
UNIT 16 MANAGEMENT OF WORKING CAPITAL

Objectives

The objectives of this unit are to familiarise you with the:

- concepts and components of working capital
- significance of and need for working capital
- determinants of the size of working capital
- criteria for efficiency in managing working capital

Structure

- 16.1 Introduction
- 16.2 Significance of Working Capital
- 16.3 Operating Cycle
- 16.4 Concepts of Working Capital
- 16.5 Kinds of Working Capital
- 16.6 Components of Working Capital
- 16.7 Importance of Working Capital Management
- 16.8 Determinants of Working Capital Needs
- 16.9 Approaches to Managing Working Capital
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16.1 INTRODUCTION

Effective financial management is the outcome, among other things, of proper management of investment of funds in business. Funds can be invested for permanent or long-term purposes such as acquisition of fixed assets, diversification and expansion of business, renovation or modernisation of plants & machinery, and research & development.

Funds are also needed for short-term purposes, that is, for current operations of the business. For example, if you are managing a manufacturing unit you will have to arrange for procurement of raw material, payment of wages to your workmen and for meeting routine expenses. All the goods, which are manufactured in a given time period may not be sold in that period. Hence, some goods remain in stock, e.g., raw material, semi-finished (manufacturing -in-process) goods and finished marketable goods. Funds are thus blocked in different types of inventory. Again, the whole of the



stock of finished goods may not be sold against ready cash; some of it may be sold on credit. The credit sales also involve blocking of funds with debtors till cash is received or the bills are cleared.

Working Capital refers to firm's investment in short-term assets, viz. cash, short-term securities, accounts receivable (debtors) and inventories of raw materials, work-in-process and finished goods. It can also be regarded as that portion of the firm's total capital, which is employed in short-term operations. It refers to all aspects of current assets and current liabilities. In simple words, we can say that working capital is the investment needed for carrying out day-to-day operations of the business smoothly. The management of working capital is no less important than the management of long-term financial investment.

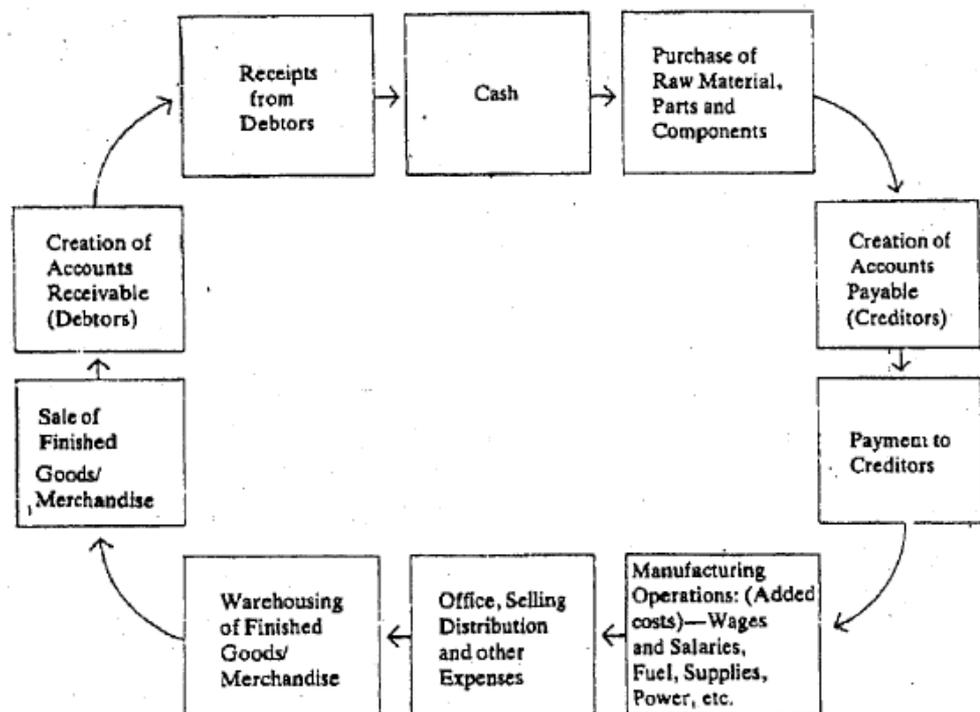
16.2 SIGNIFICANCE OF WORKING CAPITAL

You will hardly find a running business firm, which does not require some amount of working capital. Even a fully equipped manufacturing firm is sure to collapse without (a) an adequate supply of raw materials to process, (b) cash to meet the wage bill, (c) the capacity to wait for the market for its finished products, and (d) the ability to grant credit to its customers. Similarly, a commercial enterprise is virtually good for nothing without merchandise to sell. Working capital, thus, is the life-blood of a business. As a matter of fact, any organisation, whether profit-oriented or otherwise, will not be able to carry on day-to-day activities without adequate working capital.

16.3 OPERATING CYCLE

The time between purchase of inventory items (raw material or merchandise) and their conversion into cash is known as **operating cycle** or **working capital cycle**. The successive events which are typically involved in an operating cycle are depicted in Figure 16.1. A perusal of the operating cycle would reveal that the funds invested in operations are re-cycled back into cash. The cycle, of course, takes some time to complete. The longer the period of this conversion the longer is the operating cycle. A standard operating cycle may be for any time period but does not generally exceed a

Figure 16.1 : Operating Cycle



financial year. Obviously, the shorter the operating cycle, the larger will be the turnover of funds invested for various purposes. The channels of the investment are called current assets. Sometimes the available funds may be in excess of the needs for investment in these assets, e.g., inventory, receivables and minimum essential cash balance. Any surplus may be invested in government securities rather than being retained as idle cash balance.

16.4 CONCEPTS OF WORKING CAPITAL

There are two concepts of working capital, namely Gross concept and Net concept.

Gross Working Capital

According to this concept; working capital refers to the firms investment in current assets. The amount of current liabilities is not deducted from the total of current assets. This concept views Working Capital and aggregate of Current Assets as two inter-changeable terms. This concept is also referred to as 'Current Capital' or 'Circulating Capital'.

The proponents of the gross working capital concept advocate this for the following reasons:

- i) Profits are earned with the help of assets, which are partly fixed and partly current. To a certain degree, similarity can be observed in fixed and current assets so far as both are partly financed by borrowed funds, and are expected to yield earnings over and above the interest costs. Logic then demands that the aggregate of current assets should be taken to mean the working capital.
- ii) Management is more concerned with the total current assets as they constitute the total funds available for operating purposes than with the sources from which the funds come.
- iii) An increase in the overall investment in the enterprise also brings about an increase in the working capital.

Net Working Capital

The net working capital refers to the difference between current assets and current liabilities. Current liabilities are those claims of outsiders, which are expected to mature for payment within an accounting year and include creditors dues, bills payable, bank overdraft and outstanding expenses. Net working capital can be positive or negative. A negative net working capital occurs when current liabilities are in excess of current assets.

"Whenever working capital is mentioned it brings to mind current assets and current liabilities with a general understanding that working capital is the difference between the two".

'Net working capital' is a qualitative concept, which indicates the liquidity position of the firm and the extent to which working capital needs may be financed by permanent sources of funds. This needs some explanation.

Current assets should be sufficiently in excess of current liabilities to constitute a margin or buffer for obligations maturing within the ordinary operating cycle of a business. A weak liquidity position poses a threat to the solvency of the company and makes it unsafe. Excessive liquidity is also bad. It may be due to mismanagement of current assets. Therefore, prompt and timely action should be taken by management to improve and correct the imbalance in the liquidity position of the firm.



The net working capital concept also covers the question of a judicious mix of long-term and short-term funds for financing current assets. Every firm has a minimum amount of net working capital, which is permanent. Therefore, this portion of the working capital should be financed with permanent sources of funds such as owners' capital, debentures, long-term debt, preference capital and retained earnings: Management must decide the extent to which current assets should be financed with equity capital and/or borrowed capital.

Several economists uphold the net working capital concept. In support of their stand, they state that:

- In the long run what matters is the surplus of current assets over current liabilities.
- It is this concept which helps creditors and investors to judge the financial soundness of the enterprise.
- It is the excess of current assets over current liabilities, which can be relied upon to meet contingencies since this amount is not liable to be returned.
- It helps to ascertain the correct comparative financial position of companies having the same amount of current assets.

It may be stated that gross and net concepts of working capital are two important facets of working capital management. Both the concepts have operational significance for the management and therefore neither can be ignored. While the net concept of working capital emphasizes the **qualitative** aspect, the gross concept underscores the **quantitative** aspect.

16.5 KINDS OF WORKING CAPITAL

Ordinarily, working capital is classified into two categories:

- Fixed, Regular or Permanent Working Capital; and
- Variable, Fluctuating, Seasonal, Temporary or Special Working Capital

Fixed Working Capital

The need for current assets is associated with the operating cycle, which, as you know, is a continuous process. As such, the need for current assets is felt constantly. The magnitude of investment in current assets however may not always be the same. The need for investment in current assets may increase or decrease over a period of time according to the level of production. Nevertheless, there is always a certain minimum level of current assets, which is essential for the firm to carry on its business irrespective of the level of operations. This is the irreducible minimum amount necessary for maintaining the circulation of the current assets. This minimum level of investment in current assets is permanently locked up in business and is therefore referred to as permanent or fixed or regular working capital. It is permanent in the same way as investment in the firm's fixed assets is.

Fluctuating Working Capital

Depending upon the changes in production and sales, the need for working capital, over and above the permanent working capital, will fluctuate. The need for working capital may also vary on account of seasonal changes or abnormal or unanticipated conditions. For example, a rise in the price level may lead to an increase in the amount of funds invested in stock of raw materials as well as finished goods. Additional doses of working capital may be required to face cutthroat competition in the market or other contingencies like strikes and lockouts. Any special advertising

campaigns organised for increasing sales or other promotional activities may have to be financed by additional working capital. The extra working capital needed to support the changing business activities is called the fluctuating (**variable, seasonal, temporary or special**) working capital.

Figures 16.2 and 16.3 give an idea about fixed and fluctuating working capital.

Figure 16.2 :Fixed working capital remaining constant overtime

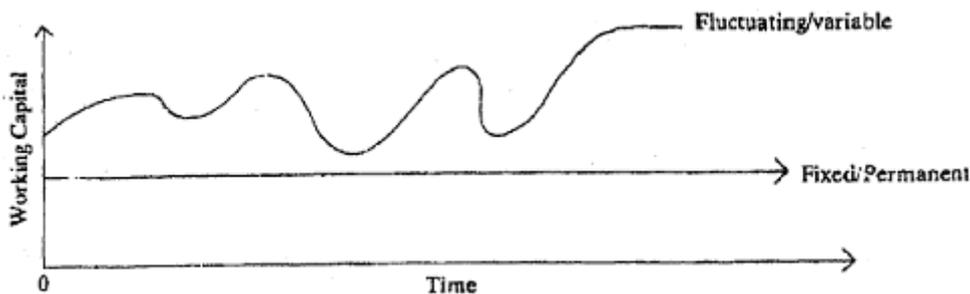
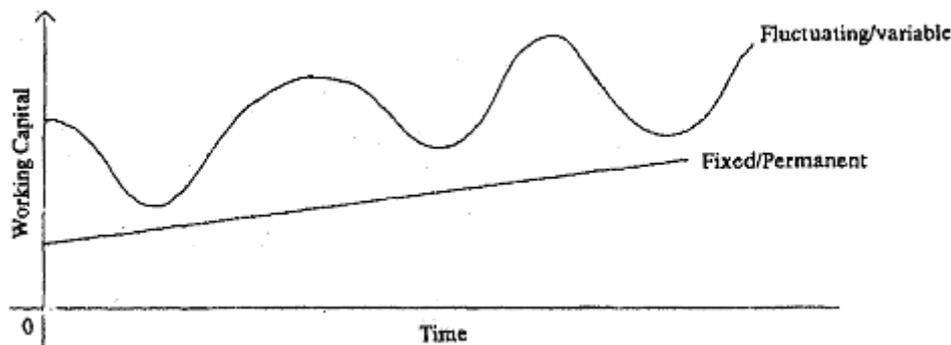


Figure 16.3 Fixed working capital increasing over time



As seen in Figure 16.2, that fixed working capital is stable over time, where as variable working capital is fluctuating-sometimes increasing and sometimes decreasing. The permanent working capital line, however, may not always be horizontal. For a growing firm, permanent working capital may also keep on increasing over time as has been shown in Figure 16.3.

Both these kinds of working capital - permanent and temporary-are required to facilitate production and sales through the operating cycle, but temporary working capital is arranged by the firm to meet liquidity requirements that are expected to be temporary.

16.6 COMPONENTS OF WORKING CAPITAL

You have already noted that working capital has two components: Current assets and Current liabilities. **Current** assets comprise several items. The typical items are:

- i) *Cash* to meet expenses as and when they occur.
- ii) *Accounts Receivables* or *sundry trade debtors*
- iii) Inventory of:
 - a) Raw materials, stores, supplies and spares,
 - b) Work-in-process, and
 - c) Finished goods



- iv) *Advance payments* towards expenses or purchases, and other short-term advances which are recoverable.
- v) *Temporary investment* of surplus funds which could be converted into cash whenever needed.

A part of the need for funds to finance the current assets may be met from supply of . goods on credit, and deferment, on account of custom, usage or arrangement, of payment for expenses.. The remaining part of the need for working capital may be met from short-term borrowing from financiers like banks. These items are collectively called **current liabilities**. Typical items of current liabilities are:

- i) Goods purchased on credit
- ii) Expenses incurred in the course of the business of the organisation (e.g., wages or salaries, rent, electricity bills, interest etc.) which are not yet paid for.
- iii) Temporary or short term borrowings from banks, financial institutions or other parties
- iv) Advances received from parties against goods to be sold or delivered, or as short term deposits.
- v) Other current liabilities such as tax and dividends payable. Some of the major components of **current assets** are explained here in brief:

Cash : All of us know that the basic input to start any business is cash. Cash is initially required for acquiring fixed assets like plants and machinery which enables a firm to produce products and generate cash by selling them. Cash is also required and invested in working capital. Investments in working capital is required, as firms have to store certain quantity of raw materials and finished goods and also for providing credit terms to the customers.

A minimum level of cash helps in the conduct of everyday ordinary business such as making of purchases and sales as well as for meeting the unexpected payments, developments and other contingencies. As discussed earlier cash invested at the beginning of-the operating cycle gets released at the end of the cycle to fund fresh investments. However, additional cash is required by the firm when it needs to buy more fixed assets, increase the level of operations or for bringing out change in working capital cycle such as extending credit period to the customers.

The demand for cash is affected by several factors, some of them are within the control of the managers and some are outside their control. It is not possible to operate the business without holding cash but at the same time holding it without a purpose also costs a firm either directly in the form of interest or loss of income that could be earned out of the cash.

In the context of working capital management, cash management refers to optimizing the benefit and cost associated with holding cash. The objective of cash management is best achieved by speeding up the working capital cycle, particularly the collection process and investing surplus cash in short term assets in most profitable avenues.

We will be subsequently discussing certain issues like the management of cash flows and determination of optimal cash balance, etc. (in this unit).

Accounts Receivable: Firms rather prefer to sell for cash than on credit, but competitive pressures force most firms to offer credit. Today the use of credit in the purchase of goods and services is so common that it is taken for granted. Selling goods or providing services on credit basis leads to accounts receivable. When consumers expect credit, business units in turn expect credit from their suppliers to match their investment in credit extended to consumers. The granting of credit from one business firm to another for purchase of goods and services is popularly known as **trade credit**.

Though commercial banks provide a significant part of requirements for working capital, trade credit continues to be a major source of funds for firms and accounts receivable that result from granting trade credit are major investment for the firm.

Both direct and indirect costs are associated with carrying receivables, but it has an important benefit for increasing sales. Excessive levels of accounts receivables result in decline of cash flows and many result in bad debts which in turn may reduce the profit of the firm. Therefore, it is very important to monitor and manage receivables carefully and regularly. We would be dealing with this topic in MS-41 : Working Capital Management.

Inventory : Three things will come to your mind when you think of a manufacturing unit - machines, men and materials. Men using machines and tools convert the materials into finished goods. The success of any business unit depends on the extent to which these are efficiently managed. Inventory is an asset to the organisation like other components of current assets.

Inventory constitutes a very significant part of working capital or current assets in manufacturing organisation. It is essential to control inventories (physical/quantity control and value control) as these are significant elements in the costing process constituting sometimes more than 60% of the current assets.

Inventory holding is desirable because it meets several objectives and needs but an excessive inventory is undesirable because it costs a lot to firms.

Inventory which consists of raw material components and other consumables, work in process and finished goods, is an important component of 'current assets'. There are several factors like nature of industry, availability of material, technology, business practices, price fluctuation, etc. that determines the amount of inventory holding. Holding inventory ensures smooth production process, price stability and immediate delivery to customers. Since inventory is like any other form of assets, holding inventory has a cost. The cost includes opportunity cost of funds blocked in inventory, storage cost, stock out cost, etc. The benefits that come from holding inventory should exceed the cost to justify a particular level of inventory.

Marketable Securities: Cash and marketable securities are normally treated as one item in any analysis of current assets although these are not the same as cash they can be converted to cash at a very short notice. Holding cash in excess of immediate requirement means the firm is missing out an opportunity income. Excess cash is normally invested in marketable securities, which serves two purposes namely, provide liquidity and, also earn a return.

Activity 16.1

- a) List some main items of working capital in your organisation, e.g. inventory of raw material supplies, stores etc. (under their various heads).

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- b) List some of the major items of operating expenses in your organisation such as wages and salaries of staff.

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- c) What is the amount of revolving fund or working capital that organisation maintains to pay for the operating expenses?

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16.7 IMPORTANCE OF WORKING CAPITAL MANAGEMENT

Because of its close relationship with day-to-day operations of a business, a study of working capital and its management is of major importance to internal, as well as external analysts. It is being increasingly realised that inadequacy or mismanagement of working capital is the leading cause of business failures. We must not lose sight of the fact that management of working capital is an integral part of the overall financial management and, ultimately, of the overall corporate management. Working capital management thus throws a challenge and should be a welcome opportunity for a financial manager who is ready to play a pivotal role in his organisation.

Neglect of management of working capital may result in technical insolvency and even liquidation of a business unit. With receivables and inventories tending to grow and with increasing demand for bank credit in the wake of strict regulation of credit in India by the Central Bank, managers need to develop a long-term perspective for managing working capital. Inefficient working capital management may cause either inadequate or excessive working capital, which is dangerous.

A firm may have to face the following adverse consequences from inadequate working capital:

Growth may be stunted. It may become difficult for the firm to undertake profitable projects due to non-availability of funds.

1. Implementation of operating plans may become difficult and consequently the firm's profit goals may not be achieved.
2. Operating inefficiencies may creep in due to difficulties in meeting even day to day commitments.
3. Fixed assets may not be efficiently utilised due to lack of working funds, thus lowering the rate of return on investments in the process.
4. Attractive credit opportunities may have to be lost due to paucity of working capital.
5. The firm loses its reputation when it is not in a position to honour its short-term obligations. As a result, the firm is likely to face tight credit terms.

On the other hand, excessive working capital may pose the following dangers:

- 1 Excess of working capital may result in unnecessary accumulation of inventories, increasing the chances of inventory mishandling, waste, and theft.
- 2 It may provide an undue incentive for adopting too liberal a credit policy and slackening of collection of receivables, causing a higher incidence of bad debts. This has an adverse effect on profits.
- 3 Excessive working capital may make management complacent, leading eventually to managerial inefficiency.
- 4 It may encourage the tendency to accumulate inventories for making speculative profits, causing a liberal dividend policy, which becomes difficult to maintain when the firm is unable to make speculative profits.

An enlightened management, therefore, should maintain the right amount of working capital on a continuous basis. Financial and statistical techniques can be helpful in predicting the quantum of working capital needed at different points of time.



16.8 DETERMINANTS OF WORKING CAPITAL NEEDS

There are no set rules or formulas to determine the working capital requirements of a firm. The corporate management has to consider a number of factors to determine the level of working capital. The amount of working capital that a firm would need is affected not only by the factors associated with the firm itself but is also affected by economic, monetary and general business environment. Among the various factors the following are important ones.

Nature and Size of Business

The working capital needs of a firm are basically influenced by the nature of its business. Trading and financial firms generally have a low investment in fixed assets, but require a large investment in working capital. Retail stores, for example, must carry large stocks of a variety of merchandise to satisfy the varied demand of their customers. Some manufacturing businesses' like tobacco, and construction firms also have to invest substantially in working capital but only a nominal amount in fixed assets. In contrast, public utilities have a limited need for working capital and have to invest abundantly in fixed assets. Their working capital requirements are nominal because they have cash sales only and they supply services, not products. Thus, the amount of funds tied up with debtors or in stocks is either nil or very small. The working capital needs of most of the manufacturing concerns fall between the two extreme requirements of trading firms and public utilities.

The size of business also has an important impact on its working capital needs. Size may be measured in terms of the scale of operations. A firm with larger scale of operations will need more working capital than a small firm. The hazards and contingencies inherent in a particular type of business also have an influence in deciding the magnitude of working capital in terms of keeping liquid resources.

Manufacturing Cycle

The manufacturing cycle starts with the purchase of raw materials and is completed with the production of finished goods. If the manufacturing cycle involves a longer period the need for working capital will be more, because an extended manufacturing time span means a larger tie-up of funds in inventories. Any delay at any stage of manufacturing process will result in accumulation of work-in-process and will enhance the requirement of working capital. You may have observed that firms making heavy machinery or other such products, involving long manufacturing cycle, attempt to minimise their investment in inventories (and thereby in working capital) by seeking advance or periodic payments from customers.

Business Fluctuations

Seasonal and cyclical fluctuations in demand for a product affect the working capital requirement considerably, especially the temporary working capital requirements of the firm. An upward swing in the economy leads to increased sales, resulting in an increase in the firm's investment in inventory and receivables or book debts. On the other hand, a decline in the economy may register a fall in sales and, consequently, a fall in the levels of stocks and book debts.



Seasonal fluctuations may also create production problems. Increase in production level may be expensive during peak periods. A firm may follow a policy of steady production in all seasons to utilise its resources to the fullest extent. This will mean accumulation of inventories in off-season and their quick disposal in peak season. Therefore, financial arrangements for seasonal working capital requirement should be made in advance. The financial plan should be flexible enough to take care of any seasonal fluctuations.

Production Policy

If a firm follows steady production policy, even when the demand is seasonal, inventory will accumulate during off-season periods and there will be higher inventory costs and risks. If the costs and risks of maintaining a constant production schedule are high, the firm may adopt the policy of varying its production schedule in accordance with the changes in demand. Firms whose physical facilities can be utilised for manufacturing a variety of products can have the advantage of diversified activities. Such firms manufacture their main products during the season and other products during off-season. Thus, production policies may differ from firm to firm, depending upon the circumstances. Accordingly, the need for working capital will also vary.

Turnover of Circulating Capital

The speed with which the operating cycle completes its round (i.e., cash → raw materials → finished product → accounts receivables → cash) plays a decisive role in influencing the working capital needs. (Refer to Figure 1(.1 on operating cycle).

Credit Terms

The credit policy of the firm affects the size of working capital by influencing the level of book debts. Though the credit terms granted to customers to a great extent depend upon the norms and practices of the industry or trade to which the firm belongs; yet it may endeavor to shape its credit policy within such constraints. A long collection period will generally mean tying of larger funds in book debts. Slack collection procedures may even increase the chances of bad debts.

The working capital requirements of a firm are also affected by credit terms granted by its creditors. A firm enjoying liberal credit terms will need less working capital.

Growth and Expansion Activities

As a company grows, logically, larger amount of working capital will be needed, though it is difficult to state any firm rules regarding the relationship between growth in the volume of a firm's business and its working capital needs. The fact to recognize is that the need for increased working capital funds may precede the growth in business activities, rather than following it. The shift in composition of working capital in a company may be observed with changes in economic circumstances and corporate practices. Growing industries require more working capital than those that are static.

Operating Efficiency

Operating efficiency means optimum utilisation of resources. The firm can minimise its need for working capital by efficiently controlling its operating costs. With increased operating efficiency the use of working capital is improved and pace of cash cycle is accelerated. Better utilisation of resources improves profitability and helps in relieving the pressure on working capital.

Price Level Changes

Generally, rising price level requires a higher investment in working capital. With increasing prices the same levels of current assets need enhanced investment. However, firms which can immediately revise prices of their products upwards may not face a severe working capital problem in periods of rising levels. The effects of increasing price level may, however, be felt differently by different firms due to variations in individual prices. It is possible that some companies may not be affected by the rising prices, whereas others may be badly hit by it.

Other Factors

There are some other factors, which affect the determination of the need for working capital. A high net **profit margin** contributes towards the working capital pool. The net profit is a source of working capital to the extent it has been earned in cash. The cash inflow can be calculated by adjusting non-cash items such as depreciation, outstanding expenses, losses written off, etc, from the net profit, (as discussed in Unit 6).

The firm's appropriation policy, that is, the policy to retain or distribute profits also has a bearing on working capital. Payment of dividend consumes cash resources and thus reduces the firm's working capital to that extent. If the profits are retained in the business, the firm's working capital position will be strengthened.

In general, working capital needs also depend upon the means of transport and communication. If they are not well developed, the industries will have to keep huge stocks of raw materials, spares, finished goods, etc. at places of production, as well as at distribution outlets.

16.9 APPROACHES TO MANAGING WORKING CAPITAL

Two approaches are generally followed for the management of working capital: (i) the conventional approach, and (ii) the operating cycle approach.

The Conventional Approach

This approach implies managing the individual components of working capital (i.e. inventory, receivables, payables, etc) efficiently and economically so that there are neither idle funds nor paucity of funds. Techniques have been evolved for the management of each of these components. In India, more emphasis is given to the management of debtors because they generally constitute the largest share of the investment in working capital. On the other hand, inventory control has not yet been practised on a wide scale perhaps due to scarcity of goods (or commodities) and ever rising prices.

The Operating Cycle Approach

This approach views working capital as a function of the volume of operating expenses. Under this approach the working capital is determined by the duration of the operating cycle and the operating expenses needed for completing the cycle. The duration of the operating cycle is the number of day involved in the various stages, commencing with acquisition of raw materials to the realisation of proceeds from debtors. The credit period allowed by creditors will have to be set off in the process. The optimum level of working capital will be the requirement of operating expenses for an operating cycle, calculated on the basis of operating expenses required for a year.



In India, most of the organisations use to follow the conventional approach earlier, but now the practice is shifting in favour of the operating cycle approach. The banks usually apply this approach while granting credit facilities to their clients.

16.10 MEASURING WORKING. CAPITAL

The factors discussed in the preceding section influence the quantum of working capital in a business enterprise. How to determine or measure the amount of working capital that an enterprise would need was discussed to some extent in Unit 6 dealing with funds flow analysis. Let us attempt to determine the amount of working capital needed by taking up an illustration.

Illustration 16.1

Determine the magnitude of working capital (with the help of the following particulars) for Gujarat Tricycles Limited, a newly set up enterprise:

- a) The proforma cost sheet shows that the various elements of cost bear the undermentioned relationship to the selling price:

Materials, parts and components	40%	
Labour	30%	
Overhead		10%
- b) Production in 2004 is estimated to be 60,000 tricycles.
- c) Raw material, parts and components are expected to remain in the stores for an average period of one month before issue to production.
- d) Finished goods are likely to stay in the warehouse for two months on an average before being sold and delivered to customers.
- e) Each unit of production will be in-process for half a month on an average.
- f) Half of the sales are likely to be on credit. The debtors will be allowed two months credit from the date of sale.
- g) Credit period allowed by suppliers of raw material, parts and components is one month.
- h) The lag of payment to labour is one month. 50% of the overhead consists of salaries of non-production staff.
- i) Selling price will be Rs. 2000 per tricycle.
- j) Assume that sales and production follow a consistent pattern.
- k) Allow 20% to your computed figure for buffer cash and contingencies.

Before we attempt to calculate the working capital, it will be helpful to work out the following basic data:

- a) The yearly production is '60,000 tricycles. Hence, monthly production will be 5000 tricycles.
- b) The selling price per tricycle is Rs. 2000. The various elements of cost (i.e. raw material, parts and components, labour and overheads) comprise 80% (40%+30%+10%) of the selling price. Hence cost of production is Rs.1600
i.e. $\left(2000 \times \frac{80}{100}\right)$

Gujarat Tricycles Limited
Statement of working capital requirements

Management of
Working Capital



Rs. (in lakhs)

Current Assets:

Stock of raw material, parts and components (1 Month)	40	
Stock of finished goods (2 Months)	1,60	
5,000 x 1600 u 2 Work- in-Process (1/2 Month)	40	
5,0110 1,600 x %	40	
Debtors (50% of sales) (2 months credit)		
5.000 x ½ x 1.600 x 2	<u>80</u>	3,20
Less current liabilities		
Creditors (one month)	40	
Wages and Salaries:		
Wages	30	
Salaries (Overheads)	5	<u>75</u>
		2,45
Add 20% for buffer cash and contingencies	49	<u>49</u>
Average working capital required		<u>2,94</u>

The various figures have been worked out as follows:

Cost of raw material etc.

Monthly production	5000 Units
Cost of material etc per unit	Rs. 800
Period for which stock Required	1 month
Hence amount locked up 5,000 X 800 X 1	Rs. 40,00,000

Cost of finished goods

Monthly Production	5000 units
Cost of production per unit	Rs. 1,600 (800 + 600 + 200)
Period for which stock Required	2 months
Hence amount locked up 5,000 X 1,600 X 2	Rs. 160,00,000

Work-in-Process Stock

Monthly Production	5,000 units
Cost of production per unit	Rs. 1,600
Period for which stock required.	1/2 Month
Hence amount locked up 5,000 X 1,600 X 1/2	Rs. 40,00,000

Debtors

Sales per month	5000 Units
Proportion of credit sales	50 per cent
Cost of Production per unit	Rs. 3,600
Period of credit	2 months
Hence amount locked up 5,000 X ½ X 1,600 X 2	Rs, 80,00,000

**Creditors**

Monthly production	5000 Units
Cost of production per unit	Rs. 1,600
Cost of raw material etc. being one half	Rs. 800
Period of which credit available	1 month
Hence, Working Capital unlocked	
$5,000 \times 800 \times 1$	Rs. 40,00,000

Wages and Salaries**i) Wages**

Monthly production	5,000 Units
Labour cost per unit	Rs. 600
Lag period for payment	1 Month
Hence, Working Capital unlocked	
$5,000 \times 600 \times 1$	Rs. 30,00,000

ii) Salaries

Monthly production	5,000 units
Portion of Salaries in overheads	$\frac{1}{2}$
Overhead cost per unit	Rs. 200
Lag period for payment	1 Month
Hence, working capital unlocked	
$5,000 \times 200 \times \frac{1}{2} \times 1$	Rs. 5,00,000

16.11 WORKING CAPITAL MANAGEMENT UNDER INFLATION

It is desirable to check the increasing demand for capital, for maintaining the existing level of activity. Such a control acquires even more significance in times of inflation. In order to control working capital needs in periods of inflation, the following measures may be applied.

Greater disciplines on all segments of the **production front** may be attempted as under:

- a) The possibility of using substitute raw materials without affecting quality must be explored in all seriousness. Research activities in this regard may be undertaken, with financial assistance provided by the Government and the corporate sector, if any.
- b) Attempts must be made to increase the productivity of the work force by proper motivational strategies. Before going in for any incentive scheme, the cost involved must be weighed against the benefit to be derived. Though wages in accounting are considered a variable cost, they have tended to become partly fixed in nature due to the influence of various legislative measures adopted by the Central or State Governments in recent times. Increased productivity results in an increase in value added, and this has the effect of reducing labour' cost per unit.

The managed costs should be properly scrutinized in terms of their costs and benefits. Such costs include office decorating expenses, advertising, managerial salaries and payments, etc. Managed costs are more, or less fixed costs and once committed they are difficult to retreat. In order to minimise the cost impact of such items, the maximum possible use of facilities already created must be ensured. Further the management should be vigilant in sanctioning any new expenditure belonging to this cost.

The increasing pressure to augment working capital will, to some extent, be neutralised if the span of the operating cycle can be reduced. **Greater turnover** with shorter intervals and **quicker realisation** of debtors will go a long way in easing the situation.

Only when there is a pressure on working capital does the management become conscious of the existence of slow-moving and obsolete stock. The management tends to adopt **ad hoc** measures, which are grossly inadequate. Therefore, a clear-cut policy regarding the **disposal of slow-moving and obsolete stocks** must be formulated and adhered to. In addition to this, there should be an efficient management information system reflecting the stock position from various standpoints.

The payment to creditors in time leads to building up of good reputation and consequently it increases the bargaining power of the firm regarding period of credit for payment and other conditions. Projections of cash flows should be made to see that cash inflows and outflows match with each other. If they do not, either some payments have to be postponed or purchase of some avoidable items has to be deferred.

16.12 EFFICIENCY CRITERIA

Improved profitability of a firm, to a great extent, depends on its efficiency in managing working capital. A single criterion would not be sufficient to judge or evaluate the efficiency in a dynamic area like working capital.

Some of the parameters for judging the efficiency in managing working capital are:

- a) Whether there is **enough assurance for the creditors** about the ability of the company to meet its short-term commitments on time. Hence, a reliable index is whether a company can settle the bills on due dates. The finance department has to plan in advance to maintain sufficient liquidity to meet maturing liabilities.
- b) Whether **maximum possible inventory turnover** is achieved. The adverse effect of ineffective inventory management may not be offset even by the most efficient management of other components of working capital.
- c) Whether **reasonable credit** is extended to **customers**. This powerful instrument to promote sales should not be misused. The other side of the same coin is receiving credit. Both depend upon a company's strength as a seller and as a buyer.
- d) Whether **adequate credit** is obtained **from suppliers**. It depends upon the company's position in relation to its suppliers and the nature of supply market i.e. whether there is a single supplier or an oligarchy or a large number of suppliers. With coordination of efforts buyers can be in a position to negotiate competitive credit terms even if there is a single supplier and his ability to control the market. At times the supplier imposes the credit terms as 100% advance i.e. negative trade credit.
- e) Whether there are adequate safeguards to ensure that neither overtrading nor undertrading takes place.

The following indices can be used for measuring the efficiency in managing working capital:

Current Ratio (CR)

CR = Current Assets/Current Liabilities

It indicates the ability of a company to manage the current affairs of business. It is useful to study the trend of working capital over a period of time.



Though the current ratio of 2:1 is considered ideal, this may have to be modified depending on the peculiar conditions prevailing in a particular trade or industry.

It is not only the quantum of current ratio that is important but also its quality, i.e. extent to which assets and liabilities are really current.

Quick Ratio (QR)

$QR = \text{Liquid Assets} / \text{Current Liabilities}$

Liquid assets mean current assets minus those, which are not quickly realizable.

Inventory and sticky debts are generally treated as non-quick assets.

The relationship of 1:1 between quick assets and current liabilities is considered ideal, but, like current ratio, it also varies from industry to industry, depending on the peculiar conditions of a particular industry.

Cash to Current Assets

If cash alone is a major item of current assets then it may be a good indicator of the profitability of the organisation, as cash by itself does not earn any profit, the proportion should usually be kept low.

Sales to Cash Ratio

$\text{Sales to Cash Ratio} = \text{Sales} / \text{Average cash balance during the period.}$

Cash should be turned over as many times as possible, in order to achieve maximum sales with minimum cash on hand.

Average Collection Period

$(\text{Debtors} / \text{Credit Sales}) \times 365$

This ratio explains how many days of credit a company is allowing to its customers to settle their bills.

Average Payment Period

$\text{Average payment period} = (\text{Creditors} / \text{Credit purchases}) \times 365$

It indicates how many days of credit is being enjoyed by the company from its suppliers.

Inventory Turnover Ratio (ITR)

$ITR = \text{Sales} / \text{Average Inventory}$

It shows how many times inventory has turned over to achieve the sales. Inventory should be maintained at a level, which balances production facilities and sale's needs.

Working Capital to Sales

Usually expressed in terms of percentage, it signifies that for any amount of sales a relative amount of working capital is needed. If any increase in sales is contemplated it has to be seen that working capital is adequate. Therefore, this ratio helps management in maintaining working capital, which is adequate for the planned growth in sales.

Working Capital to Net Worth Working Capital/Net worth

This ratio shows the relationship between working capital and the funds belonging to the owners. When this ratio is not carefully watched, it may lead to:

- a) Overtrading when the conditions are in the upswing. Its symptoms being (i) High Inventory Turnover Ratio (ii) Low Current Ratio; or

b) Under trading when the conditions of market are not good. Its major symptoms are:

- i) Low Inventory Turnover Ratio
- ii) High Current Ratio

Efficient working capital management should, therefore, avoid both excess and deficit working capital situations.

Efficient working capital management demands proper management of its current assets, as excess of these assets would not yield any returns. Cash and marketable securities being least productive need to be managed even more carefully.

Cash denotes the liquidity of a business enterprise and plays an important role in nurturing and improving the profitability of an organisation. It is, therefore, essential to make a proper estimate of the cash need and plan for it so as to avoid technical or legal insolvency. Hence, effective management of cash is necessary to ensure adequate liquidity.

Activity 16.2

Meet any Accounting or Finance Executive of a business enterprise, whether in the Public or the Private Sector, and talk to him regarding the management of working capital in his enterprise. Please try to gather information on the following questions:

a) What methods does the enterprise employ for efficient management of working capital?

.....
.....
.....

b) Do the methods under (a) above include Ratio Analysis? What ratios are being computed and why?

.....
.....
.....

c) What steps the organisation has taken in the recent past to improve the management of working capital?

.....
.....
.....

d) What are the major problems faced by the enterprise regarding management of working capital?

.....
.....
.....

16.13 DETERMINING OPTIMAL CASH BALANCE

Holding of excessive cash is a non-profitable proposition, as idle cash does not earn any income. Similarly shortage of cash may deprive the business unit of availing the benefits of cash discounts, and of taking advantage of other favourable opportunities. It may even lead to loss of credit-worthiness on account of default in paying liabilities when the same become due. Hence, every organisation, irrespective of its size and nature, has to determine the appropriate or optimum cash balance that it would need.



nature has to determine the appropriate or optimum cash balance that it would need.

A firm's cash balance, generally, may not be constant over time. It would therefore be worthwhile to investigate the maximum, minimum and average cash needs over a designated time period.

You are aware that cash is needed for various transactions in the organisation. Maintenance of a cash balance however has an opportunity cost in the following ways:

- a) Cash can be invested in acquiring assets such as Inventory, or for purchasing securities. Opportunities for such investments may have to be lost if a certain minimum cash balance is not held.
- b) Holding of cash means that it cannot be used to offset financial risks from the short-term debts.
- c) Excessive reliance on internally generated liquidity can isolate the firm from the short-term financial market.

Now the financial manager should understand the benefits and the opportunity costs for holding cash. Thereafter, he must proceed to work out a model for determining the optimal amount of cash. First of all a critical minimum cash balance should be conceived below which the firm will incur definite and measurable costs. Apart from risk aversion the existence of the minimum balance is justified by institutional requirements such as credit ratings, checking accounts, lines of credit.

The violation of maintaining a minimum cash balance will create **shortage costs** which will be determined by the actions of creditors on account of postponing their payments or non-availing of cash discounts.

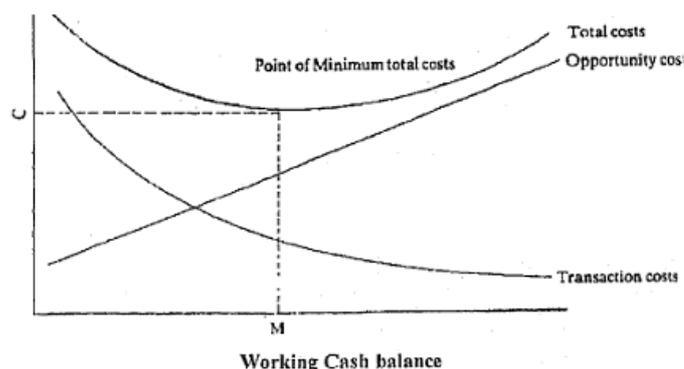
At any point of time a firm's (ending) cash balance can be represented as follows:

$$\text{Ending balance} = \text{Beginning Balance} + \text{Receipts} - \text{Disbursements}$$

If receipts and disbursements are equal for any unit of time, no problem is involved. Ordinarily, however, receipts may be more than disbursements or vice versa. Hence, the ending balance will keep on fluctuating. In actual practice receipts and disbursements do vary, particularly in case of firms having seasonal activities.

Suppose, the receipts and disbursements are not synchronized but the variation is predictable, then the main problem will be that of minimizing total costs. In case you set the balance too low you will incur high transaction costs. If you set the balance too high you will lose interest, which you can earn by investing cash in marketable securities. The determination of optimal cash balance under these conditions of known certainty is similar to the inventory problem: The costs of too little cash (transaction costs) can be balanced against the costs of too much cash (opportunity costs). Figure 16.4 clarifies this position.

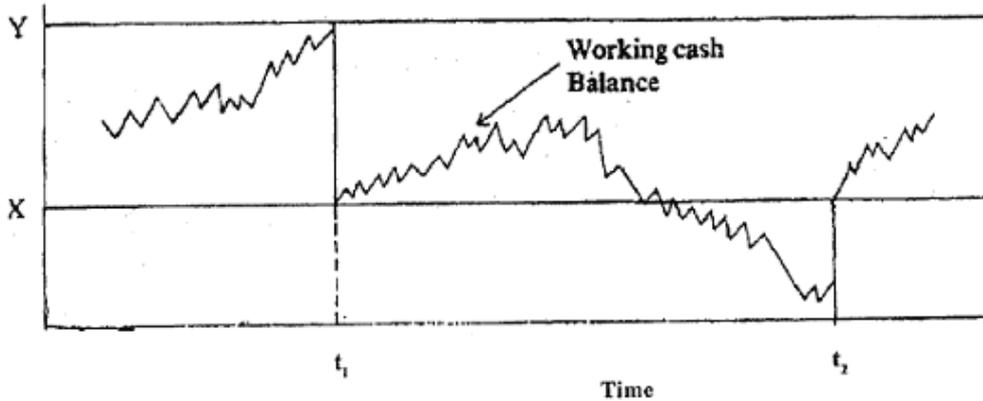
Figure 16.4: The Optimal Working Cash Balance



Point C in Figure 16.4 denotes the point where the sum of two costs (opportunity and transaction costs) is minimum. Efficient management should try to locate this point for determining the optimal cash balance. M is the point where working cash balance is optimal.

It is seldom that receipts and disbursements are completely predictable. For a moment let, us take one extreme case where receipts and disbursements are completely random: A model can be developed using the Control Theory and fix maximum and minimum optimal balances as illustrated in Figure 16.5

Figure 16.5 : Cash Balance Control Limits



You can observe from Figure 16.5 that the fluctuating cash balance is on account of random receipts and disbursements. At time t_1 the balance touches the upper control point. At this point the excess of cash is invested in marketable securities. The balance falls to zero point at time t_2 and at this stage marketable securities have to be sold to create cash balances. These two control points lay only the maximum and minimum balance. We can conclude that where cash flows (receipts and disbursements) are uncertain the principle will be: **the greater the variability the higher the minimum cash balance.**

Activity 16.3

Meet any Accounting or Finance Executive of a business enterprise, whether in the Public or the Private Sector, and talk to him regarding the management of working capital in his enterprise. Please try to gather information on the following questions:

- i) What are the main groups of expenditure for which cash is needed in your organisation:
 - (a) on daily basis
 -
 -
 -
 - (b) on monthly basis
 -
 -
 -
 - (c) at irregular intervals
 -
 -
 -



(d) at regular intervals, other than daily or monthly basis

.....

ii) What are the main sources of cash and what arrangements exist for collection, accounting and banking of cash receipts?

.....

16.14 MANAGEMENT OF CASH FLOWS

The cash flows could be properly and effectively managed by:

Speeding up Collections

In order to minimise the size of cash holding, the time gap between sale of goods and their cash collection should be reduced and the flow be controlled. Normally, certain factors creating time lags are beyond the control of management. Yet, in order to improve the efficiency, attention should be paid to the following.

All cash collected should be directly deposited in one account. If there are more than one collection centres, all cash receipts should be remitted to the main account with top speed. Compared to a single collection centre, the aggregate requirement for cash will be more when there are several centres. Concentration of collections at one place will thus permit the firm to store its cash more efficiently.

The time lag between the dispatch of cheque by the customer and its credit to our account with the bank should be reduced. Some firms with large collection transactions introduce **lock box system**. In this system the post boxes are hired at different centres where cash/cheques can be dropped in. The local banker can daily collect the same from the lockers. The collecting bank is paid service charges. In order to minimise time, banks may be asked to devise methods for speeding up the collection of cash.

Recovering Dues

After sale of goods on credit, either on account of convention or for promoting sales, receivables are created. It may however be useful to reduce the amount blocked in receivables by seeing to it that they do not become overdue accounts. Incentive in the form of discounts for early payment may be given. More important than anything else is a constant follow-up action for the recovery of dues. This will improve position of cash balance.

Controlling Disbursements

Needless to assert that speeding up of collections helps conversion of receivables into cash and thus reduces the financing requirements of the firm. Similar kind of benefit can be derived by delaying disbursements. Trade credit is a costless source of funds for it allows us to pay the creditors only after the period of credit agreed upon. The dues can be withheld till the last date. This will reduce the requirement for holding large cash balance. Some firms may like to take advantage of **cheque book float** which is the time gap between the date of issue of a cheque and the actual when it is presented for payment directly or through the bank.

Investment of Idle Cash Balances

Two other important aspects in cash management are how to determine appropriate cash balance and how to invest temporarily idle cash in interest earning assets or



securities. The first part relating to the theory of determining appropriate cash balance has already been discussed earlier. Now we shall discuss the investment of idle cash balance on temporary basis.

Cash by itself yields no income. If we know that some cash will be in excess of our need for a short period of time, we must invest it for earning income without depriving ourselves of the benefit of liquidity of funds. While doing this, we must weigh the advantages of carrying extra cash (i.e. more than the normal requirement) and the disadvantages of not carrying it. The carrying of extra cash may be necessitated due to its requirement in future, whether predictable or unpredictable. The experience indicates that cash flows cannot be predicted with complete accuracy. Competition, technological changes, unexpected failure of products, strikes and variations in economic conditions make it difficult to predict cash needs accurately.

Investment Criteria

When it is realised that the excess cash will remain idle, it should be invested in such a way that it would generate income and at the same time ensure quick re-conversion of investment in cash. While choosing the channels for investment of any idle cash balance for a short period, it should be seen that (i) the investment is free from **default** risk, that is, the risk involved due to the possibility of default in timely payment of interest and repayment of principal amount; (ii) the investment shall mature in short span of time; and (iii) the investment has adequate marketability. Marketability refers to the ease with which an asset can be converted back into cash. Marketability has two dimensions -price and time-which are inter-related. If an asset can be sold quickly in large amounts at a price determinable in advance the asset will be regarded as highly marketable and highly liquid. The assets which largely satisfy the aforesaid criteria are: Government Securities, Bankers' Acceptances and Commercial Paper.

Activity 16.4

Discuss with the Chief Executive of Accounting and Finance department of your organisation regarding the broad policies and procedures followed in the sphere of cash management?

.....

16.15 SUMMARY

An enterprise needs funds to operate profitably. The working capital of a business reflects the short-term uses of funds. Apart from the investment in the long-term assets such as buildings, plant and equipment, funds are also needed for meeting day to day operating expenses and for amounts held in current assets. Within the time span of one year there is a continuing cycle or turnover of these assets. Cash is used, to acquire stock, which on being sold results in an inflow of cash, either immediately or after a time lag in case the sales are on credit. The rate of turnover of current assets in relation to total sales of a given time period is of critical importance to the total funds employed in those assets.

The amount needed to be invested in current assets is affected by many factors and may fluctuate over a period of time. Manufacturing cycle, production policies, credit terms, growth and expansion needs, and inventory turnover are some of the important factors influencing the determination of working capital.



Inflation magnifies the need for working capital. The constant rise in the cost of inputs, *if* not accompanied with corresponding increase in output prices puts an additional strain on the management. However, by taking several measures on production front and by keeping a strict watch on managed costs and expediting collection of credit sales, etc. the management can contain or at least minimise the upward thrusts for additional working capital.

The management should ensure the adequacy and efficiency in the utilisation of working capital. For this purpose various ratios can be periodically computed and compared against the norms established in this regard.

For efficient management of working capital, management of cash is as important as the management of other items of current assets like receivables and inventories. Too little cash may place the firm in an illiquid position, which may force the creditors and other claimants to stop transacting with the firm. Too much cash results in funds lying idle, thereby lowering the overall return on capital employed below the acceptable level. An adequate amount of cash is always needed for meeting any unforeseen contingencies and also liabilities as well as day-to-day operating expenses of the business.

16.16 KEY WORDS

Operating Cycle in a manufacturing firm is the time gap between purchase of raw material and sale of finished products.

Gross Current Assets means the aggregate of all current assets including cash.

Net Current Assets means the aggregate of all current assets (including cash) less current liabilities. It is the same as working capital.

Fixed Working Capital is the amount that remains more or less permanently invested as working capital in business.

Fluctuating Working Capital is the amount of working capital over and above the fixed minimum amount of working capital. It may keep on fluctuating from period to period depending upon several factors.

Inventory Turnover means number of times the average inventory has been sold during a period. Inventory turnover ratio is obtained by dividing cost of goods sold during a period with average inventory for the period.

Current Ratio is the relationship between current assets and current liabilities.

Quick Ratio is the relationship between quick assets and current liabilities. Inventory is generally not reckoned among quick assets and hence excluded.

Debtors Turnover is the relationship between average debtors (receivables) and average turnover.

Average Collection Period is the average period, which elapses between sale of goods on credit and the collection of cash.

Average Payment Period is the period, which elapses on the average between purchase of goods on credit and the payment to creditors.

Credit Policy is concerned with norms and guidelines for determining whether and to what extent credit can be granted to customers in general and various categories of customers in particular.

Credit Terms means the terms extended by a firm to its debtors for payment.

16.17 SELF-ASSESSMENT QUESTIONS/EXERCISES



1. Discuss the concept of working capital. Are the gross and net concepts of working capital exclusive? Explain.
2. Distinguish between fixed and fluctuating working capitals. What is the significance of such distinction in financing working needs of an enterprise?
3. Discuss the significance of working capital management in a business enterprise. What shall be the repercussions if a firm has (a) shortage of working capital and (b) excess working capital?
4. A firm desires to finance its current assets entirely with short-term loans. Do you think this pattern of financing would be in the interest of the firm? Support your answer with cogent arguments.
5. What factors a financial manager would ordinarily take into consideration while estimating working capital needs of his firm?
6. What is an operating cycle and how a close study of the operating cycle is helpful?
7. How would you as a Finance Manager control the need of increased working capital on account of inflationary pressures? Narrate some real-life examples you might have come across.
8. How would you judge the efficiency of the management of working capital in a business enterprise? Explain with the help of hypothetical data.
9. What is optimum cash balances and how can it be arrived at?
10. If a firm estimates that it will have some idle cash balances from time to time, what advice would you render to the firm?
11. "In managing cash the finance manager faces the problem of compromising the conflicting goals of liquidity and profitability comment. What strategy should the finance manager develop to solve this problem.
12. Assam Timber Ltd., a newly founded company, has applied for a short-term loan to a commercial bank for financing its working capital requirement. You are requested by the bank to prepare a statement on the requirement for working capital for that company. You may add 10% to your estimated figure to cover for unforeseen contingencies. The projected profit and loss account of the company is as under:

Sales		25,00,000
Cost of goods sold		<u>18,00,000</u>
Gross Profit		7,00,000
Additional expenses	1,80,000	
Selling expenses	1,50,000	<u>3,30,000</u>
Profit before tax		3,70,000
Provision for tax		<u>1,20,000</u>
Profit after tax		<u>2,50,000</u>
Cost of goods sold has been derived as follows:		
Material sold		9,60,000
Wages & manufacturing expenses		7,40,000
Depreciation		<u>3,00,000</u>
		20,00,000
Less Stock of finished goods		
estimated at 10% of production		<u>2,00,000</u>
		<u>18,00,000</u>



The figures above relate to the goods that would be finished (or completed) and not to work in process. Goods equal of 20% of the year's production in terms of physical units are expected to be in progress on an average, requiring full materials but only 50 per cent of other expenses. The company intends to keep two months consumption of material in stock.

All the expenses will be paid one month in arrears. Suppliers of material would extend one-month credit. Sixty per cent of the sales are estimated on cash basis while the rest are on two months credit. Seventy per cent of the income tax has to be paid in advance in quarterly installments. The company will require Rs. 50,000 cash to meet day-to-day needs of business. For the purpose of the question you may ignore profit as a source of working capital.

Answer to Self-assessment Questions/Exercises

12	Total investment in		
	current assets		7,70,000
	i)	Less current liabilities:	
		Lag in payment of expenses	89,167
		Creditors	<u>80,000</u>
			<u>1,69,167</u>
			6,00,833
	Add 10% for contingencies		<u>60,083</u>
	Total working capital required:		<u>6,60,916</u>

- i) Depreciation is not a cash expense and hence it has been excluded from cost of goods sold for the purpose of determining investment in debtors. Similarly, depreciation has not been taken into account in determining investment in work-in-process and stock of finished goods.
- ii) For the purpose of determining investment in work-in-process, advertising and selling expenses are not relevant. Hence, they have not to be taken into account.
- iii) For the purpose of this question profit is to be ignored as a source of working capital. As such income tax has also been disregarded since income tax paid out of profit.

16.18 FURTHER READINGS

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