

As we discuss previous chapter Types & Sources of Finance

- ✓ Long Term Sources of Finance- Finance required to meet Capital Expenditure. Also, known as Fixed Capital Finance
- ✓ Short Term Sources of Finance - Finance required to meet day-to-day Business requirements. Also, known as Working Capital

Meaning of Working capital

- Working Capital is the amount of Capital that a Business has available to meet the day-to-day cash requirements of its operations
- Working Capital is the difference between resources in cash or readily convertible into cash (Current Assets) and organizational commitments for which cash will soon be required (Current Liabilities) .It refers to the amount of Current Assets that exceeds Current Liabilities (i.e. CA - CL)
- Working Capital refers to that part of the firm’s Capital, which is required for Financing Short-Term or Current Assets such as Cash, Marketable Securities, Debtors and Inventories.
- Working Capital is also known as Revolving or Circulating Capital or Short-Term Capital

Concepts of Working Capital

There are two concepts of working capital namely Gross concepts and Net concepts:

Gross Working Capital

According to this concept, whatever funds are invested are only in the current assets. This concept expresses that working capital is an aggregate of current assets. The amount of current liabilities is not deducted from the total current assets. This concept is also referred to as “Current Capital” or “Circulating Capital”.

Net Working Capital

The term net working capital can be defined in two ways: (1) The most common definition of net working capital is the capital required for running day-to-day operations of a business. It may be expressed as excess of current assets over current liabilities. 2) Net working capital can alternatively be defined as a part of the current assets, which are financed with long-term funds. For example, if the current asset is Rs. 100 and current liabilities is Rs. 75, and then it implies Rs. 25 worth of current assets is financed by longterm funds such as capital, reserves and surplus, term loans, debentures, etc. On the other hand, if the current liability is Rs. 100 and current assets is Rs. 75, and then it implies Rs. 25 worth of short-terms funds is used for investing in the fixed assets. This is known as negative working capital situation. This is not a favourable financial position. When the current assets are equal to current liabilities, it implies that there is no net working capital. This means no current asset is being financed by long-term funds.

Net Working Capital = Current assets – Current liabilities.

Table 1.1 Difference between gross and net working capital

Gross concept of working capital	Net concept of working capital
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<p>1. Meaning Gross concept of working capital refers to the sum of the current assets employed in the business for day-today operations and for utilizing the fixed assets at the optimum level. In this concept the total of the current liabilities is not deducted from the total of current assets.</p>	<p>Net concept of working capital refers to the difference between current assets and current liabilities. Excess of current assets over current liabilities is net working capital. Current assets – Current liabilities = Net Working Capital.</p>
<p>2. Components Components of current assets 1. Cash and bank balances, 2. Sundry debtors and Bills receivables, 3. Raw materials, 4. Work-in-progress, 5. Finished Goods, 6. Consumables stores, 7. Prepaid expenses, 8. Advances given to suppliers of raw materials.</p>	<p>Total current assets said in the opposite side minus 1. Creditors for raw materials and consumable stores, 2. Bills payable, 3. Advance payment – received from customers, 4. Deferred installments payable within a year, 5. Indirect and other charges payable, 6. Deposits payable within a year, 7. Term loan and debenture payable within a year, 8. Salary, wages, sales tax, Excise duty, PPF, ESI outstanding, 9. Dividend and tax payable.</p>
<p>3. Financing Generally, current assets are financed by both long-term sources and short-term sources of funds. Long-term funds u Crrent Assets Short-term funds E.g. Long-term sources: Share capital, Debentures Term loans. Short-term sources: Bank O.D., Cash Credit, Sundry creditors etc.,</p>	<p>Net working capital is financed only by long-term sources. E.g. Share capital, Debtors, term loans.</p>
<p>4. Sign Convention Gross concept of working capital is always a positive figure. It never comes as a negative figure. In other words, without current assets a company cannot run. Hence, gross concept is nothing but the sum of all current assets.</p>	<p>Net working capital maybe positive or negative. Positive figure gives the company's positive attitude. Negative figure gives the company's poor financial position. Positive Current Assets > Current Liabilities Negative Current Liabilities > Current Assets</p>

<p>5. Nature of Information It emphasizes only on quantitative nature. It never discloses the liquidity positions. Gross working capital concept results in mismanagement of current assets.</p>	<p>The net working capital concept emphasizes on both the quantitative as well as qualitative nature, which are more relevant for managerial decision-making. Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$ Liquidity ratio = $\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$</p>
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What are Current Assets?

Assets, which can normally be converted into cash within a year or within the operating cycle, are grouped as current assets. In other words, current assets are resources that are in cash or will soon be converted into cash in ‘the ordinary course of businesses. The current asset components are assets like cash, temporary investments, raw materials, work in progress, accounts receivables (sundry debtors/ trade receivables/ bills receivables) and prepaid expenses.

What are Current Liabilities?

Liabilities, which are due for payment in the short-run, are classified as current liabilities. In other words, these liabilities are due within the accounting period or the operating cycle of the business. Most of such liabilities are incurred in the acquisition of materials or services forming part of the current assets. Current liabilities are commitments, which will soon require cash settlement in ‘the ordinary course of business’. The current liability components are liabilities like accounts payable (sundry creditors/ bills payables/ trade payables), accrued liabilities (wages, salary, and rents), and estimated liabilities (income tax payable and dividend payable).

Table: 1.2 Components of current assets and current liabilities.

CURRENT ASSETS	CURRENT LIABILITIES
<ol style="list-style-type: none"> 1.Cash and bank balances. 2.Investment held in the form of money market instrument like, Treasury bills, commercial bill, commercial paper and gilt edged securities. 3.Short-term fixed deposits maturing within a year. 4.Sundry Debtors. 5.Raw materials in godowns and in transit. 6.Stock of Work-in-progress. 7.Finished goods in godown and in transit. 8.Consumable stores. 9.Prepaid expenses such as salary, wages, tax etc. 	<ol style="list-style-type: none"> 1.Creditors for raw materials consumables etc., 2.Advance received from customers. 3.Deferred installments payable within a year for repayment of term loans and debentures. 4.Interest, tax, dividend, salary and wages payable. 5.Public deposits payable within a year. 6.Unsecured 7. Statutory liabilities like ESI, PPF, Co-op dues, sales tax, Excise duty etc.

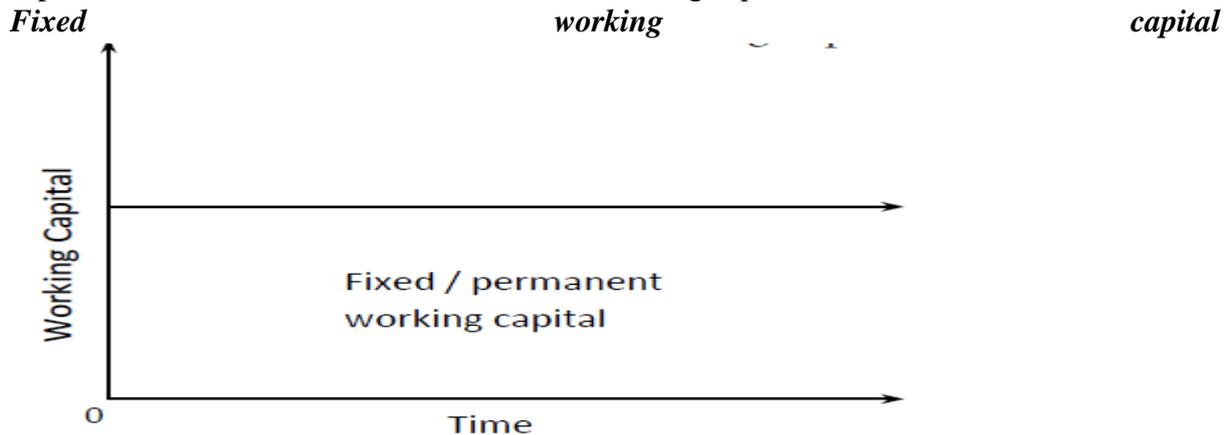
Types of working capital

Working capital can be divided into two categories on the basis of time:

1. Permanent, fixed or regular working capital,
2. Temporary, variable, fluctuating, seasonal or specified working capital.

Permanent working capital

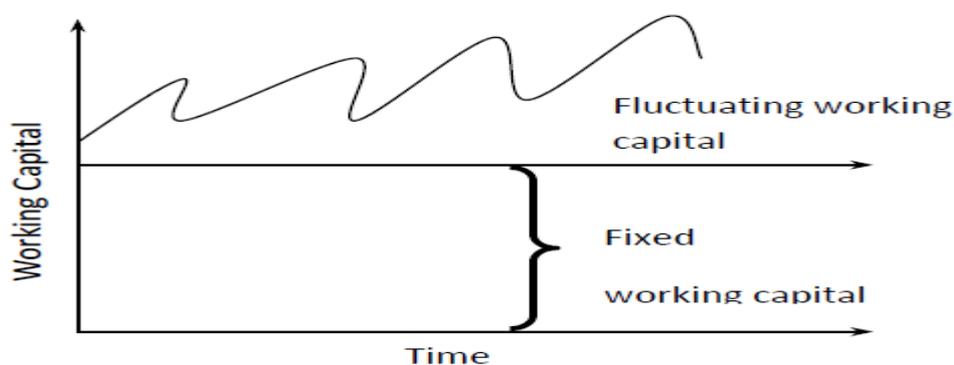
This refers to minimum amount of investment required in all current assets at all times to carryout minimum level of activity. In other words, it represents the current assets required over the entire life of the business. Tandon committee has referred to this type of working capital as 'Core current assets' or 'Hard-core working capital'.



The need for investment in current assets may increase or decrease over a period of time according to the level of production. Some amount of permanent working capital remains in the business in one form or another. This is particularly important from the **point of view of financing. Tandon Committee has pointed out that this type of core** current assets should be financed through long-term sources like capital, reserves and surplus, preference share capital, term loans, debentures, etc.

Leader in two-wheelers Hero Honda Ltd. and in four-wheelers Maruthi Udyog Ltd. keeping their model in each type in their showrooms are typical examples of permanent working capital.

Temporary Working Capital



Working capital fluctuating over time

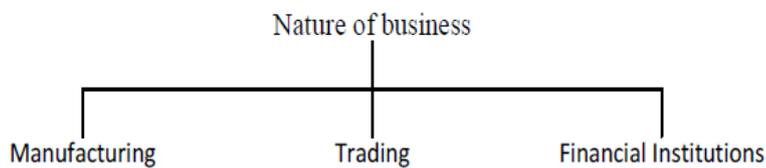
Depending upon the production and sales, the need for working capital over and above permanent working capital will change. The changing working capital may also vary on account of seasonal changes or price level changes or unanticipated conditions. For example,

raising the prices of materials, labour rate and other expenses may lead to an increase in the amount of funds invested in the stock of raw materials, work-in-progress as well as in finished goods. Sometimes additional working capital may be required to face the cut-throat competition in the market. Sometimes when the company is planning for special advertisement campaigns organised for promotional activities or increasing the sales, additional working capital may have to be financed. All these extra capital needed to support the changing business activities are called temporary, fluctuating or variable working capital.

Factors Affecting Working Capital

There are no uniform rules or formulae to determine the working capital requirements in a firm. A firm should not plan its working capital neither too much nor too low. If it is too high it will affect profits. On the other hand if it is too low, it will have liquidity problems. The total working capital requirements is determined by a wide variety of factors. They also vary from time to time. Among the various factors, the following are necessary.

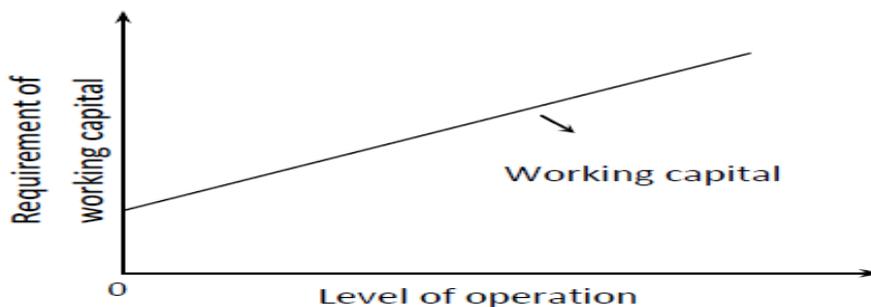
1. Nature of business



The working capital requirements of an organization are basically influenced by the nature of its business. The trading and financial institutions require more working capital rather than fixed assets because these firms usually keep more varieties of stock to satisfy the varied demands of their customers. The public utility service organisations require more fixed assets rather than working capital because they have cash sales only and they supply only services and not products. Thus, the amounts tied up with stock and debtors are almost zero. Generally, manufacturing business needs, more fixed assets rather than working capital. Further, the working capital requirements also depend on the seasonal products.

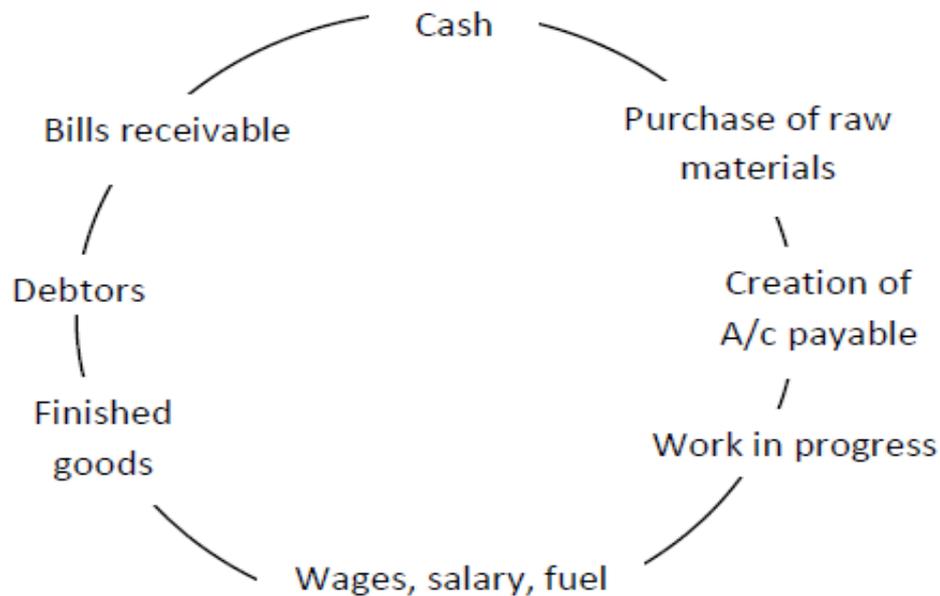
2. Size of the business

Another important factor is the size of the business. Size of the business means scale of operation. If the operation is on a large scale, it will need more working capital than a firm that has a small-scale operation.



3. Operating cycle

The term “production cycle” or “manufacturing cycle” refers to the time involvement from cash to purchase of raw materials and completion of finished goods and receipt of cash from sales. If the operating cycle requires a longer time span between cash to cash, the requirement of working capital will be more because of larger tie up of funds in all the processes. If there is any delay in a particular process of sales or collection there will be further increase in the working capital requirements.



Operating cycle

$$O = (R + W + F + D) - C$$

Where

O = Duration of operating cycle

R = Raw material average storage period

W = Average period of work-in-progress

F = Finished goods average storage period

D = Debtors Collection period

C = Creditors payment period

4. Production policy

The requirements of working capital are also determined by production policy. When the demand for the product is seasonal, inventory must be accumulated during the off-season period and this leads to more cost and risks. These firms, which manufacture variety of goods, will have advantages of keeping low working capital by adjusting the production according to season.

5. Turnover of Working capital

The speed of working capital is also influenced by the requirements of working capital. If the turnover is high, the requirement of working capital is low and vice versa.

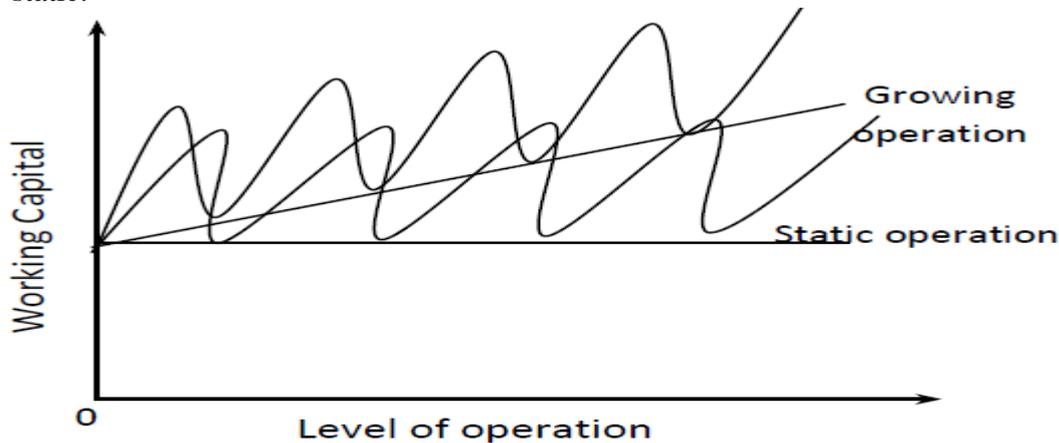
$$\text{Working Capital Turnover} = \frac{\text{Cost of goods sold}}{\text{Working capital}}$$

6. Credit Terms

The level of working capital is also determined by credit terms, which is granted to customers as well as available from its creditors. More credit period allowed to debtors will result in high book debts, which leads to high working capital and more bad debts. On the other hand liberal credit terms available from creditors will lead to less working capital.

7. Growth and Expansion

As a company grows and expands logically, it requires a larger amount of working capital. Other things remaining same, growing industries need more working capital than those that are static.



8. Price level changes

Rising prices would necessitate the organization to have more funds for maintaining the same level of activities. Raising the prices in material, labour and expenses without proportionate changes in selling price will require more working capital. When a company raises its selling prices proportionally there will be no serious problem in the working capital.

9. Operating efficiency

Though the company cannot control the rising price in material, labour and expenses, it can make use of the assets at a maximum utilisation with reduced wastage and better coordination so that the requirement of working capital is minimised.

10. Other factors Level of taxes: In this respect the management has no option. If the government increases the tax liability very often, taxes have to be paid in advance on the basis of the profit on the current year and this will need more working capital.

Working Capital Investment Policies

Working capital financing policy basically deals with the sources and the amount of working capital that a company should maintain. A firm is not only concerned about the amount of current assets but also about the proportions of short-term and long-term sources for financing the current assets. There are some working capital investment policies a firm may adopt after taking into account the variability of its cash inflows and outflows and the level of risk.

➤ Matching Policy

This policy works in an arrangement where the current assets of the business are used perfectly to match the current liabilities. This is also known as hedging policy. As per this approach, fixed and permanent current assets are financed through long-term sources and fluctuating current assets are financed through short-term sources.

This policy is a medium risk proposition and requires a good amount of attention. For example, if a bank loan is due to be paid after six months, the company will ensure that sufficient amount of cash will be available to repay the loan on the date of maturity even though it may or may not currently have sufficient cash.

In case of a growth firm, the amount of fixed assets and permanent current asset go on increasing with the passage of time but the volume of fluctuating current assets change with the change in production level. In Figure 8.1, Line A and Line B is upward sloped indicating that they go on increasing with the passage of time and as per hedging principle they are financed through long-term sources like equity and long-term debt.

Fluctuating current assets, which are shown by the curved Line C, should be financed through short term sources.

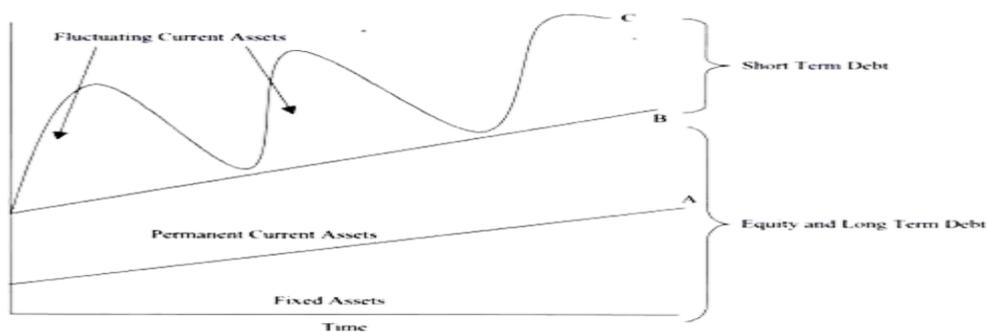


FIGURE 8.1 Hedging/Matching Policy

➤ **Conservative Policy:**

As the name suggests, this policy tries to avoid the risk involved in financing of current assets. Here, relatively high proportions of long-term sources are to be used for

financing current assets. The firm not only matches the current assets with current liabilities but also keeps some excess amount to meet any uncertainty.

This is the lowest risk working capital policy and fails to ensure optimum utilization of funds. Hence it cuts down the expected returns of the shareholders. This policy is illustrated in Figure 8.2. Line A denotes the fixed assets and Line B denotes the permanent working capital, which is financed through long-term sources. Certain portion of fluctuating current assets, which is shown by dashed Line C, is also financed by long-term sources. Under this policy some part of fluctuating current assets is financed through short-term sources.

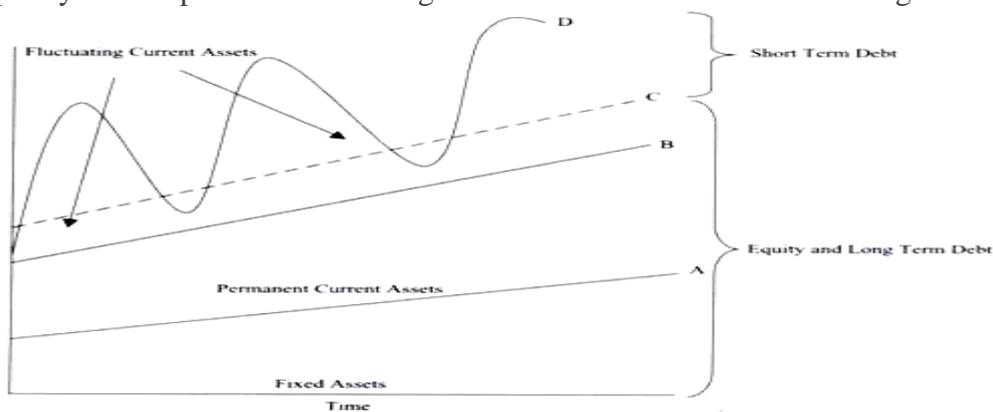


FIGURE 8.2 Conservative Policy

➤ **Aggressive Policy:**

Aggressive working capital financing policy is a risky policy that requires maximum amount of investment in current assets. Fluctuating as well as permanent current assets under this policy will be financed through short-term debt. In this policy debt is collected on time and payments to the creditors are made as late as possible.

This policy has been illustrated in Figure 8.3. According to this approach long-term sources are used to finance the fixed assets, which are shown by Line A; but a portion of permanent current assets, shown by the dotted Line B, is also financed through long-term sources. The remaining part of permanent current assets, depicted by Line C, and the entire amount of fluctuating current assets, shown by the curved Line D, are financed by short-term debt.

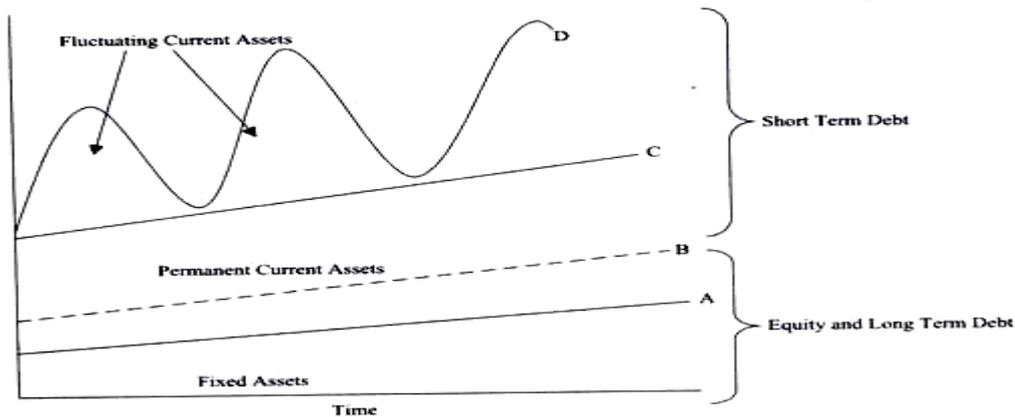
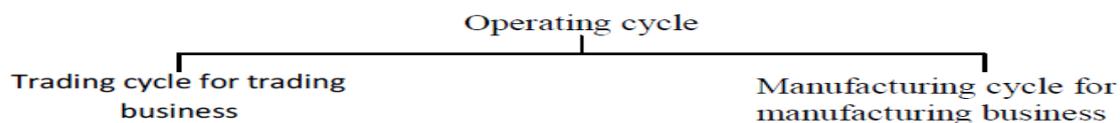


FIGURE 8.3 Aggressive Policy

Estimation of Working Capital

Operating Cycle

This is the chronological sequence of events in a manufacturing company in regard to working capital. We know that working capital is the excess of current assets over current liabilities. In reality such excess of current assets over current liabilities may be either more or less than the working capital requirement of the company. Accordingly it is necessary to calculate the working capital of the company. This is illustrated with an example. Such computation of working capital requirement may also be necessary for planning increase of sales from existing level. The operating cycle is the length of time for a company to acquire materials, produce the products, sell the products, and collect the proceeds from customers. The normal operating cycle is the average length of time for a company to acquire materials, produce the products and collect the proceeds from customers. From the above it is very clear that the working capital is required to meet the **time-gap** between the raw materials and actual realisation of stocks. This time gap is technically termed as operating cycle or working capital cycle. The operating cycle can be sub-divided into two on the basis of the nature of the business namely trading cycle and manufacturing cycle.



Trading Cycle

Trading business does not involve any manufacturing activities. Their activities are limited to buying finished goods and selling the same to consumers. Therefore operating cycle requires a short time span behaviour cash to cash, the requirement of working capital will be low because very less number of processes in the operation is given below: Cash Inventories Debtors Bills Receivable Cash In the case of trading firm the operating cycle includes time required to convert

- (1) Cash into inventories
- (2) Inventories into debtors
- (3) Debtors into cash.

In the case of financing firm, the operating cycle is still less when compared to trading business. Its operating cycle includes time taken for

- (1) Conversion of cash into suitable borrowers and
- (2) Borrowers into cash.

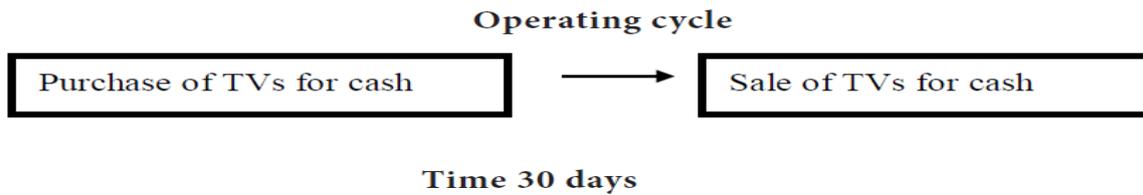
Example 1

You have invested Rs.50,000 in your company on 1.1.2006 for buying and selling of color TVs assuming:

1. Inventory costing Rs. 50,000 is purchased at the beginning of each month.
2. All of the TVs were sold at the end of each month on cash for Rs. 60,000

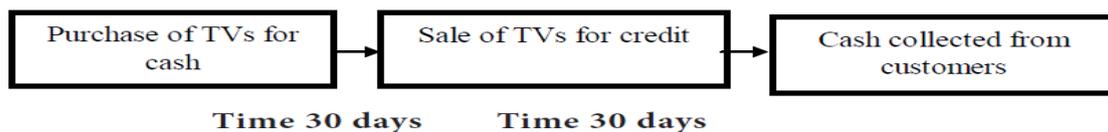
Q.What is the operating cycle of the company?

The answer is 30 days



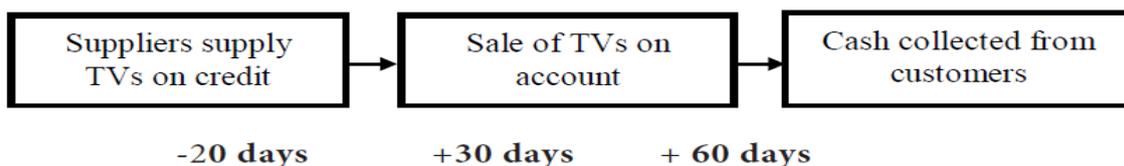
2. If the sales are made on account (credit) of 30 days terms what is the operating cycle of the company?

The answer is 60 days



3. Suppose when the suppliers allow 20 days term and sales are made an account of 60 days' term. What is the operating cycle of the company?

The answer is 70 days (30+60-20)



Importance of operating cycle

If a company can shorten the operating cycle, cash can accumulate more quickly, and due to the time value of money, there should be a positive impact on the share value. Holding everything else constant, an investor would prefer a company with a short operating cycle to a similar company with a longer operational cycle.

The formula to calculate operating cycle

Operating cycle = Age of inventory + collection period

Net operating cycle = Age of inventory + collection period – deferred Payments

For calculating net operating cycle, various conversion periods may be calculated as follows:

- Raw material cycle period (RMCP)= (Average Raw material stock/Total raw material Consumable) x 365

- Working progress cycle period (WPCP) = (Average work in progress/Total cost of Production) x 365
- Finished goods cycle period (FGCP) = (Average finished goods/Total cost of goods Sold) x 365
- Accounts receivable cycle period (ARCP) = (Average Account receivable/Total of sales) x 365
- Accounts payable cycle period (APCP) = (Average account payable/Total credit purchase) x 365

where,

Total credit purchase = cost of goods sold + ending inventory –beginning of inventory

For above calculations, the following points are essential

1. The average value is the average of opening balance and closing balance of the respective items. In case the opening balance is not available, only the closing balance is taken as the average.
2. The figure 365 represents number of days in a year. Sometimes even 360 days are considered.
3. The calculation of RMCP, WPCP and FGCP the denomination is taken as the total cost raw material consumable, total cost of production total, cost of goods sold respectively since they form respective end products.

On the basis of the above, the operating cycle period:

- Total operating cycle period (TOCP) = RMCP + WPCP + FGCP + ARCP
- Net operating cycle period(NOCP)= TOCP-DP(deferred payment) (APCP)

The operating cycle for individual components are not constant in the growth of the business. They keep on changing from time to time, particularly the Receivable Cycle Period and the Deferred Payment. But the company tries to retain the Net Operating Cycle Period as constant or even less by applying some requirements such as inventory control and latest technology in production. Therefore regular attention on the firm's operating cycle for a period with the previous period and with that of the industrial average cycle period may help in maintaining and controlling the length of the operating cycle.

Example 2

Gee Pee, a trading organization has supplied the following information. Calculate the operating period.

Total sales 500 lakhs

Cost elements are Materials 70%, overheads 20%

Average stock of merchandise inventory 10 lakhs

Average debtors 25 lakhs

Average creditors 14.6 lakhs

Solution

Merchandise inventory holding period $(10/450) \times 360 = 8$ days

Debtors holding period $(25/500) \times 360 = 18$ days

Less: Creditors availing period $14.6/350 \times 360 = (15)$ days
11 days

Note: Total cost of merchandise inventory = $500 \times (90 / 100) = 450$

Total cost of material purchased = $500 \times (70 / 100) = 350$

Example 3

From the following data of a trading company compute the realisation period (operating cycle)

in lakhs

Average inventories	13.0
Average Debtors	22.5
Average Creditors	14.0
Purchases	240.0
Cost of goods sold	260.0
Sales	300.0

Solution

Inventory holding period $(13/260) \times 360 = 18$ days

Debtors holding period $(22.5/300) \times 360 = 27$ days

Less:

Availing creditors extending

loan period $(14/240) \times 360 = (21)$ days

Realisation period 24 days

Manufacturing Cycle

In the case of manufacturing company the operating cycle refers to the time involvement from cash through the following events and again leading to collection of cash. Cash Purchase of raw materials Work-in-progress Finished goods Debtors Bills receivable Cash

Operating cycle of a manufacturing concern starts from cash to purchase of raw materials, conversion of work in progress into finished goods, conversion of finished goods into Bills Receivable and conversion of Bills Receivable into cash. In the other words the operating cycle is the number of days from cash to inventory to accounts receivable back to cash. The operating cycle denotes how long cash is tied up in inventories and receivables. If the operating cycle requires a longer time span between cash to cash, the requirement of working capital will be more because of the huge funds required in all the process. If there is any delay in a particular process there will be further increase in the working capital

requirement. A long operating cycle means that less cash is available to meet short-term allegations. A distillery has to make a heavy investment in working capital rather than a bakery, which has a low working capital. Forecasting/estimate of working capital requirement "Working capital is the life-blood and the controlling nerve centre of a business". No business can run successfully without an adequate amount of working capital. To avoid the shortage in working capital, an estimate of working capital requirements should be made in advance so that arrangements can be made to procure adequate working capital.

Suggested proforma for estimation of working capital requirements are given below:

Statement of Working Capital Requirements		Amount ₹
<i>Current Assets :</i>		
(i) Cash
(ii) Debtors or Receivables (For.....month's sales)
(iii) Stocks (For.....month's sales)
(iv) Advance payments, if any
(v) Others
<i>Less : Current Liabilities :</i>		
(i) Creditors (For.....month's purchases)
(ii) Lag in payment of expenses (Outstanding expenses, if any)
Working Capital (C.A.–C.L.)
<i>Add : Provision /Margin for Contingencies</i>	
Net working Capital Required	

Notes:

Profits should be ignored while calculating working capital requirements for the following reasons:

- Profits may or may not be used as working capital.
- Even if profits are to be used for working capital it has to be reduced by the amount of income tax, drawings, dividends paid etc.
- Calculation of work-in progress depends upon its degree of completion as regards to material, labour and overheads. However, if nothing is given in a question as regards to the degree of completion, we suggest the students to take 100% cost of material, labour and overheads.
- Calculation for stocks of finished goods and debtors should be made at cost unless otherwise asked in the question.

Example 4

You are provided with the following information in respect of XYZ Ltd. For the ensuing year:

Production for the year	69,000 units
Finished goods in store	3 months
Raw material in store	2 months
Production process	1 month
Credit allowed by creditors	2 months
Credit given to debtors	3 months
Selling price per unit	₹ 50
Raw material	50% of selling price
Direct wages	10% of selling price
Overheads	20% of selling price

There is a regular production and sales cycle and wages and overheads

accrue evenly. Wages are paid in the next month of accrual. Material is introduced in the beginning of production cycle.

You are required to find out

1. Its working capital requirement

Solution:

Statement of working capital requirement

	Amount	Amount
Current assets ` `		
Raw materials stock (69000 x 25 x 2/12)		2,87,000
Working progress:		
1. Raw materials (69,000 x 25 x 1/2)	1,43,750	
2. Direct wages (69,000 x 5 x 1/24)	14,375	
3. Overhead (69,000 x 10 x 1/24)	28,750	1,86,875
Finished goods: (69000x40x3/12)		6,90,000
Debtors: (69,000x40x3/12)		6,90,000
		18,54,375
Current Liabilities		
Creditors Raw materials 69,000 x 25 x 2/12	2,87,500	
Outstanding Wages 69,000 x 5 x 1/12	28,750	
		3,16,250
Working capital requirement = CA-CL		15,38,125

Example 5

A proforma cost sheet of a company provides the following particular

Element of cost

Material	40%
Direct labour	20%
Overheads	20%

The following further particular are available

a. It is proposed to maintain a level of activity of 2,00,000 Units

b. Selling price is Rs. 12 per unit.

c. Raw material are expected to remain in stores for an average period of one month

d. Materials will be in process, on an average for half a month.

e. Finished goods are required to be in stock for an average period of one month.

f. Credit allowed to debtors is two months

g. Credit allowed by suppliers is one month.

You may assume that sales and production follow a consistent pattern.

You are required to prepare a statement of working capital requirement, a forecast profit and loss account and balance sheet of the company assuming that:

AMOUNT

Share capital	15,00,000
8% Debentures	2,00,000
Fixed Asset	13,00,000

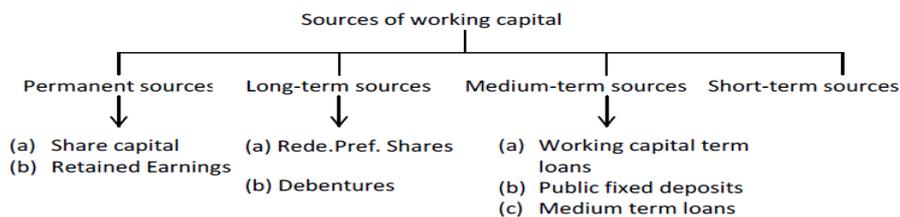
Solution

Statement of working capital

Particular	RS	RS
Current asset		80,000
Stock of raw material (1 month) 24,00,000 X40 100 x 12		
Work-in-progress (1/2 month): Material 24,00,000 x 40 100 x 24		
Labour 24,00,000 x 20 100 x 24	40,000	
Overheads 24,00,000 x 20 100 x 24	20,000	
Stock of finished goods (1 month)	20,000	
Material 24,00,000 x 40 100 x 12		80,000
Labour 24,00,000 x 20 100 x 12	80,000	
Overheads 24,00,000 x 20 100 x 12	40,000	
	40,000	
Debtors (2 months) at cost		1,60,000
Material		
Labour	1,60,000	
Overheads	80,000	
	80,000	
		3,20,000

		6,40,000
Less: Current Liabilities		
Creditors (1 month) for raw material 24,00,000 x 40 100 x 12		80,000
Working capital requirement = CA-CL		5,60,000

Sources Of Working Capital



1. Financing Through Permanent Sources

Permanent sources of working capital should be provided in such a manner that the enterprise might have its uninterrupted use for an unlimited duration. It can be conveniently financed by the following sources.

A. Issue of Shares

Issue of shares is the most important sources for raising the permanent working capital. Shares are of two types – Equity shares and preference shares. Maximum amount of permanent working capital should be raised by the issue of equity shares.

B. Retained Earnings

It means the reinvestment by a concern of its surplus earning in its business. This is, a part of the earned profits may be ploughed back by the firm, in meeting their working capital needs. It is an internal source of finance and is most suitable.

2. Financing Through Long-Term Sources

The fund, which is required for 7 to 20 years and above, is called long-term funds. Financing of working capital through long-term sources provides reduction of risk and increases the liquidity. These long-term sources can be raised through the following methods.

a. Redeemable Preference Shares

Preference shares are those, which carry the following preferential rights over other classes of shares:

- (i) A preferential right to payment of fixed dividend over equity shareholder.
- (ii) A preferential right to repayment of capital in case of winding up of the company to other classes of shares. Redeemable preference shares are those, which can be redeemed during the lifetime of the company. According to the companies (Amendment) Act, 1996, w.e.f. March 1997, no company can now issue preference shares, which are irredeemable or are redeemable after 20 years from the date of their issue.

b. Debentures

A debenture is an instrument issued by the company acknowledging its debt to its holder. It is also an important source of long-term working capital. The firm issuing debenture also enjoys a number of benefits, such as trading on equity, retention of control, tax benefit etc.

c. Long-Term Loans

Financing institutions such as commercial banks, Life Insurance Corporation of India, industrial finance corporation of India, state financial corporations, industrial development bank of India etc. provide long-term and medium-term loans. This type of finance is ordinarily repayable in installments’.

3. Financing Through Medium-Term Sources

The funds, which are basically required for a period of 2 to 5 years, are called medium-term funds. Previously the commercial banks were concentrating on short-term and medium-term loans in the form of working capital loans whereas the financial institutions like IDBI, ICICI, IFCI were concentrating on long-term funds. But, recently, the commercial banks have also entered into providing medium-term as well as long-term funds to trade and industry, either independently, or sometimes, in collaboration with one or more specialized financing institutions. The medium-term funds can be raised through the following methods.

a. Working Capital Term Loans

It refers to the quantum of credit that a bank should disburse. Tandon committee suggested three methods of lending which banks generally follow the second method of lending. As per this method, the borrower will have to contribute 25% of the total current assets. The remaining working capital gap will be funded by bank borrowings. Where borrower fails to bring such additional funds, the banks usually sanction “Working capital term loans” which the borrower is to repay in a phased manner. Such repayment time allowed is a maximum of five years. To put a pressure on the borrower for early repayment of such loan, the banks generally charge 1% higher rate on such loans over and above rates charged in cash credit account. However, such excess charge of interest is entirely in the jurisdiction of the bank, which may discriminate between borrowers depending financial status and future project of the concerned borrower. The concept of “**Working capital term loan**” has been introduced by Chore committee, which was appointed for reviewing working capital lending by banks subsequent to introduction of recommendation of Tandon committee.

b. Public Fixed Deposits

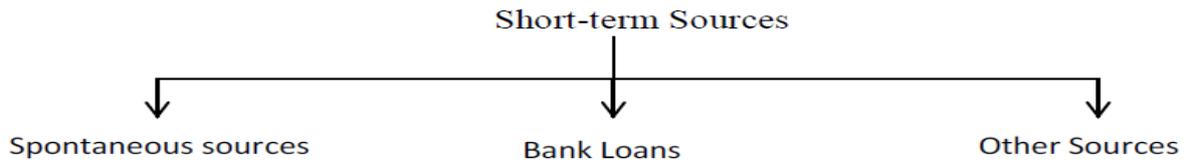
Public deposits are the fixed deposits accepted by a business enterprise directly from public deposit as source finance have a large number of advantages such as simple and convenient source of finance, Taxation benefits, inexpensive sources of finance etc.

c. Medium Term Loans

These loans are generally provided by banks or financial institutions. The period of loans vary from 3 to 7 years. The investment of these loans from funds is in plant and machinery, vehicle and certain other equipments. The procedures of granting such loan may not be as high as in case of long-term loans. Besides, in most cases consortium finance may not be required. In case of long-terms, the funds are invested in freehold land or in long leased land since their period of loan vary from 7 years to 20 years. Thus the difference between medium term loans and long-term loans may be termed as of degree rather than of kind.

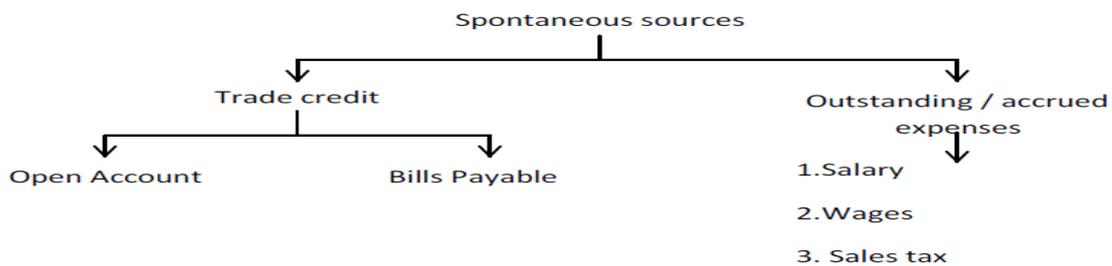
4. Financing Working Capital Through Short-Term Sources

Funds available for a period of one year or less are called shortterm sources of finance. They are raised from sources, which can provide funds only for short period quickly, and its cost is less than the funds raised from long-term sources. These funds are usually met by taking short-term loans or getting the bills discounting from the commercial banks. Spontaneous sources and bank loans are important sources of short-term funds. They are explained in detail below.



I. Spontaneous Sources

Some sources of funds, which are created during the course of normal business activity have zero cost and are termed as spontaneous sources. For example suppliers supply goods; employees provide services where the payment are made at a latter stage. To an extent, the payment is delayed and the funds are made available to the firm. These are called trade liabilities or current liabilities. The two important spontaneous sources of short-term finance are (a) Trade credit and (b) Outstanding expenses / accrued expenses. These are explained in detail below:



A. Trade Credit The credit extended in connection with the goods purchased for resale by a retailer or a wholesaler for materials used by manufacturers in producing its products is called the trade credit. Trade credit is a form of short-term financing common in almost all types of business firm. As a matter of fact, it is the largest source of short-term funds. The amount of such financing depends on the volume of purchase and the payment timings. Small and new firms are usually more dependent on the trade credit, as they find it difficult to obtain funds from other sources. This trade credit may be extended to the customers in the form of

- (a) An opening account credit and
- (b) Acceptance credit management / bills payable.

(i) Open Account

Trade credit is mostly an informal arrangement, and is granted on an open account basis. Open account is usually extended only after the seller conducts a fairly extensive investigation of the buyer's standard and reputation. In the case of open account credit arrangement the buyer does not sign any formal debt instrument as an evidence of the amount due by him to the seller. The only evidence is the copy of the invoice that goods have been delivered. Open account trade credit appears as Sundry creditors on the buyer's balance sheet in the liability side.

(ii) Acceptance credit / Bills payable

Trade credit may also take the form of Bills payable. In such a case the buyer accepts a bill of exchange or gives a promissory note for the amount due by him to the seller. This bill has specified future date, and is usually used when the supplier is less sure about buyers' willingness and ability to pay or when the suppliers' wants cash by discounting the bill from a bank. Thus, it is an arrangement by which the indebtedness of the buyer is recognized formally. This appears in the buyer's balance sheet as accounts payable or bills payable.

B. Accrued Expenses

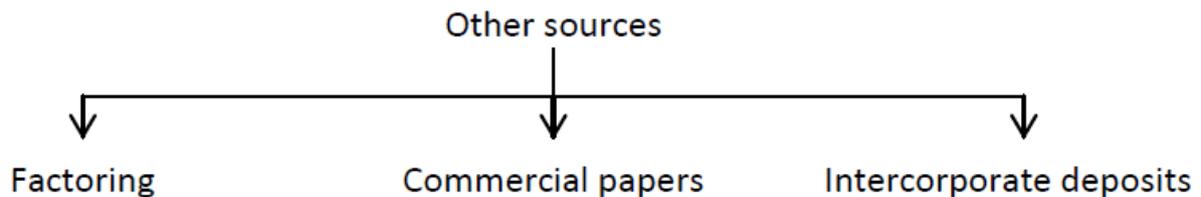
Another spontaneous source of short-term financing is the accrued expenses as the outstanding expense liabilities. Accrued expenses refer to services received by the firm but

the payment for which has not been made. The accrued expenses represent an interest free source of finance.

II. Bank Loans

The bank loans, in general, are a short-term financing say for a year or so. This short-term financing to business firm is regarded as self-liquidating. It means, banks routinely provide finance to meet the seasonal demand e.g., to cover the seasonal increase in inventories or receivables. Sometimes, the banks may approve separate limits for peak season and non-peak season. The main sources of short-term funds are cash credit, overdraft and bill discounting.

III. Other Sources



a. Factoring

In case of credit sales, it attracts more customers, resulting in increased sales and higher profit, but it has a cost also. This cost may be of two types, namely investment cost and administrative cost. Moreover, the sellers have to raise funds from various sources in order to finance the receivables. While maintaining receivables, a firm may have to face two types of problems. First, the problem of raising funds to finance the receivables, and second the problem relating to collection, delay and defaults of the receivables. If the firm concentrates on managing funds and receivables, it cannot concentrate on other functions like finance, production, marketing, personal etc.

b. Commercial Papers (CPs)

Commercial Papers are debt instruments issued by corporates for raising short-term resources from the money market. These are unsecured debts of corporates. They are issued in the form of promissory notes, redeemable at par to the holder at maturity. Only corporates who get an investment grade rating can issue CPs as per RBI rules. Though CPs are issued by corporates, they could be good investments if proper caution is exercised.

c. Inter Corporate Deposits (ICD)

Sometimes, the companies borrow funds for a short-term period; say up to six months, from other companies, which have surplus liquidity for the time being. The ICD are generally unsecured and are arranged by a financier. The ICD are very common and popular in practice, as these are not influenced by the legal hassles. The convenience is the basic virtue of this method of financing. There is no regulation at present in India to regulate these ICD. Moreover, these are not covered by the section 58A of the companies Act, 1956, as the ICD are not for long term.

Management of Cash

Management of cash is an important function of the finance manager. The modern day business comprises of numerous units spread over vast geographical areas. It is the duty of the finance manager to provide adequate cash to each of the units. For the survival of the

business, it is absolutely essential that there should be adequate cash. It is the duty of finance manager to maintain liquidity at all parts of the organization while managing cash. On the other hand, he has also to ensure that there are no funds blocked in idle cash. Idle cash resources entail a great deal of cost in terms of interest charges and in terms of opportunities costs. Hence, the question of costs of idle cash must also be kept in mind by the finance manager. A cash management scheme, therefore, is a delicate balance between the twin objectives of liquidity and costs.

Need for Cash

The following are four motives for holding cash:

1. **Transaction need:** Cash facilitates the meeting of the day-to-day expenses and other payments on the debts. Normally, inflows of cash from operations should be sufficient for this purpose. But sometimes this inflow may be temporarily blocked. In such cases, it is only the reserve cash balance that can enable the firm to make its payments in time.
2. **Speculative needs:** Cash may be held in order to take advantage of profitable opportunities that may present themselves and which may be lost for want of ready cash/settlement.
3. **Precautionary needs:** Cash may be held to act as for providing safety against unexpected events. Safety as is typified by the saying that a man has only three friends – an old wife, an old dog and money at bank.
4. **Compensation motive:** Another motive to hold cash balances is to compensate banks for providing certain services and loans.

Nature of Cash Management

The exact nature of a cash management system would depend upon the organizational structure of an enterprise. In a highly centralized organization, the system would be such that the central or head office controls the inflows and outflows of cash on a routine and daily basis. In a decentralized form of organization, where the divisions have complete responsibility of conducting their affairs, it may not be possible and advisable for the central office to exercise a detailed control over cash inflows and outflows.

Cash budget

Cash budget is the plan of receipts and payments of cash during the budget period. Cash budget represents cash requirements of business during the budget period. Cash budget can be prepared for either short or for long periods.

1. **Cash budgets for short period:** Preparation of cash budget month by month would involve making the following estimates:

(a) As regards receipts:

(i) Receipts from debtors;

(ii) Cash sales; and

(iii) Any other sources of receipt of cash (say, dividend from a subsidiary company).

(b) As regards payments:

(i) Payments to be made for purchases;

(ii) Payments to be made for expenses;

(iii) Payments that are made periodically but not every month; debenture interest; Income tax paid in advance, Sales tax etc.

(iv) Special payments to be made in a particular months, for example dividends to shareholders, redemption of debentures, repayments of loan, payment for assets acquired, etc.,

2. **Cash budget for long period:** Long-range cash forecast often resembles the projected source and application of funds statement. The following procedures may be adopted to prepare long-range cash forecasts:

(a) Take the cash at bank and in the beginning of the year;

(b) Add:

(i) Trading profit (before tax) expected to be earned;

(ii) Depreciation and other development expenses incurred to be written off;

(iii) Sale proceeds of assets;

(iv) Proceeds of fresh issue of shares or debentures; and

(v) Reduction in working capital that is current assets (except cash) less current liabilities.

3. **Deduct:**

(i) Dividends to be paid

(ii) Cost of assets to be purchased

(iii) Taxes to be paid

(iv) Debentures or shares to be redeemed

(v) Increase in working capital.

Cash Management—Control Aspects

We have already seen that the finance manager must control the levels of cash balance at various points in the organization. This task assumes special importance on account of the fact that there is generally a tendency amongst divisional managers to keep cash balance in excess of their needs.

Two very important methods to speed up collection process are:

1. Concentrating banking and

2. Lock-box system

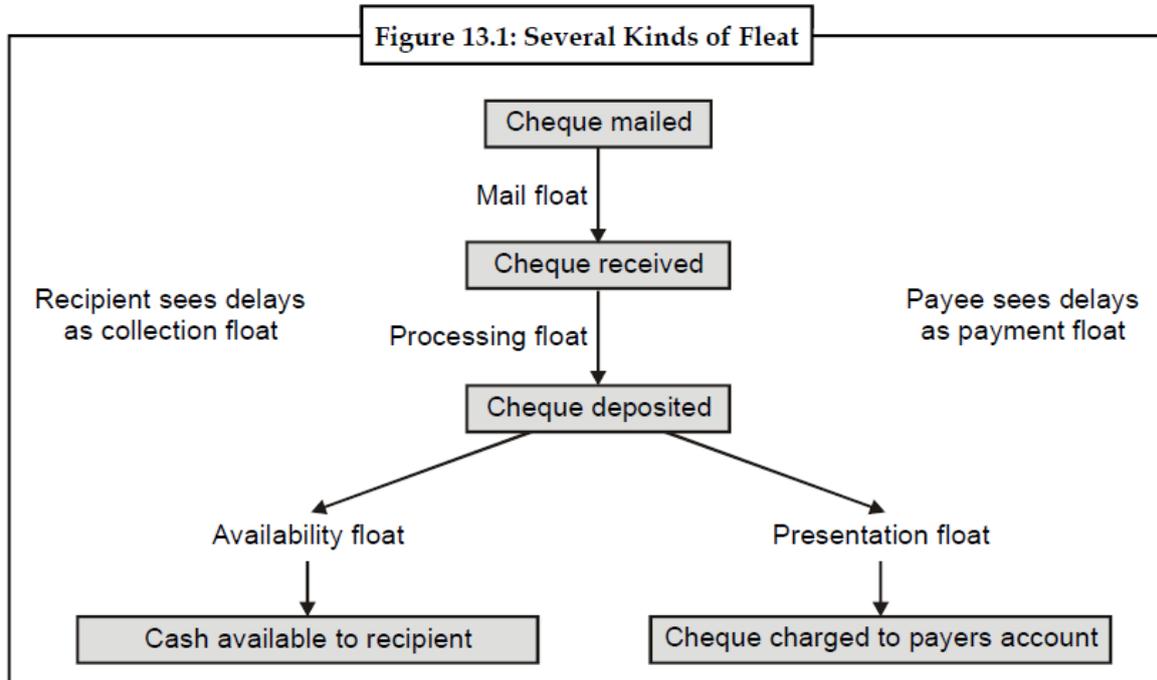
1. **Concentration banking:** In concentration banking, the company establishes a number of strategic collection centers in different regions instead of a single collection center at the head office. This system reduces the period between the time a customer mails in his remittances and the time when they become spend able funds with the company. Payments received by the different collection centers are deposited with their respective local banks which in turn, transfer all surplus funds to the concentration bank of the head office. The concentration bank with which the company has its major bank account is generally located at the headquarters. Concentration banking is one important and popular way of reducing the size of the float.

2. **Lock-box system:** Another means to accelerate the flow of funds is a lock box system. With concentration banking, remittances are received by a collection centre and deposited in the bank after processing. The purpose of lock box system is to eliminate the time between the receipt of remittances by the company and the deposit in the bank. A lock box arrangement usually is on regional basis, which a company chooses according to its billing patterns. Before determining the regions to be used, a feasibility study is made of the possibility of

for payment, one may be able to get by with a smaller cash balance. This game is often called playing the float. One can increase the available cash balance by increasing the net float.

Managing Float

There are several kinds of delay and so people in the cash management refer to several kinds of float.



Cash Management Models

In recent years, several types of mathematics models have been developed that help to determine optimum cash balance to be carried by a business organization. All these models can be put into two categories – inventory type models and stochastic models. Inventory type models have been constructed to aid the finance manager to determine optimum cash balance of the firm. However, in a situation where EOQ Model is not applicable, the stochastic model of cash management helps in determining optimum level of cash balance. It happens when the demand for cash is stochastic and is not known in advance.

1. William J Baumol's Economic Order Quantity Model

According to this model, optimum cash level is that level of cash where the carrying costs and transaction costs are the maximum. The carrying costs refer to the cost of holding cash, namely the interest foregone in marketable securities. The transaction costs refer to the cost involved in setting the marketable securities converted into cash. This happens when the firm falls short of cash and has to sell the securities resulting in clerical, brokerage, registration and other costs. The optimum cash balance will be that point where these two costs are equal. The formula for determining optimum cash balance is:

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

Where, C = Optimum cash balance

U = Annual (or monthly) cash disbursement

P = Fixed cost for transaction

S = Opportunity cost of one rupee p.a.

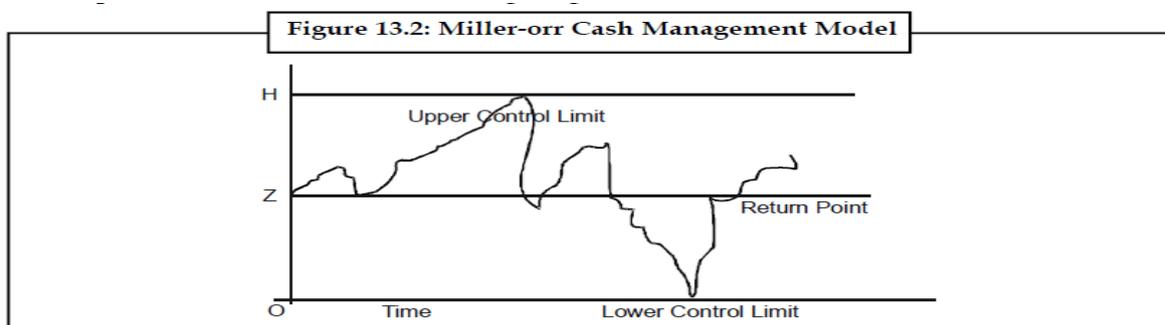
Example: A firm maintains a separate account for cash disbursement. Total disbursement is 105,000 per month or 12,60,000 per year. Administrative and transaction cost of transferring cash to disbursement account is 20 per transfer. Marketable securities yield is 8% p.a. Determine the optimum cash balance as per J. Baumal's Model

Solution: The optimum cash balance

$$C = \sqrt{\frac{2 \times 12,60,000 \times 20}{0.08}}$$
$$= ₹ 25,100$$

2 Miller–Orr Cash Management Model

According to this model, the net cash flow is completely stochastic. When changes in cash balance occur randomly the application of control theory serves a useful purpose. The Miller –Orr model is one of such control limit models. This model is designed to determine the time and size of transfers between an investment account and cash account. In this model, limits are set for cash balances. These limits may consist of h as upper limit, z as the return point and zero as lower limit. When the cash balance reaches the upper limit, the transfer of cash equal to h is invested in marketable securities account. When it touches the lower limit, a transfer from marketable securities account to cash account is made. During the period when cash balance stays between (h, z) and $(z, 0)$ i.e., high and low limits of cash balance are set up on the basis of fixed cost associated with the securities transactions, the opportunity cost of holding cash and the degree of likely fluctuations in cash balances. These limits satisfy the demands for cash at the lowest possible total costs. The following diagram illustrates the Miller – Orr Model.



Treasury Management

Treasury management once viewed as a peripheral activity conducted by back-office, today plays a very vital role in corporate management. Treasury management can be defined in

many ways. The Association of Corporate Treasurers defines “Treasury management as the efficient management of liquidity and financial risk in business.” All firms, to some degree, are involved in treasury management, although in smaller companies, it may not be a separately defined job.

Functions of Treasury Department

1. Cash management: The efficient collection and payment of cash both inside the group and to third parties is the function of the treasury department. The involvement of the department with the details of receivables and payables will be a matter of policy. There may be complete centralization within a group treasury or the treasury may simply advise subsidiaries and divisions on policy (collection/payment periods, discounts, etc.). Any position between these two extremes would be possible. Treasury will normally manage surplus funds in an investment portfolio. Investment policy will consider future needs for liquid funds and acceptable levels of risk as determined by company policy.

2. Currency management: The treasury department manages the foreign currency risk exposure of the company. In a large multinational company (MNC), the first step will usually be set off intragroup indebtedness. The use of matching receipts and payments in the same currency will save transaction costs. Treasury might advise on the currency to be used when invoicing overseas sales. The treasury will manage any net exchange exposures in accordance with company policy. If risks are to be minimized, then forward contracts can be used either to buy or sell currency forward.

3. Funding management: The treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs. The treasury department will also participate in the decision on capital structure and forecast future interest and foreign currency rates.

4. Banking: It is important that a company maintains a good relationship with its bankers. Treasury department carries out negotiations with bankers and acts as the initial point of contact with them. Short-term finance can come in the form of bank loans or through the sale of commercial paper in the money market.

5. Corporate finance: The treasury department is involved in both acquisition and divestment activities within the group. In addition, it will often have responsibility for investor relations. The latter activity has assumed increased importance in markets where share price performance is regarded as crucial and may affect the company's ability to undertake acquisition activity or, if the price falls drastically, the lender it vulnerable to a hostile bid.

The Cash Conversion Cycle

Central to short-term financial management is an understanding of the term ‘Cash Conversion Cycle’. We have discussed in the earlier unit that operating cycle encompasses two major short-term asset categories: inventory and accounts receivable. It is measured by summing the average age of inventories and average collection period .

However, the process of producing and selling a product also includes purchase of production inputs (raw materials) an account, which results in accounts payables. Accounts payable

reduce the number of days a firm's resources are tied up in operating cycle. The time it takes to pay the accounts payable, measured in days is the average payment period. Management of Marketable Securities Management of marketable securities is an integral part of investment in cash as this may serve both the purposes of liquidity and cash provided choice of investment is made correctly. As the working capital needs are fluctuating, it is possible to park excess funds in same short-term securities, which can be liquidated when need for cash is felt. The selection of securities should be guided by three principles:

a. *Safety*: Returns and risks go hand in hand. As the objective of this investment is ensuring liquidity, minimum risk is the criterion for selection.

b. *Maturity*: Matching of maturing and forecasted cash needs is essential. Prices of long term securities fluctuate more with changes in interest rates and are therefore, more risky.

c. *Marketability*: It refers to the convenience, speed and cost at which a security can be converted into cash. If the security can be sold quickly without loss of time and price, it is highly liquid or marketable.

What is surplus?

Surplus is the amount of profit remaining after tax and distribution to stockholders that is retained in a business and used as a reserve or as a means of financing expansion or investment.

Investing the Cash Surplus:

When investing a cash surplus, it's only natural to seek the highest rate of return for investment. Four factors must be considered when making investment decisions:

(a) Risk (b) Liquidity (c) Maturity (d) Yield

Each factor plays an important role in determining the rate of return you receive on invested cash surplus. These factors can also help to determine how much to invest and when to invest surplus.

There are many investment opportunities available for cash surplus. We must consider the advantages and disadvantages as well as the levels of risk, maturity, liquidity, and the yields of each of investment opportunities. The following are just a few of the investment opportunities we may have:

(a) Checking accounts with interest (b) Sweep accounts

(c) Treasury bills and notes

(d) Certificates of deposit (CDs) and money market funds

Risk in Investing Surplus

The investment of cash surplus should never be speculative - that is, high risk. As in most businesses, cash surplus may only be a temporary surplus of cash inflows over cash outflows.

Any permanent losses resulting from a high risk investment could be devastating, even to the point of making you unable to continue business. The level of risk you are willing to accept ultimately determines the yield of investment. A higher level of risk will generally provide with a higher yield. On the other hand, a low level of risk will result in a lower yield on your investment. In some cases, we choose to invest in an investment with a higher level of risk to gain a higher yield. But as a rule, a conservative approach to the level of risk is recommended when investing cash surplus.

Receivables Management

The term 'receivable' is defined as "debt owed to the firm by customers arising sale of goods or services in the ordinary course of business". When a firm makes an ordinary sale of goods or renders services and does not receive payment it means that the firm has granted trade credit and the amount appears as receivables in the books of the seller, which will be collected in future. Thus, accounts receivable represent an extension of credit to customers, allowing them a reasonable period of time to pay for the goods or services which they have received.

Three Crucial Decision Areas in Receivables Management

The three crucial decision areas in receivable management are (a) credit policies (b) credit terms and (c) collection policies.

➤ Credit Policies

It involves a trade-off between profits on additional sales that arise due to credit being extended on the one hand and cost of carrying the receivables and bad debt losses on the other. The credit policy of a firm provides the framework to determine (1) whether or not to extend credit to a customer and (2) how much credit to extend. The credit policy decision has two dimensions (a) credit standards and (b) credit analysis.

A. Credit Standards The term 'credit standards' represents the basic criteria for the extension of credit to customers. The quantitative bases of establishing credit standards are factors such as credit ratings, credit references, average payment period, and certain financial ratio. We are interested in illustrating the trade-off between benefit and cost to the firm as a whole and therefore not considering the individual components of credit standards. The trade-off with reference to credit standards covers the collection cost, the average collection period, level of bad debt losses, and level of sales. These factors should be considered while considering whether to relax credit standards or not.

B. Credit Analysis

Besides establishing credit standards, a firm should develop procedures for evaluating credit applicants. Two basic steps are involved in the credit investigation process – obtaining credit information and analysis of credit information. On the basis of credit analysis the decision to grant credit to a customer as well as the quantum of credit is taken. Sources of credit information are internal and external. Internal means various forms filled in by the customers giving details of financial operation, trade references of firms with whom the customer has business, behaviour of the customer in terms of historical payment pattern in respect of

existing credit customer. External sources include copy of the published financial statements, trade references and bank references. Finally, specialist credit bureau reports from organizations specializing in supplying credit information can also be utilized. Once the credit information has been collected from different sources, the next step is to determine credit worthiness of the applicant. There are no established procedures to analyze the information. The analysis should cover two aspects – quantitative and qualitative. The assessment of the quantitative aspect is based on factual information available from the financial statements, the past records of the firm and so on. Another step may be through a ratio analysis of the liquidity, profitability and financial capacity of the applicant and comparison with the industry average. Again trend analysis over a period of time will reveal the financial strength of the customer. Another approach may be to prepare an ageing schedule of the accounts payable of the applicant. This will give an insight into the past payment pattern of the customer. The quantitative assessment should be supplemented by qualitative interpretation of the applicants credit worthiness. For example, quality of management, references from other suppliers, bank references and specialist bureau reports.

➤ **Credit Terms**

Credit terms have three components:

1. Credit period in terms of time for which credit is extended, during this period the overdue amount must be paid by the customer;
2. Cash discount, if any, which the customer can take advantage of i.e., overdue amount will be reduced by this amount; and
3. Cash discount period, which refers to the duration during which the discount can be availed of.

The credit terms such as the credit standards, affect the profitability as well as the cost of this firm. The three components of credit terms, namely, the rate of discount, period of discount and the credit period affect the trade-off. Here the analysis is restricted from the point of suppliers of trade credit. The cash discount has implications for the sales volume, average collection period, bad debt expenses and profit per unit. The sales volume will increase. The grant of discount implies reduced prices. If the demand for the products is elastic, reduction in prices will result in higher sales volume.

A firm should determine the credit terms on the basis of cost benefit trade-off. Since the customers would like to take advantage of the discount and pay within the discount period, the average collection period would be reduced. The reduction in the collection period would lead to a reduction in the investment in receivables and also the cost. The decrease in the average collection period would also cause a fall in bad debt expenses. As a result, profits will increase. The discount would have a negative effect in the profits. This is because the decrease in prices would affect the profit margin per unit of sale. Increase in credit period will increase the sales volume, average collection period and bad debt expenses. A reduction in credit period is likely to have an opposite effect.

➤ Collection Policies

Efficient and timely collection of debtors ensure that bad debt losses are reduced to the minimum and the average collection period is shorter. If the firm spends more resources, on utilization of debts, it is likely to have smaller bad debts. Thus, a firm must work out the optimum amount that it should spend on collection of debtors. This involves a trade-off between the levels of expenditure on the one hand and decreases in bad debt losses and appropriate investment in debtors on the other.

The collection cost of the firm has to work in a manner that it does not create too much resentment amongst the customers. On the other hand, it has to keep the amount of outstanding payments in check. Hence, it has to work in a very smooth manner and diplomatically too. It is important that clear-cut procedures regarding credit collection are set up.

Management of Inventory

The term 'inventory' refers to the stockpile of the product a firm is offering for sale and the components that make up the product. In other words, inventory is composed of assets that will be sold in the future in the normal course of business operations. The assets which firms store as inventory in anticipation of needs are: (1) raw materials (2) work in process (semi-finished goods) and (3) finished goods. The raw material inventories contain items that are purchased by the firm from others and are converted into finished product through manufacturing (production) process. They are an important part of the final product. The work in progress is normally, partially or semi-finished goods, at the various stages of production in a multi-stage production process. Finished goods represent final or completed products, which are available for sale. The inventory of such goods consists of items that have been produced but are yet to be sold. Inventory, as a current asset, differs from other current assets because it is not only finance managers who alone are involved here. Rather, all the functional areas in finance, marketing, production and purchasing are involved.

The Role of Inventory in Working Capital

Inventories are components of the firm's working capital and as such represent current asset. Some characteristics that are important in the broad context of working capital management include:

1. **Current asset:** It is assumed that inventories will be converted into cash in the current accounting cycle, which is usually one year. There are exceptions to this, e.g., wine may be kept in casks or bottles for many years for the proper formation of the product. A manufacturer of fine pianos may have a production process that exceeds one year.
2. **Level of liquidity:** Inventories are considered as a source of near cash for more of the products. Some firms at some time may hold some slow moving items that may not be sold for a long time. With chronic slowdown or changes in the markets for goods the prospects for sale of entire product lines may be diminished. In these cases, the liquidity aspects of the

inventories become important to the manager of working capital. Firms must keep a reasonable margin for uncertain operating environments, the analysis must discount the liquidity value of the inventories significantly.

3. **Liquidity lag:** Inventories are tied to the firm's pool of working capital through three specific lags, namely:

(a) *Creation lag:* In majority of cases, inventories are purchased on credit, creating an account payable, when the raw materials are processed in the factory, cash is paid for production expenses for the requirement during the period, labour is paid on pay day, utility bill for electricity is paid after the bill is submitted, Or for goods purchased for resale, the firm may have 30 or more days to hold the goods before payment is due.

(b) *Storage lag:* Once goods are available for sale, they will not be immediately converted into cash by selling even when sales are moving fast, the firm will hold inventory as a back up. Thus the firm will usually pay suppliers, workers, utility and other overhead expenses before the goods are actually sold. This lag represents a cost to the firm.

(c) *Sale lag:* Once goods have been sold, they normally do not create cash immediately. Most sales occur in credit and accounts receivable is created. The firm has to wait to collect receivables. This lag also represents a cost to the firm.

4. **Circulating activity:** Inventories get rotated with other current assets. They get converted into cash and then invested again in inventory to continue the operating cycle.

Types of Inventory

Four types of inventories may be identified:

1. *Raw material inventory:* This consists of basic materials that have not been committed to production in a manufacturing firm. Raw materials that are purchased from time-to-time to be used in the firm's production operation range from iron ore awaiting processing into steel to electronic components to be incorporated into stereo amplifiers. The purpose of maintaining raw material inventory is that material is taken up for production immediately so as to avoid delays in shipment of raw materials and thereby avoid production delays.

2. *Stores and spares:* These are materials/accessories which are incidental to the consumption of Indian products and can be purchased at bulk quantity. *Example:* bolts, nuts, clamps, screws, etc.,

3. *Work-in-process inventory:* This category includes these materials that have been committed to the production process but have not been completed. The more complex and lengthy the production process, the larger will be the investment in work-in-process inventory.

4. *Finished goods inventory:* These are completed products awaiting sale. The purpose of a finished goods inventory is to couple the products and sales functions so that it no longer is necessary to produce the goods before a sale can occur.

The Nature of Inventory Planning and Control

Inventory must be sold in order to generate revenue. In a manufacturing firm, raw materials must first be converted into finished goods before products can be sold. Money invested in inventory cannot be invested in other earning assets such as production or sales facilities. Therefore, it is necessary to ensure that excessive amounts of resources are not invested in inventories.

The purpose of inventory management is to minimize the cost of inventory without impairing the efficient flow of production and sales activities. Inventory decisions are affected by the cost of ordering inventory and the cost of carrying inventory as well as by the costs of not having enough inventories in hand. Below are common types of inventory costs that are not incurred in relation to the actual cost of the inventory itself:

Inventory ordering costs: Inventory ordering costs include:

- Cost of acquiring recent price quotations
- Costs of preparing and approving a purchase order
- Cost of receiving shipments and checking against purchase orders
- Cost of recording to purchase and moving the new inventory into storage.

Inventory carrying costs: Included under this category are:

- Cost of money invested in inventory
- Heat, light, power and depreciation costs for inventory storage facilities.
- Inventory handling costs
- Inventory insurance costs
- Cost of taxes in inventory
- Costs of spoilage, obsolescence and deterioration.

Inventory storage costs: The following are included in these costs: Notes

- Cost of lost sales
- Cost of inefficient production runs
- Cost of substituting more expensive raw materials
- Penalty costs for late completion of contracts.

Inventory ordering costs and inventory carrying costs are used to compute the optimum size inventory. Inventory shortage costs are included in determining the optimum re-order point for inventory items.

Re-order point: The economic order quantity provides a manager with information about the optimum order size for a particular item of inventory but it does not provide information about

when the order should be placed. The re-order point is the inventory level of which the order is placed. If a firm has the ability to buy and receive inventory items instantly, a new order is placed when there are no more units on hand.

Techniques of Inventory Management

➤ **Setting of Various Stock Level**

• **Minimum Level**

It indicates the lowest figure of inventory balance which must be maintained in hand at all times, so that there is no stoppage of production due to non-availability of inventory. Main consideration for fixation of minimum level of inventory:

1. Information about maximum consumption and maximum delivery period in respect of each item to determine its reorder level.
2. Average rate of consumption for each inventory item.
3. Average delivery period for each item. Average delivery period = $\frac{1}{2}$ (maximum period + minimum period)

Formula:

Minimum level of inventory = Re-order level – (Average rate of consumption × Average time of inventory delivery)

Maximum level = It indicates figure of inventory quantity held in stock at any time.

The following are the considerations that govern the fixation of maximum level for various inventory items:

1. It's reorder level. The reorder itself depends on the maximum rate of consumption and maximum delivery period.
2. The knowledge about minimum consumption and minimum delivery period for each inventory item.
3. The figure of economic order quantity.
4. The availability of funds, storage space, nature of item and their price per unit are also important.
5. For imported material since of their irregular supply, the maximum level should be high.

Formula used for calculation of maximum level of inventory

$$= \text{Reorder level} \times \text{Reorder quantity} - (\text{Minimum Consumption} \times \text{Minimum reorder period})$$

Reorder level

This level is between minimum and maximum levels, such that before the material ordered is received into stores, there is sufficient quantity on hand to cover with normal and abnormal consumption situations. It is the level at what order for replenishment of stock should be placed.

The formula used for its calculation is as follows:

$$\text{Reorder level} = \text{Maximum reorder period} \times \text{Maximum Usage (or)}$$

$$= \text{Minimum level} + (\text{Avg. rate of consumption} \times \text{Avg. time to obtain fresh supplies})$$

$$\text{Now, Avg. inventory level} = \text{Maximum level} + \frac{1}{2} \text{Reorder quantity}$$

OR =

$$\text{Maximum level} + \text{Minimum level}/2$$

What is Danger Level?

It is the level at which normal issues of raw material inventory are stopped and emergency issues are only made.

$$\text{Danger Level} = \text{Avg. Consumption} \times \text{Lead time for emergency Purchases}$$

Example: Two components, A and B, are used as follows:

Normal usage	100 units/week
Maximum usage	150 units/week
Minimum usage	50 units/week
Reorder quantity	A 600, B 1000
Reorder period	A 4 to 6 weeks B 2 to 4 weeks

Calculate for cash component:

1. Reorder level
2. Minimum level
3. Maximum level
4. Average Stock level

Solution:

$$1. \text{Reorder level} = \text{Maximum usage/week} \times \text{Maximum delivery period}$$

$$\text{Reorder level for A} = 150 \text{ units} \times 6 = 900 \text{ units}$$

$$\text{Reorder level for B} = 150 \text{ units} \times 4 = 600 \text{ units}$$

$$2. \text{Minimum level} = \text{Reorder level} - (\text{Normal usage} \times \text{Avg. period})$$

$$\text{Minimum level for A} = 900 \text{ units} - 50 \text{ units} \times (4 + 6)/2$$

$$= 900 \text{ units} - 250 \text{ units} = 650 \text{ units}$$

$$\text{Minimum level for B} = 600 \text{ units} - 50 \text{ units} \times (2 + 4)/2 = 450 \text{ units}$$

$$3. \text{Maximum level}$$

$$= \text{Reorder level} + \text{Reorder Qty} - (\text{Min. consumption} \times \text{Min. reorder period})$$

$$\text{Maximum level for A} = (900 + 600) - (50 \text{ units} \times 4 \text{ weeks})$$

$$= 1500 - 200 = 1300 \text{ units}$$

$$\text{Maximum level for B} = (600 + 1000) - (50 \text{ units} \times 2) = 1500 \text{ units}$$

$$4. \text{Average stock level} = \frac{1}{2} (\text{minimum} + \text{maximum stock level}) \text{ Average stock}$$

for component A = $\frac{1}{2} (650 + 1300) = 975$

Average stock for component

B = $\frac{1}{2} (450 + 1500) = 975$

➤ **ABC Analysis (called Always Better Control)**

It is a system of inventory control where discriminating control is exercised over different items of stores classified on the basis of investment involved. Usually, the items are divided into three during a period.

1. 'A' category of items consists of only a small percentage i.e., about 10% of the total items handled by the stores but require heavy investment (in rupee value) about 70% of the total inventory value.
2. 'B' category of items (relatively less important) constitutes 20% of the total items handled by stores, having an investment (in rupee value) of about 20% of the total inventory value.
3. 'C' category consists of large number of items handled by stores say 70%, having relatively small investment say 10% of the total inventory value. 'A' category of items is controlled effectively by using a regular system, which ensures neither over-stocking nor shortage of materials for production. The stocks of materials are controlled by fixing certain levels like maximum level, minimum level and reorder level. Reduction in inventory management costs is achieved by determining economic order quantity. To avoid shortage and to minimize heavy investment in inventories, the techniques of value analyses, variety reduction, standardization etc., are used.

In case of 'B' category of items, less degree of control as applicable to 'A' category items are warranted. The orders for the items, belonging to this category, may be placed after reviewing the situation periodically. For 'C' category of items, there is no need of exercising constant control. Orders for these items are placed either at 6 months interval or yearly interval, depending on the consumption pattern. In this case, the objective is to economize an ordering and handling costs.

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Corporate Finance 3rd Module Note

Mba 2nd Sem