 0.10$$

$$\begin{aligned} \text{DPS} &= \frac{\text{Total Dividends paid}}{\text{No. of Shares}} \\ &= \frac{100000}{20000} = \text{Rs. } 5 \end{aligned}$$

The price of a share as per Walter's Model is:

$$\begin{aligned} P &= \frac{D + r/K_e (E - D)}{K_e} \\ P &= \frac{5 + 0.15/0.10(10 - 5)}{0.10} \\ P &= \frac{5 + 7.50}{0.10} \\ P &= \underline{\underline{\text{Rs. } 125.00}} \end{aligned}$$

$$\text{Dividend Payout} = \frac{\text{DPS}}{\text{EPS}} \times 100$$

$$\text{Dividend Payout} = \frac{5}{10} \times 100$$

$$\underline{\underline{\text{Dividend Payout} = 50\%}}$$

Since $r > k_e$, the firm is not following an optimal dividend policy by distributing 50% of the earnings. In this case, the optimal dividend policy for the firm would be to pay zero dividends.

And the Market Price would be:

$$\begin{aligned} P &= \frac{0 + 0.15/0.10(10 - 0)}{0.10} \\ P &= \frac{5 + 15}{0.10} \\ P &= \underline{\underline{150 \text{ Rs.}}} \end{aligned}$$

Criticism of Walter's Model

The following are some of the important criticisms against Walter's model:

- ❖ Walter's model assumes that there is no extracted finance used by the firm. It is not practically applicable.
- ❖ There is no possibility of constant return. Return may increase or decrease depending upon the business situation.
- ❖ Walter's model is based on constant cost of capital; however, cost of capital varies mainly due to differences in risk exposures of firms.

ii. Gordon's Model

Myron Gordon suggests one of the popular models, which assumes that dividend policy of a firm affects its value. It is based on the following basic assumptions:

1. The firm is an all equity firm (no debt).
2. The firm has no external finance.
3. Cost of capital and return are constant.
4. The firm has perpetual life.
5. There are no taxes.
6. There is constant relation ratio ($g=br$).
7. Cost of capital is greater than growth rate ($K_e > br$).

Gordon's model can be proved with the help of the following formula

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

Where,

P = Price of a share

E = Earnings per share

$1 - b$ = D/P ratio (i.e., percentage of earnings distributed as dividends)

K_e = Capitalization rate

br = Growth rate = rate of return on investment of an all equity firm.

Note: the above model indicates that the market value of the company's share is the sum total of the present values of infinite future dividends to be declared.

Example3

Raja Company earns a rate of 12% on its total investment of Birr 600,000 in assets. It has 600,000 outstanding common shares at Birr 10 per share. Discount rate of the firm is 10% and it has a policy of retaining 40% of the earnings. Determine the price of its shares using Gordon's Model. What shall happen to the price of the share if the company has retention policy of 25% (or) 80%?

Solution: According to Gordon's Model, the price of a share is computed as

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

Given: $E = 12\%$ of Rs. 10 = Rs. 1.20
 $r = 12\% = 0.12$
 $K = 10\% = 0.10$
 $t = 10\% = 0.10$
 $b = 40\% = 0.40$

Put the values in formula

$$\begin{aligned} P &= \frac{1.20(1 - .40)}{10 - (.40 \times .12)} \\ &= \frac{1.20 \times (0.60)}{.10 - 0.048} \\ &= \frac{0.72}{0.052} \\ &= \text{Rs. } 13.85 \end{aligned}$$

Remark: under Gordon's model;

- ❖ The market value of the share, P_0 , increases with the retention ratio, b , for firms with growth opportunities, i.e. when $r > k$.

- ❖ The market value of the share, P_0 , increases with the payout ratio, $(1 - b)$, for declining firms with $r < k$.
- ❖ The market value of the share is not affected by dividend policy when $r = k$.

Criticism of Gordon's Model

Gordon's model consists of the following important criticisms:

- ❖ Gordon model assumes that there is no debt and new equity finance used by the firm. But in practice companies make use of a mix of debt and equity financing
 - ❖ K_e and r cannot be constant in the real practice.
 - ❖ According to Gordon's model, there are no taxes paid by the firm. It is not practically applicable as well.
- **Two Supplementary Models of dividend relevance theory**

Traditional Model

As to this model, stock market is overwhelmingly in favor of liberal dividends and against meager dividends. Accordingly, in the valuation of shares, the weight attached to dividends is higher than the weight attached to retained earnings.

Bird-in-the-Hand Theory (high dividend payout)

Investors think dividends are less risky than potential future capital gains, hence they like dividends. If so, investors would value high payout firms more highly than firms with low dividends. i.e., a high payout would result in a high [stock](#) price (P_0).

1.6 Establishing a Dividend Policy

How do firms actually determine the amount of dividends they will pay at a particular time? As we have seen, there are good reasons for firms to pay high dividends, and there are good reasons to pay low dividends. For the rest of this chapter, we will try to illustrate some of these dividend policy strategies.

1.6.1 Residual Dividend Approach

As noted above, firms with higher dividend payouts will have to sell stocks more often. Though such sales are not very common, and they can be very expensive. Consistent with this, we will assume that a particular firm wishes to minimize the need to sell new equity. We will also assume that the firm wishes to maintain its current capital structure. If a firm wishes to avoid

new equity sales, then it will have to rely on internally generated equity to finance new positive NPV projects. Dividends can only be paid out of what is left over. This leftover is called the residual, and such a dividend policy is called a residual dividend approach.

With a residual dividend policy, the firm’s objective is to meet its investment needs and maintain its desired debt–equity ratio before paying dividends. For a given firm, the optimal payout ratio is a function of four factors: (1) investor’s preferences for dividends versus capital gains, (2) the firm’s investment opportunities, (3) its target capital structure, and (4) the availability and cost of external capital. The last three elements are combined in what we call the **residual dividend model**.

Under this model a firm follows these four steps when establishing its target payout ratio:

- (1) It determines the optimal capital budget;
- (2) It determines the amount of equity needed to finance that budget, given its target capital structure;
- (3) It uses retained earnings to meet equity requirements to the extent possible; and
- (4) It pays dividends only if more earnings are available than are needed to support the optimal capital budget. The word *residual* implies “leftover,” and the residual policy implies that dividends are paid out of “**leftover**” earnings.

Example 4

Consider the table below to illustrate the residual dividend model. In Row 1, for example, new investment is \$3,000, and the firm’s debt–equity ratio is 0.5 (the firm has to borrow 50 cents for a 1 dollar equity raised). That means additional debt of \$1,000 and equity of \$2,000 must be raised to keep the debt– equity ratio constant. Additional stock to be issued is also \$1,000 because we have only \$1,000 in retained earnings. In this example (row1), because new stock is issued, dividends are not simultaneously paid out.

Row	Aftertax Earnings	New Investment	Additional Debt	Retained Earnings	Additional Stock	Dividends
1	\$1,000	\$3,000	\$1,000	\$1,000	\$1,000	\$ 0
2	1,000	2,000	667	1,000	333	0
3	1,000	1,500	500	1,000	0	0
4	1,000	1,000	333	667	0	333
5	1,000	500	167	333	0	667
6	1,000	0	0	0	0	1,000

In rows 2 and 3, investment drops. Additional debt needed goes down as well, because it is equal to 1/3 of new investment. Because the amount of new equity needed is still greater than or equal to \$1,000, all earnings are retained and no dividend is paid.

We finally find a situation in row 4 in which a dividend is paid where; total investment needed is \$1,000. To keep the debt– equity ratio constant, 1/3 of this investment, or \$333, is financed by debt. The remaining 2/3, or \$667, comes from internal funds, implying that the residual is $\$1,000 - \$667 = \$333$. The company is able to pay dividend equal to \$333-the residual.

In this case, note that no additional stock is issued. Since the needed investment is lower in rows 5 and 6, new debt is reduced further, retained earnings drop, and dividends increase. Again, no additional stock is issued.

Given our discussion, we expect those firms with many investment opportunities to pay a small percentage of their earnings as dividends and other firms with fewer opportunities to pay a high percentage of their earnings as dividends. This result appears to occur in the real world as well. Young, fast-growing firms commonly employ a low payout ratio, whereas older and slowly growing firms in more mature industries use a higher ratio.

1.6.2 Dividend Stability

The key point of the residual dividend approach is that dividends are paid only after all profitable investment opportunities are exhausted. Of course, a strict residual approach might lead to a very unstable dividend policy. If investment opportunities in one period are quite high, dividends will be low or zero. Conversely, dividends might be high in the next period if investment opportunities are considered less promising.

The firm can choose between at least two types of dividend policies. First, each quarter's dividend can be a fixed fraction of that quarter's earnings. **This is a cyclical dividend policy in which dividends will vary throughout the year.** Second, each quarter's dividend can be a fixed fraction of yearly earnings, **implying that all dividend payments would be equal. This is a stable dividend policy.** Corporate officials generally agree that a stable policy is in the interest of the firm and its stockholders, so the stable policy would be more common.

1.6.3 A Compromise Dividend Policy

In practice, many firms appear to follow what is called a compromise dividend policy. Such a policy is based on five main goals:

1. Avoid cutting back on positive NPV projects to pay a dividend.
2. Avoid dividend cuts.
3. Avoid the need to sell equity.
4. Maintain a target debt– equity ratio.
5. Maintain a target dividend payout ratio.

These goals are ranked more or less in order of their importance. In our strict residual approach, we assume that the firm maintains a fixed debt– equity ratio. Under the compromise approach, the debt– equity ratio is viewed as a long-range goal. It is allowed to vary in the short run if necessary, to avoid a dividend cut or the need to sell new equity.

Chapter- Two

Working Capital Management

2.1 Introduction

To this point, we have described many of the decisions of long-term finance, such as those of capital budgeting, dividend policy, and Capital structure. In this chapter, we begin to discuss short-term finance. Hence, working capital management is primarily concerned with the analysis of decisions that affect current assets, and current liabilities.

That is, working capital management is concerned with the problems that arise in attempting to manage current assets, current liabilities and the interrelationships that exist between them. The term *Current Assets* refer to those assets which in the ordinary course of business can be, or will be, converted into cash within one year without undergoing a reduction in value and without disrupting the operations of the firm. *Current Liabilities* are those liabilities which are intended, at their inception, to be paid in the ordinary course of business, within a year, out of the current assets or earnings of the business concern.

<u>Current Assets</u>	<u>Current Liabilities</u>
Cash and Bank Balances	Short term Borrowings
Marketable Securities	Accounts Payables
Accounts Receivables	Notes Payables
Notes Receivables	Trade Advances
Inventories	Provisions

In the management of working capital two characteristics of current assets must be borne in mind: (i) Short life span, and (ii) swift transformation into other asset form.

Current assets have a short life span. Cash balances may be held idle for a week or two, accounts receivables may have a life span of 30 to 60 days, and inventories may be held for 30 to 100 days. The life span of current assets depends upon the time required in the activities of

interaction between current assets and current liabilities is, therefore, the main theme of the theory of working management.

2.2 Concepts and Definitions of Working Capital

There are two concepts of working capital: “**Gross**” and “**Net**”

The term Gross Working Capital also referred to as working capital, means the total investment in Current Assets.

$$\text{Gross Working Capital} = \text{Total Of Current Assets}$$

The term Net Working Capital can be defined in two ways (i) the most common definition of net working capital (NWC) is the difference between current assets and current liabilities; and (ii) alternate definition of NWC is that portion of current assets financed with long-term funds.

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

NWC is commonly defined as the difference between current assets and current liabilities. Efficient working capital management requires that firms should operate with some amount of NWC, the exact amount varying from firm to firm and depending, among other things, on the nature of industry. The theoretical justification for the use of NWC to measure liquidity is based on the basis that the greater the margin by which the current assets cover the short-term obligations, the more is the ability to pay obligations when they become due for payment. The NWC is necessary because the cash outflows and inflows do not coincide. In other words, it is the non-synchronous nature of cash flows that makes NWC necessary. In addition, the cash outflows resulting from payment of current liabilities are relatively predictable. The cash inflows are, however, difficult to predict, therefore, some level of NWC is necessary. The more predictable the cash inflows are, the less NWC will be required and *vice-versa*.

As stated above, NWC can alternatively be defined as that part of the current assets financed with long-term funds. This indicates that since current liabilities represent sources of short-term funds, as long as current assets exceed the current liabilities, the excess must have been financed with long-term funds.

2.3 Need for Working Capital and Operating Cycle

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

The Operating Cycle can be said to be at the heart of the need for working capital. “The continuing flow from cash to suppliers, to inventory, to accounts receivable and back into cash is what is called the Operating Cycle, or Operating cycle is defined as the time period lapsed from inventory purchase until the receipt of cash. In other words, the term **operating cycle refers to the length of time necessary to complete the following cycle of events:**

1. **Conversion of cash into inventory;**
2. **Conversion of Inventory into receivables;**
3. **Conversion of receivables into cash.**

The Operating Cycle, which is continuous process, is shown in figure 2.2

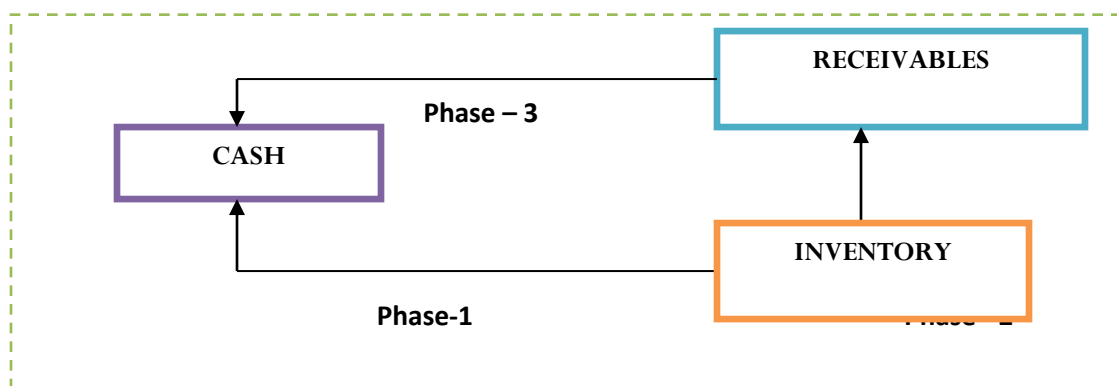


Figure – 2.2 – Operating Cycle

The operating cycle consist of three phases.

In phase –1, cash gets converted into inventory. This includes purchase of raw materials, conversion of raw material into work-in-progress, finished goods and finally the transfer of goods to stock at the end of the manufacturing process. In the case of trading organizations, this phase is shorter as there would be no manufacturing activity and cash is directly converted into inventory. The phase is of course, totally absent in the case of service organization.

In phase –2 of the cycle, the inventory is converted into receivables as credit sales are made to customers. Firms which do not sell on credit obviously don't have phase – 2 of the operating cycle.

The last phase, phase –3, represents the stage when receivables are collected. This phase completes the operating cycle. Thus, the firm has moved from cash to inventory, to receivables and to cash again.

Cash cycle is defined as the time period from when cash is paid out to when cash is received.

i. e. Cash cycle = Operating cycle - Accounts payable period. Figure 2.3 explains the cash cycle and operating cycle of a firm

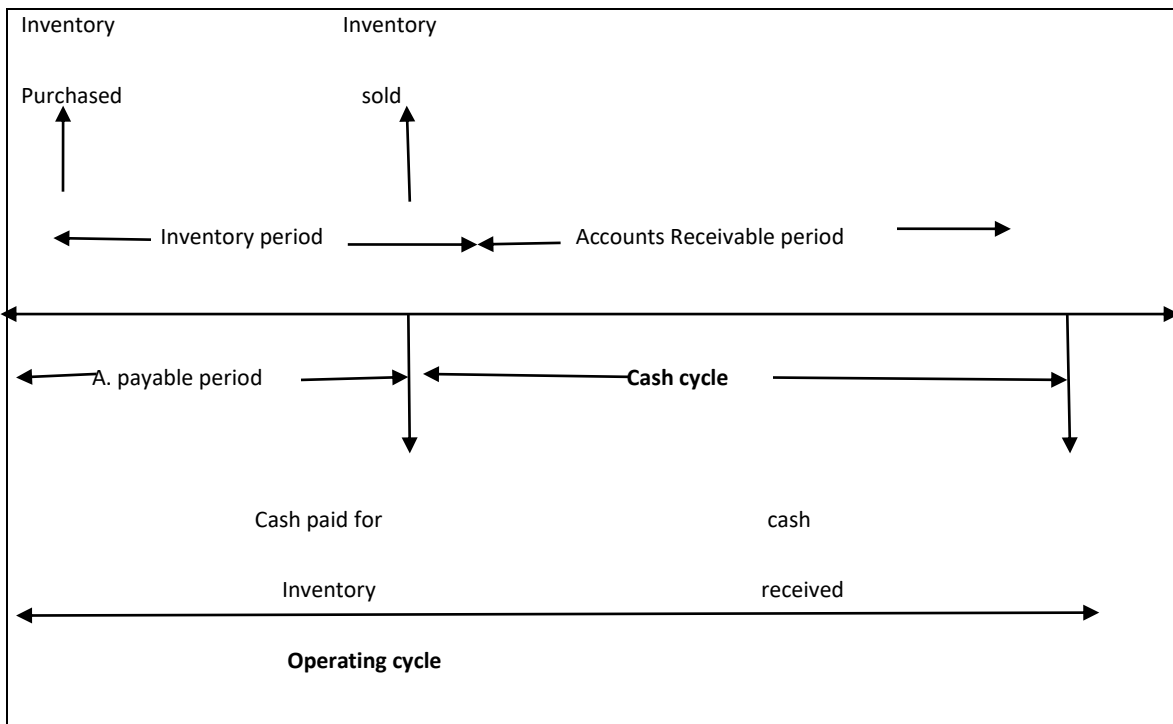


Figure 2.3: Operating and Cash Conversion Cycle

Example:

Optec Plc purchases \$1,000 worth of inventory on credit. It pays the bill 30 days later, and, after 30 more days, Optec Plc sells the \$1,000 in inventory for \$1,400. Its buyer does not actually pay for another 45 days. We can summarize these events chronologically as follows:

Day	Activity	Cash Effect
0	Acquire inventory	None
30	pay for inventory	-\$1,000
60	Sell inventory on credit	None
105	Collection on sale	+1,400

Required:

- i. Calculate the operating cycle of Optec Plc
- ii. Calculate the cash cycle of Optec Plc.

Solution:

- i. **Given:** Inventory period (to acquire and sell) 60 days
Accounts receivable period (to collect on the sale) 45 days

$$\begin{aligned}\text{Operating cycle} &= \text{Inventory period} + \text{Accounts receivable period} \\ &= 60 \text{ days} + 45 \text{ days} \\ &= \underline{\underline{105 \text{ days}}}\end{aligned}$$

Note:

What the operating cycle describes is how a product moves through the current asset accounts. The product begins life as inventory, it is converted to a receivable when it is sold, and it is finally converted to cash when we collect from the sale. Notice that, at each step, the asset is moving closer to cash

$$\begin{aligned}
 \text{ii. Cash cycle} &= \text{Operating cycle} - \text{Accounts payable period} \\
 &= 105 \text{ days} - 30 \text{ days} \\
 &= \underline{\underline{75 \text{ days}}}
 \end{aligned}$$

2.4 Permanent and Temporary Working Capital

Adequate working capital is important for any business operations. Working capital financing, however, can be a challenge for a business, especially for a small firm. In order to understand the best way to finance working capital, it is important to understand the difference between the two types of working capital:

- ❖ permanent working capital
- ❖ temporary working capital

Permanent Working Capital

Permanent working capital is the minimum level of working capital required for a firm to operate. It is also called **fixed working capital**. Permanent working capital does not depend on the level of production or sales. It is similar – in some sense – to fixed assets because of its permanent (fixed) nature. Important to note, however, is that permanent working capital is not literally fixed: its level can change over time. The level of permanent working capital depends on the business cycle as well as the growth of a firm. Permanent working capital can be further divided into the following categories:

- ❖ *Regular working capital*: minimum level of working capital required to circulate from one form to another: from cash to inventory, inventory to receivables, receivables to cash, and so on.
- ❖ *Reserve working capital*: permanent working capital in excess of regular working capital. Reserve working capital arises from such contingencies as strikes, recession, etc.

Temporary working capital

As can be seen in figure 2.4 and 2.5 below, temporary working capital is the excess of working capital over the permanent working capital. Temporary working capital is also called **variable**,

fluctuating, or cyclical working capital. Temporary working capital can be further divided into the following categories:

- ❖ *Seasonal working capital:* temporary working capital required to meet seasonal demands
- ❖ *Special working capital:* temporary working capital required to meet special demands

Temporary working capital differs from permanent working capital because of its cyclical nature. As a result, temporary working capital usually requires a different source of financing than permanent working capital. While permanent working capital is usually financed through a long-term financing source such as equity capital and debt, temporary working capital is often financed by short-term funds.

Long-term sources of finance may include, but not limited to (Equity capital, Debentures, Long-term loans, and Retained earnings)

Short-term sources of finance may include but not limited to (Bank credit, Trade credit, Commercial paper, Factoring, Sale or lease of fixed assets)

The basic distinction between permanent and temporary working capital is illustrated in the figure below.

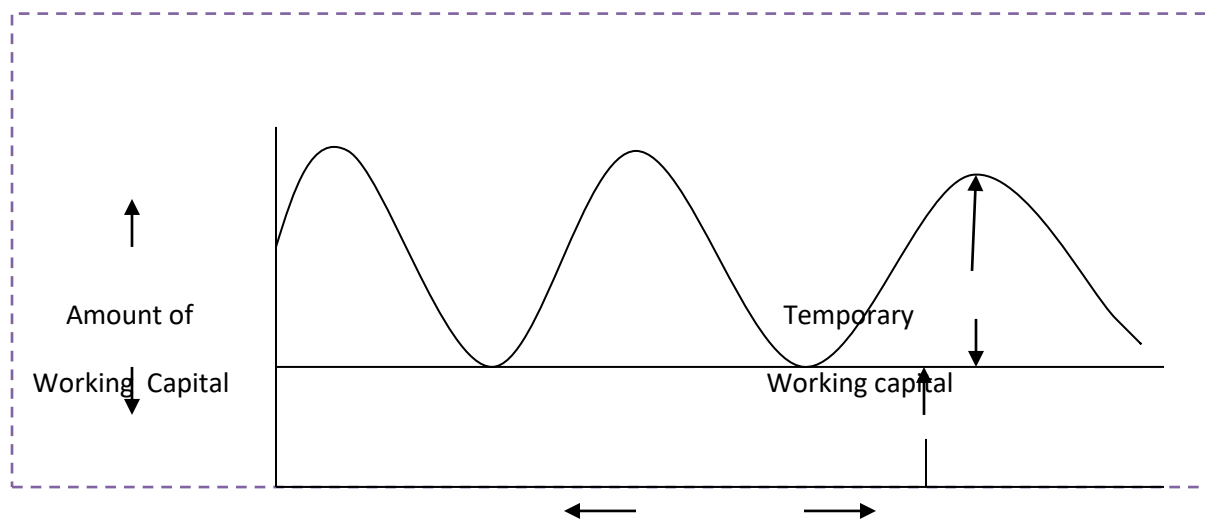


Figure 2.4 – Permanent and Temporary Working Capital

Figure 2.4 (above) shows that the permanent level is fairly constant, while temporary working capital is fluctuating – increasing and decreasing in accordance with seasonal demands. In the case of an expanding firm, the permanent working capital line may not be horizontal. This is

because the demand for permanent current assets might be increasing to support a rising level of activity. In that case the line would be a rising one as shown in the figure 2.5 below.

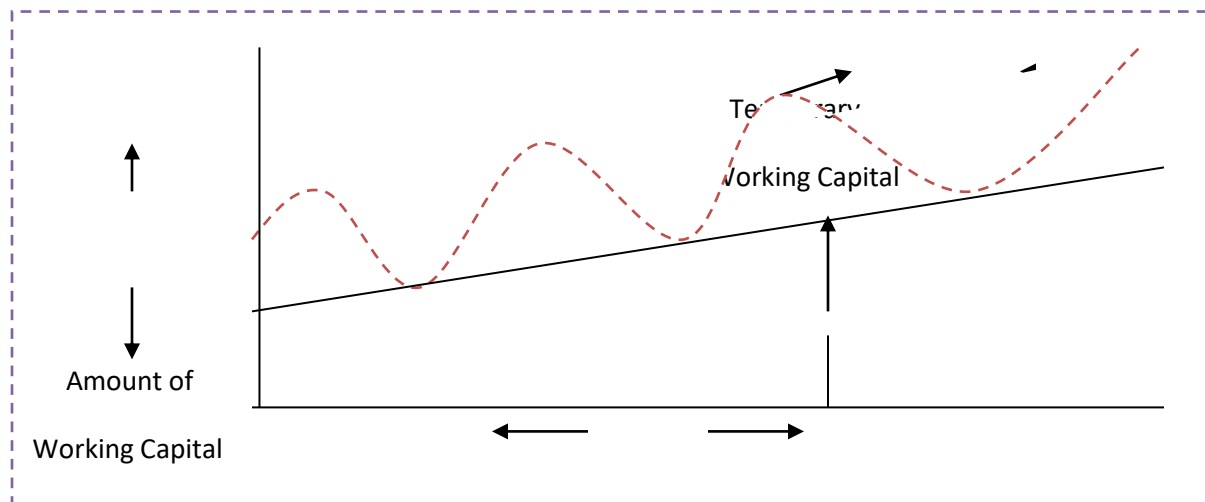


Figure 2.5 – Permanent and Temporary Working Capital

A firm should plan its operations in such a way that it should have neither too much nor too little working capital. The total working capital requirement is determined by a wide variety of factors. These factors, however, affect different enterprises differently. They also vary

2.4. Factors affecting Working Capital

A firm should plan its operations in such a way that it should have neither too much nor too little working capital. The total working capital requirement is determined by a wide variety of factors. These factors, however, affect different enterprises differently. They also vary from time to time. In general, the following factors are involved in a proper assessment of the quantum of working capital required.

i. Nature of Business

The working capital requirement of a firm is closely related to the nature of its business. A service firm, like electricity undertaking or a transport corporation, which has a short operating cycle and which sells predominantly on cash basis, has modest working capital requirement. On the other hand, a manufacturing concern like a machine tools unit, which has long operating cycle and which sells largely on credit, has a very substantial working capital requirement.

Moreover, working capital requirement of financial institutions like, banks is substantially high. This is because banks need to constantly manage their funds to ensure that they have enough cash on hand to meet their obligations to customers and to make new loans.

ii. **Seasonality of Operations**

Firms which have marked seasonality in their operations usually have highly fluctuating working capital requirements. To illustrate, consider a firm manufacturing rain coats. The sale of rain coats reaches a peak during the rainy season and drops sharply during the winter period. The working capital need of such a firm is likely to increase considerably in rainy months and decrease significantly during the other periods. On the other hand, a firm manufacturing a product like lamps, which have fairly even sales round the year, tends to have stable working capital needs.

iii. **Production Policy**

A business marked by pronounced seasonal fluctuations in its sales may pursue a production policy which may reduce the sharp variations in working capital requirements. For example, a manufacturer of rain coats may maintain a steady production throughout the year rather than intensify the production activity during the peak business season. Such a production policy may dampen the fluctuations in working capital requirements.

iv. **Market Conditions**

The degree of competition prevailing in the market place has an important bearing on working capital needs. When competition is keen, a larger inventory of finished goods is required to promptly serve customers who may not be inclined to wait because other manufacturer are ready to meet their needs. Further, generous credit terms may have to be offered to attract customers in a highly competitive market. Thus, working capital needs tend to be high because of greater investment in finished goods inventory and accounts receivable.

If the market is strong with weak competition, a firm can manage with a smaller inventory of finished goods because customers can be served with some delay. Further, in such a situation the firm can insist on the cash payment and avail lock-up of funds in accounts receivable it can even ask for advance payment, partial or total.

v. Conditions of Supply

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

vi. Credit Policy

The credit policy relating to sales and purchases also affects working capital. The credit policy influences the requirement of working capital in two ways: (1) through credit terms granted by the firm to its customers/ buyers of goods; (2) Credit terms available to the firm from its suppliers.

The credit terms granted to customers have a bearing on the magnitude of working capital by determining the level of receivables. Credit sales result in higher receivables; higher receivables mean more working capital. On the other hand, if liberal credit terms are available from the supplier of goods, the need for working capital (cash) is less. Working capital requirements of a business are thus, affected by the terms of purchase and sale, and the role given to credit by a company in its dealing with suppliers and customers.

vii. Operating Efficiency

The operating efficiency of management is also an important determinant of the level of working capital. Firms with high degree of efficiency have low wastage and can manage operations with low level of inventory. Although management cannot control the rise in prices, it can ensure the efficient utilization of resources by eliminating waste, improving coordination, and fuller utilization of existing resources, and so on. Efficiency of operations accelerates the pace of cash cycle and improves the working capital turnover. It releases the pressure on the working capital by improving profitability and improving the internal generation of funds. Hence, high operating efficiency leads to less working capital requirement.

Besides, there are some other factors that influence the working capital requirement of a firm. These include Growth and Expansion of Business, Depreciation Policy, Profit Level of the business, Level of Tax payments, Dividend policy and Changes in the price levels of resources.

❖ Level of Current Assets

An important working capital policy decision is concerned with the level of investment in current assets. Under a *flexible policy* (also referred to as a '*Conservative policy*'), the investment in current assets is high. This means that the firm maintains huge balance of cash and marketable securities, carries large amounts of inventories, and grants generous terms of credit to customers which leads to high level of debtors.

Under the *restrictive policy* (also referred to as an '*Aggressive Policy*'), the investment in current assets is low. This means that firm keeps a small balance of cash and marketable securities, manages with small amounts of inventories, and offers still terms of credit which leads to a low level of debtors.

Determining the optimal level of current assets involves a tradeoff between costs that rise with current assets and costs that fall with current assets. The former are referred to as "*carrying costs*" and the later as '*shortage costs*'.

Carrying costs are mainly in the form of the cost of financing a higher level of current assets. Shortage costs are mainly in the form of disruption in production schedule, lost sales, and loss of customer goodwill.

Figure 2.6, shows graphically how these costs behave in relation to the level of current assets. The optimal *level of current assets is denoted by CA**, *as the total costs (sum of carrying costs and shortage costs) are minimized at that level*. Often the total costs curve is fairly flat around the optimal level. Hence, it may be difficult to precisely identify the optimal level of current assets. The financial manager must be satisfied (by minimizing total cost) if the level of current assets is in a range close to the optimal point.

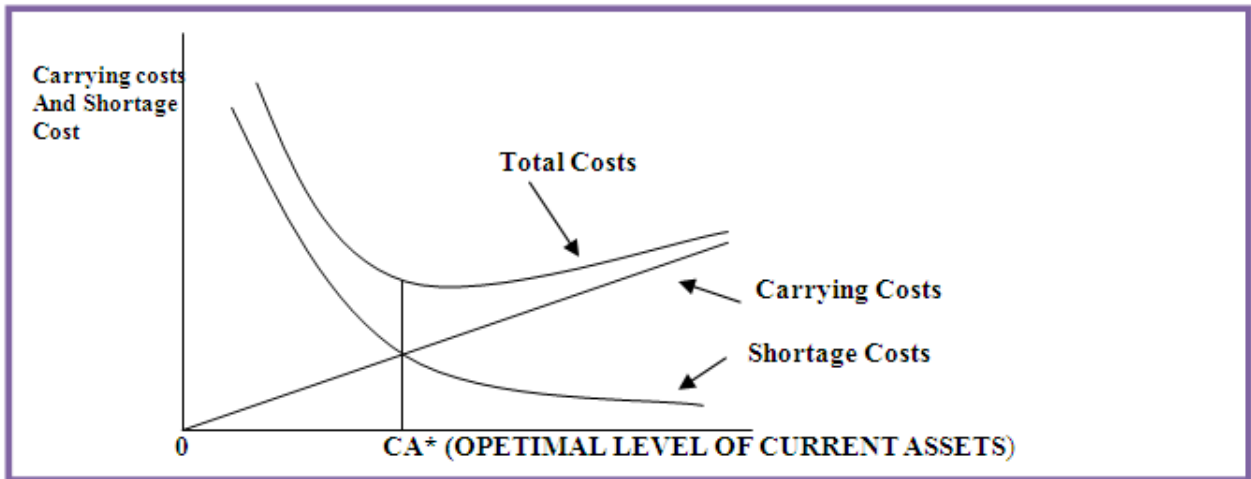


Figure 2.6 – Level of Current Assts

2. 5 Working Capital Financing Strategies

After establishing the level of current assets, the firm must determine *how* these assets should be financed. That is, *what mix of long-term funds and short term debt should the firm employ to support its current assets?* Figure 2.7 (on page 13) depicts how total assets – and hence the capital requirements – change over time for a growing firm. For the sake of simplicity, assets are divided into two classes, namely, *fixed assets and current assets*. Fixed assets are assumed to grow at a constant rate which reflects the secular rate of growth in sales. Current assets, too, are expected to display the same long-term rate of growth; however, they exhibit substantial variation around the trend line, due to seasonal (or even cyclical) patterns in sales and or purchases.

The investment in current assets may be broken into two parts: *permanent current assets and temporary current assets*. Permanent current assets represent what the firm requires even at the bottom of its sales cycle; temporary current assets on the other hand reflect a variable component that moves up and down with seasonal fluctuations. Thus, permanent and temporary working capital needs different financing approaches.

There are three strategies or methods of working capital financing: **Hedging, Conservative and Aggressive strategies**. Hedging approach is an *ideal* method of financing with moderate risk and profitability. The other two are extreme strategies. Conservative approach is highly conservative

with very low risk and therefore low profitability. Aggressive approach is highly aggressive having high risk and high profitability.

Conservative Strategy: As the name suggests, it is a conservative strategy of financing the working capital with low risk and low profitability. In this strategy, apart from the fixed assets and permanent current assets, part of temporary working capital is also financed by long term financing sources. It has the lowest liquidity risk at the cost of higher interest outlay. Here, funds are applied as below.

$$\text{Long Term Funds} = FA + PWC + \text{Part of TWC}$$

$$\text{Short Term Fund} = \text{Remaining Part of TWC}$$

Aggressive Strategy: This strategy is the most aggressive strategy out of all the three. The complete focus of the strategy is in profitability. It is a high risk high profitability strategy. In this strategy, the long term funds are utilized only to finance fixed assets and part of permanent working capital. Complete temporary working capital and part of permanent working capital are financed by the short term funds. It saves the interest cost at the cost of high risk.

$$\text{Long Term Funds} = FA + \text{Part of PWC}$$

$$\text{Short Term Funds} = \text{Remaining Part of PWC} + TWC$$

Hedging (Maturity Matching) Strategy: This is a careful strategy of financing the working capital with moderate risk and profitability. In this strategy, each of the assets would be financed by a debt instrument of almost the same maturity. It means if the asset is maturing after 30 days, the payment of the debt which has financed it will also have its due date of payment after almost 30 days. Hedging strategy works on the cardinal principle of financing i.e. utilizing long term sources for financing long term assets i.e. fixed assets and permanent working capital; and temporary working capital is financed by short term sources of finance.

$$\text{Long Term Funds} = FA + PWC$$

$$\text{Short Term Funds} = TWC$$

Conclusion: If these three strategies are plotted on a number line with one side as ‘risk’ and the other side as ‘profitability’, conservative strategy is on the side of lower profitability and lower risk. On the contrary, aggressive strategy is on the side of higher profitability and higher risk. Hedging strategy is somewhere between the two. Executing the hedging strategy in its true sense is not practically possible. Management’s attitude towards risk and other factors would decide their place on this number line.

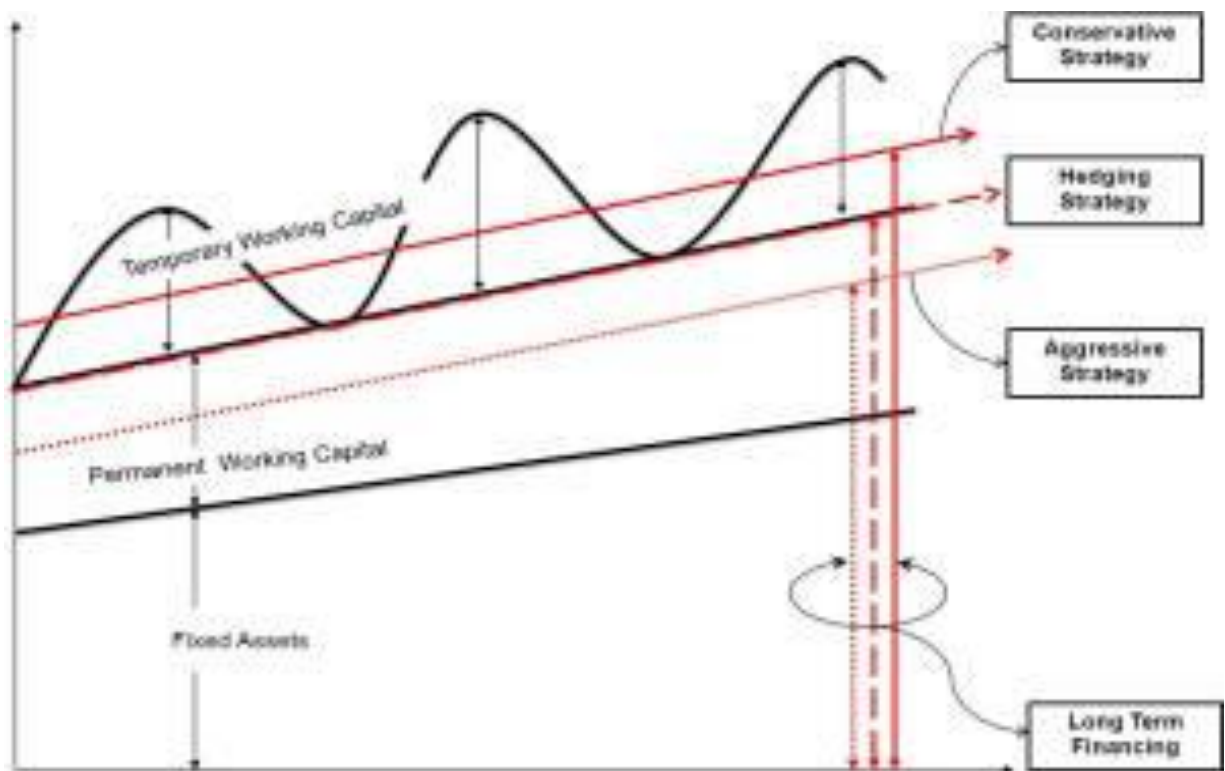


Figure 2.7: Working Capital Financing Strategies

Chapter three

Cash and Liquidity Management

Introduction:

This chapter discusses about how firms manage cash. The basic objective in cash management is to keep the investment in cash as low as possible while still keeping the firm operating efficiently and effectively. This goal usually reduces to the dictum “**Collect early and Pay late.**” Accordingly, we discuss ways of accelerating collections and managing disbursements.

3.1 Reasons for Holding Cash

John Maynard Keynes, in his classic work “*The General Theory of Employment, Interest, and Money*”, identified three motives for holding cash:

- a) The transaction motive
- b) The speculative motive, and
- c) The precautionary motive

a) The Transaction Motive

Cash is needed to meet regular **commitments** of paying accounts payable, employees’ wages, taxes, annual dividends to shareholders, bills and so on. Cash is collected from product sales, the selling of assets, and new financing. However, the cash inflows /collections and outflows /disbursements are not perfectly synchronized, and thus some level of cash holdings is necessary to serve as a buffer.

b) The Speculative Motive

The **speculative motive** is the need to hold cash in order to be able to take advantage of profit-making opportunities as and when they arise; such as **bargain purchases that might arise, attractive interest rates**, and (in the case of international firms) favorable exchange rate fluctuations. The opportunity to make-profit may arise when security prices change. For instance, a firm holds cash, when it expects interest rate rise and security price fall. It purchases security, when interest rate is expected to fall. The firm may also speculate on materials’ prices. If it is expected that material price will fall, the firm postpones material purchases and make purchases in the future.

c) **The Precautionary Motive**

The Precautionary Motive is the need to hold cash to meet contingencies in the future. It provides a cushion or buffer to withstand some unexpected/unanticipated emergencies; such as sudden increase in raw material costs, strikes etc. It depends on the predictability of cash flows and ability of the firm to borrow at short notice.

*** Compensating Balances**

Compensating balances are another reason to hold cash. Cash balances are kept at commercial banks to compensate for banking services the firm receives. A minimum compensating balance requirement may impose a lower limit on the level of cash a firm holds.

***Cash Management versus Liquidity Management**

The distinction between liquidity management and cash management is straightforward.

Liquidity management concerns the optimal quantity of liquid assets a firm should have on hand, and it is one particular aspect of the current asset management policies.

Cash management is much more closely related to optimizing mechanisms for collecting and disbursing cash, and it is this subject that we primarily focus on in this chapter.

3.2 Understanding Float

As you no doubt know, the amount of money you have according to your book balance can be very different from the amount of money that your bank thinks you have. The reason is that some of the checks you have written haven't yet been presented to the bank for payment. The same thing is true for a business. The cash balance that a firm shows on its books is called the **firm's book, or ledger, balance**. *The difference between the available (bank) balance and ledger balance, called the **float**, represents the net effect of checks in the process of clearing (moving through the banking system).*

3.2.1 Disbursement Float

Checks written by a firm generate disbursement float, causing a **decrease** in the firm's book balance but no change in its available balance.

For example, suppose General Mechanics, Inc. (GMI), currently has \$100,000 on deposit with its bank. On June 8, it buys some raw materials and pays with a check for \$100,000. The company's book balance is immediately reduced by \$100,000 as a result. GMI's bank, however, will not find out about this check until it is presented to GMI's bank for payment on, say, June

14. Until the check is presented, the firm's available balance is greater than its book balance by \$100,000.

In other words, before June 8, GMI has a zero float:

$$\begin{aligned}\text{Float} &= \text{Firm's available balance} - \text{Firm's book balance} \\ &= \$100,000 - 100,000 \\ &= \underline{\underline{\$0}}\end{aligned}$$

GMI's position from June 8 to June 14 is:

$$\begin{aligned}\text{Disbursement float} &= \text{Firm's available balance} - \text{Firm's book balance} \\ &= \$100,000 - 0 \\ &= \underline{\underline{\$100,000}}\end{aligned}$$

While the check is clearing, GMI has a balance with the bank of \$100,000. It can obtain the benefit of such cash during this period. For example, the available balance could be temporarily invested in marketable securities and thus earn some interest.

3.2.2 Collection Float and Net Float

Checks received by the firm create *collection float*. Collection float increases book balances but does not immediately change available balances. For example, suppose GMI receives a check from a customer for \$100,000 on October 8. Assume, as before, that the company has \$100,000 deposited at its bank and a zero float. It deposits the check and increases its book balance by \$100,000 to \$200,000. However, the additional cash is not available to GMI until its bank has presented the check to the customer's bank and received \$100,000. This will occur on, say, October 14. In the meantime, the cash position at GMI will reflect a collection float of \$100,000. We can summarize these events: Before October 8, GMI's position is: Float = Firm's available balance - Firm's book balance

$$\begin{aligned}&= \$100,000 - 100,000 \\ &= \underline{\underline{\$0}}\end{aligned}$$

GMI's position from October 8 to October 14 is:

$$\begin{aligned}\text{Collection float} &= \text{Firm's available balance} - \text{Firm's book balance} \\ &= \$100,000 - 200,000 \\ &= \underline{\underline{-\$100,000}}\end{aligned}$$

In general, a firm's payment (disbursement) activities generate disbursement float, and its collection activities generate collection float. The net effect—that is, the sum of the total

collection and disbursement floats—*is the net float*. The net float at a point in time is simply the overall difference between the **firm’s available balance and its book balance**. If the net float is positive, then the firm’s disbursement float *exceeds* its collection float, and its available balance exceeds its book balance. If the available balance is less than the book balance, then the firm has a *net collection float*.

A firm should be concerned with its *net float* and *available balance* more than with its book balance. If a financial manager knows that a check written by the company will not clear for several days, that manager will be able to keep lower cash balance at the bank than might be possible otherwise. This can generate a great deal of money.

3.2.3 Float Management

Float management involves controlling the *collection and disbursement of cash*. The objective in cash collection is to speed up collections and reduce the lag between the time customers pay their bills and the time the cash becomes available. The objective in cash disbursement is to control payments and minimize the firm’s costs associated with making payments. Total collection or disbursement times can be broken down into three parts: **mailing time, processing delay, and availability delay**.

1. **Mailing time** is the part of the collection and disbursement process during which checks are *trapped in the postal system*.
2. **Processing delay** is the time it takes the *receiver* of a check to process the payment and deposits it in a bank for collection.
3. **Availability delay** refers to the time required to *clear a check through the banking system*. Speeding up collections involves reducing one or more of these components. Slowing up disbursements involves increasing one of them.

3.2.4 Measuring Float

The size of the float depends on both the *dollars and the time delay* involved. For example, suppose you mail a check for \$500 to another **region** each month. It takes five days in the mail for the check to reach its destination (the mailing time) and one day for the recipient to get over to the bank (the processing delay). The recipient’s bank holds out-of-**region** checks for three days (availability delay).

The total delay is: $5 + 1 + 3 = \underline{9 \text{ days}}$.

In this case, what is your average daily disbursement float? There are two equivalent ways of calculating the answer.

First, you have a \$500 float for nine days, so we say that the total float is: $9 \times \$500 = \$4,500$.

Assuming 30 days in the month, the average daily float is: $\$4,500/30 = \150 .

Alternatively, your disbursement float is \$500 for 9 days out of the month and zero the other 21 days (again assuming 30 days in a month). Your average daily float is thus:

$$\begin{aligned}\text{Average daily float} &= (9 \times \$500 + 21 \times 0)/30 \\ &= 9/30 \times \$500 + 21/30 \times 0 \\ &= \$4,500/30 \\ &= \underline{\underline{\$150}}\end{aligned}$$

Some Details:

In measuring float, there is an important difference to note between collection and disbursement float. We defined float as the difference between the firm's available cash balance and its book balance. With a disbursement, the firm's book balance goes down when the check is mailed, so the mailing time is an important component in disbursement float. However, with a collection, the firm's book balance isn't increased until the check is received, so **mailing time is not a component of collection float**.

This doesn't mean that mailing time is not important. The point is that when collection float is calculated, mailing time should not be considered. When total collection time is considered, the mailing time is a crucial component. Also, when we talk about availability delay, how long it actually takes a check to clear isn't really crucial. What matters is **how long we must wait before the bank grants availability**—that is, use of the funds. Banks actually use availability schedules to determine how long a check is held based on time of deposit and other factors. Beyond this, availability delay can be a matter of negotiation between the bank and a customer. In a similar vein, for outgoing checks, what matters is the date our account is debited, not when the recipient is granted availability.

Cost of the Float

The basic cost of collection float to the firm is simply the opportunity cost of not being able to use the cash.

Ethical and Legal Questions: The cash manager must work with collected bank cash balances and not the firm's book balance (which reflects checks that have been deposited but not

collected). If this is not done, a cash manager could be drawing on uncollected cash as a source of funds for short-term investing. Most banks charge a penalty rate for the use of uncollected funds. However, banks may not have good enough accounting and control procedures to be fully aware of the use of uncollected funds. This raises some ethical and legal questions for the firm.

3.3 Cash Collection and Concentration

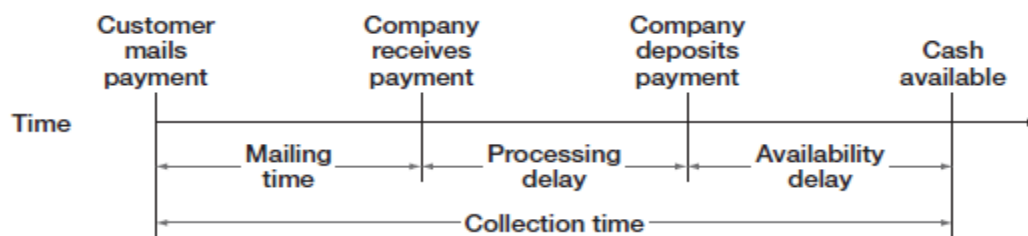
From our previous discussion, we know that collection delays work against the firm. All other things being the same, then, a firm will adopt procedures to speed up collections and thereby decrease collection times.

Cash collection policies depend on the nature of the business. Firms can choose to have checks mailed to one location, or many locations (reduces mailing time). Many firms also accept online payments either with a credit card or with authorization to request the funds directly from your bank. In addition, even after cash is collected, firms need procedures to funnel, or concentrate, that cash where it can be best used. Some common collection and concentration procedures are presented below.

Components of collection time

Based on discussions above, we can depict the basic parts of the cash collection process as follows. The total time in this process is made up of mailing time, check-processing delay, and the bank's availability delay.

Figure3.1: components of collection time



The amount of time that cash spends in each part of the cash collection process depends on where the firm's customers and banks are located and how efficient the firm is in collecting cash.

3.3.1 Cash Collection

How a firm collects cash from its customers depends in large part on the nature of the business. The simplest case would be a business such as a restaurant chain. Most of its customers will pay with cash, check, or credit card at the point of sale (this is called over-the-counter collection), so there is no problem with mailing delay. Normally, the funds will be deposited in a local bank, and the firm will have some means (discussed later) of gaining access to the funds.

When some or all of the payments a company receives are checks that arrive through the mail, all three components of collection time become relevant. The firm may choose to have all the checks mailed to one location; more commonly, the firm might have a number of different mail collection points to reduce mailing times. Also, the firm may run its collection operation itself or might hire an outside firm that specializes in cash collection.

Other approaches to cash collection exist. One that is becoming more common is the preauthorized payment arrangement. With this arrangement, the payment amounts and payment dates are fixed in advance. When the agreed-upon date arrives, the amount is automatically transferred from the customer's bank account to the firm's bank account, which sharply reduces or even eliminates collection delays. The same approach is used by firms that have online terminals, meaning that when a sale is rung up, the money is immediately transferred to the firm's accounts.

LOCKBOXES

When a firm receives its payments by mail, it must decide where the checks will be mailed and how the checks will be picked up and deposited. Careful selection of the number and locations of collection points can greatly reduce collection times. Many firms use special post office boxes called **lockboxes** to intercept payments and speed up cash collection.

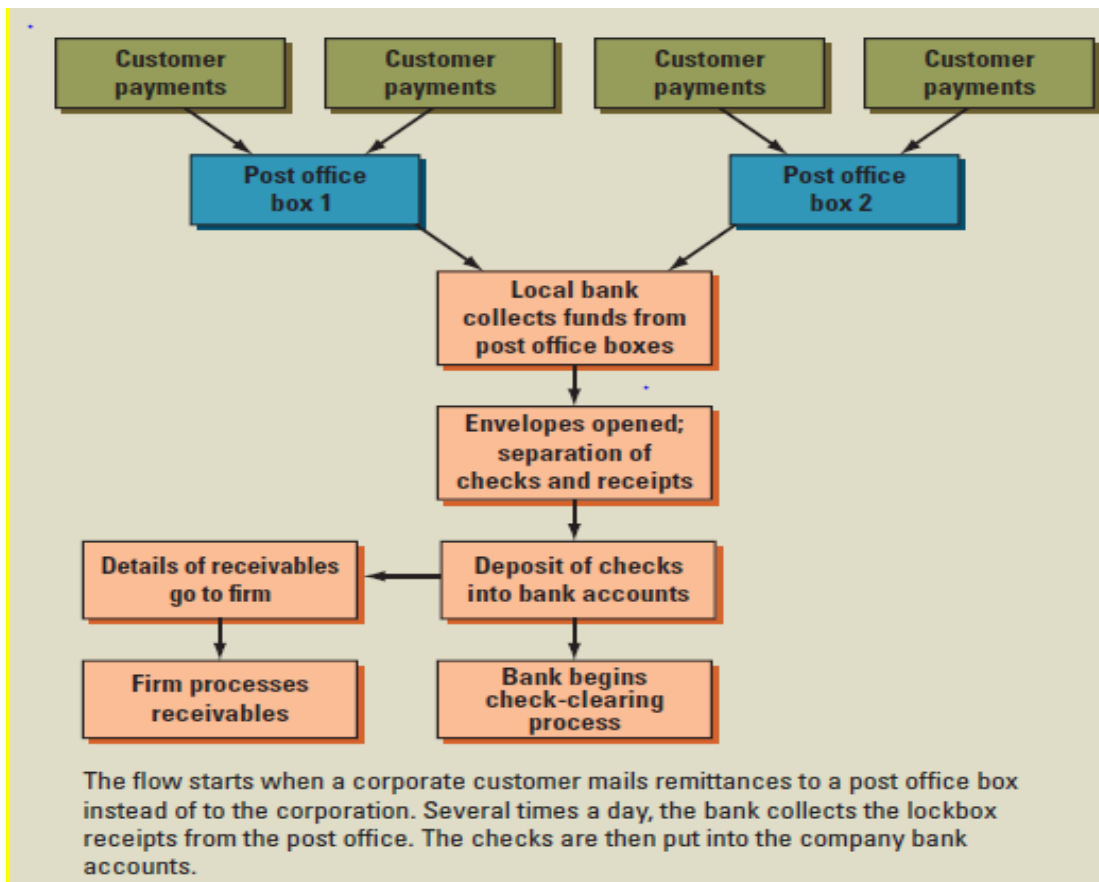
As figure 2 below illustrates, in a lockbox system, the collection process is started by customers' mailing their checks to a post office box instead of sending them to the firm. The lockbox is maintained by a local bank. A large corporation may actually maintain more than 20 lockboxes with in a country.

In the typical lockbox system, the local bank collects the lockbox checks several times a day. The bank deposits the checks directly to the firm's account. Details of the operation are recorded (in some computer-usable form) and sent to the firm.

A lockbox system reduces mailing time because checks are received at a nearby post office instead of at corporate headquarters. Lockboxes also reduce the processing time because the corporation doesn't have to open the envelopes and deposit checks for collection. In all, a bank lockbox system should enable a firm to get its receipts processed, deposited, and cleared faster than if it were to receive checks at its headquarters and deliver them itself to the bank for deposit and clearing.

Some firms have turned to what are called "electronic lockboxes" as an alternative to traditional lockboxes. In one version of an electronic lockbox, customers use the telephone or the Internet to access their account—say, their credit card account at a bank—review their bill, and authorize payment without paper ever having changed hands on either end of the transaction. Clearly, an electronic lockbox system is far superior to traditional bill payment methods, at least from the biller's perspective. Look for systems like this to continue to grow in popularity.

Figure 3.2: lockbox system



3.3.2 Cash Concentration

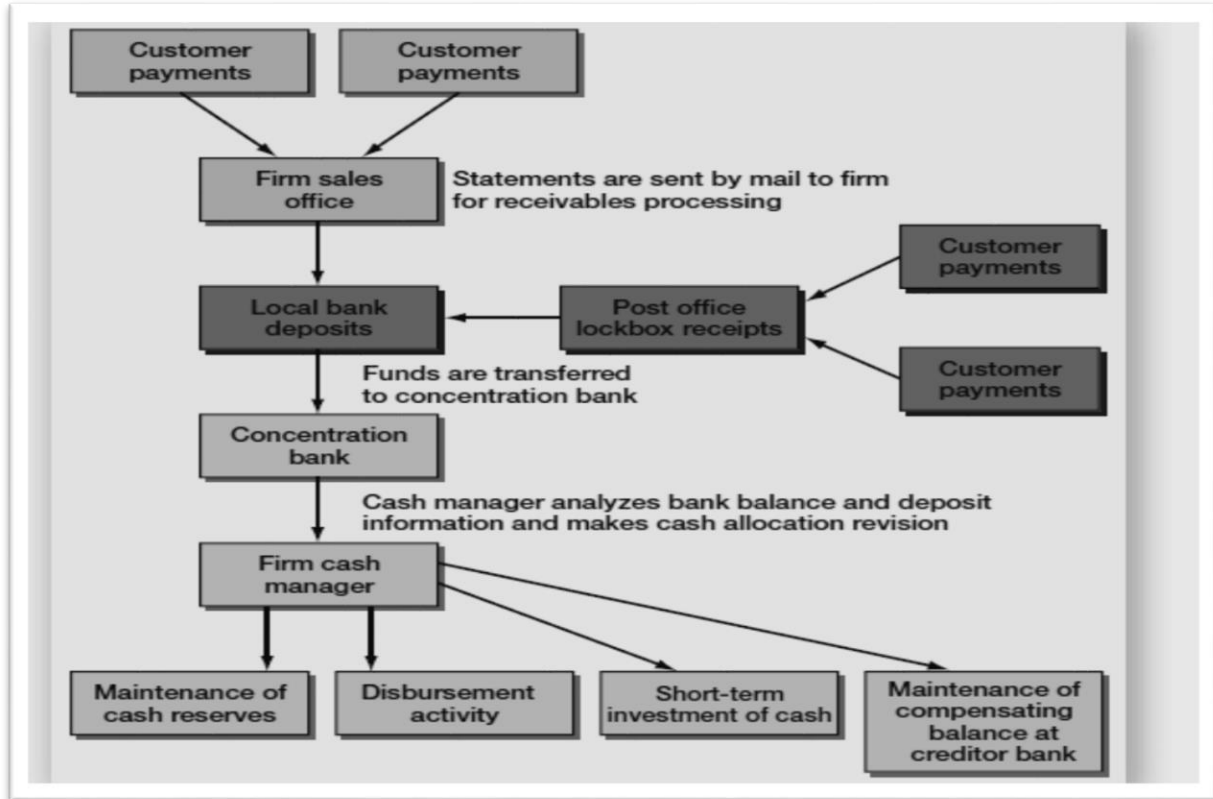
As we discussed earlier, a firm will typically have a number of cash collection points; as a result, cash collections may end up in many different banks and bank accounts. From here, the firm needs procedures to move the cash into its main accounts. This is called **cash concentration**. By routinely pooling its cash, the firm greatly simplifies its cash management by reducing the number of accounts that must be tracked. Also, by having a larger pool of funds available, a firm may be able to negotiate or otherwise obtain a better rate on any short-term investments.

In setting up a concentration system, firms will typically use one or more concentration banks. A concentration bank pools the funds obtained from local banks contained within some geographic region. Concentration systems are often used in conjunction with lockbox systems.

A key part of the cash collection and concentration process is the transfer of funds to the concentration bank. There are several options available for accomplishing this transfer. The cheapest is a depository transfer check (DTC), which is a preprinted check that usually needs no signature and is valid only for transferring funds between specific accounts within the same firm. The money becomes available one to two days later. Automated clearinghouse (ACH) transfers are basically electronic versions of paper checks. These may be more expensive, depending on the circumstances, but the funds are available the next day. The most expensive means of transfer are wire transfers, which provide same-day availability. Which approach a firm will choose depends on the number and size of payments? For example, a typical ACH transfer might be \$200, whereas a typical wire transfer would be for several million dollars.

Firms with a large number of collection points and relatively small payments will choose the cheaper route, whereas firms that receive smaller numbers of relatively large payments may choose more expensive procedures.

Figure3.3: Lockboxes and Concentration Banks in a Cash Management System



ACCELERATING COLLECTIONS: AN EXAMPLE

The decision of whether or not to use a bank cash management service incorporating lockboxes and concentration banks depends on where a firm's customers are located and the speed of a country's postal system. Suppose ABC Corporation, located in Addis Ababa, is considering a lockbox system. Its collection delay is currently eight days.

ABC does business in the southwestern part of the country (Nekemte, Awassa, and Arsi). The proposed lockbox system would be located in Awassa and operated by Commercial Bank of Ethiopia (CBE). Commercial Bank has analyzed ABC's cash-gathering system and has concluded that it can decrease collection time by two days. Specifically, the bank has come up with the following information on the proposed lockbox system

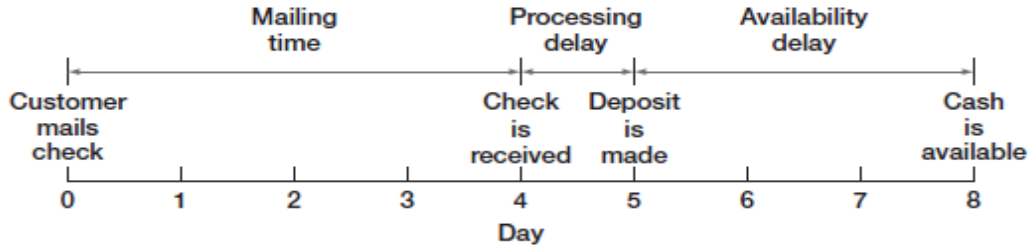
Reduction in mailing time	= 1.0 day
Reduction in clearing time	= .5 day
Reduction in firm processing time	= .5 day
Total	= 2.0 days

The following is also known:

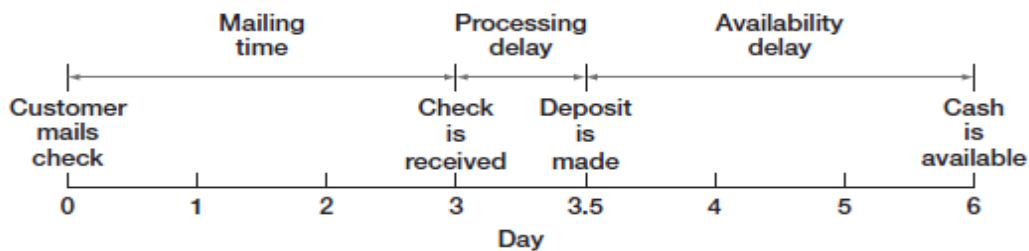
Daily interest on Treasury bills	= .025%
Average number of daily payments to lockboxes	= 2,000
Average size of payment	= \$600

The cash flows for the current collection operation are shown in the following cash flow time chart:

Figure 3.4: Cash flow time



The cash flows for the lockbox collection operation will be as follows:



The Commercial Bank has agreed to operate this lockbox system for a fee of 25 cents per check processed. Should ABC give the go-ahead?

Solution:

We first need to determine the benefit of the system. The average daily collections from the customers are \$1.2 million (2,000 x \$600). The collection time will be decreased by two days, so the lockbox system will increase the collected bank balance by \$1.2 million x 2 = \$2.4 million. In other words, the lockbox system releases \$2.4 million to the firm by reducing processing, mailing, and clearing time by two days. From our earlier discussion, we know that this \$2.4 million is the PV of the proposal.

To calculate the NPV, we need to determine the PV of the costs. There are several different ways to proceed. First, at 2,000 checks per day and \$.25 per check, the daily cost is \$500. This cost will be incurred every day forever. At an interest rate of .025 percent per day, the PV is therefore $\$500 / .00025 = \2 million. The NPV is thus $\$2.4$ million = 2 million + \$400,000, and the system appears to be **desirable**. Alternatively, ABC could invest the \$2.4 million at .025 percent per day. The interest earned would be $\$2.4$ million x .00025 = \$600 per day. The cost of the system is

\$500 per day; so, running it obviously generates a profit in the amount of \$100 per day. The PV of \$100 per day forever is $\$100/.00025 = \$400,000$, just as we had before.

Finally, and most simply, each check is for \$600 and is available two days sooner if the system is used. The interest on \$600 for two days is $2 \times \$600 \times .00025 = \0.30 . The cost is 25 cents per check, so ABC makes a nickel ($\$.30 - .25$) on every check. With 2,000 checks per day, the profit is $\$.05 \times 2,000 \text{ checks} = \100 per day, as we calculated. So, yes, ABC should give the go-ahead.

3.4 Managing Cash Disbursements

From the firm's point of view, disbursement float is desirable, so the goal in managing disbursement float is to slow down disbursements. To do this, the firm may develop strategies to increase mailing float, processing float, and availability float on the checks it writes. Beyond this, firms have developed procedures for minimizing cash held for payment purposes.

Increasing Disbursement Float

As we have seen, slowing down payments comes from the time involved in mail delivery, check processing, and collection of funds. Disbursement float can be increased by writing a check on a geographically distant bank. For example, a supplier in Addis might be paid with checks drawn on a Mekelle bank. This will increase the time required for the checks to clear through the banking system. Mailing checks from remote post offices is another way firms slow down disbursement.

Tactics for maximizing disbursement float are debatable on both ethical and economic grounds. First, as we will discuss in some detail in the next chapter, payment terms frequently offer a substantial discount for early payment. The discount is usually much larger than any possible savings from "playing the float game." In such cases, increasing mailing time will be of no benefit if the recipient dates payments based on the date received (as is common) as opposed to the postmark date.

Beyond this, suppliers are not likely to be fooled by attempts to slow down disbursements.

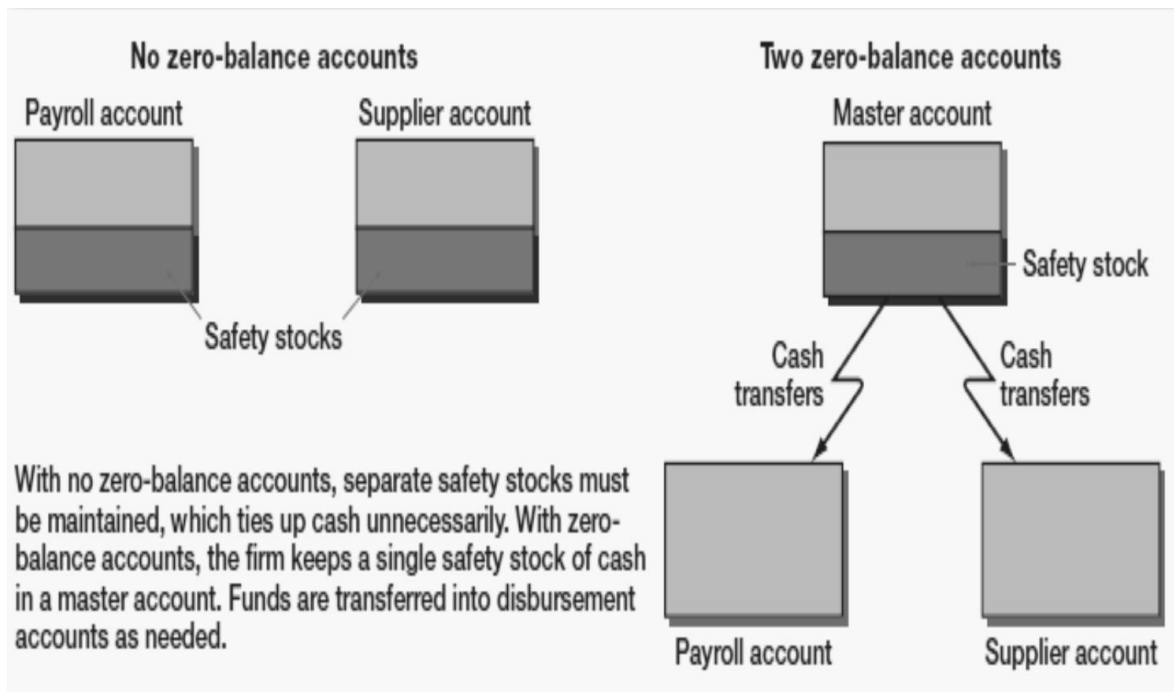
The negative consequences of poor relations with suppliers can be costly. In broader terms, intentionally delaying payments by taking advantage of mailing times or unsophisticated suppliers may amount to avoiding paying bills when they are due—an unethical business procedure.

Controlling Disbursements

We have seen that maximizing disbursement float is probably poor business practice. However, a firm will still wish to tie up as little cash as possible in disbursements. Firms have therefore developed systems for efficiently managing the disbursement process. The general idea in such systems is to have no more than the minimum amount necessary to pay bills on deposit with the bank. We discuss some approaches to accomplishing this goal next.

- 1. Zero-Balance Accounts:-** with a **zero-balance account** system, the firm, in cooperation with its bank, maintains a master account and a set of subaccounts. When a check written on one of the subaccounts must be paid, the necessary funds are transferred in from the master account. Figure 3.5 (refer next page) illustrates how such a system might work. In this case, the firm maintains two disbursement accounts, one for suppliers and one for payroll. As shown in the figure, if the firm does not use zero-balance accounts, then each of these accounts must have a safety stock of cash to meet unanticipated demands. If the firm does use zero-balance accounts, then it can keep one safety stock in a master account and transfer the funds to the two subsidiary accounts as needed. The key point is that the total amount of cash held as a buffer is smaller under the zero-balance arrangement, which frees up cash to be used elsewhere.

Figure 3.5: No zero-balance and two zero-balance accounts



2. Controlled Disbursement Accounts:- with a **controlled disbursement account** system, almost all payments that must be made in a given day are known in the morning. The bank informs the firm of the total, and the firm transfers (usually by wire) the amount needed.

3.5 Investing Idle Cash

If a firm has a temporary cash surplus, it can invest in short-term securities. As we have mentioned at various times, the market for short-term financial assets is called the money market.

The maturity of short-term financial assets that trade in the money market is one year or less.

Most large firms manage their own short-term financial assets, carrying out transactions through banks and dealers. Some large firms and many small firms use money market mutual funds. These are funds that invest in short-term financial assets for a management fee. The management fee is compensation for the professional expertise and diversification provided by the fund manager.

Among the many money market mutual funds, some specialize in corporate customers. In addition, banks offer arrangements in which the bank takes all excess available funds at the close of each business day and invests them for the firm.

Temporary Cash Surpluses

Firms have temporary cash surpluses for various reasons. Two of the most important are the financing of seasonal or cyclical activities of the firm and the financing of planned or possible expenditures.

Seasonal or Cyclical Activities -Some firms have a predictable cash flow pattern. They have surplus cash flows during part of the year and deficit cash flows the rest of the year.

For example, Toys “ R” Us, a retail toy firm, has a seasonal cash flow pattern influenced by the holiday season. A firm such as Toys “ R” Us may buy marketable securities when surplus cash flows occur and sell marketable securities when deficits occur. Of course, bank loans are another short-term financing device. The use of bank loans and marketable securities to meet temporary financing needs is illustrated in Rose page 602 (Figure 20.6). In this case, the firm is following a compromise working capital policy in the sense we discussed in the previous chapter.

Planned or Possible Expenditures: Firms frequently accumulate temporary investments in marketable securities to provide the cash for a plant construction program, dividend payment, or other large expenditures. Thus, firms may issue bonds and stocks before the cash is needed, investing the proceeds in short-term marketable securities and then selling the securities to

finance the expenditures. Also, firms may face the possibility of having to make a large cash outlay. An obvious example would involve the possibility of losing a large lawsuit. Firms may build up cash surpluses against such a contingency.

3.6 Determining the Target Cash Balance

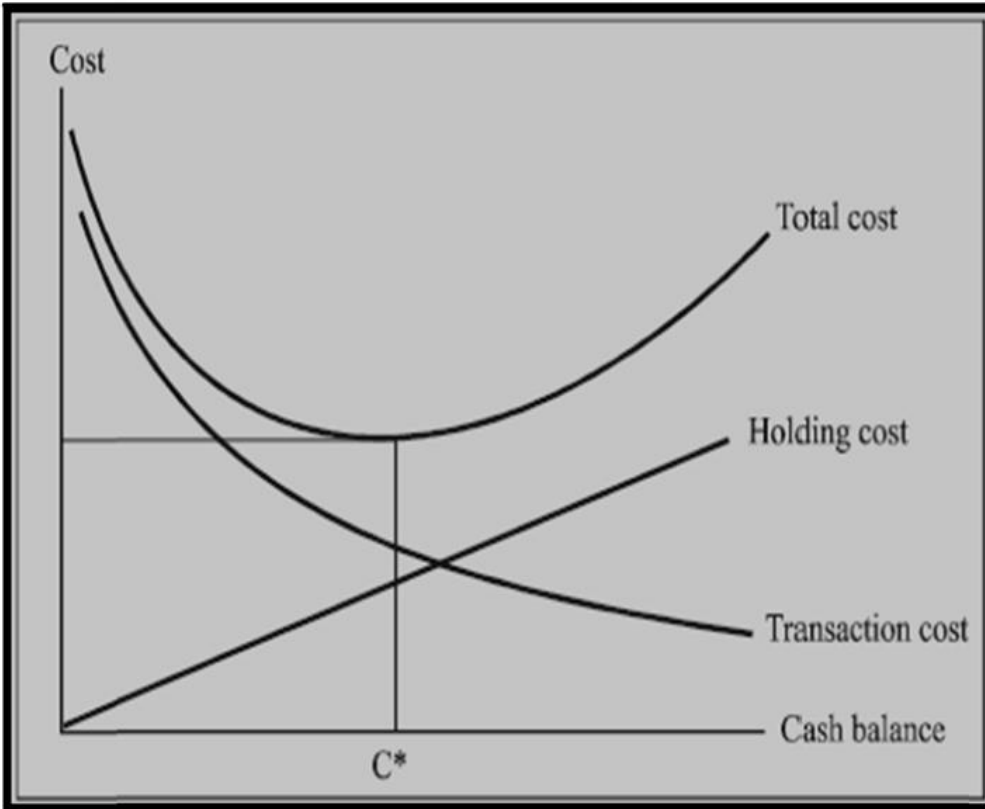
Based on our general discussion of current assets in the previous chapter, the target cash balance involves a trade-off between the opportunity costs of holding too much cash (the carrying costs) and the costs of holding too little (the shortage costs, also called adjustment costs). The nature of these costs depends on the firm's working capital policy.

If the firm has a flexible working capital policy, it will probably maintain marketable securities portfolio. In this case, the adjustment, or shortage, costs will be the trading costs associated with buying and selling securities. On the other hand, if the firm has a restrictive working capital policy, it will probably borrow in the short term to meet cash shortages. The costs in this case will be the interest and other expenses associated with arranging a loan.

In our discussion that follows, we will assume the firm has a flexible policy. Its cash management, then, consists of moving money in and out of marketable securities. This is a traditional approach to the subject, and it is a nice way of illustrating the costs and benefits of holding cash. Keep in mind, however, that the distinction between cash and money market investments is becoming increasingly blurred.

The Basic Idea

The Figure below presents the cash management problem for our flexible firm. If a firm tries to keep its cash holdings too low, it will find itself running out of cash more often than is desirable and thus selling marketable securities (and perhaps later buying marketable securities to replace those sold) more frequently than would be the case if the cash balance were higher. Thus, **trading costs** will be high when the cash balance is small. That is, trading costs are increased when the firm must sell securities to establish a cash balance. These costs will fall as the cash balance becomes larger.



On the other hand, when a firm holds cash in excess of some necessary minimum to reduce trading costs, it incurs an **opportunity cost**. The opportunity cost of holding excess cash (held in currency or bank deposits) is the interest income that could have been earned in the next best use, such as investment in marketable securities. Given the opportunity cost of holding cash, why would a firm hold cash in excess of its compensating balance requirements? The answer is that a cash balance must be maintained to provide the liquidity necessary for transaction needs—paying bills. If the firm maintains too small cash balance, it may run out of cash. If this happens, the firm may have to raise cash on a short-term basis. This could involve, for example, selling marketable securities or borrowing. Activities such as selling marketable securities and borrowing involve various costs. Holding cash than is needed has an opportunity cost. To determine the appropriate cash balance, the firm must weigh the benefits of holding cash against these costs.

In the above figure, the sum of the costs is given by the total cost curve. As shown, the minimum total cost occurs where the two individual cost curves cross at point C^* . At this point, the opportunity costs and the trading costs are equal. This point represents the target cash balance, and it is the point the firm should try to find.

Chapter Four

Receivables Management

4.1 Credit and Receivables

When a firm sells goods and services, it can demand cash on or before the delivery date or it can extend credit to customers and allow some delay in payment. Granting credit is making an investment in a customer—an investment tied to the sale of a product or service.

Why do firms grant credit? The obvious reason is that offering credit is a way of stimulating sales. However, the costs associated with granting credit are not trivial. **First**, there is a chance that the customer will not pay. **Second**, the firm has to bear the costs of carrying the receivables. The credit policy decision thus involves a trade-off between the benefits of increased sales and the costs of granting credit. From an accounting perspective, when credit is granted, an account receivable is created. Such receivables include credit to other firms, called trade credit, and credit granted to consumers, called consumer credit.

4.1.1 Components of Credit Policy

If a firm decides to grant credit to its customers, then it must establish procedures for extending credit and collecting. In particular, the firm will have to deal with the following components of credit policy:

1. **Terms of sale:** The terms of sale establish how the firm proposes to sell its goods and services. A basic decision is whether the firm will require cash or will extend credit. If the firm does grant credit to a customer, the terms of sale will specify (perhaps implicitly) the credit period, the cash discount and discount period, and the type of credit instrument.
2. **Credit analysis:** In granting credit, a firm determines how much effort to expend trying to distinguish between customers who will pay and customers who will not pay. Firms use a number of devices and procedures to determine the probability that customers will not pay; put together, these are called credit analysis.
3. **Collection policy:** After credit has been granted, the firm has the potential problem of collecting the cash, for which it must establish a collection policy. In the next several sections, we will discuss these components of credit policy that collectively make up the decision to grant credit.

4.1.2 The Cash Flows from Granting Credit

The accounts receivable period is described as the time it takes to collect on a credit sale. There are several events that occur during this period. These events are the cash flows associated with granting credit, and they can be illustrated with a cash flow diagram as follows:

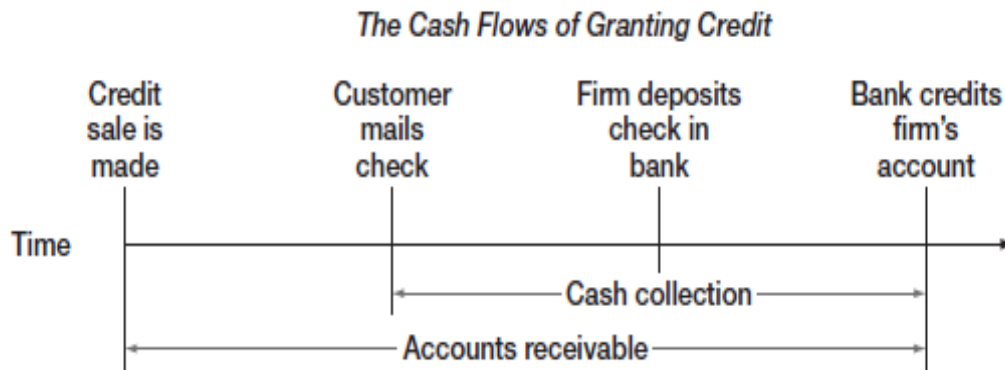


Figure 4.1: cash flows from granting credit

As the time line indicates, the typical sequence of events when a firm grants credit is as follows: (1) The credit sale is made, (2) the customer sends a check to the firm (3) the firm deposits the check, and (4) The firm's account is credited for the amount of the check. It is apparent that one of the factors influencing the receivables period is float. Thus, one way to reduce the receivables period is to speed up the check mailing, processing, and clearing delays.

4.1.3 The Investment in Receivables

The investment in accounts receivable for any firm depends on the amount of credit sales and the average collection period. A firm's receivables generally will be equal to its average daily sales multiplied by its average collection period. Thus, a firm's investment in accounts receivable depends on factors that influence credit sales and collections.

Recall that we use the terms days' sales in receivables, receivables period, and average collection period interchangeably to refer to the length of time it takes for the firm to collect on a credit sale.

4.2 Terms of the Sale

The terms of a sale are made up of three distinct elements:

1. The period for which credit is granted (the **credit period**).
2. The **cash discount** and the **discount period**.
3. The type of **credit instrument**.

Within a given industry, the terms of sale are usually fairly standard, but these terms vary quite a bit across industries.

THE BASIC FORM

The easiest way to understand the **terms of sale** is to consider an example. Terms such as 2/10, net/ 60 is common. This means that customers have 60 days from the invoice date to pay the full amount (say \$1000); however, if payment is made within 10 days, a 2 percent cash discount can be taken. In such terms, the buyer has an option of paying \$980 within the discount period, or paying the full \$1,000 in 60 days. In general, credit terms are interpreted in the following way as: take this discount off the invoice price if you pay in this many days, else pay the full invoice amount in this many days.

The credit period: is the basic length of time for which credit is granted. The credit period varies widely from industry to industry, but it is almost always between 30 and 120 days. If a cash discount is offered, then the credit period has two components: the net credit period and the cash discount period. The net credit period is the length of time the customer has to pay. The cash discount period is the time during which the discount is available.

The Invoice Date is the beginning of the credit period. Possible arrangements include:

- ❖ ROG (for receipt of goods), in this case, the credit period starts when the customer receives the order.
- ❖ EOM dating, all sales made during a particular month are assumed to be made at the end of that month. Confusingly, the end of the month is sometimes taken to be the 25th day of the month.
- ❖ MOM, for middle of month, is another variation.
- ❖ Seasonal dating is sometimes used to encourage sales of seasonal products during the off-season period.

Length of the Credit Period: Several factors influence the length of the credit period. Two important ones are;

- ❖ The *buyer's* inventory period, and
- ❖ Operating cycle (buyer's inventory + receivables period).

All else equal, the shorter these are, the shorter the credit period will be. The buyer's inventory period is the time it takes the buyer to acquire inventory (from us), process and sell it. The buyer's receivables period is the time it then takes the buyer to collect on the sale. On top of

customers' inventory period and operating cycle, there are a number of other factors that influence the credit period. Many of these also influence our customer's operating cycles; so, once again, these are related subjects. Among the most important are:

1. **Perishability and collateral value:** Perishable items have relatively rapid turnover and relatively low collateral value. Credit periods are thus shorter for such goods.
2. **Consumer demand:** Products that are well established generally have more rapid turnover. Newer or slow-moving products will often have longer credit periods associated with them to entice buyers. Also, as we have seen, sellers may choose to extend much longer credit periods for off-season sales (when customer demand is low).
3. **Cost, profitability, and standardization:** Relatively inexpensive goods tend to have shorter credit periods. The same is true for relatively standardized goods and raw materials. These all tend to have lower markups and higher turnover rates, both of which lead to shorter credit periods. However, there are exceptions.
4. **Credit risk:** The greater the credit risk of the buyer, the shorter the credit period is likely to be (if credit is granted at all).
5. **Size of the account:** If an account is small, the credit period may be shorter because small accounts cost more to manage, and the customers are less important.
6. **Competition:** When the seller is in a highly competitive market, longer credit periods may be offered as a way of attracting customers.
7. **Customer type:** A single seller might offer different credit terms to different buyers.

A food wholesaler, for example, might supply groceries, bakeries, and restaurants. Each group would probably have different credit terms. More generally, sellers often have both wholesale and retail customers, and they frequently quote different terms to the two types.

Cash discounts -are often part of the terms of sale. One reason discounts are offered is to speed up the collection of receivables. This will have the effect of reducing the amount of credit being offered, and the firm must trade this off against the cost of the discount.

Notice that when a cash discount is offered, the credit is essentially free during the discount period. The buyer pays for the credit only after the discount expires.

Cost of the Credit: In our examples, it might seem that the discounts are rather small. With 2/10, net 30, for example, early payment gets the buyer only a 2 percent discount. Does this provide a significant incentive for early payment? Yes and let us see how?

To see why the discount is important, we will calculate the cost to the buyer of not paying early. To do this, let's find the interest rate that the buyer is effectively paying for the trade credit. Suppose the order is for \$1,000. The buyer can pay \$980 in 10 days or wait another 20 days and pay \$1,000. It's obvious that the buyer is effectively borrowing \$980 for 20 days and that the buyer pays \$20 in interest on the "loan." What's the interest rate?

This interest is ordinary discount interest, with the \$20 interest on \$980 borrowed: the rate is $\$20/\$980=2.0408\%$. This rate is relatively low, but remember that this is the rate per 20-day period. There are $365/20 = 18.25$ such periods in a year, so by not taking the discount, the buyer is paying an effective annual rate (EAR) of:

$$\text{EAR} = 1.020408^{18.25} - 1 = 44.6\%$$

From the buyer's point of view, this is an expensive source of financing! Meaning, the customer is hardly going to decide not to take the discount. Given that the interest rate is so high here, it is unlikely that the seller benefits from early payment. Ignoring the possibility of default by the buyer, the decision of a customer to forgo the discount almost surely works to the seller's advantage.

Credit Instruments -the **credit instrument** is the basic evidence of buyer's indebtedness. Most trade credit is offered on an open account. This means that the only formal instrument of credit is the invoice, which is sent with the shipment of goods and which the customer signs as evidence that the goods have been received. Afterward, the firm and its customers record the exchange on their books of account.

At times, the firm may require that the customer sign a promissory note. This is a basic IOU and might be used when the order is large, when there is no cash discount involved, or when the firm anticipates a problem in collections. Promissory notes are not common, but they can eliminate possible controversies later about the existence of debt.

One problem with promissory notes is that they are signed after delivery of the goods. One way to obtain a credit commitment from a customer before the goods are delivered is to arrange a commercial draft. Typically, the firm draws up a commercial draft calling for the customer to pay a specific amount by a specified date. The draft is then sent to the customer's bank with the shipping invoices.

If immediate payment is required on the draft, it is called a sight draft. If immediate payment is not required, then the draft is a time draft. When the draft is presented and the buyer "accepts" it,

meaning that the buyer promises to pay it in the future, then it is called a trade acceptance and is sent back to the selling firm. The seller can then keep the acceptance or sell it to someone else. If a bank accepts the draft, meaning that the bank is guaranteeing payment, then the draft becomes a banker's acceptance. This arrangement is common in international trade, and banker's acceptances are actively traded in the money market.

A firm can also use a conditional sales contract as a credit instrument. With such an arrangement, the firm retains legal ownership of the goods until the customer has completed payment. Conditional sales contracts usually are paid in installments and have an interest cost built into them.

4.3 How to Create Credit & Collections Policy?

Knowing the firm's level of risk tolerance, cash-on-hand and access to capital will go a long way in helping a firm to determine its credit and collection policy. Firm's credit and collection policy can be liberal, moderate, conservative or some combination such as:

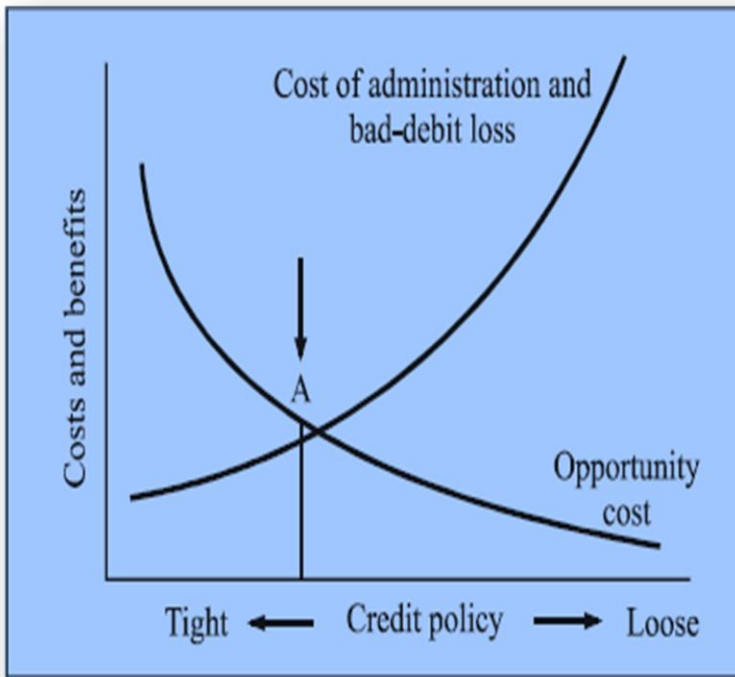
- ❖ Liberal on credit/conservative(tight) on collections
- ❖ Moderate on credit/moderate on collections
- ❖ Conservative(tight) on credit/liberal on collections

The mentioned above alternative policies do have their own cost:

1. Opportunity cost of lost contribution/profit , and
2. Credit administration costs and bad debt losses.

As you can see from the figure1 below, these two costs behave contrary to each other. As a firm moves from tight to loose credit policy, the opportunity cost declines; that is the firm recaptures lost sales and thus lost contribution/profit. However, the credit administration costs and bad debt losses increases.

Firm's credit policy can be determined by the tradeoff between the opportunity cost, credit administration costs and bad debt losses. In the figure below, such trade-off occurs at point A where total of opportunity costs of lost contribution, and credit administration costs and bad-debt- losses is minimum.



Costs of Credit Policy

Figure 4.2: costs of credit policy

Does point A represent optimum credit policy?

❖ **Optimum credit policy:- marginal cost-benefit analysis**

The firm's operating profit is maximized when total cost is minimized for a given level of revenue. Credit policy at point A in the figure above represents the maximum operating profit (total cost minimum). But it is not necessarily the optimum credit policy. **Optimum credit policy** is one which maximizes the firm's value. The value of the firm is maximized when the **incremental marginal rate of return of an investment in receivable is equal to the incremental or marginal cost of funds used to finance the investment.**

The incremental rate of return can be calculated as incremental operating profit divided by the incremental investment in receivable. The incremental cost of funds is the rate of return required by the suppliers of funds, given the risk of investment in accounts receivables.

Thus, investment in accounts receivable should be evaluated following the four steps below:

- 1) Estimation of incremental operating profit,
- 2) Estimation of incremental investment in accounts receivable

- 3) Estimation of incremental required rate of return of the investment in receivable
- 4) Comparison of the incremental rate of return with required rate of return.

4.4 Analyzing Credit Policy

4.4.1 Credit Policy Effects

In evaluating credit policy, there are five basic factors to consider:

1. **Revenue effects:** If the firm grants credit, then there will be a delay in revenue collections as some customers take advantage of the credit offered and pay later. However, the firm may be able to charge a higher price if it grants credit and it may be able to increase the quantity sold. Total revenues may thus increase.
2. **Cost effects:** Although the firm may experience delayed revenues if it grants credit, it will still incur the costs of sales immediately. Whether the firm sells for cash or credit, it will still have to acquire or produce the merchandise (and pay for it).
3. **The cost of debt:** When the firm grants credit, it must arrange to finance the resulting receivables. As a result, the firm's cost of short-term borrowing is a factor in the decision to grant credit.
4. **The probability of nonpayment:** If the firm grants credit, some percentage of the credit buyers will not pay. This can't happen, of course, if the firm sells for cash.
5. **The cash discount:** When the firm offers a cash discount as part of its credit terms, some customers will choose to pay early to take advantage of the discount.

4.4.2 Credit Analysis

Thus far, we have focused on establishing credit terms. Once a firm decides to grant credit to its customers, it must then establish guidelines for determining who will and who will not be allowed to buy on credit. Credit analysis refers to the process of deciding whether or not to extend credit to a particular customer. Imagine that a firm is trying to decide whether or not to grant credit to a customer. This decision can get complicated. The answer depends on what will happen if credit is refused. Will the customer simply pay cash? Or will the customer not make the purchase at all? Credit analysis is important simply because potential losses on receivables can be substantial. Companies report the amount of receivables they expect not to collect on their balance sheets.

Credit analysis usually involves two steps: **Gathering relevant information** and **determining creditworthiness**.

i. Credit information

If a firm wants credit information about customers, there are a number of sources. Information sources commonly used to assess creditworthiness include the following:

1. **Financial statements:** A firm can ask a customer to supply financial statements such as balance sheets and income statements.
2. **Credit reports-** about the customer's payment history with other firms:
3. **Banks:** Banks will generally provide some assistance to their business customers in acquiring information about the creditworthiness of other firms.
4. **The customer's payment history with the firm:** The most obvious way to obtain information about the likelihood of customers not paying is to examine whether they have settled past obligations (and how quickly).

ii. Credit Evaluation and Scoring

There are no magical formulas for assessing the probability that a customer will not pay.

In very general terms, the classic **five Cs of credit** are the basic factors to be evaluated:

1. *Character:* The customer's willingness to meet credit obligations.
2. *Capacity:* The customer's ability to meet credit obligations out of operating cash flows.
3. *Capital:* The customer's financial reserves.
4. *Collateral:* An asset pledged in the case of default.
5. *Conditions:* General economic conditions in the customer's line of business.

Credit scoring is the process of calculating a numerical rating for a customer based on information collected; credit is then granted or refused based on the result. For example, a firm might rate a customer on a scale of 1 (very poor) to 10 (very good) on each of the five Cs of credit using all the information available about the customer. A credit score could then be calculated by totaling these ratings. Based on experience, a firm might choose to grant credit only to customers with a score above, say, 30.

Firms such as credit card issuers have developed statistical models for credit scoring. Usually, all of the legally relevant and observable characteristics of a large pool of customers are studied to find their historic relation to defaults. Based on the results, it is possible to determine the variables that best predict whether a customer will pay and then calculate a credit score based on those variables.

4.5 Collection Policy

Collection policy is the final element in credit policy. Collection policy involves monitoring receivables to spot trouble and obtaining payment on past-due accounts (collection Efforts).

4.5.1 Monitoring Receivables

To keep track of payments by customers, most firms will monitor outstanding accounts. First of all, a firm will normally keep **track of its average collection period (ACP)** through time. If a firm is in a seasonal business, the ACP will fluctuate during the year; but unexpected increases in the ACP are a cause for concern. Either customers in general are taking longer to pay, or some percentage of accounts receivable are seriously overdue.

The **aging schedule** is a second basic tool for monitoring receivables. To prepare one, the credit department classifies accounts by age. Suppose a firm has \$100,000 in receivables. Some of these accounts are only a few days old, but others have been outstanding for quite some time. The following is an example of an aging schedule:

Aging Schedule

Age of Account	Amount	% of Total Receivable Value
0–10 days	\$ 50,000	50%
11–60 days	25,000	25
61–80 days	20,000	20
Over 80 days	5,000	5
Total	\$100,000	100%

If this firm has a credit period of 60 days, then 25 percent of its accounts are late. Whether or not this is serious depends on the nature of the firm's collections and customers. It is often the case that accounts beyond a certain age are almost never collected. Monitoring the age of accounts is very important in such cases. (*For details refer Bringham pg541*)

4.5.2 Collection Efforts

A firm usually goes through the following sequence of procedures for customers whose payments are overdue:

1. It sends out a *delinquency letter* informing the customer of the past-due status of the account.
2. It makes a *telephone call* to the customer.
3. It employs a *collection agency*.
4. It takes *legal action* against the customer.

At times, a firm may refuse to grant additional credit to customers until arrearages are cleared up. This may antagonize a normally good customer, which points to a potential conflict between the collections department and the sales department. In probably the worst case, the customer files for bankruptcy. When this happens, the firm can simply wait, or it can sell its receivable.

Besides, **Cash Discount** encourages customers to pay early, and hence could be used as collection tool proactively. It will shorten the receivables period and, all other things being equal, reduce the firm's investment in receivables.

For example, suppose a firm currently has terms of net 30 and an average collection period (ACP) of 30 days. If it offers terms of 2/10, net /30, then perhaps 50 percent of its customers (in terms of volume of purchases) will pay in 10 days. The remaining customers will still take an average of 30 days to pay. What will the new ACP be? If the firm's annual sales are \$15 million (before discounts), what will happen to the investment in receivables?

If half of the customers take 10 days to pay and half take 30, then the new average collection period will be:

$$\text{New ACP} = 0.50 \times 10 \text{ days} + 0.50 \times 30 \text{ days} = 20 \text{ days}$$

The ACP thus falls from 30 days to 20 days. Average daily sales are 15 million/365 day = 41,096 per day. Receivables will thus fall by 41,096 * 10 = 410,960.

Chapter Five

Inventory Management

Introduction

Like receivables, inventories represent a significant investment for many firms. For a typical manufacturing operation, inventories will often exceed 15 percent of assets. For a retailer, inventories could represent more than 25 percent of assets. Despite the size of a typical firm's investment in inventories, the financial manager of a firm will not normally have primary control over inventory management. Instead, other functional areas such as purchasing, production, and marketing will usually share decision-making authority regarding inventory. Inventory management has become an increasingly important specialty in its own right, and financial management will often only have *input* into the decision. For this reason, we will just survey some basics of inventory and inventory policy.

5.1 Inventory Types

For a manufacturer, inventory is normally classified into one of three categories. The first category is raw materials. This is whatever the firm uses as a starting point in its production process. Raw materials might be something as basic as iron ore for a steel manufacturer or something as sophisticated as disk drives for a computer manufacturer. The second type of inventory is work-in-progress, which is just what the name suggests—unfinished product. How big this portion of inventory is depends in large part on the length of the production process. For an airframe manufacturer, for example, work-in-progress can be substantial. The third and final type of inventory is finished goods—that is, products ready to ship or sell.

Keep in **mind three things** concerning inventory types. First, the **names** for the different types can be a little **misleading** because one company's raw materials can be another's finished goods. For example, going back to our steel manufacturer, iron ore would be a raw material, and steel would be the final product. An auto body panel stamping operation will have steel as its raw material and auto body panels as its finished goods and an automobile assembler will have body panels as raw materials and automobiles as finished products. The second thing to keep in mind is that the various types of inventory can be quite different in terms of **their liquidity**. Raw

materials that are commodity-like or relatively standardized can be easy to convert to cash. Work-in-progress, on the other hand, can be quite illiquid and have little more than scrap value. As always, the liquidity of finished goods depends on the nature of the product. Finally, a very important distinction between finished goods and other types of inventories is that the demand for an inventory item that becomes a part of another item is usually termed **derived or dependent demand** because the firm's need for these inventory types depends on its need for finished items. In contrast, the firm's demand for finished goods is not derived from demand for other inventory items, so it is sometimes said to be independent.

5.2 Inventory Costs

As we discussed in Chapter 2, two basic types of costs are associated with current assets in general and with inventory in particular. The first of these is **carrying costs**. Here, carrying costs represent all of the direct and opportunity costs of keeping inventory on hand. These include:

- i. Storage and tracking costs.
- ii. Insurance and taxes.
- iii. Losses due to obsolescence, deterioration, or theft.
- iv. The opportunity cost of capital on the invested amount.

The sum of these costs can be substantial, ranging roughly from 20 to 40 percent of inventory value per year. The other type of costs associated with inventory is **shortage costs**. Shortage costs are costs associated with having inadequate inventory on hand. The two components of shortage costs are restocking costs and costs related to safety reserves. Depending on the firm's business, restocking or order costs are either the costs of placing an order with suppliers or the costs of setting up a production run. The costs related to safety reserves are opportunity losses such as lost sales and loss of customer goodwill that result from having inadequate inventory. A **basic trade-off** exists in inventory management because carrying costs increase with inventory levels, whereas shortage or restocking costs decline with inventory levels. The basic goal of inventory management is thus to **minimize the sum of these two costs**. We consider ways to reach this goal in the next section.

5.3 Inventory Management Techniques

As we described earlier, the goal of inventory management is usually framed as cost minimization. Three techniques are discussed in this section, ranging from the relatively simple to the very complex.

5.3.1 The ABC Approach

The ABC approach is a simple approach to inventory management in which the basic idea is to divide inventory into three (or more) groups. The underlying rationale is that a small portion of inventory in terms of quantity might represent a large portion in terms of inventory value. For example, this situation would exist for a manufacturer that uses some relatively expensive, high-tech components and some relatively inexpensive basic materials in producing its products.

Figure 5.1 illustrates an ABC comparison of items in terms of the percentage of inventory value represented by each group versus the percentage of items

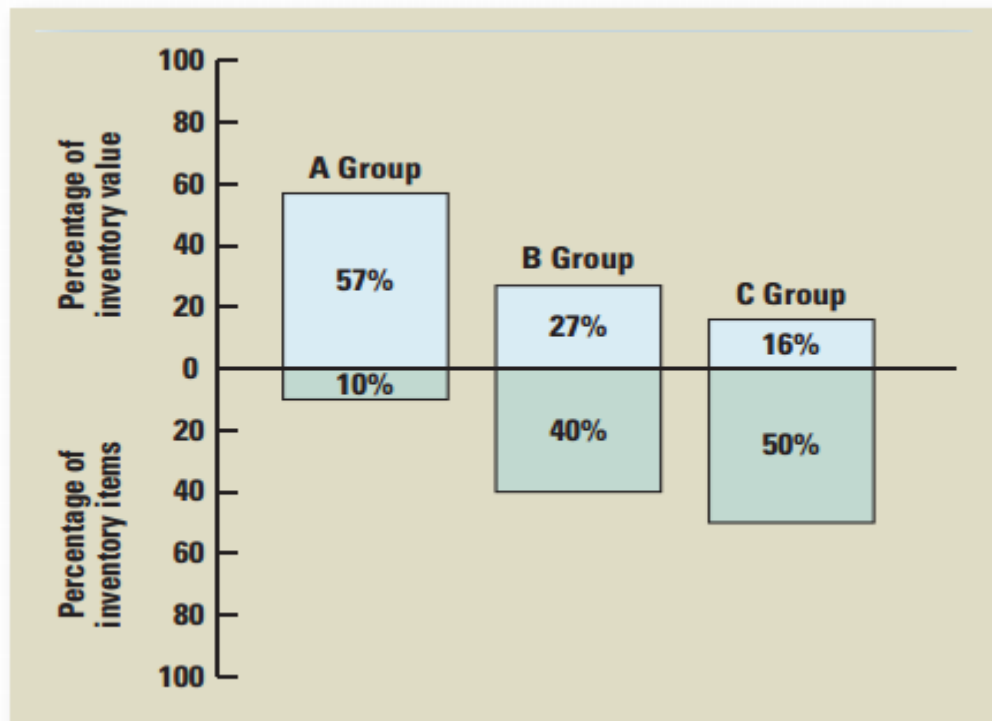


Figure 5.1 ABC Approach

As Figure 5.1 shows, the A Group constitutes only 10 percent of inventory by item count, but it represents over half of the value of inventory. The A Group items are thus **monitored closely**, and inventory levels are kept relatively low. At the other end, basic inventory items, such as nuts and bolts, also exist; but, because these are crucial and inexpensive, large quantities are ordered and kept on hand. These would be C Group items. The B Group is made up of in between items.

5.3.2 The Economic Order Quantity Model

The economic order quantity (EOQ) model is the best-known approach for explicitly establishing an optimal inventory level. The basic idea is illustrated in Figure 5.2, which plots the various costs associated with holding inventory (on the vertical axis) against inventory levels (on the horizontal axis).

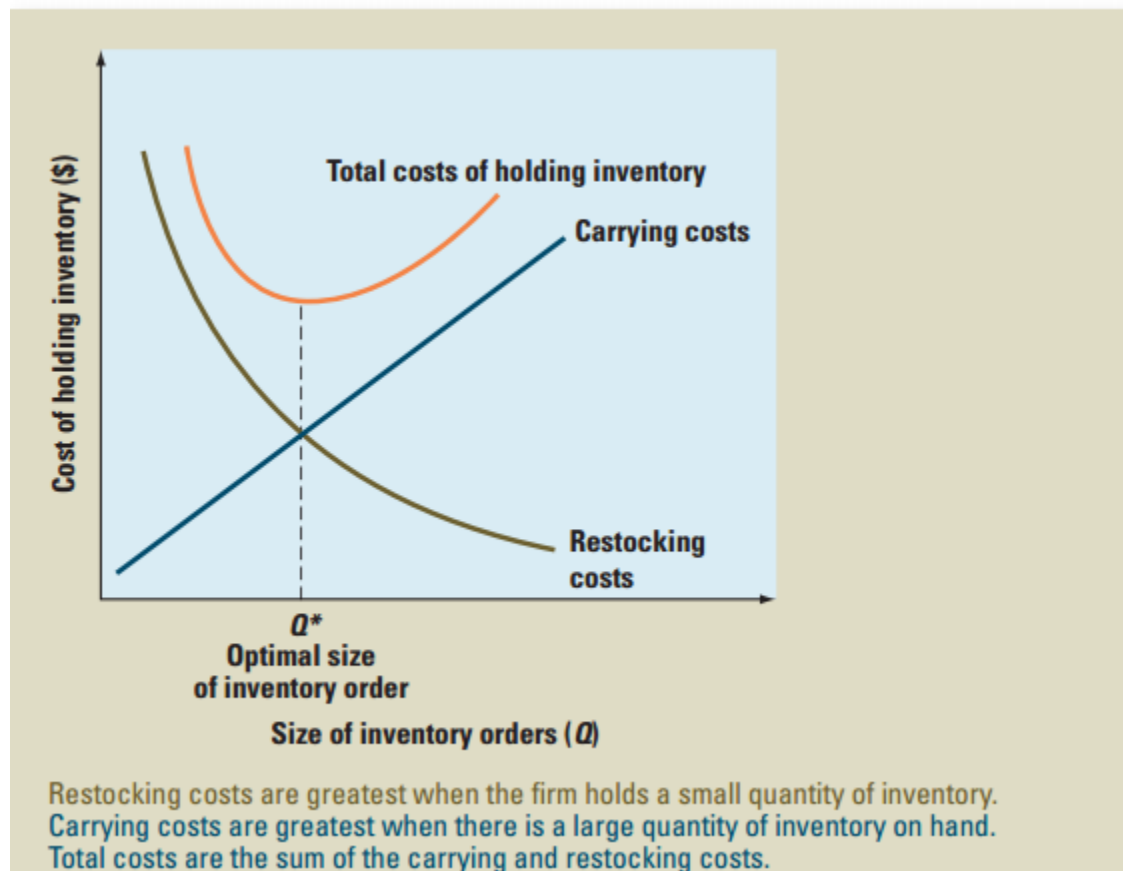


Figure 5.2: Costs of holding inventory

As shown, inventory carrying costs rise and restocking costs decrease as inventory levels increase. With the EOQ model, we will attempt to specifically locate the minimum total cost

point, Q^* . In our discussion that follows, an important point to keep in mind is that the actual cost of the inventory itself is not included. The reason is that the total amount of inventory the firm needs in a given year is dictated by sales. What we are analyzing here is **how much** the firm should have **on hand** at any particular time. More precisely, we are trying to determine what order size the firm should use when it restocks its inventory.

Inventory Depletion: To develop the EOQ, we will assume that the firm's inventory is sold off at a steady rate until it hits zero. At that point, the firm restocks its inventory back to some optimal level. For example, suppose the Eyssell Corporation starts out today with 3,600 units of a particular item in inventory. Annual sales of this item are 46,800 units, which is 900 per week. If Eyssell sells 900 units of inventory each week, the entire available inventory will be sold after four weeks, and Eyssell will restock by ordering (or manufacturing) another 3,600 and start over. This selling and restocking process produces a saw tooth pattern for inventory holdings; this pattern is illustrated in Figure 5.3 below. As the figure shows, Eyssell always starts with 3,600 units in inventory and ends up at zero. On average, then, inventory is half of 3,600, or 1,800 units.

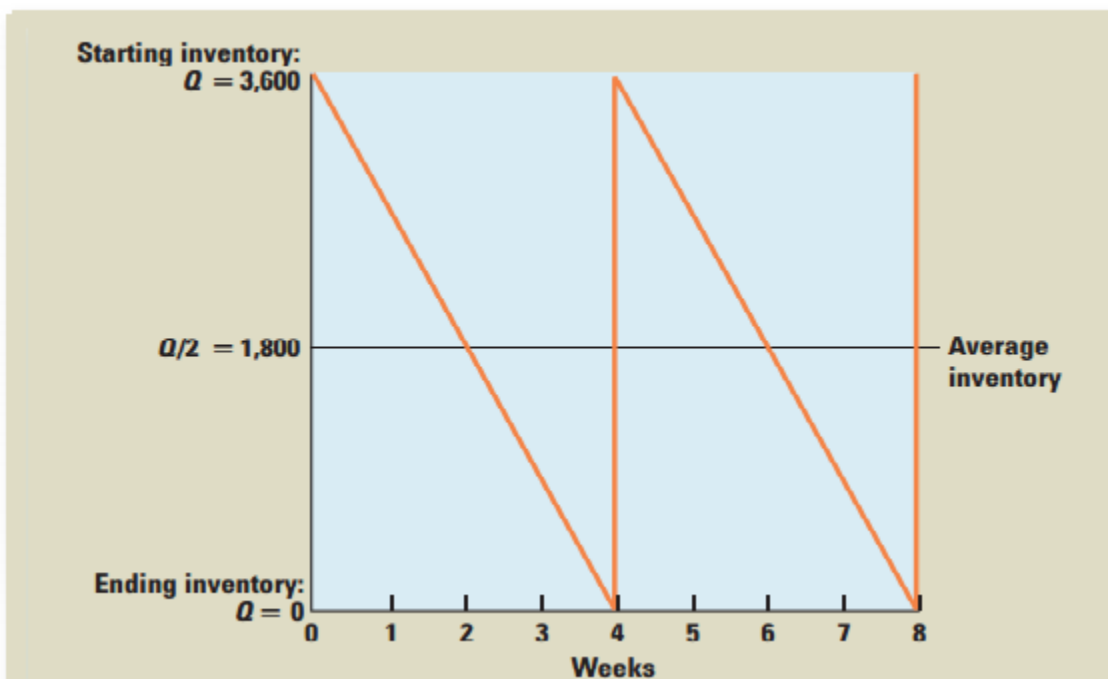


Figure 5.3: average ($Q/2$) inventory holdings

The Carrying Costs: - As Figure 5.2 illustrates, carrying costs are normally assumed to be directly proportional to inventory levels. Suppose we let Q be the quantity of inventory that Eyssell orders each time (3,600 units); we will call this the restocking quantity. Average inventory would then just be $Q/2$, or 1,800 units. If we let CC be the carrying cost per unit per year, Eyssell's total carrying costs will be:

Total carrying costs = Average inventory X Carrying costs per unit

$$= Q/2 * CC$$

In Eyssell's case, if carrying costs were \$.75 per unit per year, total carrying costs would be the average inventory of 1,800 multiplied by \$.75, or **\$1,350 per year**.

The Shortage Costs: - For now, we will focus only on the restocking costs. In essence, we will assume that the firm never actually runs short on inventory, so that costs relating to safety reserves are not important. We will return to this issue later.

Restocking costs are normally assumed to be fixed. In other words, every time we place an order, fixed costs are associated with that order (remember that the cost of the inventory itself is not considered here). Suppose we let T be the firm's total unit sales per year. If the firm orders Q units each time, then it will need to place a total of T/Q orders. For Eyssell, annual sales are 46,800, and the order size is 3,600. Eyssell thus places a total of $46,800/3,600 = 13$ orders per year. If the fixed cost per order is F , the total restocking cost for the year would be:

Total restocking cost = Fixed cost per order X Number of orders

$$= F * (T/Q)$$

For Eyssell, order costs might be \$50 per order, so the total restocking cost for 13 orders would be $\$50 * 13 = \text{\$650 per year}$.

The Total Costs: - The total costs associated with holding inventory are the sum of the carrying costs and the restocking costs: Total costs = Carrying costs + Restocking costs

$$= (Q/2) * CC + F(T/Q)$$

- Our goal is to find the value of Q, the restocking quantity that minimizes this cost. To see how we might go about this, we can calculate total costs for some different values of Q. For the Eyssell Corporation, we had carrying costs (CC) of \$.75 per unit per year, fixed costs (F) of \$50 per order, and total sales (T) of 46,800 units.

To find the cost-minimizing quantity, we can look back at Figure 5.2. What we notice is that the minimum point occurs right where the two lines cross. At this point, carrying costs and restocking costs are the same. For the particular types of costs we have assumed here, this will always be true; so we can find the minimum point just by setting these costs equal to each other and solving for Q*:

Carrying costs = Restocking costs

$$(Q^*/2) \times CC = F \times (T/Q^*)$$

With a little algebra, we get:

$$Q^{*2} = \frac{2T \times F}{CC}$$

To solve for Q*, we take the square root of both sides to find:

$$Q^* = \sqrt{\frac{2T \times F}{CC}}$$

This reorder quantity, which minimizes the total inventory cost, is called the economic order quantity (EOQ). For the Eyssell Corporation, the EOQ is:

$$\begin{aligned} Q^* &= \sqrt{\frac{2T \times F}{CC}} \\ &= \sqrt{(2 \times 46,800) \times \$50} \\ &\quad .75 \\ &= \sqrt{6,240,000} \\ &= \underline{\underline{2,498 \text{ units}}} \end{aligned}$$

Thus, for Eyssell, the economic order quantity is 2,498 units. At this level, verify that the restocking costs and carrying costs are both \$936.75.

Extensions to the EOQ Model

Thus far, we have assumed that a company will let its inventory run down to zero and then reorder. *In reality*, a company will wish to reorder before its inventory goes to zero for two reasons. First, by always having at least some inventory on hand, the firm minimizes the **risk of a stock out** and the resulting losses of sales and customers. Second, when a firm does reorder, there will be some **time lag** before the inventory arrives. Thus, to finish our discussion of the EOQ, we consider two extensions: **safety stocks** and **reordering points**.

Safety Stocks: - A safety stock is the **minimum level** of inventory that a firm keeps on hand. Inventories are reordered whenever the level of inventory falls to the safety stock level.

Reorder points: - To allow for delivery time, a firm will place orders before inventories reach a critical level. The reorder points are the **times** at which the firm will actually place its inventory orders. For illustrative figures please refer Rose 10th ed (page878).

5.3.3 Managing Derived-Demand Inventories

The third type of inventory management technique is used to manage derived-demand inventories. As we described earlier, demand for some inventory types is derived from, or dependent on, other inventory needs. A good example is given by the auto manufacturing industry, in which the demand for finished products depends on consumer demand, marketing programs, and other factors related to projected unit sales. The demand for inventory items such as tires, batteries, headlights, and other components is then completely determined by the number of autos planned. Materials requirements planning and just-in-time inventory management are two methods for managing demand-dependent inventories.

Materials Requirements Planning (MRP):- Production and inventory specialists have developed computer-based systems for ordering and/or scheduling production of demand-dependent types of inventories. These systems fall under the general heading of materials requirements planning (MRP). The basic idea behind MRP is that, once finished goods inventory levels are set, it is possible to determine what levels of work-in-progress inventories must exist to

meet the need for finished goods. From there, it is possible to calculate the quantity of raw materials that must be on hand. This ability to schedule backward from finished goods inventories stems from the dependent nature of work-in progress and raw materials inventories. MRP is particularly important for complicated products for which a variety of components are needed to create the finished product.

Just-in-Time Inventory (JIT):- inventory is a modern approach to managing dependent inventories. The goal of JIT is to minimize such inventories, thereby maximizing turnover. As the name suggests, the basic goal of JIT is to have only enough inventory on hand to meet immediate production needs. The result of the JIT system is that inventories are reordered and restocked frequently. Making such a system work and avoiding shortages requires a high degree of cooperation among suppliers. A JIT inventory system is an important part of a larger production planning process. A full discussion of it would necessarily shift our focus away from finance to production and operations management, so we will leave it here.

Chapter- End Exercises by Chapter

Chapter one: Dividend Policy & Theory

Multiple choice questions

1. Modigliani and Miller argue that the dividend decision _____.
 - a. is irrelevant as the value of the firm is based on the earning power of its assets
 - b. is relevant as the value of the firm is not based just on the earning power of its assets
 - c. is irrelevant as dividends represent cash leaving the firm to shareholders, who own the firm anyway
 - d. is relevant as cash outflow always influences other firm decisions
2. _____ is a nonrecurring dividend paid to shareholders in addition to the regular dividend.
 - a. A stock split
 - b. A stock dividend
 - c. An extra dividend
 - d. A regular dividend
3. The Board of Directors announces the amount and date of the next dividend on the _____ date; while the _____ date is the first date on which the purchaser of a stock is no longer entitled to the recently declared dividend.
 - a. declaration; record
 - b. ex-dividend; record
 - c. declaration; ex-dividend
 - d. payment; record

4. The major difference between traditional and bird-in –the hand views on the one hand, and walter’s and Gordon’s model on the other hand is _____
 - a. While walter and Gordon argue that dividend is irrelevant to affect firm value, the first group argue a firm’s dividend policy affects its value.
 - b. The 2nd group of scholars gives a room for dividend to vary while the 1st group do not.
 - c. In the 1st group risk analysis is considered in dividend decision while Walter and Gordon do not.
 - d. All of the above

Discussion Questions

1. How is it possible that dividends are so important, but at the same time dividend policy is irrelevant?
2. It is sometimes suggested that firms should follow a “residual” dividend policy. With such a policy, the main idea is that a firm should focus on meeting its investment needs and maintaining its desired debt–equity ratio. Having done so, a firm pays out any leftover, or residual, income as dividends. What do you think would be the chief drawback to a residual dividend policy?
3. On Tuesday, December 8, Home Land Inc.’s board of directors declares a dividend of 75 cents per share payable on Wednesday, January 17, to shareholders of record as of Wednesday, January 3. When is the ex-dividend date? If a shareholder buys stock before that date, who gets the dividends on those shares—the buyer or the seller?
4. Assume that a firm has identified profitable investment opportunity which requires 20, 000 birr. The firm’s debt equity ratio is 0.6, in the same period the firm has retained earnings equal to 15, 000 including current income. Calculate the amount of dividend to be declared if the firm was to follow residual policy approach. What happens to the dividend amount if the retained earnings are 12,000 birr?

Chapter Two: Working Capital Management

Multiple choice questions

1. Working capital management is mainly concerned with:
 - a. the placement of the firm's debt and equity issues,
 - b. management of the firm's capital assets, \
 - c. the financing and management of the firm's current assets,
 - d. inventory management.
2. The cash conversion cycle equals:
 - a. payables period - inventory period - collection period
 - b. inventory period + collection period - payables period
 - c. inventory period - collection period + payables period
 - d. payables period + inventory period - collection period
3. A major advantage of using short term funds is:
 - a. there is no advantage,
 - b. they are always more easily obtained
 - c. there are no governmental procedures with which to comply
 - d. interest rates are normally lower
4. A firm with heavy risk exposure due to short term borrowing should:
 - a. carry a large amount of fixed assets
 - b. carry more highly liquid assets
 - c. increase production to avoid inventory
 - d. prosper in the event of a credit crunch
5. Which of the following would be consistent with a more aggressive approach to financing working capital?
 - a. Financing short-term needs with short-term funds.
 - b. Financing permanent inventory buildup with long-term debt
 - c. Financing seasonal needs with short-term funds
 - d. Financing some long-term needs with short-term funds.
6. In deciding the appropriate level of current assets for the firm, management is confronted with:
 - a. trade-off between profitability and risk.
 - b. a trade-off between liquidity and marketability.
 - c. a trade-off between equity and debt.

- d. a trade-off between short-term versus long-term borrowing.

Discussion questions:

1. Is it possible for a firm's cash cycle to be longer than its operating cycle? Explain why or why not.
2. In an ideal economy, net working capital is always zero. Why might net working capital be positive in a real economy?

Use the following information to answer Questions 3-4. Last month, Messebo Cement Factory PLC announced that it would stretch out its bill payments to 45 days from 30 days. The reason given was that the company wanted to “control costs and optimize cash flow.” The increased payables period will be in effect for all of the company's suppliers.

3. What impact did this change in payables policy have on Messebo's operating cycle? Its cash cycle?
4. What impact did the announcement have on Messebo's suppliers?
5. Mention some possible sources of short term fund and long term fund

Chapter Three: Cash and Liquidity Management

Multiple choice questions

1. What is the difference between cash management and liquidity management?
 - a. Cash management only considers cash, while liquidity management considers assets that are considered liquid.
 - b. Cash management deals with only one account, while liquidity management involves everything on the balance sheet.
 - c. Cash management only considers the current financial reporting period, while liquidity management looks out 2-3 years.
 - d. Cash management is essential to financial reporting while liquidity management is just a good practice.
2. Which one of the following *increases* collection float?
 - a. Over-the-counter collection
 - b. Preauthorized payment arrangements
 - c. Checks received through mail
 - d. Wire transfers

3. Lockbox system primarily reduces/eliminates;
 - a. Mailing time
 - b. Processing delay
 - c. Clearing delay
 - d. All of the above
4. Which term refers to how quickly and easily an asset can be converted to cash?
 - a. Speculation
 - b. Sales forecasting
 - c. Liquidity
 - d. Precaution
5. A desired cash level as determined by the tradeoff between carrying costs and shortage costs is called a firm's:
 - a. target cash balance
 - b. concentration balance
 - c. compensating balance
 - d. all of the above

Discussion questions

1. Suppose a firm has a book balance of \$2 million. At the automatic teller machine (ATM), the cash manager finds out that the bank balance is \$2.5 million. What is the situation here? If this is an ongoing situation, what ethical dilemma arises?
2. Each business day, on average, a company writes checks totaling \$17,000 to pay its suppliers. The usual clearing time for the checks is four days. Meanwhile, the company is receiving payments from its customers each day, in the form of checks, totaling \$28,500. The cash from the payments is available to the firm after two days.

Required:

- a. Calculate the company's disbursement float, collection float, and net float.
- b. How would your answer to part (a) change if the collected funds were available in one day instead of two?
3. Rainbow Corporation, an international dealer, receives an average of \$16,000 in checks per day. The delay in clearing is typically three days. The current interest rate is .018 percent per day.

Required:

- a. What is the company's float?
- b. What is the most that Rainbow should be willing to pay today to eliminate its float entirely?

- c. What is the highest daily fee the company should be willing to pay to eliminate its float entirely?

Chapter Four: Receivables Management

Multiple choice questions

1. Scrimpy Co buys materials from Frugal Enterprises. Frugal offers discount terms of 2% discount for payment within 10 days or full payment within 30 days. Assuming a 360-day year, what is the annual percentage cost associated with Scrimpy's failure to take advantage of the discount offered by Frugal?
 - a. 2.0%
 - b. 33.3%
 - c. 36.0%
 - d. 36.7%
2. Amicable Wireless Co offers customers credit terms of 2% discount for payment within 10 days or full payment within 25 days. 60% of Amicable's customers take the 2% discount and pay on day 10. The remainder of Amicable's customers pays on day 30. What are Amicable's receivables days?
 - a. 16
 - b. 12
 - c. 18
 - d. 20
3. Identify the alternative that does not explain costs of credit sale.
 - a. Chances of default
 - b. Increased sales
 - c. Cash discounts
 - d. Capital tied up in receivables
 - e. All of the above
4. Which one of the following factors indicates the customer's integrity and willingness to maintain long-term relationship?
 - a. Capital
 - b. Character
 - c. Capacity
 - d. condition

Discussion questions

1. What are the key elements of a firm's credit terms? What is the key determinant of the credit terms offered by a firm?

2. Briefly define a firm's collection policy. Indicate the typical sequence of actions taken by a firm when attempting to collect an overdue account?
3. A firm sales bi.2,000 product on terms of 1/10, net 40. Calculate the annual effective interest rate (AER). Do you think customers will take the discount? Justify why or why not.

Chapter Five: Inventory Management

Multiple choice questions

1. Suppose that there are several inventory items required in the manufacturing process that make up a small percentage of the overall physical inventory, but represent a large percentage of total inventory value. Which one of the following inventory management techniques do you suggest?
 - a. EOQ model
 - b. ABC model
 - c. Derived demand model
 - d. Inventory depletion model
2. One of the following is assumptions of the EOQ model except;
 - a. Inventory quantities should reach zero before we place another order
 - b. The carrying cost per unit and ordering cost per order are allowed to vary
 - c. Firm is able to forecast inventory demand for a year
 - d. Companies should hold safety stock to avoid losing a customer
 - e. A and C
 - f. B and D

Discussion questions

1. Contrary to EOQ model, companies do not want to let their inventory levels to zero, list out and discuss two models used to maintain certain level of inventory.
2. Redan Manufacturing needs 90,000 switch assemblies per year. The cost per unit of switch assemblies is Br.3. If the relevant annual carrying cost per switch assembly is Br.6 and the fixed cost per order is Br. 300;
 - a. What is the optimal level (EOQ) of switches to be hold by Redan?
 - b. How many orders does Redan Manufacturing place in a year?
 - c. What is the total annual cost if the EOQ is ordered?

Annex-1

Name of University: Mekelle University		
Name of College/Faculty: CBE		
Name of Department: Accounting and Finance		
Course Information		
Course code	AcFn 2102	
Course Title	Financial Management II	
Degree Program	BA Degree in Accounting and Finance	
Module		
Module Coordinator	Abeba Kelelew	
Lecturers	Abeba Kelelew,....	
ETCTS Credits	5	
Contact Hours (per week)	3	
Course Objectives	The basic objective of this course is to familiarize students with the basics of investment, financing, dividend and liquidity decisions that are the central thematic areas of finance profession.	
Course Description	This course is a continuation of Financial Management I. It emphasizes on building and applying financial models, following the principle of financial management, for planning and decision making purposes. It explains with the help of the language of financial accounting, how top management conducts systematic analysis, builds innovative plans, understands and manages risk, and creates more profit, cash and value for the organization. Topics included are: Introduction to dividend policy and theory, principles of working capital management, cash flow models for planning, receivables and inventory management decisions.	
WEEKS	Course Contents	Reading
1,2, 3	1. Dividend Policy and theory 1.1. Dividend Classifications 1.2. Types of Dividend Policy	

	<ul style="list-style-type: none"> 1.3. Factors Influencing Dividend Policy 1.4. The Effect of Dividend Policy on Firm Value 1.5. Establishing Dividend Policy <ul style="list-style-type: none"> 1.5.1. Residual Dividend Approach 1.5.2. Dividend Stability 1.5.3. A Compromise 							
3,4,5,6	<p>2. Principles of Working capital management</p> <ul style="list-style-type: none"> 2.1. The Concept of Working Capital 2.2. Operating and Cash Conversion Cycle 2.3. Permanent and Variable Working Capital 2.4. Determinants of Working Capital Management 2.5. Financing Current Assets 							
7,8,9	<p>3. Cash and Liquidity Management</p> <ul style="list-style-type: none"> 3.1. Reasons for Holding Cash 3.2. Understanding Float 3.3. Cash Collection and Concentration 3.4. Managing Cash Disbursement 3.5. Investing Ideal Cash 3.6. Determining the Target Cash Balance 							
10,11,12	<p>4. Receivables Management</p> <ul style="list-style-type: none"> 4.1. Credit and Receivables 4.2. Terms of Sale 4.3. Analyzing Credit Policy 4.4. Credit Analysis 4.5. Collection policy 							
13,14,15	<p>5. Inventory Management</p> <ul style="list-style-type: none"> 5.1. Introduction 5.2. Meaning & Nature of Inventory 5.3. Benefits & Costs of Holding Inventory 5.4. Inventory Management Techniques 							
Teaching & Learning Methods/strategy	<p>The teaching and learning methodology includes lecturing, discussions, problem solving, and analysis. Take-home assignment will be given at the end of each chapter for submission within a week. Solutions to the assignments will be given once assignments are collected. Cases with local relevance will also be given for each chapter for group of students to present in class. The full and active participation of students is highly encouraged.</p>							
Assessment/Evaluation	<p>The evaluation scheme will be as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">Test 1</td> <td style="width: 12.5%;">Test 2</td> <td style="width: 25%;">Assignment and other class activities</td> <td style="width: 12.5%;">Presentation</td> <td style="width: 12.5%;">Final</td> <td style="width: 12.5%;">Total</td> </tr> </table>		Test 1	Test 2	Assignment and other class activities	Presentation	Final	Total
Test 1	Test 2	Assignment and other class activities	Presentation	Final	Total			

	10%	15%	20%	5%	50%	100%			
Work load in hours	Hours Required							Total Hrs	ECTS
	Lectures	Lab	Assessments	Tutorials	Self-Studies	Assignment	Advising		
	48	-	10	12	55	-	-	135	5
Roles of the Instructor	He/she will come to the class regularly on time and deliver the lecture in a well-organized manner. Besides, at the end of each class he/she gives reading assignment for the next class. He/she will make sure that proper assessments are given. He/she is also responsible to give feedback for each assessment.								
Roles of the students	The success of this course depends on the students' individual and collective contribution to the class discussions. Students are expected to participate voluntarily, or will be called upon, to contribute to set exercises and problems. Students are also expected to read the assigned readings and prepare the cases before each class so that they could contribute effectively to class discussions. Students must attempt assignments by their own. Proficiency in this course comes from individual knowledge and understanding. Copying the works of others is considered as serious offence and leads to disciplinary actions.								
Text and reference books	<p><u>Text Book:</u></p> <ul style="list-style-type: none"> Ross, Westerfield&Jordan. Fundamentals of corporate finance. 10th ed. <p><u>Reference Books</u></p> <ul style="list-style-type: none"> Brigham Ehrhardt. Financial management theory and practice. 13th ed Khanna & Jain. Financial management. I M. Pandey. Financial management. 9th &10th ed 								