Chapter-1

Conceptual Framework

Chapter 1.

CONCEPTUAL FRAMEWORK

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1.1 Introduction

One of the most important areas in the day to day management of the firm is the management of working capital. Working Capital Management is an important part of the financial marketing. It is concerned with the management level of individual current assets as well as the management of total working capital. Working Capital is a financial indicator that measures a company's operating liquidity.

Generally the quantum of working capital is determined by the level of production which depend upon the management attitude towards risk and the factors which influence the amount of cash, inventories and receivable and other current assets required to support given volume of production, by effective managing these component, companies can sharply reduce their dependence on outside finding and can use the released cash for further investments or acquisitions. This will not only lead to more financial flexibility, but also create value and have a strong impact on a company's enterprise value by reducing capital employed and thus increasing assets productivity.

Working capital management has become a basic and broad measure of judging the performance of business enterprises. Working capital ensure that the appropriate sources of funds are used to finance working capital and should also see that short term liabilities of the business are met well in time.

1.1 Meaning and Definition

Working capital is defined as current assets minus current liabilities. A positive position means that a company is able to support its day-to-day operations i.e. to serve both maturing short-term debts and upcoming operational expenses. "The management of current assets and current liabilities and the inter relationship that exists between them may be termed as working capital management.

Working capital also known as "Net Working Capital" and is defined as

Net Working Capital = Current Assets - Current Liabilities

Current Assets:

Current Assets are assets which are expected to be sold or otherwise used within one fiscal year. Typically current assets include cash, cash equivalents, accounts receivable, inventory prepaid accounts which will be used within a year and short-term investment.

Current Liabilities :

Current liabilities are considered as liabilities of the business that are to be settled in cash with the fiscal year. Current liabilities includes accounts payable for goods, services or suppliers, short-term loans, long term loans with maturity within one year, dividends and interest payable or accrued liabilities such as accrued taxes.

Definition of Working Capital:

The various authorities have defined the working capital as follows.

1] "Working capital is descriptive of that capital which is not fixed. But the more common use of the working capital is to considered it a difference between the book value of the current assets and current liabilities" (Hoagland).

2] "Circulating capital means current assets of the company that are changed in the ordinary course of business from one form into another" (Gerstenberg).

For e.g. from cash to inventories, inventories to receivable, receivable into cash etc.

3] "Working capital is the amount of funds necessary to cover the cost of operating the enterprise" (Shubin).

4] "The sum of Current Assets is the working capital of a business"(J.S. Mill).

1.2 Needs of Working Capital

Management of working capital is needed for the success of business. It has been emphasized that a business should maintain a sound working capital position and also that there should not be an excessive level of investment in working capital. It has been rightly said that, Working Capital Management has been looked upon as the driving seat of a financial manager". The manner of management of working capital

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is a very large extent determine the success of operations of a concern. "Constant Management" is required to maintain appropriate levels in the various working capital accounts".

: Working Capital Management has acquired important position and great significance in the modern time the financial manager today has to spend a great deal of time in managing current assets and current liabilities. Arranging short term financing, controlling the movement of cash, administering accounts receivable and monitoring the investment in inventories consume a great deal of their time". It has been found that the largest portion of financial managers, time is utilized in the management of working capital.

Working Capital is also need for to increasing profitability and maintain liquidity of the concern.

1.3 Importance of Working Capital

Working Capital is lifeblood or heart of the business. It's inadequacy or weakness may prove to the successful working of the business. It keeps the wheels of the machinery moving or revolving so, it feels the machinery and keep them running.

Every activity of the business is related to the availability of the working capital. It is like a main spring in the clock the importance of working capital may stated as follows.

1] It creates a feeling of security and confidence.

2] It is a must for maintaining solvency and continuity of operation.

3] It enhances credit standing and goodwill of the firm.

4] It enables to avoid of cash discounts.

5] It helps borrowing at favorable rates of interest.

6] It boosts the management moral and inspires then to go in future expansion plan.

7] It helps the business to get special order concession rate.

8] It helps the firm to overcome periods of economic uncertainties.

9] It gives facility of off season purchasing.

10] It ensures regular and assured production.

11] It gives guarantee of quick and steady returns to the investors.

12] It removes the financial stringency very easily.

1.4 Factors Determining / Requirement of Working Capital

The requirement of working capital is based on the main factors enlisted as below. In the initial stage of business more working capital is required as compared to the requirements. When production is out, sales and collection are started.

1] Nature or type of business

2] Size of business

3] Terms of purchase and sales.

4] Rapidity of turnover.

5] Time consumed between order and delivery.

6] Expansion.

7] Cash requirement.

8] Seasonal variation

9] Management ability, attitude and efficiency

10] Operating efficiency level

1.5 Concept of Working Capital

Working capital is mainly stated as –

a] Gross Working Capital Concept

b] Net Working Capital

a] Gross Working Capital Concept:

Gross working capital refers to the firms to make investment in current assets, they are cash/bank balance, stock, debtors, bills receivable, prepaid expenses, temporary investment in surplus funds in marketable securities, treasury etc.

b] Net Working Capital:

The terms working capital concept refers to the differences between the total current asset and current liability. This concept may be positive or negative. When current asset and exceeds current liabilities it is a positive net working capital. When

current liabilities exceeds current assets it is a net negative working capital. The concept of working capital of different concern as shown below.

1.6] Elements of Working Capital

A] Current Assets:

Current assets are those assets which can be converted into cash within short span of time (generally within 1 year) without undergoing diminution of value and without distributing the organization.

The current assets are as follows:

1) Cash in hand
2) Cash at bank
3) Bills receivable
4) Sundry Debtors
5) Treasury bills
6) Prepaid expenses
7) Advances on material purchases
8) Inventories :
    Raw Material
    Work in Progress
    Finished Goods

9] Temporary investment of surplus funds in marketable securities.

B] Current Liabilities:

Current liabilities are those which are expected to be paid in the ordinary course of operating cycle, within a reasonable short time (normally within a year) out of current assets or income of the business. The Current Liabilities are as follow:

1] Sundry Creditors
2] Bills Payable
3] Bank Overdraft
4] Dividend Payable
5] Accrued or outstanding expenses such as –
    Accrued Taxes Accrued Salaries, Accrued Interest.

6] Short term loans, advances and deposits

7] Liability reserve for income tax payable.

1.7 Dangers of INADEQUATE Working Capital (Choudhry A.B,1978)

1] It frustrates the enterprises objectives through lack of funds.

2] It is a contributing factor to business features.

3] It cannot buy its requirement in bulk and cannot avail of discount etc.

4] It stagnates growth.

5] It reduces the rate of return of total investment.

6] It gives rise to operating inefficiencies.

7] It renders the firm unable to avail attractive credit opportunities.

8] It influences dividend policy adversely.

9] The rate of return on investment also falls with the shortage of working capital.

10] It becomes difficult for the firm to exploit favorable market conditions.

11] It effluences management morale adversely.

1.8 Dangers of Excess Working Capital (Choudhry A.B,1978)

1] Excessive working capital means idle funds which earn no profits for the business and hence the businesses cannot earn a proper rate on its investment.

2] It results in unnecessary accumulation of inventory.

3] It results in management inefficiency through complacency.

4] Excess working capital implied excessive debtors and defective credit policy which may cause high incidence of bad debts.

5] It encourages speculation.

6] It may stimulate unnecessary expansion.

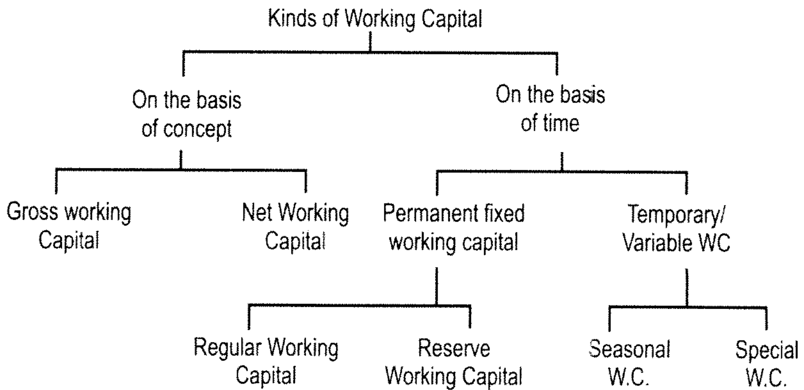
7] It may lead to liberal dividend policy.

8] It destroys the control of turnover rate.

9] Due to low rate of return on investment the value of shares may also fail.

10] It results in inefficient utilization of total investment.

1.9 Classification of Working Capital (Choudhry A.B,1978)



1] Permanent /Fixed Working Capital A) Regular Working Capital Reserve Margin / Caution Working Capital

2] Variable Working Capital

a) Seasonal Working Capital

b) Special Working Capital

3] Regular Working Capital

This is the minimum amount necessary for maintaining the circulation of the current assets it never leaves the business process and its size increased with growth e.g. Minimum stock of raw material, finished goods, spare parts etc.

Financing of regular working capital on a permanent basis is done by –

1) Ploughing back of profit (Retained profit) through additional depreciation allowance.
2) Issuing shares and debenture.
3) Investing capital and Revenue Reserves. This is the best source of financing regular working capital.
4) Hypothecation of inventory.

Reserve Margin / Caution Working Capital:

It is excess of working capital over the current needs being kept apart for meeting the contingency like Rising prices, depreciation, strikes, fire, severe competition etc.

Variable / Seasonal Working Capital:

The fluctuate volume of the business and is to meet the seasonal / variable needs. It changes its from cash to inventory and from inventory to receivables then to cash.

1.10 Planning, Measuring & Controlling of Working Capital

A] Planning of Working Capital

The successful planning of Working Capital involves –

1) **Preparation of budget trading, P&L A/c.**

This shows the real quantum of purchase, production, sales and the other expenses.

2) **Preparation of budgeted Balance Sheet**

This shows the company's assets and liabilities. This lays more importance on gross and networking.

3) **Preparation of Cash Budget**

A cash budget is detailed estimate for some future period of time of cash inflows from all sources, cash disbursement for all purpose and the resultant cash balances.

Major function of Cash Budget -

1] Determination of minimum cash balances

2] Ensuring effective borrowing

3] Profitable investment of excess cash

4] Enable acceleration of cash flow

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For effective and efficient working capital managemert. The management is attend to –

a] Level of investment in stock

b] Level of investment in Debtors

c] Ability of the concern to deal with its creditors

d] Maturing loans

e] Periodical obligation such as taxes and dividend.

B] Control of Working Capital

The control of Working Capital involves the following technique and these will help smooth functioning of the business cycle. The technique includes:

1] Budgetary Control

2] Cost Control

3] Ratio Analysis

4] Fund Flow Statement

5] Internal Audit

"Managerial functions of control implied of actual performance comparing with the standards set by plans and correction of deviation ɔf assure attainment of objective according to plans.

C] Measuring Working Capital :

It is measured from the financial data of corporate balance sheet, working capital analysis can be done by comparing current assets with current liability over a period.

1.11] Financing of Working Capital

There are 3 types of financing the Working Capital needs of organization are as follows:

A] Long Term Finance

Inclusive of shares, debentures, preference shares, required earning and debts from financial institution.

B] Short Term Finance

Short term finance refers to those sources of short term credit which arranged earlier like short term bank loans, commercial paper and BIR.

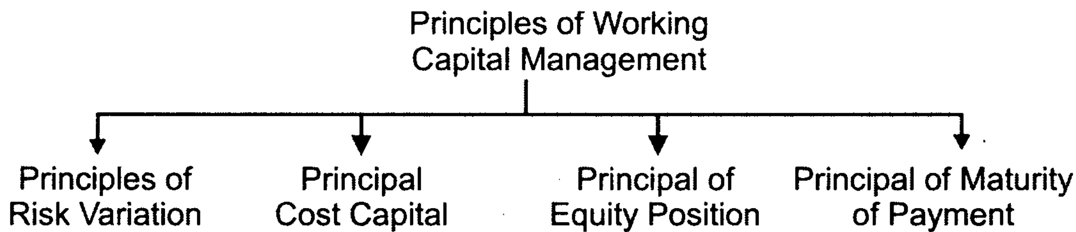
C] Spontaneous Financing

It refers to the automatic sources of short term funds trade credit and outstanding expenses. A firm would like to finance working capital with spontaneous finance as they are cost free.

1.12] Principles of Working Capital Management / Policy (A.Vijaykumar)

The following are the general principle of a sound working capital management policy.

Principles of Working Capital Management



1] Principle of Risk Variation :

Risk here refers to the inability of a firm to meet its obligation as and when they becomes due for payment. Larger investment in Current Assets with less dependence on short term borrowing. increased liquidity reduces dependence on short term borrowing. increases liquidity risk and thereby less opportunity for gain or loss on the other hand less investment in Current Assets with greater dependence on short term borrowing. increases risk, reduces liquidity and increases profitability. A conservative management prefers to minimize risk by maintaining a higher level of current assets or working capital while a liberal working management assumes a greater risk by reducing working capital. However the goal of the management should be to establishing a suitable trade off between profitability and risk.

2] Principle of Cost of Capital:

The various sources of raising working capital finance have different cost of capital and the degree of risk involved. Generally, higher the risk lower is the cost and lower the risk higher is the cost. A sound working capital management should always try to achieve a proper balance between these two.

3] Principle of Equity Position:

The principle concerned with planning the total investment in capital assets. According to this principle, the amount of working capital invested in each component should be adequately justified by a firm's equity position. Every rupee invested in the current asset should contribute to the net worth of the firm. The level of Current Assets may be measured with the help of 2 ratios.

1] Current Assets as a percentage of total assets and

2] Current Assets as a percentage of total sales.

While deciding about the composition of current assets the financial managers may be considered the relevant industrial averages.

4] Principle of Maturity of Payment:

The principle is concerned with planning the sources of finance for working capital. According to this principle a firm should make every effort to relate maturities of payment to its flow of internally generated funds. Maturity pattern of various current obligations is an important factor in the management assumption and risk assessment generally shorter the maturity. Schedule of current liabilities in relation to expected cash inflows the greater the liquidity to meet its obligation in time.

To sum up working capital management should be considered as an internal part of overall corporate management. In the word of Louis Brand "We need to know when to look for working capital funds, how to use them and how to measure plan and control them to achieve the above mentioned objectives of working capital management the financial manager has to perform the following basic function.

i] Estimating the working capital requirement

ii] Financing of working capital need

iii) Analysis and control of working capital

1.13 Ratio Analysis of Working Capital (Kuchhal S.C)

This is used as a means of understanding the efficiency of working capital behavior of ratio over a period of years determining the trends. These trends indicate the rise, decline or stability of working capital.

The following ratio has relevance to the working capital.

A] Liquidity Ratio

B] Turnover Ratio

C] Working Capital Ratio

A] Liquidity Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

This ratio is to find out whatever the current assets which are expected to be realized during the operational cycle are able to cover the current liabilities which are to the meet in the short term (usually one year).

Standard current ratio is considered to be 2:1.

2] Acid Test Ratio or Quick Ratio

Principles of Working Capital Management

$$\text{Acid Test Ratio OR} = \frac{\text{Quick Assets}}{\text{Quick Liabilities}}$$

Quick Ratio :

This is a stringent measure of liquidity and gives emphasis on the ability of immediate conversion of assets in to cash. This gives a better picture of a firm's ability to meet its short term debts out of short term assets.

Standard quick ratio is considered to be 1:1.

3] Turnover Ratio

1] Inventory Turnover Ratio

$$\text{Inventory Turnover Ratio} = \frac{\text{Net Sales}}{\text{(Inventory Average)}}$$

This ratio indicates the efficiency of inventory management. A high ratio is desirable showing efficient management of inventories.

2] Receivable Turnover Ratio

$$\text{Receivable Turnover Ratio} = \frac{\text{Net Sales}}{\text{Receivables}}$$

This ratio matches net credit sales of a firms to receivables and indicates the rate at which cash is generated by turnover of receivables. A high ratio is desirable and it denotes the necessity of less working capital.

3] Average Collection Period

$$\text{Average Collection Period} = \frac{360}{\text{Receivable Turnover Ratio}}$$

This ratio find out has many average sales are help up in receivable and the average collection period. A low collection period is a desirable ones if depends on firms credit terms.

C] Working Capital Ratios :

1] Working Capital Ratios = $\frac{\text{Gross Working Capital}}{\text{Average Inventory}}$

It depends the position of inventory in the working capital since inventory is the last liquid assets. This ratio widely states how much a gross working capital is occupied by the inventory. A ratio of 2:1 is desirable but one has to take into account the nature of the business restriction imposed by the government etc.

2] Current Assets to Net Sales Ratio

Current Assets to Net Sales Ratio = $\frac{\text{Current Assets}}{\text{Net Sales}}$

This indicates how efficiently the current assets are utilized to flow up sales. A lower ratio indicates efficient utilization of current assets and its components efficient turnover.

3] Receivable Sales Percentage

Receivable Sales Percentage = $\frac{\text{Receivable}}{\text{Sales}} \times 100$

This ratio states the percentage of receivables for sales of Rs.100. A flow to reflects a desirable position.

4] Payable Purchase Percentage

Payable Purchase Percentage = $\frac{\text{Payable}}{\text{Purchase}} \times 100$

This ratio shows the percentage of payable per Rs.100 purchases. Higher ratio is desirable resulting in effective working capital.

5] Average Credit Days Received

$$\text{Average Credit Days Received} = \frac{\text{Payable}}{\text{Purchases}} \times 360$$

This indicates the credit worthiness of the firm higher number of credit days received indicates a desirable position.

6] Cash to Current Assets Percentage

$$\text{Cash to Current Assets Percentage} = \frac{\text{Receivable}}{\text{Current Assets}} \times 360$$

This ratio depicts the percentage of ready cash being kept in the business to meet the day to day needs. Desirable percentage is 5 to 10 p.a. a comfortable financed business.

7] Receivables to Current Assets Percentage

$$\text{Receivables to Current Assets Percentage} = \frac{\text{Receivable}}{\text{Current Assets}} \times 100$$

This ratio indicates the position of a receivable in the current assets 30 to 40% receivables are desirable and considered to be good.

8] Working Capital loan to Cross Working Capital

$$\text{Working Capital loan to Cross Working Capital} = \frac{\text{Working Capital Loans}}{\text{Gross Working Capital}} \times 100$$

This ratio indicates the working capital loans are able to the needs of gross working capital. A higher ratio indicates the efficiency of the management to finance the working capital with external borrowing.

1.14 Cash Management (Kuchhal S.C)

Cash is the common purchasing power or medium of exchange. As such it forms the most important component of working capital. Not only that, it largely upholding under given conditions the quantum of other ingredients of working capital viz. Inventories and debtors that may be needed for given scales and types of operations.

Commonly speaking a cash refers to state and bank money which are compulsorily used as legal to tender. It also indicates bank deposit withdrawal by cheque on demand. Sometimes cash is used to describe assets that form the cash fund. The fund consists of capital in the form of cash or equivalent assets available at management discretion for meeting obligation as they mature or for investment in operating assets. To include in cash fund are cash on hand, bank deposit, gold bullion and temporary investment made as a means for holding cash unit it will be needed such investment can be converted to cash without material delay or loss to meet obligation for payment. While some income may be derived from assets in the cash funds. Capital is ordinarily not held in this form for its earning because the rate of return is substantially lower than that realized from capital invested in most other business assets.

The word cash is taking in a narrowed sense in that it includes only state and bank money, deposits. Withdrawals by cheque on demand it has not been taken in the wide sense as the case of cash fund as described above. There is no denying the fact that most of current assets like receivable inventories etc, are sooner or later converted into cash. But it is considered wide to deal with them in their own individual identities as and when necessary rather than associates their problems with the problem of cash management.

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Objective of Cash Management

The main objective in managing cash is to trade of liquidity and profitability in order to maximize long run profits, the larger the cash balance the greater the degree of liquidity, the less the profits earning potential of the firm. The less the cash balance the less the degree of liquidity the more the profit earning potential of the firm.

The main objectives of cash management are as follows :

1] To meet requirement of day to day business operation.

2] To provide for timely of major expansion.

3] To exploit possible opportunities for advantages long term.

4] To trace unexpected chain of cash.

5] To meet requirement of bank relationship.

6] To improve credit worthiness of the company.

7] To earn directly on cash balance.

8] To create reservoir for net inflows of cash till the availability of the better use of funds by conscious planning.

1.15 Management of Debtors (Kuchhal S.C)

In many business concerns the receivable represents an important component of the current assets receivable occupy second important place next to inventories in the composition of the current assets. Receivable is considered as an essential marketing tool. It gets as a bridge between the movement of goods through production and distribution states to customer. Finally, there is a always time gap between the granting of the credit facility and collection of receivable. This time gap is financed from the working capital funds available. A careful analysis and proper management is necessary because huge funds are always tied-up in receivables.

The term receivables defined as debt owed to the firm by customer from sales of goods and services in the ordinary cause of business. However, in a broader sense the term receivables used to include further any repayment made against purchases and expenses contrary and advances to the subsidiaries employees and officers. In the present context, the term receivables are used in broader sense.

A] Objective of maintaining receivables –

Receivables are created from the getting of credit facilities to the customer and granting of advances to the subsidiary – employees and officers. The main object of maintaining receivables are as follows:

a) Expansion of Sales

For expanding the volume of sales it is necessary to grant credit facilities to the customer granting of credit facilities accelerates the sales of the concern.

b) Increase of Profits

Profit always increases with the increase in the level of sales. With the increase in the level of sales always increases the contribution increase in the amount of contribution results in the more profit.

c) Maintaining Liquidity

Receivables are more liquid than the inventories. It becomes possible to convert receivable in to cash easily than the inventory.

A Objective of Receivable Management

The emergence of receivable in business operation creates costs so the volume composition and movements of receivable are read to be so designed and maintained that these ultimately help maximization of the value of an organization. This is the broadly accepted principle of financial management. The best object of receivable management is to achieve at trade of between their liquidity and profitability aspects. It is necessary to manage the receivables in such a way for expanding the sales and at the same time maintaining the risk at the minimum.

The object of the receivable management are as under :

1) To maintain an optimum level of investment in receivables.
2) To maintain optimum volume of sales
3) To control the cost associated with the receivables and to keep it at the minimum.
4) To keep down the average collection period implementing proper collection policies.

The above object seems to be a little contradictory. Therefore a balanced approach is necessary in achieving the desired results. According to S.E. Bolton, "The objective of receivables management is to promote sales and profits". A dynamic credit policy and management will help in expanding sales at minimum cost.

1.16 Measurement of efficiency of Raw Material

Receivable constitutes a large position of current assets of every industry. Therefore effective and efficient management of receivable become necessary. Therefore this section aims at evaluating the degree of efficiency is with which receivable and were managed by industry following 2 ratio used for measuring the efficiency of raw material in the industry.

A] Receivable Turnover Ratio

B] Average Collection Period.

A] Receivable Turnover Ratio

Receivable Turnover Ratio is one of the important indicator showing the effectiveness of failure of credit and collection policies of the industrial enterprises. It is ascertained by dividing the amount of sales by the amount of average receivables. Receivables turnover measures the internal credit and collection efficiency of the factory.

Liquidity position and working capital position is considered to be effectively managed when receivable turnover is very low. Eugene, N. Lerner defines this ratio as "The ratio of total sales to over ratio" means efficient raw material and in more efficient management in liquidity position.

"The turnover of receivable provides information on the liquidity of the receivables". It indicates the speed with which receivables are converted into cash. It also serve as a preliminary indicator of efficiency in this area of investment.

2] Average Collection Period

The computation of average collection period of receivables helps in determining the quality of receivables. It also indicates the speed of its collection.

According to E.P. Lewis, “The average collection period is a significant measure of collection activity and the quality of accounts receivables”. The shorter the average collection period the better the quality of customers and the lower the collection expenses. The receivable collection period is calculated by using the following formula:

$$\text{Receivable Collection Period} = \frac{\text{No. of days in a year}}{\text{Receivable turnover in a time}}$$

This ratio gives the days taken by the factory in collecting amount of advance and other dues from its customers. It also shows the speed with which the receivable were collected.

1.17 Inventory Management (Kuchhal S.C)

Inventory - Meaning and Definition

The dictionary meaning of the term Inventory is “the stock of goods”. According to Kholer, Inventory means any class or group of material or suppliers. Invite expressed or capitalized as maintenance supplies or construction materials. Starr and Miller define the term as “A stock of some kind of physical commodity”. In financial parlance “Inventory is defined as “the sum of the value of raw material, funds and lubricants, spare parts, maintenance consumable, semi processed material and finished goods stocks at any given point of time. According to American Institute of Accountants, Inventory means the aggregates of those items of tangible personal property which –

i] Are held for sales in the ordinary course of business

ii] Are in the process of production for sales

iii] Are to be currently consumed in the production of goods or services to be available for sale”.

John Hump ton defined Inventories as "the goods held for eventual resale by the firm".

Every business organization attempts to hold adequate inventory at any time. Excess or inadequate inventory affects adversely both the liquidity and profitability of a concern shortage of inventory creates obstacle in the production

process which result in under utilization of production capacity. On the other hand excess inventory may place heavy burden on the working capital position of the concern. Excess inventory requires greater storage space, more security arrangement, more insurable cost more risk of loss and obsolescence etc.

Many authorities referred inventory as a life blood of every business. A high as well as low blood pressure are equally dangerous to the human life and human health life. This "excessive as well as inadequate inventory both are harmful to the economic life and health of concern".

C. 1 Characteristics of Inventory

The characteristics of inventory is as follows:

1) Inventory has a prominent place in the current asset composition of every manufacturing concern.
2) Only the components of working capital involves the functional areas of management viz. purchasing, production, marketing finance and personal etc.
3) There are various risks involved in the holding inventories i.e. risk due to fire, price decline, risk due to deterioration and obsolescence etc.
4) Holding of inventory involved same costs viz. material costs, ordering costs etc. Other current assets do not involve any cost.

C.2 Motives of Inventory holding

Holding of inventory always involves some cost e.g. storage cost, handling costs, insurance cost etc. It also ties up in the funds of the concern to a large extent. Yet every manufacturing as well as business concern has hold inventory. According to Starr & Miller, there are 3 general motives for holding inventories – they are –

1] The Transaction motive

This motive emphasis the need to maintain inventories to facilitated smooth production and sales operation.

2] The Precautionary motive

The motive necessitates holding of inventories to guard against the risk of unpredictable change in demand and supply forces and other factors.

3] The Speculative motive

The motive influences the decision to increase or reduce inventory level to take advantage of price fluctuations.

C.4] Scientific inventory management technique

The following problems areas comprise the heart of inventory control and any scientific approach to inventory management, should take care of the –

i) The classification of problem
ii) The order quantity (how much to order) problem
iii) The order point problem (when to order) &
iv) Safety stocks.

The various techniques that are available to solve the above types of problems are now discussed one by one.

Any effective inventory, control system will not have all items in the inventory treated to the same manner under the same control techniques in classification is made on the basis of annual consumption value of inventories. In other words, all items of material in respect of which the total value of consumption is substantial are classified as `A' substantial are classified as `A' items. On the other hand `C' items represents those items in which case the value of consumption is comparatively insignificant. `B' items fall midway between `A' AND `class items on the basis of physical quantities and value of material used a table as follows to may be constructed.

Table No. 1.1

ABC Analysis:

Inventory Items	% of Total Items	% of Total Value
A	10	75
B	20	15
C	70	10

This technique of inventory classification and control is often called as ABC analysis or proportional part value analysis. The ABC analysis can also be graphically shown by as follows.

a) Inventory Cycle:

Before considering the Economic order quantity model it may be helpful to get an idea of inventory movement by means of graphical presentation. If demand on inventories are regular the inventory movement may appear as follows:

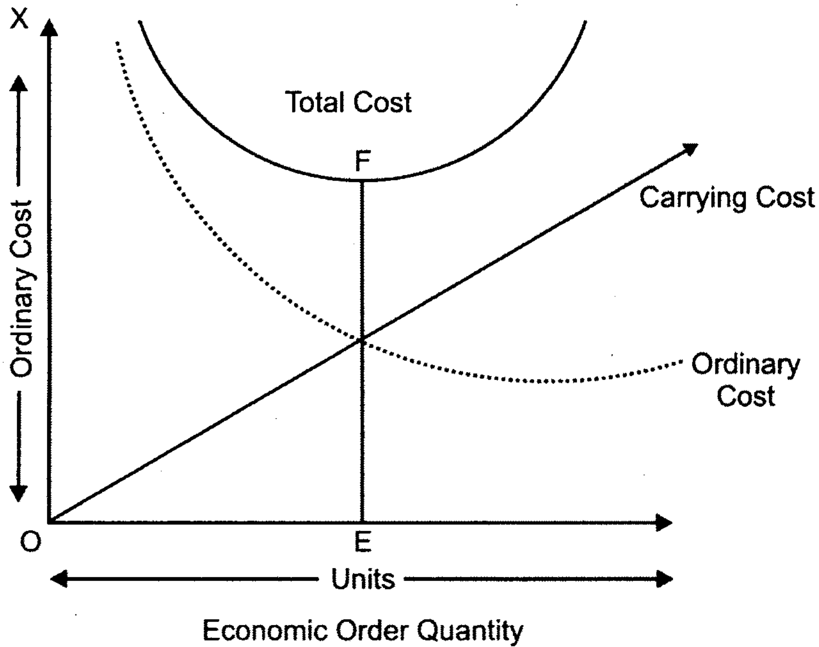
It is assumed that the ordering quantity (Q) is 6500 units. Therefore on receipt of an order 6500 units per week over the period i.e. even demanded so units are drawn by this quantity per week. The steps represents the actual withdrawals, shown approximately as a straight line, the actual quantity held in inventory will vary from 6500 units (Just on receipt of an orders) to zero (Just before an order arrives) or average unit held in inventory will therefore be Q12, i.e. 3,250 units.

Economic Ordering Quantity (EOQ):

The EOQ is taken at the level where the cost of carrying approximately equal to cost of not carrying. At this point total cost is also minimum. The EOQ function is illustrated in figure

In figure the ordering cost carrying cost and total costs are plotted while carrying costs tend to vary directly with the size of the order. Ordering costs of ordering are spread over more units subsequently. It begins to rise when the

increasing average ordering costs in more than offset by the additional carrying cost. Thus point `E' represents the optimum order which minimize the total cost of inventory management.



Economic Order Quantity

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