Block

# 3

## WORKING CAPITAL MANAGEMENT

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# BLOCK 3 WORKING CAPITAL MANAGEMENT

Financial management function takes into account the overall impact of financing and investment decisions. It ensures the future growth path of the firm. A growing firm needs to invest in working capital, plant and equipment, product development and so on. All these activities involve short-term and long-term funds deployment decisions. All these decisions are very important for firms to sustain the future profitability. The short-term funds management is also referred to as working capital management. Managing working capital efficiently involves management of each component of current assets such as cash, receivables, inventory etc. Ideally, current assets need to be financed with current liabilities to ensure short-term liquidity and profitability. Thus working capital management is a trade-off between these two objectives. This block covers working capital management, financing current assets, inventory management, receivable management and cash management.

*Unit 12: Working Capital Management* deals with the various components of working capital, objectives of working capital management, types of working capital management and the criteria for evaluation of working capital management. Efficient management of working capital is precursor to maintaining short term liquidity and ensuring the smooth flow of the operating cycle.

*Unit 13: Financing Current Assets* describes the various Sources of finance available for acquiring current assets. The selection of an appropriate Source to build up current assets is crucial and it will facilitate the finance manager to establish the right balance of profitability and liquidity. The unit analyses the pros and cons of each Source of finance and the regulatory aspects involved.

*Unit 14: Inventory Management* discusses the role of inventory in working capital management, the different types of inventories, costs associated with maintaining inventories and inventory management techniques. Inventory consists of raw material, work-in-progress and finished goods. Effective management of inventory, while on the one hand ensures uninterrupted production flow, on the other enables the firm to cater to the market demand of the product in time. The unit explains how a finance manager can efficiently manage the inventory levels, using the inventory management systems such as Economic Order Quantity (EOQ), Reorder Point and Safety Stock.

*Unit 15: Receivables Management* discusses the nuances of managing receivables. The unit explains how a finance manager can evolve a credit policy that attracts customers and increases credit sales with minimum costs. It also discusses the process of arriving at the credit granting decision and the subsequent monitoring of the receivables until the payment is received.

*Unit 16: Cash Management* describes the concept of efficient cash management. Maintaining adequate cash to fund the various activities of the business such that a firm neither faces cash shortages nor is left with idle cash balances is the core objective of cash management. The various techniques that can be employed to arrive at optimal cash balance are detailed in the unit. An insight into the internal controls and internal audit methods to be implemented to avoid cash mismanagement / misappropriations are also discussed.

# Unit 12

# Working Capital Management

## Structure



*"Working capital is like your diet, if you do not manage it, then it can kill you."*

- The Strategic CFO

## 12.1 Introduction

Working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities, and the inter-relationship that exists between them. Assets and liabilities of a company can be classified on the basis of duration. Assets can be classified into fixed assets and current assets, while liabilities are classified as long-term liabilities and current liabilities. A finance manager must be able to manage the different components of current assets and current liabilities in order to achieve higher profitability without compromising on liquidity aspect of the business.

## 12.2 Objectives

After reading through the unit, you should be able to:

- Explain the meaning of working capital, its components and its impact on the operations of a business
- Identify how the trade-off between profitability – liquidity impacts working capital management

- Analyse the factors that are to be considered while arriving at the composition of working capital of a business
- State the inter-dependence of working capital components that enables better management of the operating cycle
- Estimate the working capital requirements that will ensure smooth operations of the business without any shortages of working capital
- Evaluate the efficiency of working capital management policy of a business using tools such as ratios

## 12.3 Purpose of Working Capital Management

Working capital management is a significant component of financial management. Its importance stems from three reasons:

- In most businesses, investment in current assets occupies a significant portion of the total investment in assets.
- This investment in current assets need to be monitored closely and changed according to the changes in market demand
- Bringing about a change in the composition of current assets involves changing the composition or level of current liabilities.

### 12.3.1 Need for Working Capital Management

The management of fixed assets and current assets differs in three important ways:

– In managing fixed assets, the time factor is very important. That is why, discounting and compounding play a very important role in any capital budgeting decision. But because the time-frame of current assets is only one accounting period, the time value of money is less significant in the management of current assets.
– The liquidity position of a firm is dependent on the investment in current assets: the more, the better; whereas the role of fixed assets as far as liquidity is concerned is negligible.
– Any short run, immediate need of the company whether that be the need for cash or adjustments to fluctuations in sales, can be made only through adjusting the levels of the various components of the current assets.

This calls for efficient management of current assets which forms part of management of working capital.

### 12.3.2 Objective of Working Capital Management

The basic objective of working capital is to provide adequate support for the smooth functioning of the normal business operations of a company. The question then arises as to the determination of the quantum of investment in working capital that can be regarded as ‘adequate’. This requires for a trade-off between liquidity and profitability.

### Liquidity vs. Profitability

Once we recognize the fact that a company has to operate in an environment permeated with uncertainty/risk, the term 'adequate working capital' becomes somewhat subjective depending upon the attitude of the management towards uncertainty/risk. Therefore the quantum of investment in current assets has to be made in a manner that it not only meets the needs of the forecasted sales but also provides a built-in cushion in the form of safety stocks to meet unforeseen contingencies arising out of factors such as delays in arrival of raw materials, sudden spurts in sales demand etc. Consequently, the investment in current assets for a given level of forecasted sales will be higher if the management follows a conservative attitude than when it follows an aggressive attitude. Thus a company following a conservative approach is subjected to a lower degree of risk than the one following an aggressive approach. Further, in the former situation the high amount of investment in current assets imparts greater liquidity to the company than under the latter situation, wherein the quantum of investment in current assets is less. This aspect considers exclusively the liquidity dimension of working capital. There is another dimension to the issue, *viz.*, the 'profitability'.

**Example: Impact of Working Capital Efficiency on Net Margins**

Tinplate Company of India Ltd. was a company engaged in manufacture and supply of electrolytic tin mill products. The consolidated net profit for the company for the quarter 4 of the financial year 2021-2022 stood at Rs. 114.42 crores. Net margins for the quarter 4 of 2021-22 stood at 9.33% compared to 7.44% achieved in the quarter 4 of the previous financial year (2020-21). The improvement achieved by the company was attributed to lower raw material cost and working capital efficiency gains.

*Source: https://www.indiainfoline.com/article/earnings-results/tinplate-company-q4-pat-doubles-to-rs114-42cr-on-working-capital-efficiency-gains-122041500183_1.html Dated April 15, 2022 (Accessed on 06.05.22)*

Once we recognize the fact that the total amount of financial resources at the disposal of a company is limited and these resources can be put to alternative uses, the larger the amount of investment in current assets, the smaller will be the amount available for investment in other profitable avenues at hand with the company. A conservative attitude in respect of investment in current assets leaves less amount for other investments than an aggressive approach does. Further, since current assets will be more for a given level of sales forecast under the conservative approach, the turnover of current assets (calculated as the ratio of net sales to current assets) will be less than what they would be under the aggressive approach. This being so, even if we assume the same level of sales revenue, operating profit before interest and tax and net (operating) fixed assets, the company following a conservative policy will have a low percentage of operating profitability compared to its counterpart following an aggressive approach as can be seen from the numerical illustration 12.1.

**Illustration 12.1: Conservative vs. Aggressive Approach**

| S.No. | Particulars | Conservative Policy | Aggressive Policy |
|---|---|---|---|
| 1. | Net Sales | ₹ 50 lakh | ₹ 50 lakh |
| 2. | Operating Profit Before Interest and Tax | ₹ 5 lakh | ₹ 5 lakh |
| 3. | Net (Operating) Fixed Assets | ₹ 10 lakh | ₹ 10 lakh |
| 4. | Current Assets | ₹ 8 lakh | ₹ 5 lakh |
| 5. | **Total Operating Assets [= (3) + (4)]** | **₹ 18 lakh** | **₹ 15 lakh** |
| 6. | Net Operating Profit Margin $\left[=\frac{(2)}{(1)}\right]$ | $\frac{5}{50}=10\%$ | $\frac{5}{50}=10\%$ |
| 7. | Turnover of Net Operating Fixed Assets $\left[=\frac{(1)}{(3)}\right]$ | $\frac{50}{10}=5$ times | $\frac{50}{10}=5$ times |
| 8. | Turnover of Current Assets $\left[=\frac{(1)}{(4)}\right]$ | $\frac{50}{8}=6.25$ times | $\frac{50}{5}=10$ times |
| 9. | Turnover of Total Operating Assets $\left[=\frac{(1)}{(5)}\right]$ | $\frac{50}{18}=2.78$ times | $\frac{50}{15}=3.33$ times |
| 10. | Rate of Return on Total Operating Assets [ = (6) x (9), (2) x 100 (5)] | 27.8% | 33.3% |
| 11. | Ratio of Current Assets to Net Operating Fixed Assets $\left[=\frac{(4)}{(3)}\right]$ | $\frac{8}{10}=0.8$ | $\frac{5}{10}=0.5$ |
| | | = 80% | = 50% |

From the illustration, it can be easily seen that:

- Following a conservative approach to investment in current assets results in a low return on total operating assets of 27.8 percent (item 10) compared to the return of 33.3 percent obtained under the alternative – an aggressive approach.

- The reason for this can be directly traced to the low turnover of current assets leading to a lower turnover of total operating assets under the conservative approach compared to that under the aggressive approach.
- From item (11) it can be seen that current assets comprise 80 percent of net operating fixed assets resulting in higher proportion of current assets and hence greater liquidity compared to the corresponding figure of 50 percent indicating low liquidity under the aggressive approach.

From the above discussion it is apparent that management of current assets inevitably leads to a trade-off between 'profitability' and 'liquidity'. An aggressive approach results in greater profitability but lower liquidity while a conservative approach results in lower profitability but higher liquidity. This can be resolved to a certain extent by the management by following a moderate policy which is neither highly aggressive nor highly conservative. Under this approach some liquidity and some profitability have to be sacrificed so that the resultant figures of liquidity and profitability are reasonably satisfactory to the company.

In the numerical illustration given earlier, if the management decides to follow a moderate approach which leads to an investment of ₹ 6.5 lakh in current assets, then the rate of return of total operating assets will become 30.30 percent $\left(=\frac{5}{16.5}\right)$ which is higher than the rate of return of 27.8 percent under the conservative approach but lower than the figure of 33.3 percent under the aggressive approach. Further, the degree of liquidity as indicated by the ratio of current assets to net operating fixed assets will now be 65 percent which is lower than the figure of 80 percent under the conservative approach but higher than the figure of 50 percent under the aggressive approach. Thus, a proper balance between liquidity and profitability can be reached by considering alternatives along with their consequences on liquidity and profitability. Among the alternatives the one which matches the attitude of the management toward risk can be selected.

**Choosing the Pattern of Financing**

Major portion of current assets are to be financed with current liabilities. Some portion of current assets will be financed by long term Sources . We have already seen above the composition of current liabilities. The question that is to be asked is – which type of current liabilities are favoured for financing current assets? While answering this question, the finance manager has to look into the risks involved in each type of finance as choosing the inappropriate Source of finance may lead to higher interest cost thus may lead to other issues in the business.

The objective of working capital management covers not only the management of current assets in tune with the attitude of management toward risk and arriving at a satisfactory level of current assets that balances the liquidity and profitability criteria but also the management of financing the chosen level of current assets, once again taking into consideration the attitude of management towards risk.

From the description of current assets and current liabilities discussed above, it can be observed that in the normal course of business, a company will usually have access to non-interest bearing short-term liabilities such as sundry creditors, accrued expenses and other current liabilities as also provisions toward financing current assets. These are called spontaneous liabilities as they arise more or less automatically in the context of current assets. The difference between the amounts of current assets and spontaneous liabilities needs to be financed by a combination of bank borrowings in the form of cash credit/overdraft arrangement and long-term Sources of finance such as debentures and equity capital. Fixed deposits obtained from the public for periods ranging from one to three years can also be used for the same purpose. Here also an aggressive financing policy will tend to have a financing mix tilted in favor of bank borrowings and public deposits compared to a conservative policy tilted more towards long-term Sources like equity and to some extent debentures.

Except in rare instances, the general tendency in the case of manufacturing and trading companies is that during certain periods in an year the need for current assets will be much higher than in other periods in the year. As the financing charges in the case of bank borrowings are geared to and move in tandem with the credit needs occasioned by the higher investment in current assets, the total interest charge is likely to be low. However, debt-servicing cost will be high as bank borrowings have to be repaid (rather re-negotiated for the coming year). Consequently, the risk of 'technical insolvency' (a situation where a company is not in a position to honor its current liabilities including short-term bank borrowings which can arise even in the case of profitable companies) is likely to be high. On the other hand, a conservative policy having a high proportion of equity capital and to some extent debentures will have comparatively low debt-servicing resulting in a lower degree of the risk of technical insolvency. However, the cost of financing will be high as the cost of equity capital is the highest and it does not provide tax benefit which the interest on borrowed capital provides to the company and debenture interest (even after reckoning with tax benefit) has to be paid throughout the year irrespective of the fluctuating credit needs of a company towards financing its current assets. Even in the case of choosing the mix of instruments for financing current assets, the risk of technical insolvency tends to be high while the cost of financing tends to be low under an aggressive policy compared to a conservative policy under which the risk of technical insolvency will be low while the cost of financing tends to be high. Once again, the management's attitude toward risk will go a long way in determining the financing-mix considered appropriate to the company.

The tendency of the management to follow an aggressive mix of financial instruments towards financing current assets is severely handicapped by the restrictions imposed by the commercial banks in permitting cash credit/overdraft limits.

From the above discussion it emerges that working capital management encompasses the management of current assets and the means of financing them. The objective of working capital management is to balance the 'liquidity' and 'profitability' criteria while taking into consideration the attitude of management toward risk and the constraints imposed by the banking sector while providing short-term credit in the form of cash credit/bank overdraft.

## 12.4 Description of Current Assets and Current Liabilities

Working Capital management or short term financial management is concerned with the decisions pertaining to current assets and current liabilities. A knowledge of the classification and composition of current assets and current liabilities is a pre-requisite for studying working capital management.

Assets and liabilities of a company can be classified on the basis of duration into:

Assets – Fixed Assets and Current Assets

Liabilities – Long-term liabilities and short-term or current liabilities

Assets are possessions owned by the firm which are capable of being expressed in monetary terms, whether tangible (land, building, stock, etc.), or intangible (goodwill, patents, copyrights, etc.). These are used by the company for generating future benefits. Fixed assets are those assets which are permanent in nature. They are held for use in business activities and not for sale. Examples of fixed assets are land, building, machinery, long-term investment, etc. Current assets, on the other hand, are those liquid assets of the company which are either held in the form of cash or can be easily converted into cash within one accounting period, usually a year. Examples of current assets are: cash, short-term investments, sundry debtors or accounts receivable, stock, loans and advances, etc.

Liabilities are economic obligations of the company to pay cash or provide goods or services to outsiders including share-holders. Liabilities may be long-term or current. Long-term liabilities are those which are repayable over a period greater than the accounting period like share capital, debentures, long-term loans etc. Current liabilities on the other hand have to be paid within the accounting period like sundry creditors or accounts payable, bills payable, outstanding expenses, short-term loans, etc.

Working capital management involves not only managing the different components of current assets, but also managing the current liabilities, or to be more precise, the financing aspect of current assets. It is, therefore appropriate to provide a brief description of current assets and current liabilities. To provide an insight into the practices followed in the Indian corporate sector, we shall make the presentation in the context of XYZ Ltd., taken from the company's balance sheet. The practices followed are presented in Table 12.1 and Table 12.2.

**Table 12.1: XYZ Co. Ltd.**
**Composition of Current Assets**

| | | | *Rupees in lakh* |
|---|---|---|---|
| **I. CURRENT ASSETS, LOANS AND ADVANCES** | | | |
| **A. Inventories** | | | |
| 1. | Stores and Spare Parts | | 37.63 |
| 2. | Loose Tools | | 13.37 |
| 3. | Stock of machines, including own manufactured | | 1952.11 |
| 4. | Goods in Transit | | 550.20 |
| | | | 2502.31 |
| 5. | Raw Materials | | 411.91 |
| 6. | Work-in-process | | 567.61 |
| 7. | Value of incomplete job contracts carried forward | | 2133.03 |
| | | | 5665.86 |
| Note: | | | |
| 1. | Inventories are as valued and certified by the Management [See Note 'a' for mode of valuation] | | |
| **B. Sundry Debtors** | | | |
| 1. | Debts outstanding for a period exceeding six months | | |
| | Unsecured-Good | | 1173.43 |
| | Unsecured-Doubtful | | 17.93 |
| | | | 1191.36 |
| | Less: Provision for doubtful debts | | 17.93 |
| | | | 1173.43 |
| 2. | Other debts (Unsecured-Good) | | 4069.35 |
| | | | 5242.78 |
| **C. Cash and Bank Balances** | | | |
| 1. | Cash and Cheques on hand and at collection centers including remittances in transit ₹ 40.40 lakh | | 501.13 |
| 2. | Balance with Scheduled Banks: | | |
| | In Current Account | 9.09 | |
| | In Fixed Deposits (Receipts endorsed favoring customers as security) | 1.49 | |
| | In Guarantee/L/C/Margin Account | 23.73 | 34.31 |
| 3. | Balances with Non-Scheduled Banks in Current Account with: | | |
| | a. Bank of Ceylon | 0.21 | |
| | b. In Investioni Bank (Czechoslovakia) | 1.85 | 2.06 |
| | | | 537.50 |

*Contd. ……*

| | | |
|---|---|---|
| **D.** | **Loans and Advances** | |
| 1. | Bills Receivable-Guaranteed by Scheduled Banks | 30.97 |
| 2. | Loans including secured ₹ 4.48 lakh (₹ 5.01 lakh) | 28.83 |
| 3. | Advances & loans to Subsidiary | 308.46 |
| 4. | Advances recoverable in cash or in kind or for value to be received | |
| | Considered Good | 1229.94 |
| | Considered Doubtful | 0.18 |
| | | 1230.12 |
| | Less: Provision for doubtful advances | 0.18 |
| | | 1229.94 |
| 5. | Balances with Excise, Customs and Port Trust | 23.83 |
| 6. | Taxes paid in advance and deducted at Source (after adjusting provision for taxation ₹ 114.87 lakh) | 183.93 |
| | | 1805.96 |
| **E.** | **Other Current Assets** | 313.48 |
| | **Total of A + B + C + D + E** | **13,565.58** |

**Table 12.2: Composition of Current Liabilities and Provisions**

*Rupees in lakh*

| | | |
|---|---|---|
| **A.** | **CURRENT LIABILITIES** | |
| 1. | Acceptances | 1435.15 |
| 2. | Sundry Creditors (including premium on Redemption of Debentures ₹ 25.54 lakh) | 3906.76 |
| 3. | Advances and Deposits from Customers | 2688.35 |
| 4. | Other Liabilities | 437.40 |
| 5. | Unclaimed Dividends | 7.50 |
| 6. | Application Money Refundable | 5.21 |
| 7. | Interest accrued but not due on loans | 105.67 |
| 8. | Hire Purchase Dues | 42.23 |
| 9. | Temporary Bank Overdraft as per books of account | 15.81 |
| | | 8644.08 |
| **B.** | **PROVISIONS** | |
| 1. | Provision for Taxation (for Wealth Tax) | 0.16 |
| 2. | Proposed Dividend | 42.44 |
| | | 42.60 |
| **C.** | **SECURED LOANS** | |
| | From Banks for working capital | 2959.40 |

*Contd. ……*

| D. | UNSECURED LOANS | |
|---|---|---|
| 1. | Fixed Deposits | 40.88 |
| 2. | Short-term loans and advances | 600.00 |
| 3. | Other term loans and advances | 363.00 |
| | | 1003.88 |
| | **TOTAL (A + B + C + D)** | **12649.96** |

**Note:** Valuation of Inventories:

a. Stores and spare parts, loose tools, goods-in-transit, raw materials and work-in-process, are valued at cost.

b. The finished goods including those manufactured by the company are valued at cost or estimated market value, whichever is lower.

c. Incomplete job contracts are valued at the direct cost incurred on such contracts.

### 12.4.1 Current Assets

With the help of the above Table 12.1, let us understand the composition of current assets:

1. Current assets, loans and advances of a company appear as assets in the balance sheet. If the balance sheet is presented in a 'T' form they are shown on the right hand side under the heading current assets, loans and advances. If the balance sheet is presented in a vertical form or statement they appear under the category of "Assets" as "current assets, lonas and advances".

2. The first item (Item A in Table 12.1) of current assets is inventories whose value is certified by the management in accordance with the principle of conservatism which says that inventories are to be valued at cost or market price whichever is lower. Inventories are further classified as:

a. Item (1) in inventories denotes the value of stores and spare parts which amounted to ₹ 37.63 lakh at the end of the accounting period. When spare parts for machinery used are not readily available, they are acquired at the time of purchase and held in stock. In the case of imported plant & machinery, the supplier also sells spare parts which may be lying in stock. Some of the stores and spares will be consumed during the year when the machinery is being operated. However, when a better machine comes into the market, existing machinery may have to be replaced for increased operational efficiency. At that time, spares of the old machine will fetch very little in the market. A thorough analysis of spares in terms of Vital, Essential and Desirable (VED) categories is warranted when they comprise a reasonably large chunk of current assets. The company started with an opening inventory of stores and spares of ₹39.52 lakh. Stores to the extent of ` 160.43 lakh were consumed during the year as revealed by the annual reports of the company.

b. Item (2) shows loose tools used by the company for the manufacture and repair of the various machines and equipment, which stood at ₹13.37 lakh at

the end of the year. The opening balance was ₹14.89 lakh and purchases of loose tools amounted to ₹ 43.49 lakh, indicating that loose tools worth ₹ 45.01 lakh were consumed during the year (consumption = opening stock + Purchases - closing stock).

c. The company is in the business of manufacturing various items of machinery and machine tools like industrial equipment, pollution control equipment, air-conditioning and refrigeration systems, textile machinery, etc. As such, the machines manufactured by the company for the purposes of sale will be included under inventories and not under fixed assets. The set of machines used for making the machinery meant for sale will come under fixed assets as these will be used by the company year after year for the manufacture of its goods (machinery for sale). Item (3) indicates the closing stock of the finished goods of the company including goods (machinery) in transit (Item 4). This amounts to ₹2,502.31 lakh. The company had an opening stock of finished goods of ₹ 1,728.02 lakh. These are also conservatively valued by the company at cost or market value whichever is lower.

d. Item (5) denotes raw materials. The company started with an opening balance of raw materials of ₹ 359.14 lakh. The company purchased raw materials worth ₹1,835.23 lakh during the year, making ₹ 2,194.37 lakh available for consumption. Actual consumption was to the tune of ₹ 1,782.46 lakh, leaving a closing balance of ₹ 411.91 lakh.

e. Work-in process, also called stock-in process indicates partially finished goods which have been valued at the end of the year at ₹ 567.61 lakh. Since it takes some time for the raw materials and components that enter the production process to become finished goods, at any point of time, there will always be some partly finished goods besides goods that are finished and ready for sale shown in item (3). Item (6) shows the value of such work-in process which have been valued at cost.

f. The company undertakes job works on contract basis like project engineering. These are job contracts which are incomplete at the end of the accounting period and which are to be carried forward to the next accounting period. Such items will also be shown under inventories. This is shown in item (7) and such incomplete jobs have been valued at ₹ 2,133.03 lakh.

3. Item (B of Table 12.1) represents sundry debtors or accounts receivables. This asset is more liquid than inventories as it arises consequent upon the sale of finished goods on a credit basis. The debtors are to be categorized into 2 groups – one group outstanding for a period exceeding six months and the other below six months. For the company, debtors outstanding for a period exceeding six months amount to ₹ 1,191.36 lakh, of which ₹17.93 lakh are considered doubtful for which a provision has to be made, and this leaves the net amount at ₹1,173.43 lakh. The second group amounts to ₹ 4,069.35 lakh, making total sundry debtors ₹5,242.78 lakh.

4. Item (C of Table 12.1) indicates the most liquid form of all current assets, viz., cash and bank balances. While these assets provide immediate liquidity, they do not generate any returns unless they are invested in some other form. Consequently only a reasonably small percentage is held in this form, the influencing or determining factors being the degree of synchronization of cash inflows and outflows, the degree of uncertainty surrounding them and the ability of the firm to raise liquid cash at short notice. For the company, the amount of cash and bank balance is only 3.96% of total current assets whereas inventory accounts for 41.8% of total current assets.
5. Item (D of Table 12.1) consists of loans and advances which include bills receivables, advances and loans to subsidiaries of the company, balances with Excise, Customs and Port Trust, advance payments of tax, etc., after deducting provision for taxation and providing for doubtful advances. The net amount under this head for the company amounts to ₹ 1,805.96 lakh.
6. Item (E of Table 12.1) represents other current assets like interest accrued on investments, prepaid expenses etc., which amount to ₹ 313.48 lakh.

### 12.4.2 Current Liabilities

These are shown on the left hand side of a 'T' shaped or horizontal Balance Sheet as "current liabilities and provisions or under the heading "current liabilities" under the vertical or statement form of balance sheet. The current liabilities are further grouped under four heads.

1. Item (A of Table 12.2) represents current liabilities, the major chunk of which is contributed by sundry creditors or accounts payable, followed by advances and deposits from customers which have to be returned. Refund of application money on non-allotment, interest accrued but not due, hire purchase dues, unclaimed dividends, temporary bank overdraft (OD) and other outstanding expenses also come under this head, creating a total of ₹ 8,664.08 lakh.

**Example: Digitalization led Working Capital Growth**

ICICI Bank, a leading private sector bank, launched a new app on 28th April, 2022 called InstaBiz app which will provide comprehensive set of digital solutions for customers in micro, small and medium enterprises (MSME) segment. The app will cater to ICICI Bank's own as well as other banks' customers under this segment. MSMEs will have access to instant sanctions of overdraft (OD), fully digital and instant current account (CA) opening through video KYC and a set of value-added services on a single platform.

*Source: https://www.financialexpress.com/industry/sme/icici-bank-launches-new-digital-solutions-for-msmes/2507220/ Dated April 28, 2022 (Accessed on 06.05.22)*

2. Item (B of Table 12.2) includes provisions which like current liabilities also call for short-term payments by the company, but the exact figure of which is

not known beforehand. The company has provided ₹ 0.16 lakh for taxes and ₹ 42.44 lakh for dividend, totalling to ₹ 42.60 lakh.

3. The arrangements made with banks for working capital towards the financing part of the current assets by providing security in the form of hypothecation of stocks or pledge is the next item. Long term loans are shown separately under the head secured loans along with term loans from financial institutions secured by mortgaging fixed assets or bank guarantees. But since bank loans for working capital are strictly of short-term nature and used for financing the current assets of the company, these should also be shown along with current liabilities and provisions. Item (C of Table 12.2) shows that the company has availed itself of ₹ 2,959.40 lakh as secured loan for working capital from commercial banks.
4. Strictly speaking, fixed deposits repayable within one year should also form part of current liabilities. However, since fixed deposits are mainly raised to meet the financial requirement of current assets, it may not be a bad idea to consider the total amount of fixed assets as part of current liabilities. However in Table 12.2, Item (D of Table 12.2) Fixed Deposits and other short-term loans includes only those repayable within one year by the company. They amount to ₹ 1,003.88 lakh.

## 12.5 Meaning and Assessment of Working Capital

Once the current assets and current liabilities of a business are classified properly the finance manager is in a position to actual the working capital requirement of the business. This working capital represents the capital required by a business for operating its day-to-day trading activities. It is a financial barometer of the operating liquidity of a business.

**Working Capital Concepts**

There are two concepts of working capital:

*Gross Working Capital:* It represents the sum total of all current assets of a business. The current assets comprise inventories (including raw material and components, work-in-process and finished goods), receivables, loans and advances and cash and bank balances. These are short-term assets having a life span of less than one year.

*Net Working Capital (NWC):* This concept of working capital is more popularly used as it represents the excess of current assets over current liabilities. It can be shown as:

NWC = Current Assets (CA) – Current liabilities (CL)

The net working capital of a firm can be positive or negative. A positive NWC denotes that the firm can generate adequate funds from the current assets to repay its current liabilities. On the other hand, if the net working capital is negative, it shows that the business does not have sufficient funds to repay its liabilities. This

might result in liquidity crisis for a business. Such a negative figure of working capital is also referred to as working capital deficit. The working capital deficit can be met with working capital finance from banks or financial institutions.

**Working Capital Assessment**

To disburse working capital finance to businesses, banks adopt several methods for assessing the working capital requirements of a business. These methods are:

1. *Operating Cycle Method* – Operating cycle method is based on the length of time required to convert current assets into cash, which is impacted by many factors. This method is dealt with in greater detail in subsequent sections in the unit.

   **Example: Factors that Spike Short-term Finance Needs**

   The rising fuel prices have pushed the cost of raw materials upwards. In addition, the pandemic induced lull over the last two years gave way to increased demand owing to spurt in business activities. The combined effect of these factors will result in 4 to 8% sequential loan growth for the lenders. According to analysts at ICICI Securities, most banks are reporting an uptick in their credit growth in the last quarter of FY 22. The brokerage said higher input prices and stretched working capital cycles will trigger short-term financing requirements.

   *Source: https://www.livemint.com/companies/company-results/strong-loan-growth-to-push-bank-earnings-up-11650991980440.html Dated April 27, 2022 (Accessed on 06.05.22)*

2. *Drawing Power Method* – Used for businesses that enjoy limited drawing powers, under this method, the finance requirement is assessed on the basis of valuation of current assets charged to the bank in the shape of hypothecation and assignment, after deducting the stipulated margin.
3. *Turnover Method* – This method was originally suggested by the Nayak committee in1991 (constituted by RBI to examine the difficulties faced by small scale units in securing finance) to assess the working capital requirements for small scale units. Based on the recommendations of this committee, the minimum working capital required is computed as 20% of the projected annual turnover for new as well as existing units. The borrower has to bring in 5% of the annual turnover as margin money.
4. *MPBF Methods* – In accordance with the recommendations of the Tandon Committee in 1974, RBI has framed two methods for assessing working capital. They are known as Method I and Method II. Under the first method, the MPBF (Maximum Permissible Bank Finance) should be 25% of working capital gap. The working capital gap is the excess of current assets over other current liabilities (excluding bank borrowings). Under method II, The MPBF should be 25% of total current assets (excluding exports receivables).

**Check Your Progress - 1**

1. Capital is one of the fundamental requirements of doing business and total capital refers to the composition of fixed capital and working capital. From the following given options, identify the option that is not a feature of working capital.
   a. Working capital finances the day-to-day business operations
   b. Comprises short-term assets and liabilities of a business
   c. Relatively illiquid
   d. Used for short-term financing
   e. Serves the operational objectives of the firm or a business
2. Which of the following statements denote current assets?
   a. Short span of life
   b. Long span of life
   c. Long term transformation into other form of asset
   d. Greater significance on time value of money
   e. Lesser liquidity
3. Barn Limited, the manufacturer of steel, presents the following information for the year ending March 31, 2022:

   Sundry debtors ₹ 15,000, cash balance ₹ 19,000, other current assets ₹ 20,000, fixed assets ₹ 1,20,000, secured loan ₹ 50,000, long-term loans ₹ 5,00,000 and other current liabilities ₹ 10,000. The company's net sales for the period was ₹ 4,40,000.What is the current assets turnover ratio for the year ended March 31, 2022?
   a. 8 times
   b. 8.15 times
   c. 11.28 times
   d. 10 times
   e. 9.68 times
4. If a company adopts a conservative working capital policy,
   a. It takes more risk in relation to its working capital management
   b. The ratio between current assets to sales turnover is at the minimum level
   c. It spends more to finance its current assets
   d. It maintains a minimum current ratio
   e. It prefers profitability in comparison to a higher level of liquidity

5. Which of the following is **true** in relation to an aggressive working capital policy?

   a. Cost of financing the current assets tends to be high

   b. Maintaining a high current ratio

   c. High level of investments in current assets

   d. Higher risk of technical insolvency for the firm

   e. Greater reliance on long-term Sources to finance current assets

## 12.6 Static View of Working Capital and its Shortcomings

The amount of working capital that a business has or requires depends on the quantum of current assets and current liabilities of the business shown in the balance sheet. All working capital management decisions are based on these numerical figures. For instance, the decision to procure raw material in bulk is based on already existing outstanding of accounts payable and cash balances. Hence there is a need to relook at the conventional assessment of working capital requirement.

Traditionally the term working capital is defined in two ways, *viz.*, gross working capital and net working capital. Gross working capital is equal to the total of all current assets (including 'loans and advances') of a company. Net working capital is defined as the difference between gross working capital and current liabilities (including 'provisions'). Sometimes net working capital is also referred to as 'net current assets.' Since both gross working capital and net working capital are obtained from the data contained in the balance sheet, working capital viewed in either sense denotes the position of current assets (or net current assets) as at the end of a company's accounting year. An important characteristic of current assets is conventionally considered to be their convertibility into cash within a single accounting year unlike fixed assets which provide the 'production capacity' for the manufacture of finished goods for sale. Current liabilities arise in the context of, and hence are derived from, current assets. Conventionally, current liabilities are of short-term nature and come up for payment within a single accounting year. Consequently, a lot of emphasis is traditionally placed on the current assets (which are valued on a conservative basis in accordance with the 'conservatism principle' of accounting) vis-à-vis current liabilities. As a rule of thumb, the value of 2:1 for the ratio of current assets to current liabilities (popularly known as current ratio), is considered to be satisfactory by the short-term creditors. The underlying logic being that a company can face the unlikely situation of meeting all of its current liabilities by liquidating its current assets even at half of their recorded value without any financial embarrassment.

### 12.6.1 Limitations

The definition of working capital given above considers the purpose of current assets as providing adequate cover for current liabilities. This definition suffers from many limitations as stated below.

First, the amount of working capital, viewed in either sense, is obtained from the data contained in the balance sheet which merely indicates the financial position of a company as on a specific date and, is therefore, 'static' in nature. Consequently 'working capital' as defined traditionally provides a snapshot picture of current assets and current liabilities as on the balance sheet date. It fails to reflect the true dynamic nature of working capital which can be captured by combining the data contained in both the balance sheet and profit and loss account of a company. The dynamic approach to working capital is far more useful from the point of view of managerial decision-making than the static approach.

**Example: Credit Offtake Spike from Production Cost Hike**

As per the data released by the Reserve Bank of India in April 2022, the credit offtake in the financial year 2021-22 improved substantially. The growth in credit to industry increased to 6.5% in February 2022 compared to 1% a year ago. As per the Executive Director of the Union Bank of India, "Corporates who have been utilising their limits have also been coming for additional working capital because the cost of production has gone up. The availing has increased by about 10%."

*Source: https://www.financialexpress.com/industry/banking-finance/rising-commodity-prices-push-demand-for-bank-loans/2496841/ Dated April 20, 2022 (Accessed on 06.05.22)*

Secondly, the balance sheet of a company is prepared and presented in the annual report in accordance with the Schedule III requirements of the Indian Companies Act, 2013. As a result, the amount of net working capital obtained by subtracting current liabilities from current assets presented in the balance sheet fails to reflect the true amount of net working capital. This is so, for the following reasons:

– Bank borrowings in the form of cash credit/overdraft accounts obtained for financing current assets, which are basically short-term borrowings, are not shown as part of current liabilities but separately under the head-secured loans. Similarly, unsecured loans of short-term duration such as public deposits are also shown separately under the head-unsecured loans. To obtain a true picture of the position of net working capital the above mentioned items have to be regarded as part of current liabilities. This problem is taken care of by the Bombay Stock Exchange official directory as their classification of current liabilities includes all borrowings other than long-term borrowings.

– Current assets, as presented in the balance sheet do not include marketable securities such as treasury bills whose main purpose is to improve the liquidity position of the company and are held for short periods. These are considered under the generic head 'investments' which include both trade investments and others.

– Points mentioned above tend to distort the calculation of net working capital from the simple balance sheet heads stated as current assets and current liabilities. For XYZ Company, net working capital as per the Static definition will amount to ₹ 4,878.90 lakh i.e., current assets, loans and advances of ₹ 13,565.58 lakh from which current liabilities and provisions of ₹ 8,686.68 lakh have been deducted. But if we include bank loan for working capital of ₹ 2,959.40 lakh and unsecured loans repayable within one year of ₹ 1,003.88 lakh, we find that net working capital amounts to only ₹ 915.62 lakh. This seems to be a more realistic amount and denotes the magnitude of long-term funds used for financing the balance amount of current assets not financed from short-term funds.

– A negative net working capital indicates the diversion of short-term funds for the financing of long-term or fixed assets which, when continued for long, can lead to problems of liquidity for an organization. This is because, the investment in fixed assets will not create liquidity in the short run and the company may face problems in meeting its short-term financial obligations. It is worth noting that the calculation of net working capital made above is more in line with what bankers follow, as it will be useful in taking managerial decisions in respect of working capital which encompasses not only the management of current assets but also the management of the 'financing' aspect of current assets.

## 12.7 Dynamic View of Working Capital

In the light of shortcomings of the traditional view of working capital there is a need for evolving a more appropriate definition that highlights the importance of working capital to a company. Such a view is required to enable working capital decisions to be more reliable and pragmatic.

Working capital can be viewed as the amount of capital required for the smooth and uninterrupted functioning of the normal business operations of a company ranging from the procurement of raw materials, converting the same into finished products for sale and realizing cash along with profit from the accounts receivables that arise from the sale of finished goods on credit.

From the above definition, the need for working capital by a typical manufacturing and selling company becomes self-evident. In order to meet the production plans of a company some quantity of raw materials has to be maintained in the form of inventory as there will usually be a time lag from the moment an order is placed for raw materials with suppliers till the same is received by the company. Absence of adequate raw materials inventory may result in stoppage of production for want of raw materials.

The quantum of raw material inventory to be maintained by a company depends, *inter alia,* on the availability of raw materials in the domestic market, the need for importing raw materials in case they are not indigenously available, the

existence or otherwise of curbs by the government on imported raw materials, the lead time (the time gap between placing an order and receiving the supply of raw materials) for the procurement of raw materials, availability of bulk purchase discounts offered by suppliers and inflationary pressure on the price of raw materials. Once the raw materials are put into the production process, the company has to incur manufacturing expenses like wages and salaries, fuel and other manufacturing overheads. The nature of process technology adopted by the company is an important factor in determining the time taken for converting raw materials into finished goods. Consequently, the company may have some amount of finished goods and the balance in the form of partly-finished goods denoted by the term work-in-process. Thus, work-in-process inventory which a company carries becomes an inevitable accompanying feature of the production process.

The quantum of finished goods inventory a company carries is basically determined by the degree of accuracy in forecasting sales demand, the ability to meet sudden and unforeseen spurts in the demand for finished goods of the company, seasonality of the demand considered in conjunction with the production policy and the amenability of the product to become perishable in a relatively short period of time (as in the case of cigarettes and certain types of pharmaceuticals). The amount of finished goods inventory held by a company should normally provide its sales executives reasonable elbow-room for negotiating and clinching deals with new customers. Unless a company enjoys special advantage over its competitors, it may have to honor the practices followed by the industry to which it belongs in the sale of finished goods. By and large in a competitive market, the finished goods are sold on a credit basis. When a company gives a credit period to its customers from the date of consummation of sale, the amount of sales value will become accounts receivable or sundry debtors which get converted into cash only after the expiry of credit period.

**Example: MSME Receivables On-time Receipt - A Need for Critical View**

MSME sector in India was facing liquidity and working capital trade credit crisis as reported in the Economic Times in September 2021. Most of the MSMEs are important links in the value chain for the large corporates as these MSMEs supply materials to them. The official credit norms for receivables for MSMEs was 45 days but it was found out that the actual payments were received even beyond 180 days. The micro enterprises faced even more severe crisis as 80% of them got payments beyond 45 days and 45% reporting delays beyond 180 days. This calls for urgent solutions on the part of stakeholders in addition to the attempts being put to solve the crisis.

*Source: https://economictimes.indiatimes.com/small-biz/sme-sector/to-solve-a-rs-5-lakh-crore-problem-for-small-businesses-india-needs-innovative-solutions/articleshow/86158719.cms Dated Sept 13, 2021(Accessed on 06.05.22)*

Further, a company usually maintains at all times some amount of liquid cash either on hand or at bank towards meeting cash payments arising out of transactions as also for providing adequate cushion towards meeting unanticipated demand for cash such as, for example, availing cash discount on purchases suddenly introduced by suppliers, before the generation of cash takes place in the normal course of business. One more point needs to be considered at this stage. Just as the company extends credit to its customers, in many instances it can receive credit from its suppliers of materials. Consequently, the drain on cash resources of the company can be delayed till the expiry of credit period. Until such time the amount will become 'Accounts payable' of the company and as such provides a spontaneous Source of credit. From this discussion it is evident how important a role working capital plays in supporting the normal business operations of a typical manufacturing and trading company.

| **Activity 12.1** |
| --- |
| When a company takes a short-term loan of ₹ 60,000, its net working capital does not increase as it is adding ₹ 60,000 to assets as well as to liabilities. State the nature of Gross and Net Working Capital needs of a business with example. **Answer:** |
| |
| |
| |
| |

## 12.8 Factors affecting the Composition of Working Capital

The amount of working capital required is based on the quantum of current assets required for smooth operations of the business activity. Hence, assessment of working capital involves estimating the level of each current asset in the business. This estimation requires awareness of the various factors that influence the amount of current assets in the business. For example, a purely trading company which purchases finished products on credit basis and sells the same for cash will only have finished goods inventory and cash as current assets and accounts payable as current liabilities. Since there is no manufacturing involved, the investment in fixed assets will be minimal, say around 5 percent of the investment in current assets. Consequently working capital management assumes greater significance in such organizations. Now, we shall try to identify some of the significant factors affecting the composition of working capital or current assets.

### 12.8.1 Nature of Business

As mentioned above purely trading organizations will have basically finished goods inventory, accounts receivable (in some cases) and cash as current assets

and accounts payable as current liabilities. Similarly travel agency firms will have predominantly accounts receivable and some amount of cash as current assets unlike manufacturing and trading companies. The investment in net (operating) fixed assets[1] will at most be around 5 percent of investment in current assets. On the other hand, capital goods manufacturing and trading companies will have a high proportion of current assets in the form of inventory of raw materials components and work-in-process. The ratio of net (operating) fixed assets to current assets will be around 100 percent or more.

### 12.8.2 Nature of Raw Material Used

The nature of major raw material used in the manufacture of finished goods will greatly influence the quantum of raw material inventory. For example, if the raw material is an agricultural product whose availability is pronouncedly seasonal in character the proportion of raw material inventory to total current assets will be quite high. For example, tobacco is the major raw material for cigarette industry whose availability is seasonal in nature and also the tobacco procured requires a reasonably long 'curing' period. Consequently, the percentage of raw material inventory to total current assets will be quite high compared to other items.

Similarly, companies using imported raw materials with long lead time tend to have a high proportion of raw material inventory. In the case of a capital goods manufacturing company, the demand for whose product is growing over time, the tendency will be to have high inventory of raw materials and components.

**Example: Influential Factors 'for' Working Capital Hoarding**

The Indian pharma company hugely dependent on China for supply of active pharmaceutical ingredients for manufacture of many of the essential drugs. As on July 2021, the dependence was almost 70% for the total sourcing of the raw materials. In certain cases the dependence was as high as 90%. With the raw material cost increasing by up to 140% in some cases and with supply disruptions, the industry as a whole was facing huge crisis to meet the demands in India. Given this situation, the players in the industry were constrained to keep higher than normal stock to tide over the crisis.

*Source: https://timesofindia.indiatimes.com/business/india-business/costs-of-raw-material-for-drugs-rise-by-up-to-140/articleshow/84569034.cms Dated July 20, 2021 (Accessed on 06.05.22)*

### 12.8.3 Process Technology Used

In case the raw material has to go through several stages during the process of production, the work-in-process inventory is likely to be much higher than any other item of current assets.

[1] The term net (operating) fixed assets consists only of net fixed assets that are being used for the normal business operations of a company and will not include capital work-in-progress as the latter cannot be used for the present operations of the company.

### 12.8.4 Nature of Finished Goods

The nature of finished goods greatly influences the amount of finished goods inventory. For example, if the finished goods have what is called a short span of 'shelf-life' as in the case of cigarettes, the finished goods inventory will constitute a very low percentage of total current assets.

In the case of construction companies, which undertake work on a turnkey basis, as soon as the construction is completed the customer will take possession of it. Consequently the finished goods inventory will be virtually insignificant and the work-in-process inventory (rather work-in-process) will be considerably high.

In the case of companies the demand for whose finished goods is seasonal in character, as in the case of fans, the inventory of finished goods will constitute a high percentage of total current assets. This is mainly because from the point of view of fixed costs to be incurred by the company it would be more economical to maintain optimum level production throughout the year than stepping up production operations during busy season.

In the case of reputed companies, manufacturing consumer goods that enjoy growing demand over the years, the finished goods inventory need not be high as sales demand can be forecast with a reasonable degree of accuracy. However, in such companies the raw material inventory tends to be high in view of the large variety of products to be manufactured.

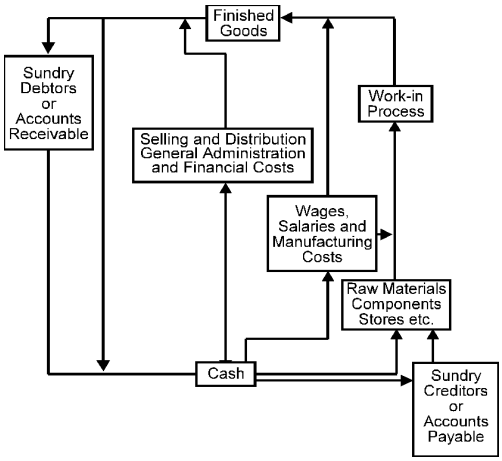
### 12.8.5 Degree of Competition in the Market

When the degree of competition in the market for finished goods in an industry is high, then companies belonging to the industry may have to resort to an increased credit period to its customers, partially lowering credit standards and similar other practices to push their products. These practices are likely to result in a high proportion of accounts receivable.

## 12.9 Inter-Dependence among Components of Working Capital

We have understood from the discussion in the previous paragraphs that assessment of working capital requirement is based on several factors that influence the amount of current assets and current liabilities for smooth operations of the business activity. It may be noted that a quantum change in a particular type of current asset may bring about changes maintenance levels of other current assets and current liabilities . This reworking may be needed for keeping the desired current ratio level . For instance, increase in credit purchases may result in increase in inventory on the one hand but also increase the accounts payable. Thus each current asset or liability is inter-dependent on others. An understanding of this inter-dependence is crucial in planning the working capital cycle and estimating the working capital needs. The inter-dependence among the various components of working capital can be easily understood from Figure 12.1 given below:

**Figure 12. 1: Working Capital Cycle (Operating)**




*Source: ICFAI Research Center*

Figure 12.1 depicts the inter-dependence among the components of working capital. A company starting with cash purchases raw materials, components etc., on a cash or credit basis. These materials will be converted into finished goods after undergoing the stage of work-in-process. For this purpose, the company has to make payments towards wages, salaries and other manufacturing costs. Payments to suppliers have to be made on purchase in the case of cash purchases and on the expiry of credit period in the case of credit purchases. Further, the company has to meet other operating costs such as selling and distribution costs, general, administrative costs and non-operating costs described as financial costs (interest on borrowed capital). In case the company sells its finished goods on a cash basis it will receive cash along with profit with least delay. When it sells goods on a credit basis, it will pass through one more stage, viz, accounts receivable and gets back cash along with profit on the expiry of credit period. Once again the cash will be used for the purchase of materials and/or payment to suppliers and the whole cycle termed as working capital or operating cycle repeats itself. This process indicates the dependence of each stage or component of working capital on its previous stage or component.

**Example: Working Capital is Not Simply 'Current Assets – Current Liabilities'**

Auto companies in India were facing a unique problem in 2021. After the Covid–19 induced lull in the demand, they are now facing the problem of shortage of raw material. Semiconductor chips were in short supply resulting in most of the car dealers facing stock outs. Auto makers who usually offer huge discounts during festive seasons to boost sales lowered their discounts and in some cases the customers wait for months to get the delivery of their preferred models. Shortage of semiconductor chips derailed the production in addition to impacting the profits.

*Source: https://www.autocarindia.com/car-news/best-year-end-discounts-on-cars-suvs-this-december-422991 Dated Dec 20, 2021(Accessed on 06.05.22)*

The dependence of one component of working capital on its previous stage/component is described above highlighting the inter-dependence among the components of working capital. However, there can be other kinds of inter-dependence which are not dictated by the usual sequence of manufacturing and selling operations. For example, in case the manufacturing process requires a raw material which is in short supply, the company may have to make advance payment in anticipation of the receipt of that raw material. This will cause immediate drain on cash resources unlike a situation where credit purchase of raw materials can be made. Similarly, if there is an excessive accumulation of finished goods inventory, the company may have to provide more liberal credit period and/or relax its existing credit standards which will increase sundry debtors. In situations of greater need for cash, providing cash discount as part of credit-terms for sale which is likely to boost the cash receipts, may have to be resorted to. In such cases, the relative benefits and costs may have to be taken into consideration before taking decisions.

## 12.10 Operating Cycle Approach to Working Capital Management

The inter-dependence of the various components of working capital influence the estimation of working capital. Various components of the operating cycle depict the inter-dependence. In addition to estimation of the amount of working capital required, another question that needs to be answered is the period or the duration for which this capital is required. The operating cycle period will help in both forecasting the working capital and controlling its usage.

What has been considered in Figure 12.1 above as working capital cycle is more popularly known as the operating cycle. This title is more appropriate in the sense that the normal business operations of a manufacturing and trading company start with cash, go through the successive segments of the operating cycle, that is, raw material storage period, conversion period, finished goods storage period and average collection period before getting back cash along with profit. The total duration of all the segments mentioned above is known as 'gross operating cycle period'. In case the company is placed in an advantageous position of being able to sell its products for cash, then the segment of average collection period will disappear from the gross operating cycle period. To that extent the total duration of the cycle gets reduced. In case advance payments are to be made for procuring materials, the operating cycle period increases. The purchase of raw materials, components etc., are usually made on a credit basis, thereby giving rise to the spontaneous current liability, viz, accounts payable. When the average payment period of the company to its suppliers is deducted from the gross operating cycle period, the resultant period is called net operating cycle period or simply 'operating cycle period'. It becomes obvious that the shorter the duration of operating cycle period, the faster will be the transformation of current assets into cash. The operating cycle approach is quite useful both in controlling and

forecasting working capital. The step by step calculation of the different segments of operating cycle is presented below.

Raw Material Storage Period

1. Annual consumption of raw materials, components etc.
2. Average daily consumption of raw materials, components etc. assuming an year of 360 days for convenience = (1) ÷ 360
3. Average stock of raw materials, components etc.

$$\frac{\text{Opening Stock + Closing Stock}}{2}$$

4. Raw material storage period = (3) ÷ (2) = $n_1$ days.

**Conversion Period**

1. Annual cost of production = Opening Stock of work-in process + Consumption of raw materials etc + Other manufacturing costs such as wages and salaries, power and fuel etc. + Depreciation — Closing work-in process.
2. Average daily cost of production = (1) ÷ 360
3. Average Stock of work-in process

$$= \frac{\text{Opening W.I.P.+Closing W.I.P}}{2}$$

4. Average conversion period = (3) ÷ (2) = $n_2$ days.

**Finished Goods Storage Period**

1. Annual cost of sales = Opening stock of finished goods + Cost of production + Excise duty + Selling and distribution costs + General administrative costs + Financial costs – Closing stock of finished goods.
2. Average daily cost of sales = (1) ÷ 360
3. Average stock of finished goods

$$= \frac{\text{Opening stock + Closing stock}}{2}$$

4. Finished goods storage period = (3) ÷ (2) = $n_3$ days.

**Average Collection Period**

1. Annual credit sales of the company.
2. Average daily credit sales = (1) ÷ 360
3. Average balance of sundry debtors

$$= \frac{\text{Opening balance + Closing balance}}{2}$$

4. Average collection period = (3) ÷ (2) = $n_4$ days

Average Payment Period

1. Annual credit purchases made by the company
2. Average daily credit purchases = (1) ÷ 360
3. Average balance of sundry creditors

$$= \frac{\text{Opening balance} + \text{Closing balance}}{2}$$

4. Average payment period = (3) ÷ (2) = $n_5$ days

From the above calculations, the gross operating cycle period is obtained as ($n_1$ + $n_2$ + $n_3$ + $n_4$) days where $n_1$ denotes the raw material storage period, $n_2$ denotes the period for conversion of raw materials into finished goods, $n_3$ denotes the finished goods storage period and $n_4$, the average collection period; each of which is expressed in days. When the average payment period of $n_5$ days is subtracted from the gross operating cycle period, as calculated above, the resultant figure provides the net operating cycle period. When the operating cycle period is short, it implies that the locking up of funds in current assets is for a relatively short duration and the company can obtain greater mileage from each rupee invested in current assets.

**Illustration 12.2**

The gross and net operating cycle periods for XYZ Industries Ltd. are calculated below, using the principles of calculation already developed, for year, 20xx. The following assumptions are made for the calculation in respect of the data contained in the annual reports of the company.

- Manufacturing expenses have been selectively taken from total items given in the schedule which gives details of manufacturing, selling, distribution and administrative expenses.
- 'Wages and salaries' given under manufacturing costs are inclusive of wages and salaries to employees engaged in non-manufacturing functions also.
- 'Purchase' figures are obtained as the balancing item of the equation:
- Opening stock + Purchases – Closing stock = Consumption of 'materials', where all the items excepting purchases are obtained from the annual reports. In the absence of detailed information 'purchases' are assumed to have been made on a credit basis.
- In the absence of information in respect of categorization of sales into cash and credit components, all sales are assumed to have been made on a credit basis.
- For the sake of convenience an year is assumed to have 360 days.

The data for the calculation of operating cycle are presented below:

**Data for the Year 20xx**

| | Particulars | Amount (₹ in lakh) |
|---|---|---|
| 1. | Opening Balance of | |
| | a. Raw Materials, Stores and Spares, etc | 3454.84 |
| | b. Work-in-Process | 56.15 |
| | c. Finished Goods | 637.92 |
| | d. Accounts Receivable | 756.45 |
| | e. Accounts Payable | 2504.18 |
| 2. | Closing Balance of | |
| | a. Raw Materials, Stores and Spares, etc. | 4095.41 |
| | b. Work-in-Process | 72.50 |
| | c. Finished Goods | 1032.74 |
| | d. Accounts Receivable | 1166.32 |
| | e. Accounts Payable | 3087.47 |
| 3. | Purchases of Raw Materials, Stores and Spares, etc. | 10676.10 |
| 4. | Manufacturing Expenses | 1146.76 |
| 5. | Depreciation | 247.72 |
| 6. | Customs and Excise duties | 35025.56 |
| 7. | Selling, Administration and Financial Expenses | 4557.48 |
| 8. | Sales | 54210.65 |

The calculations of the different segments of the operating cycle for XYZ Industries are shown below:

A. Raw Material Storage Period

1. Average stock of Raw Materials

$$= \frac{3{,}454.84 + 4{,}095.41}{2} = ₹\ 3{,}775.13 \text{ lakhs}$$

2. Annual Consumption of Raw Materials

= Opening Stock + Purchases – Closing Stock

= 3,454.84 + 10,676.10 – 4,095.41

= ₹ 10,035.53 lakhs

3. Average daily consumption of Raw Materials

$$= \frac{10{,}035.53}{360} = ₹\ 27.88 \text{ lakhs}$$

4. Raw Material Storage Period

$$= \frac{3{,}775.13}{27.88} = 135 \text{ days}$$

B. Average Conversion or Work-in-Process Period

1. Average Stock of Work-in-process

$$= \frac{56.15 + 72.50}{2} = ₹\ 64.33 \text{ lakhs}$$

2. Annual cost of production

= Opening work-in-process

+ Consumption of materials

+ Manufacturing Expenses + Depreciation

– Closing work-in-process

= 56.15 + 10,035.53 + 1,146.76 + 247.72 – 72.50

= ₹ 11,413.66 lakhs

3. Average daily cost of production

$$= \frac{11,413.66}{360} = ₹\ 31.70 \text{ lakhs}$$

4. Average conversion period $= \frac{64.33}{31.70} = 2 \text{ days}$

C. Finished Goods Storage Period

1. Average inventory of finished goods

$$= \frac{637.92 + 1,032.74}{2} = ₹\ 835.33 \text{ lakhs}$$

2. Annual cost of sales

= Opening stock of finished goods

+ Cost of production

+ Selling, administration and financial expenses

+ Customs and excise duties

– Closing stock of finished goods.

= 637.92 + 11,413.66 + 4,557.48

+ 35,025.56 – 1,032.74

= ₹ 50601.88 lakhs

3. Average daily cost of sales

$$= \frac{50,601.88}{360} = ₹\ 140.56 \text{ lakhs}$$

4. Finished goods storage period

$$= \frac{835.33}{140.56} = 6 \text{ days}$$

D. Average Collection Period

1. Average book debts

$$= \frac{756.45 + 1{,}166.32}{2} = ₹\ 961.38 \text{ lakhs}$$

2. Annual Sales

= ₹ 54,210.65 lakhs

3. Average daily Sales

$$= \frac{54{,}210.65}{360} = ₹\ 150.59 \text{ lakhs}$$

4. Average Collection Period

$$\frac{961.38}{150.59} = 6 \text{ days}$$

E. Average Payment Period

1. Average balance of trade creditors

$$= \frac{2{,}504.18 + 3{,}087.47}{2} = ₹\ 2{,}735.82 \text{ lakhs}$$

2. Annual purchases

= ₹ 10,676.10 lakhs

3. Average daily purchases

$$= \frac{10{,}676.10}{360} = ₹\ 29.66 \text{ lakhs}$$

4. Average payment period

$$\frac{2,795.82}{29.66} = 94 \text{ days}$$

Operating cycle period

= 135 + 2 + 6 + 6 – 94 = 55 days

The 135 days against segment (A) can be interpreted as 135 days' worth of 'raw material consumption' is held, on the average, in the form of raw material inventory during the year. It may be noted that raw material storage period is the maximum compared to other segments. The greater raw material storage period has also increased the operating cycle.

The 2 days against (B) indicates that 2 days' worth of 'cost of production' on the average is held in the form of work-in-process inventory, reflecting efficiency in the management of work-in-process inventories.

The 6 days against (C) represents 6 days' worth of cost of sales', has been held in the form of finished goods inventory on the average. Average collection period denotes that '6 days' worth of (credit) sales' are held, on an average in the form of finished goods inventory. This reflects high turnover of accounts receivable indicating efficiency in the management of receivables.

XYZ has an average payment period of 94 days indicating that 94 days' worth of credit purchases' are held in the form of sundry credits. Although sundry creditors

is a non-interest bearing current liability, a reduction in the average payment period is likely to enhance the image of the company from its suppliers' point of view.

The end result of the calculations is reflected in the operating cycle whose duration is 55 days.

### 12.10.1 Application of the Operating Cycle

As mentioned earlier, operating cycle approach proves quite useful as a technique for exercising control over working capital. Each segment of operating cycle can be compared with a pre-specific norm or with the corresponding figure in the previous accounting year or with the corresponding figure obtainable from the master budget of the company. Significant deviations call for closer scrutiny by the management who can seek the reasons for such occurrences. The deviations may have occurred due to a variety of reasons. For example, an increase in the average conversion period may have occurred due to shortage of an important raw material (in which case the purchase manager may be asked for an explanation), plant break-down (in which case the maintenance engineer may be asked for an explanation), a wild-cat strike[2] by the workers (which calls for an explanation from the chief of personnel and industrial relations) etc. Once the reasons are known, remedial measures can be taken in respect of immediately controllable factors and the other factors may be accepted as constraints for the time being, pending long-term solutions. For example, frequent break-down of plant may call for replacement of certain sections and/or modernization which cannot be implemented immediately but can be implemented say in about a year. Towards the end of exercising better control, the operating cycle may be calculated on a quarterly basis and/or on a product group basis.

**Example: Technology Usage 'in' Working Capital Management**

As per a study conducted by one of the major consulting firms EY and published in April 2021, Indian corporates expanded the operating cycle by 6 days on an average. The study was conducted on 500 major companies and covered data for 12 months ending September 2020. The enhancement in the operating cycle was in comparison to a similar period a year ago. Small enterprises, in comparison, extended the operating cycle by 14 days. The study suggested that by leveraging emerging technologies and data analytics in the overall management of the working capital, Indian corporates can free up liquidity to the extent of Rs. 5.2 trillion.

*Source: https://www.ey.com/en_in/strategy-transactions/working-capital-management-in-indian-companies-is-it-all-tied-up Dated April 20, 2021 (Accessed on 06.05.22)*

In the case of seasonal industries such as tea industry, two sets of operating cycles may be calculated – one for the busy season and the other for the slack season –

[2] A wild cat strike is a sudden strike underatken by the workers without the approval of the union representing the workers.

for exercising better control. As inter-temporal comparisons[3] for monitoring working capital efficiency for a company are likely to be affected by the inflation factor, necessary adjustments can be made by the application of appropriately chosen price-index. The comparisons made, after neutralizing the impact of inflation both on sales and working capital, are more likely to provide greater insight into the efficiency of working capital management across the years.

Another important area for the application of operating cycle approach lies in estimating the working capital requirement of a company to support the forecasted level of sales. Given the duration of various components of the operating cycle, the working capital needs can be estimated.

This may be explained with the help of an illustration.

**Illustration 12.3**

R.K. Ltd., plans to sell 1,00,000 units next year. The expected cost of goods sold is as follows:

Expected Cost of Goods Sold - R.K. Ltd.

| **Particulars** | **Unit Cost (₹)** | **Monthly Cost* (₹)** |
|---|---|---|
| Raw Material Cost | 50 | 4,00,000 |
| Manufacturing Expenses | 20 | 1,60,000 |
| Selling, Administration, Financial Expenses | 15 | 1,20,000 |
| **Total** | **85** | **6,80,000** |
| The selling price per unit is expected to be ₹ 100 | | |

** At a monthly sales level of 8,000.*

The deviations at various stages of the operating cycle are expected to be as follows:

| | | |
|---|---|---|
| Raw materials stage | = | 3 months |
| Work-in-process stage | = | 1 month |
| Finished goods stage | = | 1 month |
| Debtors stage | = | 2 months |

Based on this information, investment in various current assets can be calculated.

[3] Inter temporal comparisions refer to inter period comparisons.

**Investment in Various Current Assets of R.K. Ltd.**

*(₹ in thousand)*

| Input | | Period (in months) | Raw Materials | Work-in process | Finished Goods | Debtors | Total |
|---|---|---|---|---|---|---|---|
| 1. | Raw Material | | | | | | |
| | In Stock | 3 | 1,200 | | | | |
| | In W.I.P. | 1 | | 400 | | | |
| | In Finished goods | 1 | | | 400 | | |
| | In Debtors | 2 | | | | 800 | |
| | | | | | | | 2,800 |
| 2. | Manufacturing Expenses | | | | | | |
| | In W.I.P. | ½@ | – | 80 | | | |
| | In Finished Goods | 1 | | | 160 | | |
| | In Debtors | 2 | | | | 320 | |
| | | | | | | | 560 |
| 3. | Selling, Administration and Financial Expenses | | | | | | |
| | In Finished Goods | 1 | – | – | 120 | | |
| | In Debtors | 2 | | | | 240 | |
| | | | | | | | 360 |
| 4. | Profit | | | | | | |
| | In Debtors | 2 | – | – | – | 240 | |
| | | | | | | | 240 |
| | **Total** | | **1,200** | **480** | **680** | **1,600** | **3,960** |

Manufacturing expenses are expected to occur evenly. The work-in-process stage lasts for one month. Hence, on an average, the manufacturing expense component in work-in-process value will be equal to half month's manufacturing expenses.

The total investment in various assets works out to ₹ 3,960 lakh. To this sum a desired cash balance may be added to get an estimate of working capital needs.

## 12.11 Criteria for Evaluation of Working Capital Management

Working Capital Management is a continuous process. However, its efficiency needs to be evaluated at regular periods of time to ensure that the objectives of liquidity and profitability are being met. There are several criteria on which such evaluation can be taken up which are discussed below.

In the beginning of the unit, we have considered working capital in two ways. First, when working capital is viewed as the difference between 'current assets'

and 'current liabilities', the basic objective of working capital appears to be one of providing adequate cover to meet the current obligations of a company as and when they become due. This approach lays greater emphasis on the 'liquidity' aspect of working capital. Second, when working capital is looked upon as the amount held in different forms of current assets to provide adequate support to the smooth functioning of the normal business operations of a company, the objective becomes one of deciding on the trade-off between liquidity and profitability. While developing suitable criteria for the evaluation of working capital management, we shall bear in mind both the approaches to working capital.

The following criteria may be adopted for evaluating the working capital management of a company.

### 12.11.1 Liquidity

By and large, the current assets of a company are considered to be more liquid than fixed assets. Even among the current assets, some items are considered to be much more liquid than others. In a descending order of liquidity, the current asset items can be stated as cash and bank balances, marketable securities, sundry debtors, raw material inventory, finished goods inventory and work-in-process inventory. But, of these items, inventories are considered to be less liquid as they have to pass through the different stages of the operating cycle before becoming accounts receivable and eventually back to cash. The ultimate test of liquidity is the ability of a company to meet its current obligations.

Although accounts receivables are generally considered to be liquid, the degree of liquidity depends upon the paying habits of customers and the collection efforts made by the company. So, the degree of liquidity of current assets both in its qualitative and quantitative aspects has to be assessed. Consequently, the efficiency of working capital management can be regarded as the ability of a company to have adequate liquidity in its current assets so that it can honor its financial obligations without creating embarrassment of 'technical insolvency'. The criterion of liquidity can be quantitatively assessed by means of ratios to be discussed in subsequent paragraphs.

Tax Provisions are part of other current liabilities, hence they are part of Source of funds in an organization.

### 12.11.2 Availability of Cash

Even the most profitable companies may have faced at some time or the other problems of cash shortage. In seasonal industries, it is much more common to pass through bouts of cash shortage while in other cases, it can happen because of mismatching of cash inflows and cash outflows. As a result, companies keep some minimum cash balance. It should be noted that the larger the proportion of current assets held in the form of cash and bank balances, the better the liquidity position of the company, but at the cost of sacrificing profitability as idle cash fetches no return. However, the great uncertainty surrounding future cash flows,

lack of synchronization between cash inflows and cash outflows, the liquidity mix in terms of cash and bank balances and marketable securities, the attitude of management towards risk are some of the important factors that are likely to influence the proportion of cash in the total current assets of a company. This aspect will also be considered as part of the ratio analysis for the evaluation of the working capital management of a company.

### 12.11.3 Inventory Turnover

Any type of inventory will represent the amount of cash locked up and the amount of carrying costs, which can be as high as 25 percent of the value of inventory, associated with inventory. Too high a level of inventory and too low a level of inventory are not conducive to the financial health of a company as the former can create problems of liquidity while the latter can affect profitability due to stoppage of work for want of raw materials and/or loss of customers for want of finished goods. The application of inventory theoretic models will help mitigate the problem but the utility of these models will eventually depend on the attitude of management towards risk. Thus risk-return trade-off is inevitable. However, turnover of inventory can be useful for comparisons across time, across companies belonging to the same industry or against norms stipulated by banks or by the company's budgeting system.

**Example: Efficiency in Investor Utilization**

Schaeffler India Ltd., majorly dealing in automotive technologies, reported 19.04% growth in total revenues year on year for the Mar-22 quarter on consolidated basis at Rs.1,567.51 cr. Increase in revenue was attributed to lower cost of inputs and greater efficiency in inventory utilisation. Net profit margins for the March–22 quarter stood at 13.21% compared to 10.60% in the quarter March–21.

*Source: https://www.indiainfoline.com/article/earnings-results/schaeffler-india-q1-pat-up-48-43-at-rs207-12cr-on-lower-input-costs-and-inventory-efficiency-gains-122042700239_1.html Dated April 27, 2022 (Accessed on 06.05.22)*

### 12.11.4 Credit Extended to Customers

In a competitive market environment, the output of a company is usually sold on credit basis. Credit sales have many dimensions. Indiscriminate sale of output without reckoning with the credit standards may result in higher volume of sales, larger amount of cash locked up in the form of receivables and higher incidence of bad debt losses. By following high credit standards, the company's sales volume may get adversely affected.

It is therefore, necessary to consider whether reasonable credit is provided to customers as part of the evaluation of working capital management. This can be quantified in the form of turnover of receivables or average collection period.

### 12.11.5 Credit Obtained from Suppliers

Just as a company extends credit to its customers it would also obtain credit from its suppliers in most cases. Working capital management should provide adequate flexibility to the purchase department so that they can shop around and obtain better terms for procurement of supplies. Further, regular payment habit on the part of the company can instill confidence in the minds of the suppliers. This can be quantified by the average payment period.

### 12.11.6 Under-Trading and Overtrading

Before considering precautionary measures against under-trading and over-trading, let us first understand the meaning of these two terms, their financial implications and the precautionary measures to be taken.

**Under-Trading**

A situation of under-trading arises in a company when the volume of sales is much less than the amount of assets employed. This becomes apparent when the performance of the company is compared against similar companies. Under-trading also indicates that funds of the company are locked up in current assets resulting in a lower turnover of working capital. Another way of stating under-trading is that a company is over capitalized compared to the volume of sales. As this would result in lower turnover, the company has to take precautionary measures such as altering capital structure so that the debt-equity ratio comes down, hastening the collection process, reducing the levels of inventory to reasonable levels compared to the sales forecast and production plans. Unless these measures are taken, the rate of return on equity is likely to come down as a result of which the market price of the company can be adversely affected.

**Over-Trading**

Over-trading is a situation which is the opposite of under-trading. The symptoms of over-trading can be noticed from the disproportionately high turnover of assets compared to the volume of sales. In the context of working capital over-trading can be noticed from high turnover of current assets compared to similar companies. While increase in the turnover of current assets is generally considered to be a virtue, disproportionately high turnover is indicative of less amount of cash invested in current assets which can create problems of liquidity at the time of making payments for current obligations. The problem of over-trading can be restated as one of under capitalization.

Precautionary measures for over-trading can be taken by initially reducing the sales to a level commensurate with the amount of assets and a final solution lies in increasing the asset base through additional finances raised through the issuance of shares and/or obtaining loan funds.

Unless a company takes precautionary measures once it observes symptoms of over or under-trading, it may run into serious working capital problems as

outlined above. The typical symptoms of over trading or under trading are exhibited below.

**Indicators of Over-trading and Under-trading**

Over-trading and Under-trading can be identified with the help of the following indicators:

Indicators for identifying Over-trading:

1. A company facing insufficient working capital along with low proprietary ratio and low current and liquid or acid-test ratios. In such a situation, the company may not maintain sufficient level of inventories and, as a consequence, it will have to depend on regular supplies of inventories. The low liquid ratio is an indicator of possible cash crunch which means that the payments of expenses (wages, salaries etc.) and creditors including taxes cannot be made in time.
2. While in the first point we noticed that the current ratio and liquid or acid test ratios are below their standard, the contrary picture will prevail in case of turnover ratios such as the debtors turnover or the inventory turnover ratio. These turnover ratios will show higher figures than the standard or normal ratio.
3. Another indicator is that the business may take more time to repay its creditors or its total number of creditors may exceed the number of debtors. Another situation can be that creditors increase at a higher rate than debtors or decrease at a rate lower than debtors.
4. There will be a decline in profits.
5. There will be an increase in the rate of borrowings in comparison to the amount of assets owned by the business.
6. A company may be resorting to the purchase of fixed or non-current assets from short-term funds.
7. There may unexplained reductions in bills receivable recorded indicating discounts given to debtors or bills payable which are customary are recorded.

Let us now try to look at the indicators of under-trading, which are mostly in the opposite direction to the indicators of over trading.

1. Business will have very high Current Ratio and Liquid Ratio.
2. On the other hand, the business will have low levels of turnover ratios.
3. The shareholders may get a lower rate of return on capital employed.
4. It will result in reduction of goodwill.
5. It will lead to a fall in the market price of shares of the business.

### 12.11.7 Profit Criterion for Working Capital

When we analyze whether to make an investment or not, we check whether the proposed investment will have a positive Net Present Value (NPV)[4]. The NPV of a proposed investment is calculated by deducting the present value of the outflows from the present value of the inflows. Investment in working capital should also be evaluated on the same lines. Yet, there is a significant difference between other types of investments and investment in current assets. Investment in current assets is generally completely realizable at the time of liquidation.

For these types of investments, the profit per period criterion is equivalent to the NPV criterion.

The profit per year on current assets would be:

$$P_r - P_k$$

Where

$P_r$ = Return for the year

$P_k$ = Cost of funds for the year.

The net present value, assuming that the investment in the current asset continues for n years will be

$$NPV = -P + P_r\,(PVIFA_{k,n}) + P\,(PVIF_{k,n})$$

On putting the values of PVIFA and PVIF in the formula and solving further, we get

$$NPV = (P_r - P_k)\left[\frac{(1+k)^n - 1}{k(1+k)^n}\right]$$

Since the NPV criteria is a multiple of the profit per period criteria, they can be taken as equivalent. Hence, for the purpose of evaluating investment in working capital, the profit-per-period criteria can be used.

## 12.12 The above criteria is helpful in evalauting the efficiency of working capital management in a business. Ratio Analysis

The efficiency of working capital management needs to be evaluated to enable the finance manager to plan the future requirements of working capital. Ratio analysis is a popular measure for any form of financial analysis. This is mainly attributable to the simplicity in calculation and indication of the direction in which further probing is necessary. We shall briefly outline below some of important ratios that can be used for gauging the efficiency of working capital management.

[4] **Note:** For details of NPV calculation, refer to the unit on 'Capital Expenditure Decisions'.

### 12.12.1 Current Ratio

This is the ratio of 'current assets' to 'current liabilities'. In a broad sense, the value of current ratio indicates the ability of a company to meet its current liabilities. A minimum current ratio of 1.33 has been recommended by the Tandon Committee and the same is followed by commercial banks.

Net working capital is regarded as the difference between 'current assets' and 'current liabilities', while current ratio is the amount of 'current assets' divided by the amount of 'current liabilities'. As a result, the current ratio value of less than one implies that net working capital is negative for the company. This is not a healthy sign as it amounts to a diversion of short-term funds for long-term purposes.

### 12.12.2 Quick Ratio

This ratio is calculated by considering quick assets ('current assets' – inventories) in the numerator and current liabilities in the denominator. As inventories are farther placed in the liquidity hierarchy of current assets these are not considered. Quick ratio is supposed to provide a better measure of the liquidity position of a company in meeting its current liabilities. A caution is needed here that sundry debtors that are slow moving may not be readily convertible into cash and, therefore, one cannot draw immediate inference as to the liquidity position of a company by the magnitude of quick ratio.

### 12.12.3 Cash to Current Assets

As cash on hand and at bank is the most liquid form of all the current assets, the ratio of cash to current assets will indicate the liquidity position of a company much better than the earlier ratios. While a high ratio is indicative of better liquidity the opportunity loss sustained by the company by keeping a large amount of idle cash should also be taken note of.

### 12.12.4 Sales to Cash

This indicates the turnover of cash, the higher the turnover the better it is from the company's point of view. However, for a given level of sales, the higher turnover of cash can also indicate that the cash balance is less. Only by considering the turnover for a few years, one can draw meaningful conclusions as to the liquidity position of the company, as the relationship between cash balance and sales is not quite direct and easily comprehensible.

### 12.12.5 Average Collection Period

As this is discussed in detail in the unit on Receivables Management, it will not be repeated here. However, a few observations on it are relevant. Average collection period can be compared with the credit period stipulated by the company. If the average collection period is found to be consistently higher than the net credit period extended by the company to its customers, then the collection

effort has to be made more effective as cash is locked up for a period more than what is warranted by the credit terms extended.

**Example: Average Collection Period of Shalimar Paints Ltd**

Shalimar Paints Ltd., a paint manufacturing company, had a glorious past in terms of market share. In the last few years, the company had several issues and went into losses. Of late, the company was on a revival path. Although the company was still having net loss but there are silver linings in their performance in the financial year 2021 as compared to the previous year 2020. One significant aspect was that the average collection period improved to 83 days in FY 2021 as against 89 days in 2020. This was on account of improved collections.

*Source: https://www.careratings.com/upload/CompanyFiles/PR/06042022082825_Shalimar_Paints_Limited.pdf Dated April 6, 2022 (Accessed on 06.05.22)*

### 12.12.6 Inventory Turnover Ratio

In the literature, one comes across two definitions for inventory turnover ratio. The first one is to calculate the ratio of average sales to inventory. This ratio suffers from one shortcoming. While the numerator i.e., sales includes profit, the denominator by the very definition of inventory, cannot include profit. Consequently, this ratio's importance is considerably reduced.

An alternative definition calls for the calculation of cost of goods sold to average inventory. As both the numerator and denominator are devoid of profit element, this ratio is much more consistent than the earlier one.

By and large, the higher the turnover of inventory, the better it is from the point of view of efficiency in working capital management. However, caution is needed as very high turnover may be indicative of over-trading. This can be verified by comparing the ratio with that of the average for the industry or with that of the competitor company.

### 12.12.7 Working Capital to Sales

This ratio indicates the reciprocal of the popular ratio of working capital turnover. Working capital turnover is the ratio of sales to working capital and indicates how many times working capital has turned over during the year. The higher the turnover, the better it is for the company. Given the profit margin, sales and net fixed assets, the larger the turnover the higher will be the rate of return on net operating capital employed. Very low and very high turnover values will call for a closer look as they may be indicative of the symptoms of under-trading and over-trading respectively in its incipient stage. Precautionary measures can be initiated before the situation gets worsened. Similar arguments and comments (in the opposite way) will hold good in the case of working capital to sales ratio which is the reciprocal of working capital turnover.

While we have discussed some of the criteria for evaluating working capital management, certain aspects of management of working capital need more

specific attention *viz.*, Inventory Management, Receivables Management and Cash Management. These have been covered under separate units. How a company decides to finance its current assets is also an important aspect of working capital management which we will study in the next unit.

**Activity 12.2**

1. A current ratio of 1.33 has been recommended by the Tandon Committee and the same is followed by commercial banks. What could be the possible reason for fixing a current ratio above 1? What happens if the current ratio is very high or very low?

2. Calculate the average collection period, assuming 360 days is a year, if the average balance of sundry debtors is ₹ 75,000 and annual credit sales is ₹ 24 lakh. What does this ratio indicate? How does it differ from average payment period?

3. If the current assets and current liabilities of a firm show ₹ 200 lakh and ₹ 120 lakh respectively, ascertain the amount that can be borrowed on a short-term basis without reducing the current ratio below 1.5.

## Check Your Progress – 2

6. Identify, from the following given options, the two most important issues in formulating working capital policy.
   a. Nature of business and operating cycle
   b. The level of current ratio and quick ratio
   c. Working capital margin and working capital gap
   d. Current assets to sales and short-term financing to long-term financing
   e. Trade credit and permissible bank financing

7. Which of the following denotes the formula for computing networking capital?
   a. Current assets - Current liabilities
   b. Current assets - Current liabilities excluding Short-term bank borrowings
   c. Current assets + Current liabilities including Short-term bank borrowings
   d. Current assets – Current liabilities excluding creditors
   e. Current assets + Current liabilities excluding Short-term bank borrowings
8. Which of the following factor/s **does not** influence the working capital management policies of a firm?
   a. Excise duties on the capital equipment
   b. Sudden increase in the demand for the product of the company
   c. Adoption of better technology leading to the reduction in production time
   d. Sudden shortage of the supply of a major raw material
   e. Increase in the short-term interest rate
9. Identify the consideration, which is **not** an appropriate measure in case of adequate accumulation of finished goods inventory in a company.
   a. Stringent credit policy
   b. Liberal credit period
   c. Relaxation of existing credit standards
   d. Provide discounts as part of credit sale terms
   e. Boost the cash resources by increasing the number of sundry debtors
10. What will be the cash conversion cycle of a firm having a receivables period of 35 days, payable period of 45 days and an inventory period of 60 days?
    a. 80 days
    b. 50 days
    c. 20 days
    d. 60 days
    e. 130 days
11. Which of the following can be increased to shorten the operating cycle?
    a. Manufacturing time
    b. Duration of credit availed
    c. Credit period in stores

d. Stock held in stores

e. Decreasing the work-in-progress period

## 12.13 Summary

- The basic objective of working capital is to provide adequate support for the smooth functioning of the normal business operations of a company. The objective of working capital management also covers the management of financing the chosen level of current assets.
- Working capital management presupposes the management of current assets and current liabilities. Current assets are defined as assets of short term nature which are convertible into cash within one trading period. Current liabilities represent short term obligations of a business that are to be repaid within one trading period.
- Current assets comprise of inventories, sundry debtors, cash and bank balances, loans and advances and other current assets. The current liabilities are segregated into current liabilities and short term provisions.
- There are two concepts of working capital – Gross working capital and Net working capital. *Gross Working Capital* represents the sum total of all current assets of a business. *Net Working Capital (NWC)* is more popularly used as it represents the excess of current assets over current liabilities.
- Management of current assets inevitably leads to a trade-off between 'profitability' and 'liquidity'. An aggressive approach results in greater profitability but lower liquidity while a conservative approach results in lower profitability but higher liquidity. This can be resolved to a certain extent by the management by following a moderate policy which is neither highly aggressive nor highly conservative.
- The significant factors affecting the composition of working capital or current assets are: nature of business, nature of raw material used, process technology used, nature of finished goods and degree of competition in the market.
- To calculate the operating cycle, raw material storage period, work-in-process period, finished goods storage period, average collection period and average payment period are to be calculated.
- Normal business operations of a manufacturing and trading company start with cash, go through the successive segments of the operating cycle, that is, raw material storage period, conversion period, finished goods storage period and average collection period before getting back cash along with profit. The total duration of all the segments mentioned above is known as 'gross operating cycle period'.
- When the average payment period of the company to its suppliers is deducted from the gross operating cycle period, the resultant period is called net operating cycle period or simply 'operating cycle period'.

- A suitable criteria for evaluating the working capital management include liquidity, availability of cash, inventory turnover, credit extended to customers, credit obtained from suppliers, under trading and overtrading.
- Usually, the Net Present Value (NPV) criterion is used to evaluate any investment projects. However, for the purpose of evaluating investment in working capital, the profit-per-period criteria can be used as these investments are of short term nature.
- A situation of under-trading arises in a company when the volume of sales is much less than the amount of assets employed. This becomes apparent when the performance of the company is compared against similar companies.
- Over-trading is a situation which is the opposite of under-trading. The symptoms of over-trading can be noticed from the disproportionately high turnover of assets compared to the volume of sales.
- Important working capital ratios are current ratio, quick ratio, cash to current assets, sales to cash ratio, average collection period and inventory turnover ratio.

## 12.14 Glossary

**Average Collection Period** is the ratio of receivables to average credit sales per day.

**Average Payment Period** is the ratio of payables to average credit purchases per day.

**Conversion Period** is the time taken or required by the company to convert finished stocks to sales.

**Current Assets** are those assets that can get converted into cash within a period of a year or less.

**Current Liabilities** are those payments of amount due to the creditors within a period of one year.

**Current Ratio** is the ratio of current assets to current liabilities. A minimum current ratio of 1.33 has been recommended by the Tandon Committee and the same is followed by commercial banks.

**Drawing Power Method** of working capital assessment is used for businesses that enjoy limited drawing powers. The finance requirement is assessed on the basis of valuation of current assets charged to the bank in the shape of hypothecation and assignment, after deducting the stipulated margin.

**Gross Working Capital** is the sum total of all current assets.

**Inventory** comprises of raw materials, work-in-progress, loose tools, spares which are valued at the end of the year and taken as a part of current assets in the balance sheet.

**Inventory Turnover** is the ratio of net sales to inventory. Higher the turnover of inventory, the better it is from the point of view of efficiency in working capital management.

**Loose Tools** are part of current assets. They represent the part of machinery or spare parts that are used in the production process. For example, nuts, bolts, screws etc.

**MPBF (Maximum Permissible Bank Finance)** is a method of working capital assessment suggested by Tandon Committee for the banking sector in India. This approach encourages banks to work with minimum inventory of current assets.

**Net Working Capital** is the difference between the total of current assets and the total of current liabilities.

**Operating Cycle Method** of working capital assessment is based on the length of time required to convert current assets into cash.

**Operating Cycle** refers to the conversion period of acquisition of raw materials to finished goods ready for sale and also includes the credit period involved in selling of products and services.

**Over-trading** can be noticed from high turnover of current assets compared to similar companies. While increase in the turnover of current assets is generally considered to be a virtue, disproportionately high turnover is indicative of less amount of cash invested in current assets.

**Permanent Investment** is an investment that the firm expects to hold longer than one year.

**Ratio Analysis** is a quantitative financial measure used to analyze the operating and financial performance and efficiency of a concern.

**Temporary Investments** are those investments that are comprised the firm's investment in current assets that will be liquidated within a period of one year or less. Examples include, seasonal expansions in inventories and accounts receivables.

**Turnover Method** of working capital assessment suggested by Nayak Committee in 1991 estimates working capital requirement as a percentage of annual turnover or sales.

**Under-trading** arises in a company when the volume of sales is much less than the amount of assets employed. It also indicates that funds of the company are locked up in current assets resulting in a lower turnover of working capital.

**Vital, Essential and Desirable (VED) Analysis** is an inventory control technique under which inventories are classified into three categories – vital inventories, essential and desirable inventories.

**Working Capital** is the capital used for day-to-day operations of a business.

**Work-in-progress** refers to the cost of unfinished goods.

## 12.15 Self-Assessment Test

1. What is working capital? State the requirement of working capital needs of a firm.
2. Give a brief note on current assets and current liabilities.
3. Explain the objectives of working capital management.
4. Working capital plays a major role in supporting the normal business operations of a manufacturing and trading concern. In this regard, describe how the networking capital differs from gross working capital.
5. Explain in detail the factors that affect the composition of working capital.
6. Narrate the components and application of operating cycle approach to working capital management.
7. Enumerate the factors used to assess the working capital management.
8. State the purpose of evaluating investments in working capital based on profit per period criteria.
9. Explain in brief the criteria for evaluation of working capital management.
10. What is under-trading and over-trading and also explain their financial implications?
11. Explain how the various components of working capital are inter-dependent on each other.

## 12.16 Suggested Readings / Reference Material

1. Brealey Myers (2020). Principles of Corporate Finance, 13th edition, USA: McGraw-Hill Companies Inc.
2. Prasanna Chandra (2019). Financial Management – Theory and Practice, 10th edition, New Delhi: Tata McGraw-Hill.
3. I.M. Pandey (2021). Financial Management, 12th edition, New Delhi: Pearson Education.
4. Francis Cherunilam (2020). International Business — Text and Cases, 6th Edition, PHI Learning.
5. P.G. Apte (2020). International Financial Management, 8th Edition, McGraw Hill Education (India) Private Limited.
6. John Tennent (2018). The Economist Guide to Financial Management. Economist Books.

## 12.17 Answers to Check Your Progress Questions

**1. (c) Relatively illiquid**

The liquidity of working capital is relatively liquid to meet the company's day-to-day financing needs.

**2. (a) Short span of life**

Current assets are liquid assets of the company, which are either held in cash or can be easily converted into cash within one accounting period, usually a year.

**3. (b) 8.15 times**

Current Asset Turnover = Net Sales / Total Current Assets

= Net Sales / [Sundry debtors + Cash Balance + Other Current assets]

= 440, 000 / [15,000 + 19,000 + 20,000]

= 440, 000 / 54, 000 = 8.148 or 8.15 (approx.)

**4. (c) It spends more to finance its current assets**

When a company follows a conservative working capital policy, its current ratio and current assets to sales turnover ratio is at maximum level in comparison to peers not following such policy. Hence, the company is in need to spend more finance to its current assets to maintain a higher level of liquidity.

**5. (d) Higher risk of technical insolvency for the firm**

The risk of technical insolvency is a situation where a company is not in a position to honor its current liabilities including short-term bank borrowings, which can arise even in the case of profitable companies.

**6. (d) Current assets to sales and short-term financing to long-term financing**

The ratio of current assets to sales and short-term financing to long-term financing are the two most important issues in formulating working capital policy.

**7. (a) Current assets - Current liabilities**

Networking capital is defined as the current assets minus the current liabilities.

**8. (a) Excise duties on the capital equipment's**

Excise duties on the capital equipment's influence the initial cost of the machineries, not the operation cycle for the operation of a company.

**9. (a) Stringent Credit Policy**

Liberalization in credit policies is the appropriate measure in case of adequate accumulation of finished goods inventory in a company.

**10. (b) 50 days**

Cash Conversion Cycle = Receivables Period + Inventory period – Payable Period

= 60 days + 35 days – 45 days = 50 days

**11. (b) Duration of credit availed**

When the duration of credit period availed is increased, the average payment period is increased, and hence the operating cycle decreases.

# Unit 13

# Financing Current Assets

## Structure



*"We tend to focus on assets and forget about debts. Financial security requires facing up to the big picture: assets minus debts*."

- Suze Orman

## 13.1 Introduction

Current assets are an integral part of the composition of working capital. Efficient working capital management requires management of current assets. The management of current assets involves arriving at the optimum level for each component and overall composition of current assets that ensures smooth flow of business operations and enhances profitability. On the other hand it also involves in determining the pattern of financing these assets which will reduce costs. While the level and composition of current assets is discussed in the previous unit, this unit focuses of the financing aspects of current assets.

## 13.2 Objectives

After reading through the unit, you should be able to:

- Identify the behaviour of current assets in the context of the pattern of financing required

- State the spontaneous Sources of financing that enable instant financing of current assets in a business
- Analyse the significance of and the different types of short-term bank finances for working capital to ensure that the right type of financing is selected that suits the requirements of a business
- Evaluate the other forms of finance such as public deposits, commercial paper to understand how to use these finance alternatives to fund current assets
- Develop awareness about the various regulatory changes that have come up in the deployment of bank credit to ensure compliance

## 13.3 Behavior of Current Assets and Pattern of Financing

Current assets comprise of both fixed and fluctuating components. Understanding these two components will enable a finance manager to decide on the type of financing to be used. A detailed explanation of the fixed and fluctuating components along with the pattern of financing to be used is outlined below.

At any point of time a manufacturing company will have some minimum level of current assets. This level is largely influenced by the time frame of operating cycle of the company concerned and the policy of management to provide some degree of flexibility to the production and sales functions of the company. The minimum level of current assets maintained by a company is more in the nature of fixed assets and, therefore, can be regarded as 'permanent or fixed component' of current assets. For example, cash, receivables and inventory required to carry on the operations without any break.

As the definition goes the total value of current assets is gross working capital and the difference between current assets and current liabilities is net working capital (NWC). NWC is to be funder from the long term Sources of the system. The following paras discus how the fixed and fluctuating component of currents are to be managed.

### 13.3.1 Fluctuating Component of Current Assets

Over and above the minimum level, the current assets of a company vary depending upon the level of activity or operations. For example, a higher level of finished goods inventory will enable the company to cope with the busy period demand for its product. Further, the level of Accounts Receivables will also tend to increase as a result of the increased level of sales. Thus, the level of current assets associated with the tempo of business activity can be regarded as the 'fluctuating or temporary component' of current assets. This component is likely to be more pronounced in seasonal industries where either the demand for output or the supply of the important input is seasonal in nature. Woolen garment-making companies are characterized by seasonal demand for output while sugar manufacturing companies are characterized by the seasonal nature in the supply of the important input, viz., sugarcane.

**Example: Finance Pattern is Flexible, Not Rigid**

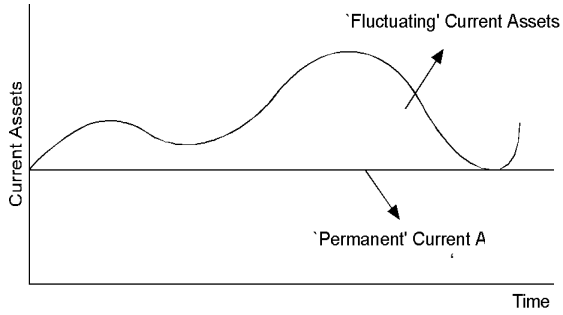
As per a statement issued by the Reserve Bank of India in October 2021, the festive season, around Diwali fed to an economic turnaround leading to increase in the credit requirements for retail, farming and industry. Retail covering housing, vehicles and credit card loans etc. showed an acceleration in credit growth at 12.1% in September 2021 as against 8.4% in September 2020. Credit to agriculture and its allied activities showed a growth rate of 9.9% in September 2021 against 6.2% in September 2020. Credit to industry picked up and registered a growth rate of 2.5% as against 0.4% in September 2020. Rising demand due to festive season was the key contributor to this growth.

*Source: https://www.business-standard.com/article/economy-policy/festive-season-and-economic-turnaround-drive-positive-sentiment-121102901560_1.html Dated Oct, 30, 2021(Accessed on 20.05.22)*

### 13.3.2 The Behavior of Current Assets

The level of current assets of a company can be looked upon as the permanent component of current assets superimposed by the fluctuating component. As the behavior of current assets in terms of fixed and fluctuating components has an important bearing on the pattern of financing to be normally adopted, the level of current assets over time (which can be restricted to a single accounting year) is depicted in Figure 13.1 below.

**Figure 13.1: Behavior of Current Assets**




*Source: ICFAI Research Center*

As can be seen from Figure 13.1, the 'permanent component' of current assets is more in the nature of a fixed asset than of a current asset. However, this analogy cannot be stretched too far. The so-called permanent current assets will go through the different stages of the operating cycle but are not locked-up permanently as in the case of fixed assets. However, the current assets released will be replaced thereby giving the appearance of 'permanency'. Consequently, the permanent component needs to be financed from the long-term Sources of finance available to a company such as internal accruals, ordinary shares, preference shares, debentures and to some extent term loans. The 'temporary or fluctuating component' can be financed from short-term Sources such as accounts payables or trade credit, short-term bank borrowings and public deposits. Although public deposits have a maturity period of two or three years they cannot

be strictly considered as short-term Source or a current liability. These have been included here keeping in view their end use.

From the above discussion, it is apparent that the 'behavior' of current assets influences in a broad sense the pattern of financing to be adopted by a company. Further, it lays down the logical foundation for the insistence of commercial banks (as per Tandon Committee recommendations to be discussed later in this chapter) that companies should place greater reliance on long-term Sources towards financing current assets. It is also clear from the discussion that long-term Sources should be used for financing fixed assets and part of the current assets (preferably the permanent component).

## 13.4 Spontaneous Sources of Financing Current Assets

Selecting a Source of financing is an important segment of financing current assets. This is so because each Source of finance has a cost. While some Sources of funds are readily available, others may not be. The readily available Sources arise out of normal business operations and can be easily tapped in times of need compared to other Sources. A knowledge of these Sources of finance is thus essential to enable timely usage of such Sources.

During the normal course of business operations, a company will usually have ready access to certain Sources for financing its current assets to some extent. As these Sources emerge in the normal course of business, these are referred to as 'spontaneous' Sources. These include accrued expenses, provisions and trade credit. As trade credit is one of the very important Sources of finance, it merits a detailed discussion in its own right. It is taken up in the following section while the other two Sources are considered below.

**Example: Quick Liabilities 'led' Working Capital Management**

Total current assets for Titan Company Ltd increased from Rs. 12501 crore in March 2021 to Rs. 16379 crore as on March 2022. Current liabilities, other than the trade payables and short term bank borrowings, increased from Rs. 2404 crore in March 2021 to Rs. 2926 crore as on March 2022. Increase in this current liability which in other words forms the spontaneous Source of working capital financing resulted in the current ratio falling from 1.74 in March 2021 to 1.71 in March 2022. It was inferred that approximately Rs. 500 crore of working capital requirement was spontaneously financed by these Sources.

*Source: https://www.moneycontrol.com/financials/titancompany/balance-sheetVI/TI01# TI01 (Accessed on 20.05.22)*

### 13.4.1 Accrued Expenses

These are basically liabilities covering expenses incurred on and prior to a specified date, payable at some future date. Typical examples of accrued expenses are accrued wages and salaries. In case a company decides to make payment of wages on a monthly basis instead of weekly basis (assuming trade unions accept

the policy change without demur), the amount of accrued wages will increase and the drain on cash reSources is deferred by three weeks. It should be noted that 'accrued expenses' constitute a small fraction of current liabilities and its usefulness as a Source of financing current assets is very much limited.

### 13.4.2 Provisions

These are basically charges for an estimated expense. Typical examples are: provision for dividends, provision for taxes and provision for payment of bonus. Provisions also do not call for immediate cash drain. The drain on cash resources occurs when the actual amount of liability is known and paid for. The usefulness of 'provisions' as a Source of financing current assets is very much limited.

## 13.5 Trade Credit

Trade credit or accounts payables or sundry creditors is a very important spontaneous Source for financing current assets. On an average, trade credit accounts for about 40 per cent of current liabilities.

Trade credit has two important facets. The first one is to instill confidence in suppliers by maintaining good relations supported by prompt payment. This will enable a company to obtain trade credit. It may not be out of place here to mention that some of the reputed companies tend to stretch payment to their suppliers. In one instance involving an automobile manufacturing company, one of the supplying companies stopped supplies because of unduly delayed payments. This aspect needs a little elaboration. The second facet of trade credit relates to the cost of trade credit when suppliers provide an incentive in the form of cash discount for prompt payment. These two aspects are briefly discussed below.

**Example: Titan Company Trade Credit – Years 2021 and 2022**

The following table presents the actual position of current liabilities for Titan Company Ltd for the financial years 2021 and 2022.

| Particulars | Amount in crore for FY 2022 | Amount in crore for FY 2021 |
|---|---|---|
| Short term borrowings | 225.00 | 4094.00 |
| Trade payables | 6409.28 | 695.00 |
| Other current liabilities | 2896.24 | 2381.00 |
| Short term provisions | 29.63 | 23.00 |
| Total current liabilities | 9560.15 | 7193.00 |

It was evident that the company used trade credit (trade payables) as an alternative to spontaneously finance its working capital and reducing the dependence on short term borrowings from banks.

*Source:https://www.moneycontrol.com/financials/titancompany/balance-sheetVI/TI01#TI01 (Accessed on 20.05.22)*

### 13.5.1 Obtaining Trade Credit

Just as a company decides whether it should offer the facility of credit sales to its customers, which is discussed in the unit on the management of receivables, the

companies supplying materials will also consider whether or not to extend credit sales to its customers. In order to obtain trade credit from its suppliers, a company has to prove its credit-worthiness. This can be achieved by tackling the problem both quantitatively and qualitatively. The quantitative measures are outlined below:

- Good track record of profitability and liquidity. Profitability measures include return on investment, return on equity, earnings per share and dividends per share. Measures of liquidity include, current ratio, quick ratio, average collection period and other liquidity ratios covered in the previous unit. As these measures have already been discussed in earlier units, no elaboration is made here.
- A record of prompt payment by the company to other suppliers will not only help in projecting a good image but also instill confidence in the potential suppliers as they get the information through the usual grapevine.

The qualitative measures are outlined below:

- Even in the case of companies which are profitable and reasonably well managed, external factors such as recession, wild-cat strike by workers, etc., can impair its ability to pay promptly to its suppliers. In such situations, a free and frank discussion with the suppliers can go a long way in establishing the company's credibility.
- Once the suppliers are satisfied, the company can negotiate for payments to synchronize with the company's cash inflows. The arrangement will help reduce idle cash balances of the company.

Trade credit helps in paying at the end of the credit period for supplies received now and prevents immediate cash drain.

### 13.5.2 Cost of Trade Credit

Whenever a company purchases materials on credit basis, the supplier stipulates the credit terms. If the credit period allowed is, say, net 30 days then the company can pay on the $30^{th}$ day for the purchases made now. By paying earlier than the stipulated 30 day period the company is not going to gain anything. It is therefore, advisable to defer payment till the last day of the credit period. The question may arise whether trade credit under the terms net 30 days is cost-free or not. In so far as explicit cost is concerned, it can be regarded as cost-free. However, once we recognize the fact that the drain on the cash resources of the company is deferred by one month, then the amount of cash equal to the purchase value of materials can be utilized to earn some rate of return either by investing in short-term securities of equivalent maturity period or by crediting the same to its cash credit/overdraft account thereby reducing the incidence of interest to some extent. This can be regarded as the opportunity gain associated with the prevention of cash drain for one month.

When suppliers offer credit terms such as 2/15, Net 30, there is a cost implicitly associated for not availing oneself of the cash discount of 2 per cent offered for payment made on or before the 15th day of sale. As payment made beyond the 15th day but on the 30th day will not entitle the company for cash discount, there is an implicit cost associated with 'buying' time for 15 days for not making payment. The implicit cost can be calculated as:

By not availing the cash discount the company is losing at the rate of 2/98 x 100 or 2.041 per cent for gaining 15-day period for payment. The implicit cost is thus

$$\frac{2.041 \text{ x } 360 \text{ days}}{15 \text{ days}} = 48.98 \text{ per cent, which is quite high.}$$

The above calculation can be summarized into a simple formula as shown below:

$$\frac{\text{Rate of discount}}{1 - \text{Rate of discount}} \text{ x } \frac{\text{Number of days in a year}}{(\text{Credit period} - \text{Discount period})}$$

In the above illustration, the implicit cost of not availing oneself of discount can be obtained as

$$\frac{0.02}{(1-0.02)} \text{ x } \frac{360}{(30-15)} = 48.98 \text{ percent.}$$

The cost of trade credit under different credit terms is presented below in Table 13.1 with a view to drawing broad conclusions on the relationship between the cost of trade credit and credit terms.

**Table 13.1: Cost of Credit under different Credit Terms**

| Credit Terms | Cost of Trade Credit (per cent) |
|---|---|
| 2/10, Net 30 | 36.72 |
| 2/10, Net 45 | 20.99 |
| 2/10, Net 60 | 14.69 |
| 1/10, Net 30 | 18.18 |
| 1/10, Net 45 | 10.39 |
| 1/10, Net 60 | 7.27 |
| 2/15, Net 30 | 48.98 |
| 1/15, Net 30 | 24.24 |

*Source: ICFAI Research Center*

From the above calculations, we can make the following observations, all other factors under credit terms remaining the same.

- The higher the discount rate offered, the higher will be the cost of trade credit. This can be seen by comparing the cost of trade credit under the terms 2/10, Net 30 and 1/10, Net 30. By the same token, the smaller the discount rate offered, the lower will be the cost of trade credit.
- The smaller the spread between credit and cash discount periods, the higher will be the cost of trade credit. This can be noticed, for example, by comparing the cost of trade credit under the terms 2/10, Net 30 and 2/15, Net 30. By the same token, the larger the spread between credit and cash discount periods, the lower will be the cost of trade credit.

On the basis of the above observations, the following aspects may be considered before taking policy decisions in respect of availing oneself of or foregoing cash discounts offered by suppliers to a company.

### 13.5.3 Cost of Trade Credit vs. Opportunity Cost of Cash

First, the usual credit terms offered by suppliers give rise to a high cost of trade credit. This will inevitably result in a decision to avail oneself of cash discount. However, it is preferable to calculate the implicit cost of trade credit and compare the same with the opportunity cost of cash. A decision to avail oneself of cash discount can be taken only when the cost of trade credit exceeds the opportunity cost of cash. For example, the cost of trade credit associated with the credit terms 1/10, Net 60 and, 1/10, Net 45 are only 7.27 per cent and 10.39 per cent respectively. In such situations, foregoing cash discounts is likely to be more advantageous from the company's point of view as the opportunity cost of cash can be much higher.

**Flexibility to Cash**

Secondly, if a company could not avail itself of the cash discount facility during the stipulated time period, for some reason or the other, it is more advantageous to pay the amount only on the date of expiry of the credit period. This strategy provides greater flexibility to cash without incurring any additional cost as payments made after the discount period but before the credit period will not result in any financial gain to the company.

**Image of the Company**

Thirdly, if delaying payment even beyond the stipulated credit period is not likely to impair the credit-worthiness of a company this possibility can also be explored and utilized. However, frequent delays in payment beyond the normal credit period can adversely affect the company's image in the long run. Therefore, this course of action can be followed only when there are compelling reasons for delayed payment.

## 13.6 Short-Term Bank Finance

In addition to the spontaneous Sources of financing, there are other Sources of financing too. Among these other Sources, one major Source is short-term bank finance. Working capital finance is usually required for a short period of less than one year. Banks offer short term loans as it helps them to earn revenues and at the same time enables them to meet the demand of depositors. Thus, short term bank finance is a preferred choice for both – lenders as well as suppliers.

Traditionally, bank finance is an important Source for financing the current assets of a company. Bank finance is available in different forms. Bankers are guided by the credit-worthiness of the customer, the form of security offered and the margin requirement on the assets provided as security. These aspects will be discussed below.

Bank finance may be either direct or indirect. Under direct financing the bank not only provides the finance but also bears the risk. Cash credit, overdraft, note lending, purchase/discounting of bills belong to the category of direct financing. When the bank opens a Letter of Credit in favor of a customer, the bank assumes only the risk of default by the customer and the finance is provided by a third party. Both direct and indirect forms of finance are briefly outlined below.

### 13.6.1 Cash Credit

Under the cash credit arrangement, the customer is permitted to borrow up to a pre-fixed limit called the cash credit limit. The customer is charged interest only on the amount actually utilized, subject to some minimum service charge or maintaining some minimum balance also known as compensatory balance in the cash credit account. The security offered by the customer is in the nature of hypothecation or pledge to be discussed later in this chapter under the head security. As per the banking regulations, the margins are specified on different types of assets provided as security. From the operational view point, the amount that can be borrowed at any time is the minimum of the sanctioned limit and the value/asset as reduced by the required margin. A simple example is given below for better understanding.

**Example: Cash Credit – An Avenue for Short Term Debt**

Larsen and Toubro Infotech Limited (LTI) is a subsidiary of Larsen and Toubro Ltd. LTI provides IT services, including Application, Development, Maintenance, Enterprise Solutions, Infrastructure Management Services, Testing, Analytics, AI & Cognitive and other services. For the fiscal year 2021 the company enhanced its bank debts from Rs. 900 crore in the previous year to Rs. 970 crore. The rating agency CRISIL reconfirmed its rating for short as well as long term debts. An analysis of its enhanced debt structure reveal that LTI has taken cash credit or overdraft facility for Rs. 42 crore which was not present in the previous year. This shows the importance and the corporate's adherence to such facilities for its short term funds requirements.

*Source: https://www.crisil.com/mnt/winshare/Ratings/RatingList/RatingDocs/Larsenand ToubroInfotechLimited_April%2029,%202021_RR_269704.html Dated April 29, 2021 Accessed on 27.06.22*

**Illustration 13.1**

Fixing Margin Requirements and Drawing Power

*(₹ in lakh)*

| Particulars | Situation A | Situation B |
|---|---|---|
| 1. Sanctioned Limit | 2 | 2 |
| 2. Value of Security | 2 | 3 |
| 3. Margin Requirement | 20% (0.40) | 20% (0.60) |
| 4. Value of Security Less Margin: | 1.6 | 2.4 |
| 5. Drawing Power = (Minimum of 1 and 4) | 1.6 | 2 |

### 13.6.2 Overdraft

Overdraft arrangement is similar to the cash credit arrangement described above. Under the overdraft arrangement, the customer is permitted to overdraw up to a pre-fixed limit. Interest is charged on the amount(s) overdrawn subject to some minimum charge as in the case of cash credit arrangement. The drawing power is also determined as in the case of cash credit arrangement. Both cash credit and overdraft accounts are running accounts and are frequently treated synonymously. However, there is a minor technical difference between these two arrangements. Cash credit account operates against security of inventory and accounts receivables in the form of hypothecation/pledge. Overdraft account operates against security in the form of pledge of shares and securities, assignment of life insurance policies and sometimes even mortgage of fixed assets. While advances provided by banks in the form of cash credit or overdraft are technically repayable on demand, in actual practice it never happens. As a matter of fact, the chief executive of a nationalized bank remarked that the so-called overdraft is more permanent than term loans sanctioned by financial institutions like IDBI as the latter are repaid. While cash credit/overdraft is only re-negotiated for a further period referred to in common parlance as the "roll over phenomenon". This is peculiar to the Indian market.

### 13.6.3 Purchasing/Discounting of Bills

With a view to reduce reliance on cash credit/overdraft arrangement as also to create a market for bills which can be purchased by banks with surplus funds and sold by banks with shortage of funds, the Reserve Bank of India has been trying hard for nearly two decades for the creation of an active bill market but with very limited success.

Under this arrangement, the bank provides finance to the customer either by outright purchasing or discounting the bills arising out of sale of finished goods. Obviously, the bank will not pay the full amount but provides credit after deducting its charges. To be on the safe side, the banker will scrutinize the authenticity of the bill and the creditworthiness of the concerned organization besides covering the amount under the cash credit/overdraft limit.

Unlike open credit sale of goods which gives rise to accounts receivables, the bill system specifies the date by which the purchaser of goods has to make payment. Thus, the buyer is time-bound in his payment under this system which did not find much favor with many buyers. This is the real reason besides stamp duties etc., for the limited success of the bill market scheme.

### 13.6.4 Letter of Credit

Letter of credit is opened by a bank in favor of its customer undertaking the responsibility to pay the supplier (or the supplier’s bank) in case its customer fails to make payment for the goods purchased from the supplier within the stipulated time. Letter of credit arrangement is becoming more and more popular both in the

domestic and foreign markets. Unlike in other types of finance, where the arrangement is between the customer and bank and the bank assumes the risk of non-payment and also provides finance, under the letter of credit arrangement the bank assumes the risk while the supplier provides the credit.

### 13.6.5 Security

As mentioned earlier, before taking a decision to provide financial assistance to a company, the bank will consider the creditworthiness of the company and the nature of security offered. For providing accommodation towards financing the current assets of a company, the bank will ask for security in the form of hypothecation and/or pledge.

### 13.6.6 Hypothecation

By and large, security in the form of hypothecation is limited to movable property like inventories. Under hypothecation agreement, the goods hypothecated will be in the possession of the borrower. The borrower is under obligation to prominently display that the items are hypothecated to a specific bank. In the case of limited companies, the hypothecation charge is required to be registered with the Registrar of Companies of the state where the registered office of the company is located.

### 13.6.7 Pledge

Unlike in the case of hypothecation, in a pledge, the goods/documents are in the form of share certificates, book debts, insurance policies, etc., which are provided as security will be in the possession of the bank lending funds but not with the borrowing company. Thus possession of items of security, distinguishes pledge from hypothecation. In the event of default by the borrowing company either under hypothecation or pledge, the lender can sue the company that has borrowed funds and sell the items of security to realize the amount due.

| **Activity 13.1**<br>Business credit bureau like Dun and Bradstreet run a business credit check to gain an accurate picture on the credit worthiness of potential borrowers to extend trade credits. Narrate the implications and cost involved in extending trade credits.<br>**Answer:** |
|---|
| |
| |
| |

## 13.7 Public Deposits for Financing Current Assets

Regulations imposed on the availability of bank finance have induced many companies to explore alternative Sources for financing their current assets.

Mobilization of funds from general public, especially from the middle and upper middle class people, by offering reasonably attractive rates of interest has become an important Source, as they are mostly unsecured and more flexible. The deposits thus mobilized from public by non-financial manufacturing companies are popularly known as 'Public Deposits' or 'Fixed deposits'. These are governed by the regulations of public deposits under the Companies (Acceptance of Deposits) Amendment Rules, 1978. Let us consider the salient features of public deposits from the legal point of view and later as a Source of finance from the viewpoint of the company mobilizing such deposits.

**Example: Bajaj Capital Corporate Fixed Deposits – A Working Capital Source**

As per the Chief Product Officer, Bajaj Capital corporate fixed deposits doubled in volumes in the month of December 2021 in comparison to November 2021. The reason cited was due to the higher interest offering on these deposits in comparison to the rates offered by the banks. The differential is generally to the tune of 100 to 150 basis points. It was further emphasised that investors normally select the companies with highest credit ratings before investing. For the companies' funds raised through this, alternatives are usually used for financing the working capital requirements.

*Source: https://economictimes.indiatimes.com/markets/stocks/news/corp-fds-witness-rise-in-popularity-offer-100-150-bps-over-bank-deposits/articleshow/88485874.cms Dated Dec 25, 2021 (Accessed on 20.05.22)*

### 13.7.1 Salient Features of 'Public Deposits'

The following are the features of Public Deposits:

- A company cannot raise more than 10 per cent of its 'paid-up share capital' and 'free-reserves'. However, for the purpose of calculating the maximum amount a company can raise from public, the treatment accorded to reserves is in favor of the company. For illustration, 'capital redemption reserve' is treated as part of free reserves and 'share premium account' is treated as part of paid-up share capital. This will allow a company to raise more money even within the 10 per cent limit. Government companies can accept deposits up to 35 per cent of their paid-up share capital and free reserves.
- The maximum maturity period allowed for public deposits is three years while the minimum permitted maturity period is six months. In certain cases, a maturity period of even three months is allowed. Big and large companies invite public deposits with maturity periods of 1, 2 and 3 years.
- A company inviting deposits from the public is required to issue an advertisement disclosing the following details and the same has to be filed with the Registrar of Companies before releasing it to the press. The details contained in the advertisement are:
- Name of the company.

- Date of incorporation.
- Business carried out by the company and its subsidiary with the registered office and details of branches and units, if any.
- Particulars of the management and board of directors indicating the names, addresses and occupations.
- Profits and dividends of the company over the preceding three consecutive years.
- Summarized financial position of the company as appearing in the two latest audited balance sheets along with brief particulars of contingent liabilities.
- Declaration in respect of compliance with the provisions of Companies (acceptance of deposits) Rules as amended up-to-date; that the deposits to be accepted by the company are of unsecured nature and as such rank pari passu with other unsecured loans of the company; that compliance with rules does not imply repayment of deposits is guaranteed by the Central Government.

### 13.7.2 Evaluation of Public Deposits from the Company's Point of View

From the point of view of the company, public deposits are quite advantageous for the following reasons:

- The procedure involved in raising public deposits is fairly simple as it does not involve underwriting and related issue expenses are minimal.
- No security is offered in the case of public deposits while security in the form of hypothecation/pledge is necessary for procuring bank finance and mortgage of assets in the case of long-term debt. Thus, the unencumbered assets can be used in raising further funds from banks/financial institutions.
- The after-tax cost of public deposits will be much less than the after-tax cost of bank borrowing.
- As public deposits with maturity periods of two and three years cannot be regarded as current liabilities, the calculation of 'working capital gap' by the bankers to provide short-term finance is likely to be favorable from the company's point of view.
- Unlike term loans/bank finance, public deposits will not have restrictive covenants in respect of dividend payments, appointment of senior executives etc.

Despite the advantages associated with public deposits outlined above, there are certain limitations which have to be recognized.

- The scope for mobilization of public deposits is somewhat limited.
- With the maximum maturity period being limited to three years, debt servicing may become difficult.

– If there is a grain of truth in the allegations made in one of the reputed business magazines that some well reputed companies failed to honor their commitments in the repayment of public deposits, the middle class people may not be forthcoming to invest their hard earned savings in public deposits of companies. This has two repercussions. First, a very useful Source for financing the current assets of a company may dry up. Secondly, the Reserve Bank of India cannot afford to turn a blind eye to the malpractices/abuse of public funds and may come up with greater restrictions. Considering both pros and cons, it is obvious that the public deposits are quite advantageous from the point of view of a company.

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**Check Your Progress - 1**

1. The difference between cash credit and overdraft facility is that

   a. The limit to which the customer can draw under an overdraft is fixed while there is no limit on the amount that can be borrowed under cash credit

   b. While under overdraft interest is charged only on the amount overdrawn, under cash credit interest is charged on the credit sanctioned

   c. While cash credit is extended against a security, no security is required for overdraft

   d. Cash credit is given against the security of inventory and debtors, overdraft is generally given against shares and fixed assets

   e. While the overdraft is paid back, cash credit is generally only rolled over

2. Which statement is **true** about the terms of trade credit of 4/10, net 30?

   a. A 10% cash discount is offered for payment before 30 days

   b. A 4% cash discount can be taken for payment before the $10^{th}$ of the following month

   c. A 10% cash discount can be taken if paid by the fourth day after invoicing

   d. No cash discount is offered after eleventh day

   e. 4% cash discount is awarded for payment on the $30^{th}$ day after purchase

3. Which of the following is **not** an advantage secured to a company using public deposits to finance its current assets?

   a. The procedure of raising public deposits is very simple

   b. No security is required in case of public deposits

c. Post-tax cost of public deposits is much lesser than the post-tax cost of bank loans

d. Financing with public deposits will not increase the financial leverage

e. Public deposits do not have any restrictive covenants

4. Hypothecation is the form of working capital finance provided by the bank

a. Against the security of the movable property without ownership nor possession being transferred

b. Against the security of the property, the property being transferred physically

c. Against the security of the property where the legal title of the property is transferred to the bank

d. Wherein the bank has the right to retain the property until the claim associated with the security is fully paid

e. Wherein the bank has the right to retain the property until all the claims are settled

5. Which of the following is a spontaneous Source of financing current assets?

a. Cash credit

b. Provision for taxes

c. Owner's equity

d. Letter of credit

e. Overdraft

6. Which of the following is a Source of short-term finance?

a. Term loan

b. Debentures

c. Note lending

d. Equity capital

e. Preference capital

## 13.8 Commercial Paper

Sometimes, companies need large amounts of funds for short term duration. Commercial Paper allows companies to raise such amounts without a security

backup at discount rates lower than the bank finance rates. The CP is used for working capital requirements.

Commercial Papers (CPs) are short-term usance promissory notes with a fixed maturity period, issued mostly by leading, reputed, well-established, large corporations who have a very high credit rating. It can be issued by body corporates whether financial companies or non-financial companies. Hence, it is also referred to as Corporate Paper.

**Example: CP Issuance in 2020-2021**

According to the Reserve Bank of India data, the monthly fresh issuance of commercial papers jumped over 37 per cent year-on-year to ₹1.71 lakh crore in June 2021 against ₹1.25 lakh crore during the same month in the previous year. The data further showed that the monthly commercial paper issuance of ₹2.24 lakh crore in March 2021 was the highest since April 2020. Commercial paper issuance was on the rise among the Indian corporate houses as more and more entities are now raising short term funds through this instrument to finance their working capital requirements. Another factor behind the rise in the issue of these instruments was although banks have enough liquidity they have become risk averse and hence reluctant to disburse credit.

*Source: https://www.thehindubusinessline.com/data-stories/data-focus/commercial-paper-issuances-by-corporates-gather-steam-despite-second-covid-wave/article35452135.ece Dated July 21, 2021(Accessed on 20.05.22)*

CPs are mostly used to finance current transactions of a company and to meet its seasonal need for funds. They are rarely used to finance the fixed assets or the permanent portion of working capital. The rise and popularity of CPs in other countries like USA, UK, France, Canada and Australia, has been attributed to the limitations and difficulties they experienced in obtaining funds from banks.

## 13.9 Factoring

One major component of current assets is receivables. The risk involved with receivables is that the realization time and possibility of default by the debtor. Factoring imparts liquidity to receivables and offers protection to the firms against bad debts.

Factoring is a "continuing" arrangement between a financial intermediary called a "Factor" and a "Seller" (also called a client) of goods or services. Based on the type of factoring, the factor performs the following services in respect of the Accounts Receivables arising from the sale of such goods or services.

- Purchases all accounts receivables of the seller for immediate cash
- Administers the sales ledger of the seller
- Collects the accounts receivable

– Assumes the losses which may arise from bad debts

– Provides relevant advisory services to the seller

Factors are usually subsidiaries of banks or private financial companies. It is to be noted that factoring is a continuous arrangement and not related to a specific transaction. This means that the factor handles all the receivables arising out of the credit sales of the seller company and not just some specific bills or invoices as is done in a bills discounting agreement.

**Example: NBFC Factors as Key MSME Market Players**

In April 2022, 121 Finance became the first NBFC-Factor in India post revised regulations with the Certificate of Registration under Registration of Factors (Reserve Bank) Regulations, 2022. Overall, it was the eighth NBFC-Factor in India eligible to undertake the factoring model. The revised regulation consequent to the amended Factoring Regulation Act, 2011 allowed approximately 9000 NBFCs to participate in the factoring process. The amendment in the Act does away with some stringent norms related to capital and reporting requirements. Although factoring services were available on the RBI registered TReDS platform but this catered to the large corporates as one of its requirements was that the customer, whose bill was factored, should have a minimum turnover of Rs. 500 crore. With change in regulation, entities like 121 Finance will be able to cater to the vast MSME market who have a customer base with very low turnover.

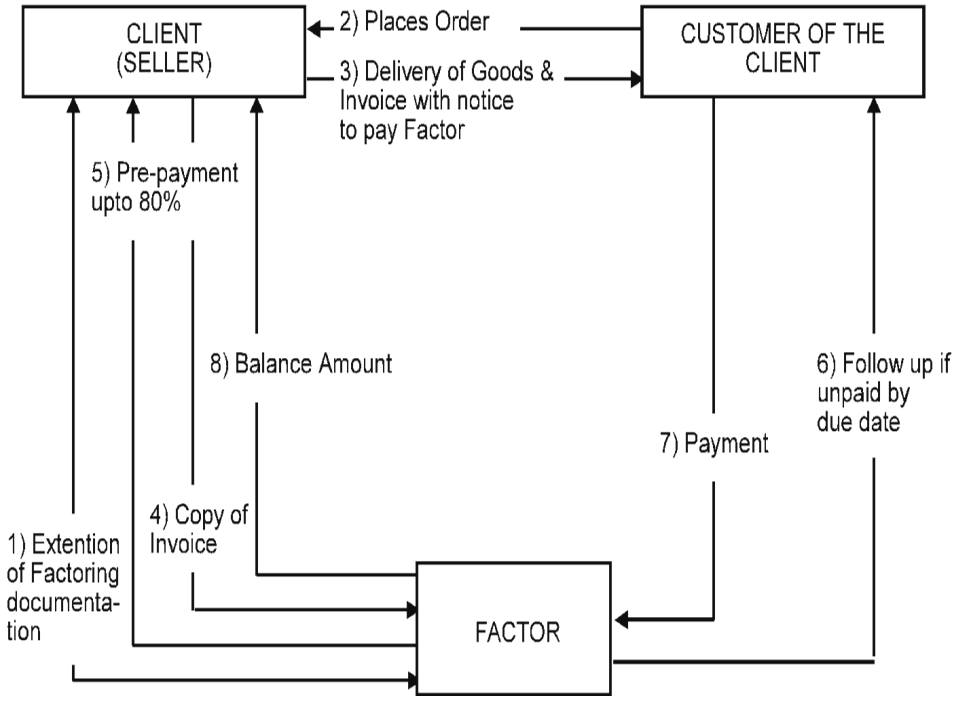
*Source: https://www.financialexpress.com/industry/sme/msme-fin-how-indias-first-nbfc-into-factoring-post-revised-rbi-regulations-is-helping-msmes-unlock-cash-in-unpaid-invoices/2510556/ Dated May 2, 2022(Accessed on 20.05.22)*

### 13.9.1 Mechanics of Factoring

The factoring arrangement starts when the seller (client) concludes an agreement with the factor, wherein the limits, charges and other terms and conditions are mutually agreed upon. From then onwards, the client will pass on all credit sales to the factor. When the customer places the order, and the goods along with invoices are delivered by the client to the customer, the client sells the customers account to the factor and also informs the customer that payment has to be made to the factor. A copy of the invoice is also sent to the factor. The factor purchases the invoices and makes prepayment, generally up to 80% of the invoice amount. (Just as in the case of cash credit, for factoring also, a "drawing power" is fixed based on a margin which is normally around 20%. The client is free to withdraw funds up to the drawing power). The factor sends monthly statements showing outstanding balances to the customer, copies of which are also sent to the client. The factor also carries follow-up if the customer does not pay by the due date. Once the customer makes payment to the factor, the balance amount due to the client is paid by the factor.

The factoring process is explained in Figure 13.2.

**Figure 13.2: Mechanics of Factoring**




*Source: ICFAI Research Center*

### 13.9.2 Servicing and Discount Charges

For rendering the services of collection and maintenance of sales ledger, the factor charges a commission which varies between 0.4% to 1% of the invoice value, depending upon the volume of operations. This service charge is collected at the time of purchase of invoices by the factor. For making an immediate part-payment to the client, the factor collects discount charges from the client. These discount charges are comparable to bank interest rates in that it is calculated for the period between the date of advance payment by the factor to the client and the date of collection by the factor from the customer. These are collected monthly.

### 13.9.3 Types of Factoring

Factoring can be classified into many types. This section covers only those forms of factoring which are more prevalent in India today.

1. **Recourse Factoring:** Under recourse factoring, the factor purchases the receivables on the condition that any loss arising out of irrecoverable receivables will be borne by the client. In other words, the factor has recourse to the client if the receivables purchased turn out to be irrecoverable.
2. **Non-Recourse or Full Factoring:** As the name implies, the factor has no recourse to the client if the receivables are not recovered, i.e., the client gets

total credit protection. In this type of factoring, all the components of service viz., short-term finance, administration of sales ledger and credit protection are available to the client.

3. **Maturity Factoring:** Under this type of factoring arrangement, the factor does not make any advance or pre-payment. The factor pays the client either on a guaranteed payment date or on the date of collection from the customer. This is as opposed to "Advance factoring", where the factor makes prepayment of around 80% of the invoice value to the client.
4. **Invoice Discounting:** Strictly speaking, this is not a form of factoring because it does not carry the service elements of factoring. Under this arrangement, the factor provides a pre-payment to the client against the purchase of accounts receivables and collects interest (service charges) for the period extending from the date of pre-payment to the date of collection. The sales ledger administration and collection are carried out by the client.

In terms of the services available to the client, these 4 types of factoring can be illustrated with the help of Table 13.2:

**Table 13.2: Comparison of the Types of Factoring**

| The Service / Types of Factoring | Short-term Finance | Sales Ledger Administration | Credit Protection |
|---|---|---|---|
| Recourse Factoring | ✓ | ✓ | × |
| Non-recourse Factoring | ✓ | ✓ | ✓ |
| Maturity Factoring | × | ✓ | × |
| Invoice Discounting | ✓ | × | × |

*Source: ICFAI Research Center*

There are also other types of factoring such as Bank Participation Factoring, Supplier Guarantee Factoring, and Cross Border or International Factoring which are beyond the scope of this unit.

### 13.9.4 Factoring in India

While factoring in the modern sense of the term is more than three decades old in Europe and other developed countries, it came to India as a result of the recommendations of the 'Kalyansundaram Committee', a study group set up at the request of RBI, much later. The first two factoring companies in India, viz., SBI Factors and Commercial Services Ltd., and Canbank Factors Ltd., commenced operations in 1991. These companies provide only recourse factoring at present. Private financial companies have also started entering the factoring arena.

## 13.10 Regulation of Bank Credit

Bank credit has the predominant form of working capital finance in India due to the extensive reach of banking network. Due to the over emphasis on this form of finance, there is need for stringent regulations that ensure that the finances are used for development activities.

Traditionally, bank finance is an important Source of financing the current assets of companies. The banking sector provides the funds so long as there is adequate security for the funds lent. The security-oriented approach followed by the banking sector has resulted in over-financing large and, to some extent, medium scale companies who could provide adequate security. As a result, those companies could utilize the money for piling up stocks with a view to derive holding period gains as the rate of inflation was high and for the diversion of bank finance, which is basically meant to meet the short-term credit needs, for acquiring fixed assets.

In the wake of nationalization of major banks in 1969, the banking sector was called upon to act as a catalyst in the overall development of different sections of society. The development potential approach had to be adopted by the banking sector in place of security-oriented approach. Consequently, the demand on bank finance went up considerably. This resulted in focusing attention on the weaknesses of the system followed by the banks earlier.

First, the cash credit/overdraft system followed by the banks had been tilted to favor borrowers rather than the banks. Once the cash credit limit is decided, the quantum of funds to be utilized is decided by the needs of the borrower and not on the availability of funds lying with the bank at that point in time. As a result, credit planning by the banks became extremely difficult.

Secondly, the banks are called upon to provide financial assistance to weaker sections of the society who may not be in a position to provide security.

Thirdly, large and medium borrowers abused bank finance to acquire stock much more than warranted by the production programs and to divert funds for other uses unrelated to working capital.

It is against this backdrop, that the Reserve Bank of India appointed some special study groups for streamlining the practices followed by banks so that the weaknesses of the existing practices are removed and a better sense of direction provided to the banking sector. We shall confine ourselves to four important committees. These are – the Tandon Committee, the Chore Committee, the Marathe Committee and the Kannan Committee.

**Example: Diversion of Bank's funds through misappropriation**

According to the Central Bureau of Investigation (CBI), ABG Shipyard Ltd, (ABG SL) a Gujrat based ship building firm, defrauded a consortium of 28 banks including State Bank of India, IDBI and ICICI Bank in excess of Rs. 22000 crore between the years 2012 to 2017. As per CBI Sources, ABG SL took loans from these banks and then diverted them. It allegedly made investments in overseas subsidiaries from the loan amounts, bought assets in the names of affiliated companies, and also transferred money to several related parties. The alleged fraud came to light during a forensic audit that Ernst and Young LLP conducted in January 2019, for a period between April 2012 and July 2017. The audit found that the fraud had taken place during this period through diversion of funds, misappropriation, and criminal breach of trust, with an objective to gain unlawfully at the cost of the bank's funds.

*Source:https://theprint.in/theprint-essential/5-years-28-banks-rs-23000-cr-debt-how-abg-shipyard-pulled-off-indias-biggest-bank-fraud/831696/ Dated Feb 15, 2022 Accessed on 27.06.2022*

## 13.11 Recommendations of the Tandon Committee

It has been explained in the above paragraphs that bank finance is a predominant Source of working capital finance. However, prior to 1974 banks did not have a structured methodology for arriving at the quantum of finance that can be granted to a firm. This issue was solved by the Tandon Committee recommendations that form the basis for grant of credit by banks in India.

The Reserve Bank of India (RBI) constituted in July 1974 a study group, to frame guidelines for the follow-up of bank credit programs under the chairmanship of P.L.Tandon. The report submitted by the committee in August, 1975 is popularly referred to as the Tandon Committee Report. The terms of reference for the committee were:

- To suggest guidelines for commercial banks to follow up and supervise credit to ensure proper end-use of funds and to keep a watch on the safety of the advances and to suggest the type of operational data and other information that may be obtained by banks periodically from such borrowers and by the Reserve Bank of India from the lending banks.
- To make recommendations for obtaining periodical forecasts from borrowers of (a) business/production plans and (b) credit needs.
- To make suggestions for prescribing inventory norms for different industries both in the private and public sectors and indicate the broad criteria for deviating from these norms.
- To suggest criteria regarding satisfactory capital structure and sound financial basis in relation to borrowings.

- To make recommendations regarding the Sources for financing the minimum working capital requirements.
- To make recommendations as to whether the existing pattern of financing working capital requirements by cash credit/overdraft system etc., requires to be modified, and if so, to suggest suitable modifications, and
- To make recommendations on any other related matter as the group may consider germane to the subject of enquiry or any other allied matter which may be specifically referred to it by the Reserve Bank of India.

The study group reviewed the existing practices, obtained views from different associations of industries, chambers of commerce and executives and came up with a comprehensive set of recommendations. These may be broadly grouped under the following four heads outlined below.

### 13.10.1 Norms for Inventory and Receivables

The Committee has come out with a set of norms that represent the maximum levels for holding inventory and receivables in each of 15 major industries, covering about 50 per cent of industrial advances of banks. As norms cannot be rigid, deviations from norms can be permitted under extenuating circumstances such as bunched receipt of raw materials including imports, power-cuts, strikes, transport bottlenecks etc., for usually short periods. Once normalcy is restored, the norms should become applicable. The norms should be applied to all industrial borrowers with aggregate limits from the banking system in excess of ₹ 10 lakh and extended to smaller borrowers progressively.

### 13.10.2 Approach to Lending

- As a lender, the bank should only supplement the borrower's resources in carrying a reasonable level of current assets in relation to his production requirements.
- The difference between total current assets and current liabilities other than bank borrowing is termed as working capital gap. The bank should finance a part of the working capital gap and the balance should be financed through long-term Sources comprising equity and long-term borrowings.
- Three alternative methods have been suggested for calculating the maximum permissible bank borrowing. These methods will progressively reduce the maximum permissible bank borrowing. These three methods are explained by means of a numerical illustration which indicates the projected financial position as at the end of the next year.

**Illustration 13.2**

The financial position of Simplex Co. Ltd., has been projected for the forthcoming year as summarized below:

Projected Current Assets and Current Liabilities

| Current Liabilities | (₹ in lakh) | Current Assets* | (₹ in lakh) |
|---|---|---|---|
| Accounts Payable | 150 | Raw Materials | 250 |
| Other Current Liabilities | 50 | Work-in-Process | 50 |
| | | Finished Goods | 150 |
| | 200 | Receivables | 90 |
| Bank borrowings (including bills discounted with banks) | 360 | (including bills discounted with banks) | |
| | | Other Current Assets | 20 |
| | 560 | | 560 |

* As per suggested norms or past practice, whichever is lower, in relation to projected production for the forthcoming year.

Under Method I, the bank will finance at the most 75 percent of the working capital gap i.e., maximum permissible bank finance = 0.75 (Current Assets - Current Liabilities).

This method will ensure a minimum current ratio of unity.

Under Method II, the borrower will finance 25 percent of total current assets (140) through long-term Sources. The bank will finance at the most 220 of the working capital gap (360 – 140). i.e., maximum permissible bank finance = (0.75 x Current Assets) –Current Liabilities. This method will ensure a current ratio of 1.33.

Under Method III, there will be further reduction in bank borrowings which will ensure a still higher current ratio. The amount of excess borrowing calculated as the difference between the amount of bank borrowing and the maximum permissible bank borrowing to which the borrower is eligible will be converted into a term loan, that is to be repaid over a suitable period, depending upon the cash generating capacity and ability to raise additional equity etc., i.e., maximum permissible bank finance = 0.75 (Current Assets – Core Current Assets) – Current Liabilities.

**Method I**

| Particulars | ₹ |
|---|---|
| Total Current Assets: | 560 |
| Less : Current Liabilities other than Bank Borrowings | 200 |
| Working Capital Gap | 360 |
| 25% of above from long-term Sources | 90 |
| Maximum Permissible Bank Borrowings (75% of 360) | 270 |
| Excess Borrowing: | 90 |
| Current Ratio = $\frac{560}{470}$ | 1.19 |

**Method II**

| Particulars | ₹ |
|---|---|
| Total Current Assets: | 560 |
| 25% of above from long-term Sources | 140 |
| 75% of current assets | 420 |
| Less : Current Liabilities other than Bank Borrowings | 200 |
| | 220 |
| Working Capital Gap | 360 |
| Maximum Permissible Bank Borrowings | 220 |
| Excess Borrowing: | 140 |
| Current Ratio = $\frac{560}{420}$ | 1.33 |

**Method III**

| Particulars | ₹ |
|---|---|
| Total Current Assets: | 560 |
| Less: 'Core' Current Assets (illustrative figure) from long-term Sources | 100 |
| Real Current Assets | 460 |
| 25% of above long-term Sources | 115 |
| | 345 |
| Less: Current liabilities other than Bank Borrowings | 200 |
| | 145 |
| Working Capital Gap: | 360 |
| Maximum Permissible Bank Borrowings | 145 |
| Excess Borrowing: | 215 |
| Current Ratio = $\frac{560}{345}$ | 1.62 |

In the illustration above, we have seen how the maximum permissible borrowing limit can be ascertained. However, in a practical sense, banks consider the working capital limits for borrowers based on certain guidelines issued from time to time. These guidelines will be used for calculation of working capital finance requirement. These limits that the banks give from occasionally are referred to as "drawing power". Drawing power is used for both cash credit and overdraft facilities extended to borrowers.

The drawing power is arrived at on the basis of valuation of current assets charged to the bank in the shape of hypothecation and assignment, after deducting the stipulated margin. The current assets that are considered are stock less creditors and book debts. The drawing power may be revised every month or quarter by taking the closing balance of stock less creditors and book debts on that date.

One point worth noting is that the stock that is to be considered for computation of drawing power should be insured stock.

Thus, drawing power is ascertained by taking stock less creditors plus book debts minus a specified margin. The margin refers to the funds or brought into the business by way of long term Sources.

### 13.10.3 Style of Credit

The Tandon Committee suggested the following:

– Instead of making available the amount to which a borrower becomes eligible, the bank may bifurcate the credit limit into a loan and a demand cash credit, which will be reviewed annually.

**Example: Bifurcation of Working Capital Loan**

Tata Metaliks a subsidiary of Tata Steel is engaged in producing pig iron and ductile iron pipes in India. For the fiscal year ended on 31st March 2020 its total short term borrowings stood at Rs. 21,138.86 Lakh. While this borrowing was predominantly for its working capital requirements but the bifurcation of the borrowing in various components along with its interest and repayment terms were as follows:

- Secured working capital demand loan – Rs. 3200 lakh. Loan carrying a fixed and floating rate ranging from 6.95% to 7.65% p.a. Loan is payable on demand.
- Unsecured working capital demand loan – Rs 10,543.37 lakh. Loan carrying a fixed and floating rate ranging from 7.10% to 8.00% p.a. Loan is payable on demand.
- Buyer's credit from Banks – Rs. 7,395.49 lakh. Buyer's Credit from banks carry fixed rate of interest ranging from 1.54% p.a.to 2.56% p.a. These are repayable after 3 months from drawdown date starting from April'2020.

It shows how the working capital loan is broken into various components, each having its unique repayment and interest structures. It can be seen in line with the recommendations of the Tandon committee.

*Source: https://www.tatametaliks.com/investors/annual-reports.aspx 2020-21 (Accessed on 28.06.2022)*

– The irreducible minimum level of borrowing which is expected to be used throughout the year will comprise the loan component while the fluctuating part will be taken care of by the cash credit component.
– As the loan component carries interest throughout the year it will induce financial discipline on the part of the borrower to plan his credit needs carefully.
– As the intention of the proposed approach is to ensure financial discipline on the part of the borrower the interest rate structure can be charged such that, the rate of interest on loan component is lower than the rate of interest on cash credit component while the rate of interest chargeable on excess

borrowing converted into a term loan should carry a slightly higher interest rate than the cash credit component.

– A part of the total eligible amount could also be provided by way of bill limits to finance the selling company's receivables, besides the cash credit and loan components. This is likely to ensure proper-end-use of credit.

### 13.10.4 Information System

The information system suggested by the committee is intended to induce better planning of the credit needs by the borrowing company, ensure end-use of credit for the intended purpose and to ensure better monitoring of the borrower's credit situation by the banker. Keeping these aspects in view, the committee recommended a quarterly budgeting-cum-reporting system. The following statements are to be submitted by the borrowing company.

– Quarterly profit and loss statement giving details of previous year's actuals, current year's budget, previous quarter's budget and actuals, and current quarter's projections of revenues, costs and profit.

– Quarterly statement of current assets and current liabilities giving details of raw material inventory (imported and indigenous) work-in-process; finished goods and consumable stores; receivables; advances to suppliers and other current assets and current liabilities.

– Half-yearly pro forma balance sheet and profit and loss statement within two months.

– Annual audited accounts within three months and

– Monthly stock statement in required detail so as to enable the banker to reconcile stocks of raw materials and finished goods.

The Tandon Committee identified the problems associated with cash credit system and recommended for the bifurcation of the credit limit into a loan component and a fluctuating cash credit component. The information system recommended by the committee is intended to ensure proper end-use of credit besides introduction of financial discipline on the part of borrowing companies.

## 13.12 Recommendations of Chore Committee

The Chore Committee analyses a popular type of short-term bank finance – cash credit. The committee recommendations are crucial for understanding the concept of sanctioned limits and their utilization.

Various committees constituted by the Reserve Bank of India including the Tandon Committee had pointed out the drawbacks of the cash credit system. Though the Tandon Committee had recommended for the bifurcation of the credit limit into a demand loan and a fluctuating cash credit component, the progress achieved in this respect had been very slow. Consequently, a small working group

was set up by the Reserve Bank of India under the chairmanship of K. B. Chore in April 1979 with specific terms of reference outlined below:

### 13.11.1 Terms of Reference of the Chore Committee

- To review the operation of the cash credit system in recent years, particularly with reference to the gap between sanctioned credit limits and the extent of their utilization;
- In the light of the review, to suggest:
- Modifications to the system with a view to making the system more amenable to rational management of funds by commercial banks and/or
- Alternative types of credit facilities, which would ensure greater credit discipline and also enable banks to relate credit limits to increases in output or other productive activities, and
- To make recommendations on any other related matter as the group may consider germane to the subject.

The Working Group had analyzed the existing data in respect of cash credit/overdraft by the banking sector, practices followed by other countries and submitted its report on August 31, 1979. The recommendations of the Chore Committee were accepted by the Reserve Bank of India and implemented by the commercial banks. Summary of the recommendations made by the committee is presented below:

1. The advantages of the existing system of extending credit by a combination of the three types of lending, viz., cash credit, loan and bill should be retained. At the same time, it is necessary to give some directional changes to ensure that wherever possible the use of cash credit would be supplanted by loans and bills. It would also be necessary to introduce necessary corrective measures to remove the impediments in the use of bill system of finance and also to remove the drawbacks observed in the cash credit system.
2. Bifurcation of cash credit limit into a demand loan portion and a fluctuating cash credit component has not found acceptance either on the part of the banks or the borrowers. Such bifurcation may not serve the purpose of better credit planning by narrowing the gap between sanctioned limits and the extent of utilization thereof. It is not likely to be voluntarily accepted nor does it confer enough advantages to make it compulsory.
3. The need for reducing the over-dependence of the medium and large borrowers – both in the private and public sectors – on bank finance for their production/trading purposes is recognized. The net surplus cash generation of an established industrial unit should be utilized partly at least for reducing borrowing for working capital purposes.

**Example: IPO Proceeds 'as' Working Capital**

MTAR Technologies was engaged in various strategic sectors like nuclear space, defence and clean energy. The company was also working towards various indigenisation programs in these sectors. The company also came out with an initial public offering in the year 2021. In March 2021, the managing director of the company, Mr. P. Srinivas Reddy, disclosed in an interview that the company would utilise the proceeds collected from the IPO in funding its needs for the working capital in the future expansion plans of the company. In doing this, the company desired to reduce its dependence on bank finance for its working capital requirements.

*Source: https://economictimes.indiatimes.com/markets/expert-view/mtar-technologies-to-use-ipo-proceeds-to-retire-debt-and-for-working-capital-p-srinivas-reddy/articleshow/81511637.cms Dated March 15, 2021 (Accessed on 20.05.22)*

4. In order to ensure that the borrowers do enhance their contributions to working capital and to improve their current ratio, it is necessary to place them under the second method of lending recommended by the Tandon Committee which would give a minimum current ratio of 1.33:1. As many of the borrowers may not be immediately in a position to work under the second method of lending, the excess borrowings should be segregated and treated as a working capital term loan which should be made repayable in installments. To induce the borrowers to repay this loan, it should be charged a higher rate of interest. For the present, the group recommends that the additional interest may be fixed at two per cent per annum over the rate applicable on the relative cash credit limits. This procedure should be made compulsory for all borrowers (except sick units) having aggregate working capital limits of ₹ 10 lakh and over.
5. While assessing the credit requirements, the bank should appraise and fix separate limits for the 'normal non-peak level' as also for the 'peak level' credit requirements indicating also the periods during which the separate limits would be utilized by the borrower. This procedure would be extended to all borrowers having working capital limits of ₹ 10 lakh and above. One of the important criteria for deciding such limits should be the borrowers' utilization of credit limits in the past.
6. If any ad hoc or temporary accommodation is required in excess of the sanctioned limit to meet unforeseen contingencies, the additional finance should be given, where necessary through a separate demand loan account or a separate 'non-operable' cash credit account. There should be a stiff penalty for such demand loan or 'non-operable' cash credit portion, at least two per cent above the normal rate, unless Reserve Bank exempts such penalty. This discipline may be made applicable in cases involving working capital limits of ₹ 10 lakh and above.

7. The borrower should be asked to give his quarterly requirement of funds before the commencement of the quarter on the basis of his budget, the actual requirement being within the sanctioned limit for the particular peak level and non-peak level periods. Drawings less than or in excess of the operative limit so fixed (with a tolerance of 10 per cent either way) but not exceeding sanctioned limit would be subject to a penalty to be fixed by the Reserve bank from time to time. For the time being, the penalty may be fixed at 2 per cent per annum. The borrower would be required to submit his budgeted requirements in triplicate and a copy would be sent immediately by the branch to the controlling office and the Head Office for record. The penalty would be applicable only in respect of parties enjoying credit limits of ₹ 10 lakh and above, subject to certain exemptions.
8. The non-submission of the returns in time is partly due to certain features in the forms themselves. To get over this difficulty, simplified forms have been proposed. As the quarterly information system is part and parcel of the revised style of lending under the cash credit system, if the borrower does not submit the return within the prescribed time, he should be penalized by charging for the whole outstanding in the account at a penal rate of interest, one per cent per annum more than the contracted rate for the advance from the due date of the return till the date of its actual submission.
9. Requests for relaxation of inventory norms and for ad hoc increases in limits should be subjected to close scrutiny by banks and agreed to only in exceptional circumstances.
10. The banks should devise their own check lists in the light of the instructions issued by the Reserve Bank for the scrutiny of data at the operational level.
11. Delays on the part of banks in sanctioning credit limits could be reduced in cases where the borrowers co-operate in giving the necessary information about their past performance and future projections in time.
12. As one of the reasons for the slow growth of the bill system is the stamp duty on usance bills and difficulty in obtaining the required denominations of stamps, these questions may have to be taken up with the State Governments.
13. Banks should review the system of financing book debts through cash credit and insist on the conversion of such cash credit limits into bill limits.
14. A stage has come to enforce the use of drawee bills in the lending system by making it compulsory for banks to extend at least 50 per cent of the cash credit limit against raw materials to manufacturing units whether in the public or private sector by way of drawee bills. To start this, discipline should be confined to borrowers having aggregate working capital limits of ₹ 50 lakh and above from the banking system.

15. Banks should insist on the public sector undertakings/large borrowers to maintain control accounts in their books to give precise data regarding their dues to the small units and furnish such data in their quarterly information system. This would enable the banks to take suitable measures for ensuring payment of the dues to small units by a definite period by stipulating, if necessary, that a portion of limits for bills acceptance (drawee bills) should be utilized only for drawee bills of small scale units.

16. To encourage the bill system of financing and to facilitate call money operations, an autonomous financial institution on the lines of the Discount Houses in the U.K. may be set up.

17. No conclusive data is available to establish the degree of correlation between production and quantum of credit at the industry level. As this issue is obviously of great concern to the monetary authorities, the Reserve Bank may undertake a detailed scientific study in this regard.

18. Credit control measures to be effective will have to be immediately communicated to the operational level and should be followed up. There should be a 'Cell' attached to the Chairman's office at the Central Office of each bank to attend to such matters. The Central Offices of banks should take a second look at the credit budget as soon as changes in credit policy are announced by the Reserve Bank and revise their plan of action in the light of the new policy and communicate the correct measures to the operational levels as quickly as possible.

19. Banks should give particular attention to monitor the key branches and critical accounts.

20. The communication channels and systems and procedures within the banking system should be toned up so as to ensure that minimum time is taken for collection of instruments.

21. Although banks usually object to their borrowers dealing with other banks without their consent, some of the borrowers still maintain current accounts and arrange bill facilities with other banks, which vitiate the credit discipline. Reserve Bank may issue suitable instructions in this behalf.

## 13.13 Recommendations of the Marathe Committee

With a view to regulate the growth of bank credit, the Reserve Bank of India has advised all commercial banks to obtain its prior authorization before sanctioning credit limit to any single party with a limit of ₹ 1 crore or above from the entire banking sector. This was felt imperative as the economy was passing through a period of considerable stress during 1965 and the stipulation of the Reserve Bank provided an additional measure of credit regulation for ensuring greater alignment of bank credit to the requirements of the plan. This regulation of RBI is the genesis for what has come to be known more popularly as the Credit

Authorization Scheme (CAS). The Marathe Committee in 1982 reviewed the working of this scheme and gave important suggestions regarding classification current assets and liabilities, maintenance of current ratio that need to be adhered to by any firm seeking a loan under CAS.

Since 1965 many changes took place. These include – the nationalization of banks in 1969; the fixing up of percentages of bank credit to priority sector borrowers such as small scale industries, agriculture etc; the recommendations of Dehejia Committee report which highlighted the need for banks to take into consideration a broad view of the borrowers operations rather than be guided solely by security orientation; the recommendations of Tandon and Chore Committees which underlined the need for banks to switch over from security oriented approach to 'end-use' or 'need-based' approach that called for greater financial discipline on the part of banks as well as borrowers; the Krishnaswamy Committee report of 1980 which provided guidelines for fixing sub-targets for 'weaker' sectors in the wake of 20 Point Program in 1976; and Integrated Rural Development Program in 1979; and the recommendations of the Ghosh Committee report in 1982 which refined further the definitions and 'Groups' needing special attention in lending operations. In the light of these changes, the credit authorization scheme also underwent several changes. The credit limit originally fixed at ₹ 1 crore has been progressively increased to ₹ 3 crore and later in certain cases to ₹ 5 crore. It is against this backdrop that the Reserve Bank of India, set up a committee under the chairmanship of S. S. Marathe in November, 1982 with the following terms of reference.

### 13.13.1 Terms of Reference of the Marathe Committee

- To examine the objectives, scope and content of the scheme, and make suggestions with regard to making modifications therein, if any, having regard to the changing economic situation.
- To examine the adequacy or otherwise of the credit appraisal machinery/procedures in commercial banks, and based thereon, suggest modifications, if any, in the modalities in this behalf.
- To study the existing set-up for compliance with the requirements of the scheme within the commercial banks at the head and regional office levels and suggest any modifications therein considered necessary to facilitate proper appraisal and expeditious disposal of applications and monitoring thereof.
- To examine the existing data base relevant for making recommendations by banks to Reserve Bank of India for authorizing a given level of credit for a particular party and suggest modification/ simplification, if any, in that behalf.

- To examine the existing format for submitting applications by banks to Reserve Bank of India in respect of seeking authorization and suggest modifications therein, if necessary.
- To study the desirability of introducing time bound guidelines to be observed within commercial banks and Reserve Bank for speeding up the processing and disposal of applications.
- To make any other recommendations which are germane to the scheme.

### 13.13.2 Broad-basing the Objectives of Credit Authorization Scheme (CAS)

After making a thorough study of CAS (Credit Authorization Scheme) in its historical perspective, the committee had followed broad-based objectives of CAS whose initial aim was to closely align the growth of bank credit with the requirements of the plan and use it as an additional measure of credit regulations. The enlarged objectives of CAS are:

- To ensure that additional bank credit is in conformity with the approved purposes and priorities and that the bigger borrowers do not pre-empt scarce reSources;
- To enforce financial discipline on the larger borrowers, where necessary, on uniform principles;
- Where a borrower is financed by more than one bank, to ensure that the customer's proposal is assessed in the light of the information available with all the banks; and
- To bring about improvements in the techniques of credit appraisal by banks and their system of follow-up.

**Example: Lenders Consortium 'to finance' Air India**

Tata Sons won the bid to acquire the national carrier Air India along with its subsidiary Air India Express in October 2021. In order to finance its future operations and working capital requirements, it approached leading banks for funds. The large lenders included State Bank of India, Punjab National Bank, Bank of Baroda, and Union Bank of India. The lenders formed a consortium led by the State Bank of India to evaluate and process the funding requirements. Thus instead of applying and getting evaluated individually by each lender, the company could get the processing done at a single point.

*Source: https://www.business-standard.com/article/pti-stories/tatas-gets-loan-commitment-from-sbi-led-consortium-for-air-india-122012700704_1.html Dated Jan 27, 2022 (Accessed on 20.05.22)*

## 13.14 Kannan Committee Recommendations

The Kannan committee addresses the inherent limitations in the methodology adopted as per the Tandon committee recommendations for grant of bank credit. It suggests a more practical approach that is implemented by banks today.

Kannan Committee headed by Bank of Baroda Chairman, K. Kannan, was formed on the suggestion of the Reserve Bank of India in January, 1997 to examine the validity of the MPBF concept, and to suggest what could replace it. The report submitted in March, 1997 gave the following recommendations:

The report suggested doing away with the prescribed uniform formula for MPBF with the bank having sole discretion to determine the borrowing limits of corporates.

In a significant move, the committee has said that developing the modalities of working capital assessment of borrowers will be left to the banks, which may devise a flexible system. Corporate borrowers may be allowed to issue short-term working capital debentures of 12-18 months' maturity and banks may subscribe to such debentures as working capital assistance.

**Example: Debenture Issue 'to induct' Working Capital**

Infra.Market was a privately held start-up with valuation in excess of $ 1 billion. In February 2021, it was declared as a Unicorn in India. The company was engaged in providing business to business market place for construction materials. In December 2021, the company raised Rs 200 crore to fund its working capital requirements. Funds were raised by issuing debentures to a group of investors led by financial institution Avendus. The tenure of the instrument was for three years. In doing this, the company resorted to an alternative channel to finance its working capital requirement as suggested by the Kannan committee.

*Source: https://economictimes.indiatimes.com/tech/funding/infra-market-raises-rs-200-crore-debt-funding/articleshow/88515514.cms Dated Dec 27, 2021 (Accessed on 20.05.22)*

Alternatively, borrowers with working capital requirements of over ₹ 20 crore may be granted working capital facility in full by way of a demand loan. Borrowers with requirements of over ₹ 10 crore up to ₹ 20 crore may have a loan component of 75 per cent.

Interest rate incentives will be provided to borrowers availing full working capital finance by way of loan component. Also, margin and holding level of stocks, book-debts, etc., as security for working capital facility, may entirely be left to the discretion of the financing bank. The current benchmark ratio of 1.33 and matters relating to the ideal debt-equity ratio of the borrower should also be left to the discretion of the financing bank. Borrowers have to obtain prior approval for investment of funds outside the business, like inter-corporate deposits, investment in associate concerns or in other investments.

The committee recognizes that the existing norms/guidelines as prescribed by the Tandon-Chore Committee in 1974 do not serve the needs of the productive sectors of the economy. It recommended that need-based working capital finance should be made available without sticking to an age-old rule which may have largely outlived its utility.

## 13.15 Nayak Committee Recommendations

The working capital assessment methods outlined at the beginning of the unit have been developed based on the recommendations of Nayak Committee. This committee's recommendations are more useful for MSMEs[5].

A committee headed by P R Nayak, ex-Deputy Governor of RBI, was set up in December, 1991 to look into the adequacy of the institutional credit to SSI sector, suggest modifications to the financing norms to SSI as per Tandon-Chore Committee norms and revisions, if any, for the rehabilitation of sick SSI units. Among them the relevant portions for the computation of working capital are that the working capital requirement of SSI should be worked out based on the projected turnover and the limit should be to the extent of 20% of such projected turnover. This recommendation was accepted and the process of assessment of working capital requirement was made very simple and easy. But the onus lies with the bank to check up the genuineness of the projected turnover. If the request for working capital is from a new borrower who is starting the venture, the bank has to compare the projected turnover with the performance of already existing entrepreneurs in the same industry. If the proposal is for a renewal of the existing limit of working capital, the projected enhanced turnover should be studied from the angle of previous years' performance and the possible trend that could be extrapolated.

**Example: GST OD – A Platform 'to facilitate' Working Capital Needs**

ICICI Bank has a product called GST OD which was unique as it gives quick overdraft (OD) facility to MSMEs up to Rs. 1 crore based on their turnover reported in the GST return filed with the GST portal. Under the scheme, the evaluation of the working capital requirements will be done by the bank on the basis of the information including turnover submitted by the company in the GST return. The company need not submit any physical document separately with the bank for assessing its working capital requirements.

*Source: https://economictimes.indiatimes.com/small-biz/money/offer-up-to-rs-1-cr-overdraft-to-msmes-on-turnover-reported-in-gst-returns-icici-bank/articleshow/69246165.cms Dated May 9, 2019 (Accessed on 20.05.22)*

As per the extant guidelines from the RBI, banks are advised to follow turnover method of assessment of working capital requirement mentioned above for limits

[5] The MSMED Act, 2006 defines the Micro, Small and Medium Enterprises based (i) on the investment in plant and machinery for those engaged in manufacturing or production, processing or preservation of goods and (ii) on the investment in equipment for enterprises engaged in providing or rendering of Services.

up to ₹ 6 crore in the case of other than SSI borrowers and up to ₹ 6 crore for SSI borrowers.

The following requirements are to be complied with by an industrial undertaking to be graded as Small Scale Industrial undertaking w.e.f. 21.12.1999. An industrial undertaking in which the investment in fixed assets in plant and machinery whether held on ownership terms on lease or on hire purchase does not exceed ₹ 10 million.

In respect of loans beyond these limits, banks have been given discretion to choose any method like MPBF method or cash budget method etc. Even while applying MPBF, the level of current ratio to be maintained has been left to the discretion of the individual bank. However, in all these cases sufficient current assets are to be maintained to support the drawing power.

For example, an SSI unit is having a turnover of (say) ₹ 25 crore, the firm is eligible for 20% of turnover i.e. ₹ 5 crore. The firm should have minimum Net Working Capital (NWC) to the extent of 5% of turnover i.e. ₹ 1.25 crore. If the firm is having NWC of ₹ 2.00 crore, the firm is eligible for an amount of ₹ 5.00 cr – ₹ 0.75 crore = ₹ 4.25 crore.

If the firm has a turnover of ₹ 50 crore and still wants a WC limit of ₹ 5 crore, the firm is eligible subject to NWC norms. If the firm has Rs. 3.00 crore, the firm is eligible for {₹ 5.00 cr – ₹ 0.50 cr (excess of NWC) }crore. In all these cases, sufficient drawing power should be maintained by the unit by maintaining sufficient inventory levels.

However, in 2006, the Government of India passed the MSMED Act which gave a new definition of SSI which have been segregated into micro, small and medium enterprises. The definition as per this Act is given below:

Micro, Small and Medium Enterprises Development (MSMED) Act, 2006

The Government of India enacted the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 on June 16, 2006 which was notified on October 2, 2006. With the enactment of MSMED Act 2006, the paradigm shift that has taken place is the inclusion of services sector in the definition of Micro, Small and Medium Enterprises, apart from extending the scope to Medium Enterprises.

**Definition of Micro, Small and Medium Enterprises:**

The MSMED Act, 2006 defines the Micro, Small and Medium Enterprises based (i) on the investment in plant and machinery for those engaged in manufacturing or production, processing or preservation of goods and (ii) on the investment in equipment for enterprises engaged in providing or rendering of services.

The investment in plant and machinery is the original cost excluding land and building and other items specified by the Ministry of Small Scale Industries vide its notification no. S.O. 1722 (E) dated 05.10.2006.

The guidelines with regard to investment in plant and machinery or equipment as defined in the MSMED Act, 2006 are:

**Table 13.3: Definition of Micro, Small and Medium Enterprises**

| Nature of activity of the Enterprise | Investment in plant and machinery excluding land and building for enterprises engaged in manufacturing or production, processing or preservation of goods | Investment in equipment excluding land and building for enterprises engaged in providing or rendering of services) |
|---|---|---|
| Micro | Not exceeding ₹ 25.00 lakh | Not exceeding ₹ 10.00 lakh |
| Small | More than ₹ 25.00 lakh but does not exceed ₹ 500.00 lakh | More than ₹ 10.00 lakh but does not exceed ₹ 200.00 lakh |
| Medium | More than ₹ 500.00 lakh but does not exceed ₹ 1000.00 lakh | More than ₹ 200.00 lakh but does not exceed ₹ 500.00 lakh |

The investment in plant and machinery is the original cost excluding land and building and other items specified by the Ministry of Small Scale Industries vide its notification.

The illustrative lists of enterprises that are engaged in providing or rendering services are:

- Small road and water transport operators (original investment in vehicles upto ₹ 200.00 lakhs under Priority sector)
- Retail trade (with credit limits not exceeding ₹ 20.00 lakhs)
- Small business (whose original cost price of the equipment used for the purpose of business does not exceed ₹ 20.00 lakhs)
- Professional and self-employed persons (whose borrowing limits do not exceed ₹ 10.00 lakhs of which not more than ₹ 2.00 lakhs should be for working capital requirements except in case of professionally qualified medical practitioners setting up of practice in semi-urban and rural areas, the borrowing limits should not exceed ₹ 15.00 lakhs with a sub-ceiling of ₹ 3 lakhs for working capital requirements)

**Implementation of Loan Delivery System:** In terms of the guidelines of RBI, the working capital limit sanctioned to all borrowable accounts with fund based working capital limit of ₹ 10 crore and above from the banking system, funds are to be disbursed as demand loan and cash credit in the ratio of 80:20. The demand loan portion of the working capital is called Working Capital Demand Loan which is repayable within a year. This was brought in to introduce more discipline among the borrowers availing the working capital finance.

| **Activity 13.2**<br>Analyse the lending pattern of any two nationalized banks in India. Find out the proportion of lending to the MSME sector for both these banks. Do you notice any difference in the lending pattern?<br>**Answer:** |
|---|
| |
| |
| |
| |

## Check Your Progress - 2

7. Letter of Credit means
   a. Credit agreement between a bank and a company
   b. Credit agreement between a company and its supplier
   c. Bank undertaking responsibility on behalf of its customers, in case the customer fails to pay to his supplier
   d. Agreement that facilitates a company to stretch the credit period extended by its supplier
   e. Agreement that facilitates a supplier to contract the credit period that is extended to a company
8. Which is the term used to refer to Commercial Paper issued by financial / non-financial companies?
   a. Corporate paper
   b. Term lending paper
   c. Short-term credit note
   d. Promissory note
   e. Treasury notes
9. Which of the following was set up based on the recommendations of Vaghul Committee?
   a. National Stock Exchange
   b. Stock Holding Corporation of India Ltd
   c. Discount and Finance House of India Ltd
   d. National Securities Depository Ltd
   e. Infrastructure Leasing and Financial Services Ltd

10. Identify from the below given options, the term used to denote a type of financial transaction and type of debt financing in which a business firm sells its receivables to a third party at a discount.
    a. Factoring
    b. Trade credit
    c. Cash credit
    d. Overdraft
    e. Public deposits
11. In the books of the customer, credit sale extended by the company will be shown as
    a. Current asset
    b. Current liability
    c. Outstanding expenses
    d. Closing stock
    e. Accounts receivable
12. Name the type of factoring arranged, where the factor does not make any advance / pre-payment.
    a. Recourse factoring
    b. Non-Recourse factoring
    c. Maturity factoring
    d. Advance factoring
    e. Invoice factoring
13. Which of the following is a least liquid asset?
    a. Work-in-process
    b. Cash and bank balance
    c. Debtors
    d. Bills receivable
    e. Certificate of deposits

## 13.16 Summary

- Any company will need to maintain a minimum level of current assets at any point of time. This level can be termed as the 'permanent' or 'fixed' component of current assets. Since the 'permanent' component of current assets is locked up permanently within the organization just as fixed assets, this component needs to be financed from long-term Sources of finances such as internal accruals, equity shares, preference shares, debentures and to an extent, term loans.

- The 'fluctuating' component of current assets can be financed through short-term Sources such as accounts payable/trade credit, short-term bank borrowings and public deposits.
- Sources that emerge in the normal course of business is referred to as spontaneous Sources that includes accrued expenses, provisions and trade credit.
- Trade Credit accounts for 40 percent of current liabilities. In order to obtain trade credit from its suppliers, a company has to prove its credit worthiness.
- The decision to avail trade credit also depend on the credit terms – the number of days of credit period offered, cash discount offered for pre-payment and the spread between credit and cash discount periods.
- Short-term bank finances comprise cash credit, overdraft, purchasing/discounting of bills, letter of credit, security, hypothecation and pledge.
- Cash credit arrangement is a form of bank finance in which the customer is permitted to borrow upto a pre-fixed limit called as the cash credit limit. Interest is charged only on the amount actually utilized and not the total limit sanctioned.
- Overdraft is similar to cash credit arrangement in which the customer is permitted to overdraw up to a pre-fixed limit. Interest is charged on the amount(s) overdrawn subject to some minimum charge as in the case of cash credit arrangement. The drawing power is also determined as in the case of cash credit arrangement.
- Under Bills discounting, the bank provides finance to the customer either by outright purchasing or discounting the bills arising out of sale of finished goods. Obviously, the bank will not pay the full amount but provides credit after deducting its charges.
- Some other Sources of financing current assets include, public deposits, commercial paper and factoring.
- For streamlining the practices followed by banks so that the weaknesses of the existing practices are removed and a better sense of direction provided to the banking sector, the RBI has from time to time constituted various committees. Four important committees on working capital finance are – the Tandon Committee, the Chore Committee, the Marathe Committee and the Kannan Committee.

## 13.17 Glossary

**Accrued Expenses** are those liabilities covering expenses incurred on and prior to a specified date, payable at some future date.

**CAS (Credit Authorization Scheme)** was launched in 1965 and withdrawn in 1989. According to this scheme, all commercial banks had to take prior approval of RBI before sanctioning loans of ₹ 1 crore or above to a single borrower.

**Cash Credit** is an arrangement whereby the bank allows the borrower to borrow up to a certain limit, the cash credit limit. Cash credit account operates against security of inventory and accounts receivables in the form of hypothecation/pledge.

**Collateral** refers to pledging of assets that serves as security for a loan.

**Commercial Papers (CPs)** are short-term usance promissory notes with a fixed maturity period, issued mostly by leading, reputed, well-established, large corporations who have a very high credit rating.

**Credit Period** is the length of time customers are allowed for their credit purchases.

**Drawing Power** refers to borrowing limits that the banks give from time to time. Drawing Power is used for both cash credit and overdraft facilities extended to borrowers.

**Factoring** is the outright sale of a firm's accounts receivable to another party (the factor) with or without recourse.

**Free Reserves** is the difference between borrowed and excess reserves.

**Hypothecation** refers to offer of an asset (movable property) by the borrower, as collateral security to the lender, allowing the borrower to retain the ownership and possession of goods hypothecated.

**Invoice Discounting** is form of factoring under which the factor provides a pre-payment to the client against the purchase of accounts receivables and collects interest (service charges) for the period extending from the date of pre-payment to the date of collection.

**Letter of Credit** is a letter from a bank mentioning that it has established a line of credit in favour of a certain party.

**Maturity Factoring** is where the factor does not make any advance or pre-payment. The factor pays the client either on a guaranteed payment date or on the date of collection from the customer.

**Non-recourse Factoring** is a form of factoring under which the factor has no recourse to the client if the receivables are not recovered, i.e., the client gets total credit protection.

**Note Lending System** is an arrangement, where the borrower takes a loan, usually of 90 days duration, against a promissory note.

**Overdraft** is an arrangement, where the borrower is allowed to overdraw on his current account with the banker up to a certain specified limit during a given period.

**Pledge** refers to the act of providing goods/documents in the form of share certificates, book debts, insurance policies, etc., as security and will be in the possession of the bank lending funds, but not with the borrowing company.

**Provisions** are charges for an estimated expense.

**Public Deposits** is an unsecured deposit obtained by a company from public at large.

**Recourse Factoring** involves the factor purchasing the receivables on the condition that any loss arising out of irrecoverable receivables will be borne by the client.

**Spontaneous Financing** is the trade credit and other accounts payable that arise spontaneously in the firm's day-to-day operations.

**Trade Credit** is an inter-firm credit arising from credit sales. It is recorded as an account receivable by the seller and as an account payable by the buyer.

**Working Capital Demand Loan** is the demand loan portion of working capital which is repayable within a year. This was brought in to introduce more discipline among the borrowers availing the working capital finance.

## 13.18 Self-Assessment Test

1. Give a brief note on behaviour of current assets.
2. 'Bank finances are available in different forms and they may be either direct or indirect. Explain the different Sources of short-term bank finances.
3. Describe the salient features and assessment of public deposits from company's view point.
4. 'Factoring is a type of business finance that meets short-term liquidity needs in which a business would sell its receivables to a third party'. Explain the various types and mechanism of factoring.
5. Discuss the specific terms of reference outlined under Chore committee recommendation by RBI.
6. State the guidelines and recommendations as suggested under committee headed by K.Kannan and P.R. Nayak to Source the working capital requirements.

## 13.19 Suggested Readings / Reference Material

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3. I.M. Pandey (2021). Financial Management, 12th edition, New Delhi: Pearson Education.
4. Francis Cherunilam (2020). International Business — Text and Cases, 6th Edition, PHI Learning.

5. P.G. Apte (2020). International Financial Management, 8th Edition, McGraw Hill Education (India) Private Limited.
6. John Tennent (2018). The Economist Guide to Financial Management. Economist Books.

## 13.20 Answers to Check Your Progress Questions

**1. (e) While the overdraft is paid back, cash credit is generally only rolled over**

Under cash credit arrangement, the customer is permitted to borrow up to a fixed limit called the cash credit limit and is rolled over. While in overdraft, the customer is permitted to overdraw upto a prefixed limit that is paid back.

**2. (b) A 4% cash discount can be taken for payment before the 10$^{th}$ of the following month**

Trade credit terms of 4/10, net 30 means that a 4 % cash discount can be taken for payment before the 10$^{th}$ of the following month.

**3. (d) Financing with public deposits will not increase the financial leverage.**

Public deposits are unsecured deposits made by small and large firms to meet their working capital requirements. Such financing only increases the financial leverage.

**4. (a) Against the security of the movable property without ownership nor possession being transferred**

Security in the form of hypothecation is limited to movable property like inventories.

**5. (b) Provision for taxes**

These are basically charges for an estimated expense. Typical examples are provision for dividends, provision for taxes and provision for payment of bonus.

**6. (c) Note-lending**

Note-lending is a short-term Source and finance as others mentioned are financed for long-term need.

**7. (c) Bank undertaking responsibility on behalf of its customers, in case the customer fails to pay to his/her supplier.**

Letter of Credit is opened by a bank in favor of its customers undertaking the responsibility to pay supplier if the customer fails to make payment for goods purchased from supplier within stipulated time.

**8. (a) Corporate Paper**

When commercial papers are issued by body corporates whether financial companies or non-financial companies, it is also referred to as Corporate Paper.

**9. (c) Discount and Finance House of India Ltd.**

Discount and Finance House of India Ltd was set up based on recommendation of Vaghul Committee.

**10. (a) Factoring**

Factoring is a "continuing" arrangement between a financial intermediary (called a "Factor") and a "Seller" (also called a client) of goods or services.

**11. (b) Current Liabilities**

For a customer, the credit sale extended by the company becomes a credit purchase and thus gives rise to a current liability.

**12. (c) Maturity Factoring**

Under this type of factoring arrangement, the factor does not make any advance or pre-payment. The factor pays the client either on a guaranteed payment date or on the date of collection from the customer.

**13. (a) Work-in-process**

Work-in-process cannot be converted to cash immediately as it has to be converted to finished goods first and then sold against credit or cash. But the other items being mentioned can be easily liquidated within a short time period.

# Unit 14

# Inventory Management

## Structure



**The inventory, the value of my company, walks out the door every evening.**

*- Bill Gates*

## 14.1 Introduction

Inventory Management involves the control of current assets required for production activity of the firm. Inventories include raw material, work-in process inventory and finished goods inventory and spares and tools. The goal of effective inventory management is to minimize interest cost on inventory maintained. However, the importance of inventory management to the company depends upon the extent of investment in inventory. It is industry-specific.

## 14.2 Objectives

After reading through the unit, you should be able to:

- Estimate the optimum level of inventory and its impact on working capital management
- Identify the various costs associated with different types of inventory for ensuring their control

- Comprehend the inventory management techniques that will ensure optimum management of inventory
- Learn how to plan for inventories so that their uninterrupted supply is ensured for smooth conduct of business operations
- Estimate the price of inventory in a business on a specific date based on the various pricing techniques

## 14.3 Role of Inventory in Working Capital

Inventories are a component of the firm's working capital and, as such, represent a current asset. Compared to other current assets, inventories are considered to have low liquidity since the components include raw materials, semi-finished goods and finished goods spares and tools and hence their higher inventory levels may affect the working capital cost liquidity position of the firm. Hence it is imperative to gain knowledge about their characteristics and their role in working capital management. Some characteristics that are important in the broader context of working capital management include:

1. **Current Assets:** It is assumed that inventories will be converted to cash in the current accounting cycle, which is normally, one year. In some cases, this is not entirely true, for example, a vintner (a wine merchant) may require that the wine be aged in casks or bottles for many years. Alternatively, a manufacturer of fine pianos may have a production process that exceeds one year. In spite of these and similar problems, we will view all inventories as being convertible into cash in a single year.
2. **Level of Liquidity:** Inventories are viewed as a Source of near cash. For most products, this description is accurate. At the same time, most firms hold some slow-moving items that may not be sold for a long time. With economic slowdowns or changes in the market for goods, the prospects for sale of entire product lines may be diminished. In these cases, the liquidity aspects of inventories become highly important to the manager of working capital. At a minimum, the analyst must recognize that inventories are the least liquid of current assets. For firms with highly uncertain operating environments, the analyst must discount the liquidity value of inventories significantly.
3. **Liquidity Lags:** Inventories are tied to the firm's pool of working capital in a process that involves three specific lags, namely:
    a. *Creation Lag:* In most cases, inventories are purchased on credit, creating an account payable. When the raw materials are processed in the factory, the cash to pay production expenses is transferred at future times, perhaps a week, month, or more. Labor is paid on payday. The utility that provided the electricity for manufacturing is paid after it submits its bill. On the other hand, for goods purchased for resale, the firm may have 30 or more days to hold the goods before payment is due. Whether

manufactured or purchased, the firm will hold inventories for a certain period before payment is made. This liquidity lag offers a benefit to the firm.

b. *Storage Lag:* Once goods are available for resale, they will not be immediately converted into cash. First, the item must be sold. Even when sales are moving briskly, a firm will hold inventory as a back up. Thus, the firm will usually pay suppliers, workers, and overhead expenses before the goods are actually sold. This lag represents a cost to the firm.

**Example: Supply Chain Constraints 'needs' Increased Working Capital**

Chemplast Sanmar, dealing in commodity chemicals and speciality chemicals, reported a 34.65% growth in its sales revenue, year on year, for the last quarter of the financial year 2021-22 on a consolidated basis. The sales revenue for the quarter stood at Rs. 1806.94 crore. For the full year FY22, the sales revenues were higher by 55.1% at Rs.5892 crore. For Q4 FY22, the company saw growth across commodity chemicals and specialty chemicals. In spite of this, cash from operations for the FY22 was lower by 16.3% at Rs. 901 crore due to a spike in trade receivables and inventories amid supply chain constraints. The company had to incur higher working capital costs as it had to hold more inventory due to the supply chain constraints forcing higher funds locked in the working capital cycle.

*Source: https://www.indiainfoline.com/article/earnings-results/chemplast-sanmar-q4fy22-pat-down-36-4-at-rs231-64-crore-higher-inventory-costs-122051200618_1.html Dated May 12, 2022(Accessed on 26.05.22)*

c. *Sale Lag:* Once goods have been sold, they normally do not create cash immediately. Most sales occur on credit and become accounts receivable. The firm must wait to collect its receivables. This lag also represents a cost to the firm.

4. **Circulating Activity:** Inventories are in a rotating pattern with other current assets. They are converted into receivables that generate cash, which is invested again in inventory to continue the operating cycle.

## 14.4 Purpose of Inventories

There is always time gap between the completion of production of goods and their sale. The sale of goods depends on external factors such as demand for goods, macro-economic conditions, number of competitors etc. A prudent businessman would wait for the right opportunity to conduct sales that will give him higher profits. To do so, he needs to stock the finished goods till the date of sale. A well-managed inventory system is thus a pre-requisite for any business.

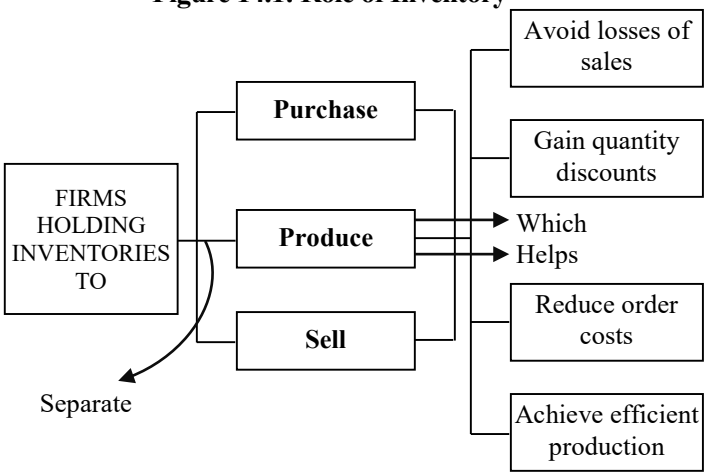
The purpose of holding inventories is to allow the firm to separate the processes of purchasing, manufacturing, and marketing of its primary products. The goal is to achieve efficiencies in areas where costs are involved and to achieve sales at competitive prices in the market place. Within this broad statement of purpose, we can identify specific benefits that accrue from holding inventories.

1. **Avoiding Lost Sales:** Without goods on hand that are ready to be sold, most firms would lose business. Some customers are willing to wait, particularly when an item must be made to order or is not widely available from competitors. In most cases, however, a firm must be prepared to deliver goods on demand. Shelf stock refers to items that are stored by the firm and sold with little or no modification to customers. An automobile is an item of shelf stock. Even though customers may specify minor variations, the basic item leaves a factory is sold as a standard item. The same situation exists for many items of heavy machinery, consumer products, and light industrial goods.
2. **Gaining Quantity Discounts:** In return for making bulk purchases, many suppliers will reduce the price of supplies and component parts. The willingness to place large orders may allow the firm to achieve discounts on regular prices. These discounts will reduce the cost of goods sold and increase the profits earned on a sale.
3. **Reducing Order Costs:** Each time a firm places an order, it incurs certain expenses. Forms have to be completed, approvals have to be obtained, and goods that arrive must be accepted, inspected, and counted. Later, an invoice must be processed and payment made. Each of these costs will vary with the number of orders placed. By placing fewer orders, the firm will pay less to process each order.
4. **Achieving Efficient Production Runs:** Each time a firm sets up workers and machines to produce an item, startup costs are incurred. These are then absorbed as production begins. The longer the run, the smaller the costs to begin production of the goods. As an example, suppose it costs ₹ 12,000 to move machinery and begin an assembly line to produce electronic printers. If 1,200 printers are produced in a single three-day run, the cost of absorbing the startup expenses is ₹ 10 per unit (12,000/1,200). If the run could be doubled to 2,400 units, the absorption cost would drop to ₹ 5 per unit (12,000/2,400). Frequent setups produce high startup costs; longer runs involve lower costs.

These benefits arise because inventories provide a “buffer” between purchasing, producing, and marketing goods. Raw materials and other inventory items can be purchased at appropriate times and in proper amounts to take advantage of economic conditions and price incentives. The manufacturing process can occur in sufficiently long production runs and with pre-planned schedules to achieve efficiency and economies. The sales force can respond to customer needs and demands based on existing finished products. To allow each area to function effectively, inventory separates the three functional areas and facilitates the interaction among them.

This role of inventory is diagrammed in Figure 14.1

**Figure 14.1: Role of Inventory**




*Source: ICFAI Research Center*

5. **Reducing Risk of Production Shortages:** Manufacturing firms frequently produce goods with hundreds or even thousands of components. If any of these are missing, the entire production operation can be halted, with consequent heavy expenses. To avoid starting a production run and then discovering the shortage of a vital raw material or other component, the firm can maintain larger than needed inventories.

**Example: Inventory Stock 'less signifies' Supply Chain Constraints**

The year 2021-22 was a setback year for automobile industry not only in India but globally. The key reason behind was the shortage of semiconductor chips. The chips were mostly manufactured in Taiwan and China.

Production at both the places was affected due to lockdown disruptions owing to pandemic. Maruti, the leading automobile manufacturer in India, could sell 109722 cars in November 2021, the month coinciding with Diwali festive season when car sales were almost high, as against its sale of 135879 cars in the month of April 2021 when the second wave of pandemic was peaking. The picture was the same with other major car manufacturers like Hyundai. The lower sales were not due to lack of demand but due to lack of production of cars due to shortage of chips. In fact, the customers need to wait for months to get the delivery of their desired models. Such

situation hinders the entire production line even when the capacity exists otherwise.

*Source: https://www.outlookindia.com/website/story/business-news-chip-shortage-and-the-future-of-indian-auto-industry/404259 Dated Dec 8, 2021 (Accessed on 26.05.22)*

## 14.5 Types of Inventory

Inventories can be classified into four types. Each type of inventory serves a specific purpose. It is therefore essential to understand the types of inventory to ensure that each type of inventory is managed efficiently.

Four kinds of inventories may be identified as follows:

1. **Raw Materials Inventory:** This consists of basic materials that have not yet been committed to production in a manufacturing firm. Raw materials that are purchased from firms to be used in the firm's production operations range from iron ore for processing into steel to electronic components to be incorporated into stereo amplifiers. The purpose of maintaining raw material inventory is to uncouple the production function from the purchasing function so that delays in shipment of raw materials do not cause production delays.

   **Example: Inventory Stock 'Prevents' Production Stoppages**

   The Indian pharma industry was facing a severe problem of shortage of basic starting raw materials essential to manufacture several drugs. For instance, Para Nitro Chloro Benzene, or PNCB as known popularly in the industry, was the starting chemical required in the production of Paracetamol, a medicine required for controlling high fever. The price of PNCB increased more than two fold since the start of the year 2020. The reasons behind such shortages were primarily supply chain disruptions and increased logistic turnarounds. Disruptions have gone to the extent that the countries like China, who were the suppliers, became consumers further adding to the demand pressure. Such situation compels an entity to keep higher than necessary stock of raw materials to prevent production stoppages.

   *Source: https://www.financialexpress.com/healthcare/pharma-healthcare/snarled-supply-chains-hurt-indian-pharma-copying-with-spurt-in-chinese-raw-material-prices/2339282/ Dated Sept 28, 2021 (Accessed on 26.05.22)*

2. **Stores and Spares:** This category includes those products, which are accessories to the main products produced for the purpose of sale. Examples of stores and spares items are bolts, nuts, clamps, screws, etc. These spare parts are usually bought from outside or sometimes they are manufactured in the company also.

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

   Its purpose is to uncouple the various operations in the production process so that machine failures and work stoppages in one operation will not affect the other operations.

4. **Finished Goods Inventory:** These are completed products awaiting sale. The purpose of a finished goods inventory is to uncouple the productions and

sales functions so that it is no longer necessary to produce the goods before a sale can occur.

## 14.6 Costs Associated with Inventories

The effective management of inventory involves a tradeoff between having too little and too much inventory. In achieving this tradeoff, the Finance Manager should realize that costs might be closely related. The Finance Manager should thus be aware of the costs associated with each type of inventory so that the optimum level of inventory that is cost effective and generates revenues is achieved. To examine inventory from the cost side, five categories of costs can be identified of which three are direct costs that are immediately connected to buying and holding goods and the last two are indirect costs, which are losses of revenues that vary with differing inventory management decisions.

The five categories costs of holding inventories are:

**Material Costs:** These are the costs of purchasing the goods including transportation and handling costs.

**Ordering Costs:** Any manufacturing organization has to purchase materials. In that event, the ordering costs refer to the costs associated with the preparation of purchase requisition by the user department, preparation of purchase order and follow-up measures taken by the purchase department, transportation of materials ordered for, inspection and handling at the warehouse for storing. At times even demurrage charges for not lifting the goods in time are included as part of ordering costs. Sometimes, some of the components and/or material required for production may have facilities for manufacture internally. If it is found to be more economical to manufacture such items internally, then ordering costs refer to the costs associated with the preparation of requisition forms by the user department, set-up costs to be incurred by the manufacturing department and transport, inspection and handling at the warehouse of the user department. Mostly, ordering costs remain more or less constant irrespective of the size of the order, although transportation and inspection costs may vary to a certain extent depending upon order size. However, this is not going to affect the behavior of ordering costs significantly. As ordering costs are considered invariant to the order size, the total ordering costs can be reduced by increasing the size of the orders.

**Illustration 14.1**

Suppose, the cost per order is ₹ 100 and the company uses 1200 units of a material during the year, the size of the order and the total ordering costs to be incurred by the company are given below.

| Size of order (units) | 100 | 150 | 200 |
|---|---|---|---|
| Number of orders in a year | 12 | 8 | 6 |
| Total ordering costs @ ₹ 100 per order | ₹ 1,200 | ₹ 800 | ₹ 600 |

From the above example, it can be easily seen that a company can reduce its total ordering costs by increasing the order size, which in turn will reduce the number of orders. However, reduction in ordering costs is usually followed by an increase in carrying costs to be discussed now.

**Carrying Costs:** These are the expenses of storing goods. Once the goods have been accepted, they become part of the firm's inventories. These costs include insurance, rent/depreciation of warehouse, salaries of storekeeper, his assistants and security personnel, financing cost of money locked-up in inventories, obsolescence, spoilage and taxes. Mostly, carrying costs are considered a given percentage of the value of inventory held in the warehouse, despite some fixed elements of costs, which comprise only a small portion of total carrying costs. Approximately, carrying costs are considered around 25 percent of the value of inventory held in storage. The greater the investment in inventory, greater is the carrying costs.

**Example: Integrated Information 'reduces' Carrying Cost**

Manufacturing company, in general, faces the challenge of reducing its inventory carrying costs. Micro Turners, an integrated automotive component manufacturing company, used data and intelligence to bring down its inventory carrying cost to Rs 2.5 crore per annum from Rs. 5 crore per annum in six months since the start of the year 2021. The company has ten plants across the country and it used to consume 4000 MT of steel per month. Due to uncertainties in the demand pattern and lack of integrated information, the company used to keep stock of steel of up to 7000 MT. This increased their carrying cost as steel being bulky needs lot of storage space. Using proper IT infrastructure, the company enabled zero latency within and between business processes to obtain reduction in carrying cost.

*Source: https://cio.economictimes.indiatimes.com/news/business-analytics/heres-how-this-manufacturer-decreased-inventory-carrying-cost-by-50/85199103 Dated August 10, 2021 (Accessed on 26.05.22)*

**Illustration 14.2**

In the Illustration 14.1 considered in the case of ordering costs, let us assume that the price per unit of material is ₹ 40 and that on an average about half-of the inventory will be held in storage. Then, the average values of inventory for sizes of order 100, 150 and 200 along with carrying cost @ 25 percent of the inventory held in storage are given below.

| Size of order (units) | 100 | 150 | 200 |
|---|---|---|---|
| Average value of inventory | ₹ 2,000 | ₹ 3,000 | ₹ 4,000 |
| Carrying cost @ 25 percent of above | ₹ 500 | ₹ 750 | ₹ 1,000 |

From the above calculations, it can be easily seen that as the order size and the carrying costs of inventory are directly proportional to each other.

**Cost of Funds Tied up with Inventory:** Whenever a firm commits its resources to inventory, it is using funds that otherwise might have been available for other purposes. The firm has lost the use of funds for other profit making purposes. This is its opportunity cost. Whatever the Source of funds, inventory has a cost in terms of financial resources. Excess inventory represents unnecessary cost.

**Cost of Running out of Goods:** These are costs associated with the inability to provide materials to the production department and/or inability to provide finished goods to the marketing department as the requisite inventories are not available. In other words, the requisite items have run out of stock for want of timely replenishment. These costs have both quantitative and qualitative dimensions. These are, in the case of raw materials, the loss of production due to stoppage of work, the uneconomical prices associated with 'cash' purchases and the set-up costs which can be quantified in monetary terms with a reasonable degree of precision. Because of this, the production department may not be able to reach its target in providing finished goods for sale. Its cost has qualitative dimensions as discussed below.

When marketing personnel are unable to honor their commitment to the customers in making finished goods available for sale, the sale may be lost. This can be quantified to a certain extent. However, the erosion of the good customer relations and the consequent damage done to the image and goodwill of the company fall into the qualitative dimension and elude quantification. Even if the stock-out cost cannot be fully quantified, a reasonable measure based on the loss of sales for want of finished goods inventory can be used with the understanding that the amount so measured cannot capture the qualitative aspects.

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**Check Your Progress - 1**

1. Identify the inventories that are tied up to the firm's working capital pool.
   a. Current assets
   b. Fixed assets
   c. Levels of liquidity
   d. Liquidity lags
   e. Circulating activity
2. Why are the firms insisted upon to get prepared to deliver goods on demand by holding inventories?
   a. To avoid lost sales
   b. To gain quantity discounts
   c. To reduce ordering costs

d. To achieve efficient production runs

e. To reduce risk of production shortages

3. Identify the products that are accessories to main products either are bought or are manufactured by company themselves.

   a. Raw materials

   b. Stores and spares

   c. Scraps

   d. Work –in-progress

   e. Finished goods

4. Identify the cost that refers to firms tied-up with excess inventory representing lost funds, by foregoing the use of such funds in profit-making or other business activities.

   a. Material costs

   b. Carrying costs

   c. Ordering costs

   d. Standard costs

   e. Opportunity costs

5. Which of the following cost category is associated with the inability to provide materials / stock for the requisite department for timely deliverables?

   a. Cost of running out of goods

   b. Cost of material

   c. Cost of carrying inventory

   d. Cost of exhaustive inventory

   e. Cost of placing order

## 14.7 Inventory Management Techniques

The importance of effective inventory management is directly related to the size of the investment in inventory. To manage its inventories effectively, a firm should use techniques are cost effective.

In the previous sub topic, we have understood that while the total ordering costs can be decreased by increasing the size of order, the carrying costs increase with the increase in order size indicating the need for a proper balancing of these two types of costs behaving in opposite directions with changes in order size.

Again, if a company wants to avert stock-out costs it may have to maintain larger inventories of materials and finished goods, which will result in higher carrying costs. Here also proper balancing of the costs becomes important.

An effective inventory management system involves the application of three techniques namely, economic order quantity, reorder point and stock level.

### 14.7.1 Economic Order Quantity

The Economic Order Quantity (EOQ) refers to the optimal order size that will result in the lowest total of order and carrying costs for an item of inventory given its expected usage, carrying costs and ordering cost. By calculating an economic order quantity, the firm attempts to determine the order size that will minimize the total inventory costs.

Total inventory cost (₹) = Ordering cost + Carrying cost

Total ordering costs (₹) = Number of orders × Cost per order

$$= \frac{U}{Q} \times F$$

Where,

U = Annual usage

Q = Quantity ordered

F = Fixed cost per order

The total carrying costs = Average level of inventory x Price per unit x Carrying cost (percentage)

$$\therefore \text{ Total carrying costs (₹)} = \frac{Q}{2} \text{ x P x C } = \frac{QPC}{2}$$

Where,

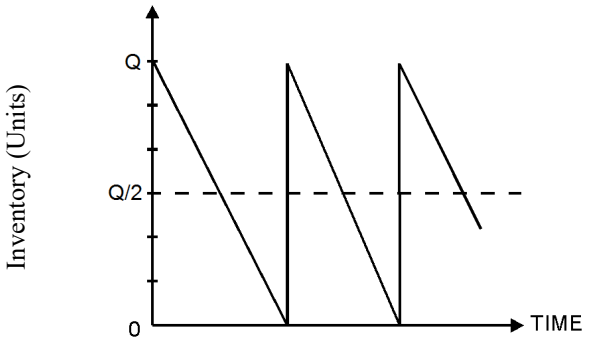
Q = Quantity ordered

P = Purchase price per unit

C = Carrying cost as %

As the lead time (i.e., time required for procurement of material) is assumed to be zero, an order for replenishment is made when the inventory level reduces to zero. The level of inventory over time follows the pattern shown in Figure 14.2:

**Figure 14.2: Inventory Level and Order Point for Replenishment**




*Source: ICFAI Research Center*

From Figure 14.2, it can be noticed that the level of inventory will be equal to the order quantity (Q units) to start with. It progressively declines (though in a discrete manner) to level O by the end of period 1. At that point, an order for

replenishment will be made for Q units. In view of zero lead time, the inventory level jumps to Q and a similar procedure occurs in the subsequent periods. Because of this, the average level of inventory will remain at (Q/2) units, the simple average of the two end points Q and Zero.

From the above discussion, the average level of inventory is known to be (Q/2) units.

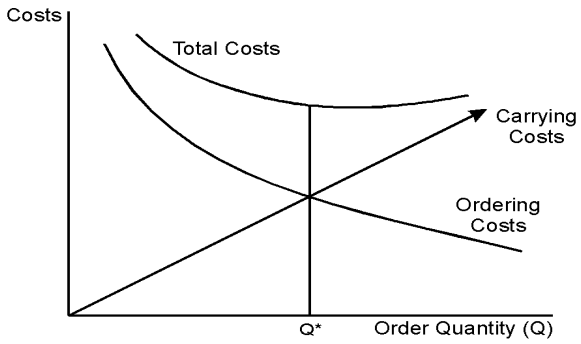
From the previous discussion, we know that as order Quantity (Q) increases, the total ordering costs will decrease while the total carrying costs will increase.

The economic order quantity, denoted by $Q_*$, is that value at which the total cost of both ordering and carrying will be minimized. It should be noted that total costs associated with inventory

$$= \frac{UF}{Q} + \left(\frac{QPC}{2}\right)$$

where the first expression of the equation represents the total ordering costs and the second expression the total carrying costs. The behavior of ordering costs, carrying costs and total costs for different levels of order Quantity (Q) is depicted in Figure 14.3.

**Figure 14.3: Behavior of Inventory Costs with Changes in Order Quantity**




*Source: ICFAI Research Center*

From Figure 14.3, it can be seen that the total cost curve reaches its minimum at the point of intersection between the ordering costs curve and the carrying costs line. The value of Q corresponding to it will be the economic order quantity Q*. We can calculate the EOQ formula.

The order quantity Q becomes EOQ when the total ordering costs at Q is equal to the total carrying costs. Using the notation, it amounts to stating:

$$\frac{UF}{Q} = \frac{QPC}{2}$$

(i.e.) $2UF = Q^2 PC$

$$\text{or } Q = \sqrt{\frac{2\,UF}{PC}} \text{ units}$$

To distinguish EOQ from other order quantities, we can say

$$EOQ = Q^* = \sqrt{\frac{2\,UF}{PC}}$$

In the above formula, when 'U' is considered as the annual usage of material, the value of Q* indicates the size of the order to be placed for the material which minimizes the total inventory-related costs. When 'U' is considered as the annual demand Q* denotes the size of production run.

Suppose a firm expects a total demand for its product over the planning period to be 10,000 units, while the ordering cost per order is ₹ 100 and the carrying cost per unit is ₹ 2. Substituting these values,

$$EOQ = \sqrt{\frac{2 \times 10{,}000 \times 100}{2}} = 1{,}000 \text{ units}$$

Thus if the firm orders in 1,000 unit lot sizes, it will minimize its total inventory costs.

**Examination of EOQ Assumptions**

The major weaknesses of the EOQ model are associated with several of its assumptions, in spite of which the model tends to yield quite good results. Where its assumptions have been dramatically violated, the EOQ model can generally be easily modified to accommodate the situation. The model's assumptions are as follows:

1. **Constant or uniform demand:** Although the EOQ model assumes constant demand, demand may vary from day-to-day. If demand is stochastic that is, not known in advance – the model must be modified through the inclusion of a safety stock.
2. **Constant unit price:** The EOQ formula derived is based on the assumption that the purchase price per unit of material will remain unaltered irrespective of the order size. Quite often, bulk purchase discounts or quantity discounts are offered by suppliers to induce customers for buying in larger quantities.

   The inclusion of variable prices resulting from quantity discounts can be handled quite easily through a modification of the original EOQ model, redefining total costs and solving for the optimum order quantity.
3. **Constant carrying costs:** Unit carrying costs may vary substantially as the size of the inventory rises, perhaps decreasing because of economies of scale or storage efficiency or increasing as storage space runs out and new warehouses have to be rented. This situation can be handled through a modification in the original model similar to the one used for variable unit price.

4. **Constant ordering costs:** While this assumption is generally valid, its violation can be accommodated by modifying the original EOQ model in a manner similar to the one used for variable unit price.
5. **Instantaneous delivery:** If delivery is not instantaneous, which is generally the case, the original EOQ model must be modified by including of a safety stock.
6. **Independent orders:** If multiple orders result in cost savings by reducing paperwork and transportation cost, the original EOQ model must be further modified. While this modification is somewhat complicated, special EOQ models have been developed to deal with this.

These assumptions have been pointed out to illustrate the limitations of the basic EOQ model and the ways in which it can be easily modified to compensate for them. Moreover, an understanding of the limitations and assumptions of the EOQ model will provide the Finance Manager with a strong base for making inventory decisions.

**Inflation and EOQ**

Inflation affects the EOQ model in two major ways. First, while the EOQ model can be modified to assume constant price increases, many times major price increases occur only once or twice a year and are announced ahead of time. If this is the case, the EOQ model may lose its applicability and may be replaced with anticipatory buying – that is buying in anticipation of a price increase in order to secure the goods at a lower cost. Of course, as with most decisions, there are tradeoffs associated with anticipatory buying. The costs are the added carrying costs associated with the inventory that you would not normally be holding. The benefits of course, come from buying the inventory at a lower price. The second way inflation affects the EOQ model is through increased carrying costs. As inflation pushes interest rates up, the cost of carrying inventory increases. In the EOQ model, this means that C increases, which results in a decline in the optimal economic order quantity.

**Determination of Optimum Production Quantity:** The EOQ model can be extended to production runs to determine the optimum production quantity. The two costs involved in this process are: (i) set-up cost and (ii) inventory carrying cost. The set-up cost is of the nature of fixed cost and is to be incurred at the time of commencement of each production run. The larger the size of the production run, the lower will be the set-up cost per unit. However, the carrying cost will increase with an increase in the size of the production run. Thus, there is an inverse relationship between the set-up cost and inventory carrying cost. The optimum production size is at that level where the total of the set-up cost and the inventory carrying cost is the minimum. In other words, at this level the two costs will be equal.

The formula for EOQ can also be used for determining the optimum production quantity as given below:

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

Where, E = Optimum production quantity

U = Annual (monthly) output

P = Set-up cost for each production run

S = Cost of carrying inventory per unit per annum (per month).

**Illustration 14.3**

Arvee Industries desires an annual output of 25,000 units. The set-up cost for each production run is ₹ 80. The cost of carrying inventory per unit per annum is ₹ 4. The optimum production quantity per production run (E) is

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

$$= \sqrt{\frac{2 \times 25{,}000 \times 80}{4}}$$

$$= \frac{2{,}000}{2} = 1{,}000 \text{ units.}$$

**Modified EOQ to include Varying Unit Prices:** Bulk purchase discount is offered when the size of the order is at least equal to some minimum quantity specified by the supplier. The question may arise whether Q*, EOQ calculated based on a price without discount will remain valid even after reckoning with the discount. While no general answer can be given to such a question, we can certainly say that a general approach using the EOQ framework will prove useful in decision-making – whether to avail oneself of the discount offered and if so what should be the optimal size of the order.

The procedure for such an approach is outlined below:

The first step under the general approach is to calculate Q*, EOQ without considering the discount. Let us suppose Q′ is the minimum order-size stipulated by the supplier for utilizing discount. After calculating Q* the same will be compared to Q′. Only three possibilities can arise out of the comparison.

In case Q* is greater than or equal to Q′, then Q* will remain valid even in the changed situation caused by the quantity discount offered. This is so because the company can avail itself of the benefit of quantity discount with an order-size of Q* as it is at least equal to Q′, the minimum stipulated order size for utilizing discount.

Only in the case of Q* being less than Q′ the need for the calculation of an optimal order size arises as the company cannot avail itself of the discount with the order size of Q*. An incremental analysis can be carried out to consider the financial consequences of availing oneself of discount by increasing the order-size to Q′.

A decision to increase the order-size is warranted only when the incremental benefits exceed the incremental costs arising out of the increased order-size.

The incremental benefits will have two components: First, the total amount of discount available on the amount of material is to be used. If we assume ₹ D of discount per unit of material, then the total discount on the annual usage of material of U units amounts to:

Annual usage of materials in units x Discount per unit of material = ₹ UD

Secondly, with an increase in order-size from Q* to Q′, the number of orders will be reduced. As the ordering cost is assumed to be ₹ F per order irrespective of the order size, there will be a reduction in the total ordering cost. Thus, the reduction in ordering cost.

= (The difference between the number of orders with sizes of Q* and Q′) x (the cost per order of ₹ F)

$$= \left[\frac{U}{Q^*} - \frac{U}{Q'}\right] \text{x } F$$

Thus, the total incremental benefits will be the sum of the above two expressions and is given by

Total incremental benefits (₹) = $UD + \{U/Q^* - U/Q'\}$x F

With an increase in the order-size, there is likely to be an increase in the average value of inventory even after reckoning with the discount per unit of material of ₹ D, which will go to reduce the price per unit for the valuation of inventory. The increase in the average value of inventory will result in higher incidence of carrying cost, assumed to be C percent of the average value of inventory.

$$\text{Incremental carrying cost} = \frac{Q'(P-D)C}{2} - \frac{Q^*PC}{2}$$

The net incremental benefit can be obtained by subtracting the incremental carrying cost from the total incremental benefits. This is given by the expression.

Net incremental benefits (₹)

$$= U \text{ x } D + \left(\frac{U}{Q^*} - \frac{U}{Q'}\right) F - \left[\frac{Q'(P-D)C - Q^* PC}{2}\right]$$

If the net incremental benefits are positive, then the optimal order quantity becomes Q′. Otherwise Q* will continue to remain valid even in a situation of bulk purchase discount. A numerical illustration is given below to illustrate the procedure to be adopted in a situation of bulk purchase discount.

**Illustration 14.4**

The annual usage of a raw material is 40,000 units for Hy Fly Co., Ltd. The price of the raw material is ₹ 50 per unit. The ordering cost is ₹ 200 per order and the

carrying cost 20 percent of the average value of inventory. The supplier has recently introduced a discount of 4 percent on the price of material for orders of 1,500 units and above. What was the company's EOQ prior to the introduction of discount? Should the company opt for availing the discount? What would be the optimal order size if the company opts to avail for itself the discount offered?

Let us first arrange the data contained in the problem in accordance with the notation familiar to us by now.

U = 40,000 units
F = ₹ 200 per order
P = ₹ 50 per unit
D = ₹ 2 per unit
C = 0.20

EOQ without discount,

$$Q^* = \sqrt{\frac{2UF}{PC}}$$

$$= \sqrt{\frac{2\times 40{,}000\times 200}{50\times 0.2}}$$

= 1,265 units

For utilizing discount the minimum order size Q′ = 1,500 units. As Q* is less than Q′, we have to calculate the incremental benefits and incremental costs.

Total amount of discount available with an order size of 1,500 units is:

= U x D = 40,000 units x ₹ 2 per unit.

= ₹ 80,000 .....(1)

Savings due to reduction in ordering costs

$$= \left(\frac{U}{Q^*} - \frac{U}{Q'}\right) \text{x } F$$

$$= \frac{40,000}{1265} - \frac{40,000}{1500}$$

= (32 – 27) x ₹ 200

= ₹ 1,000 .....(2)

Incremental carrying cost

$$= \frac{Q'(P-D)C}{2} - \frac{Q^* PC}{2}$$

$$= \frac{1{,}500 \text{ x } 48 \text{ x } 0.2}{2} - \frac{1{,}265 \text{ x } 50 \text{ x } 0.2}{2}$$

= ₹ 7,200 – ₹ 6,325

= ₹ 875 .....(3)

Net incremental benefits (= 1 + 2 – 3)

= ₹ 80,000 + ₹ 1,000 – ₹ 875 = ₹ 80,125

As the net incremental benefits is a positive sum of ₹ 80,125, the company should opt for availing the discount offered. The optimal order-size will be 1,500 units, the minimum order size required for availing of the discount.

From the illustration 14.4, it is clear that although EOQ value of 1,265 units (Q*) is not relevant in the present situation of bulk purchase discount, the general framework of the EOQ model has provided the necessary basis for subsequent calculations and the decision reached therefrom.

| **Activity 14.1** |
| --- |
| What is EOQ? From the given data, calculate the optimal ordering point. Sujay Limited requires an annual usage of 7000 units incurring cost per unit at ₹ 0.20 and buying cost being ₹ 6 per order. The estimated carrying cost is 15% of average inventory holding. |
| **Answer:** |
| |
| |
| |

**Reorder Point Subsystem**

In the EOQ model discussed, we have assumed that the lead time for procuring material is zero. Consequently, the reorder point for replenishment of stock occurs when the level of inventory drops down to zero. In view of instantaneous replenishment of stock, the level of inventory jumps to the original level from zero level. In real life situations, one never encounters a zero lead time. There is always a time lag from the date of placing an order for material and the date on which materials are received. As a result, the reorder level is always at a level higher than zero, and if the firm places the order when the inventory reaches the reorder point, the new goods will arrive before the firm runs out of goods to sell. The decision on how much stock to hold is generally referred to as the order point problem, that is, how low should the inventory be depleted before it is reordered.

The two factors that determine the appropriate order point are the procurement or delivery time stock that is the inventory needed during the lead time (i.e., the difference between the order date and the receipt of the inventory ordered) and the safety stock, which is the minimum level of inventory that is held as a protection against shortages.

∴ Reorder Point = Normal consumption during lead time + Safety Stock.

Several factors determine how much the delivery time stock and safety stock should be held. In summary, the efficiency of a replenishment system affects amount of much delivery time needed. Since the delivery time stock is the expected inventory usage between ordering and receiving inventory, efficient replenishment of inventory would reduce the need for delivery time stock. Moreover, the determination of level of safety stock involves a basic trade-off between the risk of stock-out, resulting in possible customer dissatisfaction and lost sales, and the increased costs associated with carrying additional inventory.

Another method of calculating reorder level involves the calculation of usage rate per day, lead time that is the amount of time between placing an order and receiving the goods and the safety stock level expressed in terms of several days' sales.

Reorder level = Average daily usage rate x lead time in days.

From the above formula it can be easily deduced that an order for replenishment of materials be made when the level of inventory is just adequate to meet the needs of production during lead time.

If the average daily usage rate of a material is 50 units and the lead time is seven days, then

Reorder level = Average daily usage rate x Lead time in days
= 50 units x 7 days
= 350 units

When the inventory level reaches 350 units, an order should be placed for material. By the time, the inventory level reaches zero towards the end of the seventh day from placing the order materials will reach and there is no cause for concern.

**Safety Stock**

Once again, in real life situations, one rarely comes across lead times and usage rates that are known with certainty. When usage rate and/or lead time vary, then the reorder level should naturally be at a level high enough to cater to the production needs during the procurement period and to provide some measures of safety for, at least, partially neutralizing the degree of uncertainty.

The question will naturally arise as to the magnitude of safety stock. There is no specific answer to this question. However, it depends, *inter alia*, upon the degree of uncertainty surrounding the usage rate and lead time. It is possible to a certain extent to quantify the values that usage rate and lead time can take along with the corresponding chances of occurrence, known as probabilities. These probabilities can be ascertained based on previous experiences and/or the judgmental ability of astute executives. Based on the above values and estimates of stock-out costs and carrying costs of inventory, it is possible to work out the total cost associated with different levels of safety stock.

Once we realize that higher the quantity of safety stock, lower will be the stock-out cost and higher will be the incidence of carrying costs, the formula for estimating the reorder level will call for a trade-off between stock-out costs and carrying costs. The reorder level will then become one at which the total stock-out costs (to be more precise, the expected stock-out costs) and the carrying costs will be at its minimum. We consider below through an illustration the way of arriving at the reorder level in a situation where both usage rate and lead time are subject to variation.

**Example: Nike's Predictive Analytics to Plan Safety Stock Levels**

The level of safety stock to prevent production disruption especially in the event of a shock as experienced during the pandemic was determined by an entity's ability to reroute components and tinker production across its sites. For example, Nike used predictive analytics to selectively mark down goods and reorganise production pretty early at the onset of pandemic to consolidate its reSources and survive the shock. In addition, Nike rerouted its product from brick and mortar stores to direct to customer on line sales by reducing its distributors from 30000 to mere 40. Nike, in doing this, could enhance its second quarter sales of the year 2020 by 9% overall and its online sales grew by 84%.

*Source: https://www.forbes.com/sites/shelleykohan/2020/12/19/pandemic-proof-nike-delivers-another-strong-quarter-with-9-sales-increase/?sh=42c2724c1469 Dated Dec 19, 2020 (Accessed on 26.05.22)*

**Illustration 14.5**

Below are presented the daily usage rate of a material and the lead time required to procure the material along with their respective probabilities (which are independent) for Sigma Company Ltd. The probabilities and the values of usage rate and lead time are based on optimistic, realistic and pessimistic perceptions of the executives concerned.

| Average Daily Usage Rate (units) | Probability of Occurrence | Lead Time (No. of days) | Probability of Occurrence |
|---|---|---|---|
| 200 | 0.25 | 12 | 0.25 |
| 500 | 0.50 | 16 | 0.50 |
| 800 | 0.25 | 20 | 0.25 |

The stock-out cost is estimated to be ₹ 10 per unit while carrying cost for the period under consideration is ₹ 3 per unit. What should be the reorder level based on financial considerations?

From the data contained in the table, we can calculate - the expected usage rate and expected lead time.

The expected usage rate is nothing but the weighted average daily usage rate, where the weights are taken to be the corresponding probability values. Thus, expected daily usage rate

= 200 x 0.25 + 500 x 0.5 + 800 x 0.25

= 50 + 250 + 200

= 500 units.

Similarly expected lead time

= 12 x 0.25 + 16 x 0.5 + 20 x 0.25

= 3 + 8 + 5 = 16 days.

Normal consumption during lead time can be obtained by multiplying the above two values.

(i.e.,) Normal consumption during lead time

= 500 units per day x 16 days = 8,000 units

Since normal consumption during lead time has been obtained as 8000 units, stock-outs can occur only if the consumption during lead time is more than 8,000 units.

Let us enumerate the situations with lead time consumption of more than 8,000 units, along with their respective probabilities of occurrence. This can be achieved by considering the possible levels of usage.

**Possible Levels of Usage**

| **Daily usage rate** | **Lead time in days** | | | **Possible levels of usage** | |
|---|---|---|---|---|---|
| **Units** | **Probability** | **Units** | **Probability** | **Units** | **Probability** |
| 200 | 0.25 | 12 | 0.25 | 2400 | 0.0625 |
| | | 16 | 0.50 | 3200 | 0.1250 |
| | | 20 | 0.25 | 4000 | 0.0625 |
| 500 | 0.5 | 12 | 0.25 | 6000 | 0.1250 |
| | | 16 | 0.50 | 8000 | 0.250 |
| | | 20 | 0.25 | 10000 | 0.1250 |
| 800 | 0.25 | 12 | 0.25 | 9600 | 0.0625 |
| | | 16 | 0.50 | 12800 | 0.1250 |
| | | 20 | 0.25 | 16000 | 0.0625 |

From the above table it is clear that the situations with the lead time consumption of more than 8,000 units (normal usage) are 10,000 units with a probability of 0.1250, 9,600 units with 0.0625, 12,800 units with 0.1250 and 16,000 units with 0.0625 probability. The levels of stock-out are 2,000 units, 1,600 units, 4,800 units and 8,000 units respectively.

Thus, safety stock level can be maintained at any of the above levels and the stock-out cost and carrying cost associated with these various levels are shown below.

**Levels of Safety Stocks and Associated Costs**

| Safety Stock (1) | Stockouts (2) | Probability (3) | Expected Stockout (4) = (2 x 3) | Expected Stockout Cost (5) (₹) | Carrying Cost (6) (₹) | Total Cost (7) (₹) |
|---|---|---|---|---|---|---|
| 8,000 units | 0 | 0 | 0 | 0 | 24,000 | 24,000 |
| 4,800 units | 3,200 units | 0.0625 | 200 units | 2,000 | 14,400 | 16,400 |
| 2,000 units | 6,000 units | 0.0625 | 375 units | 7,250 | 6,000 | 13,250 |
| | 2,800 units | 0.1250 | 350 units | | | |
| | | | 725 units | | | |
| 1,600 units | 6,400 units | 0.0625 | 400 units | 8,500 | 4,800 | 13,300 |
| | 3,200 units | 0.1250 | 400 units | | | |
| | 400 units | 0.1250 | 50 units | | | |
| | | | 850 units | | | |
| 0 | 8,000 units | 0.0625 | 500 units | 14,500 | 0 | 14,500 |
| | 4,800 units | 0.1250 | 600 units | | | |
| | 2,000 units | 0.1250 | 250 units | | | |
| | 1,600 units | 0.0625 | 100 units | | | |
| | | | 1,450 units | | | |

If the safety stock of the firm is 8,000 units, there is no chance of the firm being out of stock. The probability of stock-out is, therefore zero. If the safety stock of the firm is 4,800 units, there is 0.0625 chance that the firm will be short of inventory.

If the safety stock of the firm is 2,000 units, there is stock-out of 6,000 units with a probability of 0.0625 and 2,800 units with a probability of 0.125 based on the possible usage of 16,000 units with probability of 0.0625 and 12,800 with a probability of 0.125 stock-out and the probability of occurrence of stock-out at other levels are calculated in the same way.

**Reorder Point Formula**

Even in a relatively simple situation considered in the illustration above, the amount of calculations involved in arriving at the reorder level is large. In real life situations, the assumption of independence in the probability distributions made in the illustration above may not be valid and the number of time periods may also be large. In such cases, the approach adopted earlier can become much more complex. That is the reason why one can adopt a much simpler formula, which gives reasonably reliable results in calculating at what point in the level of inventory a reorder has to be placed for replenishment of stock. The formula along with its application is given below, using the notation developed earlier.

$$\text{Reorder point} = S \times L + F\sqrt{(S \times R \times L)}$$

Where,

S = Usage in units per day

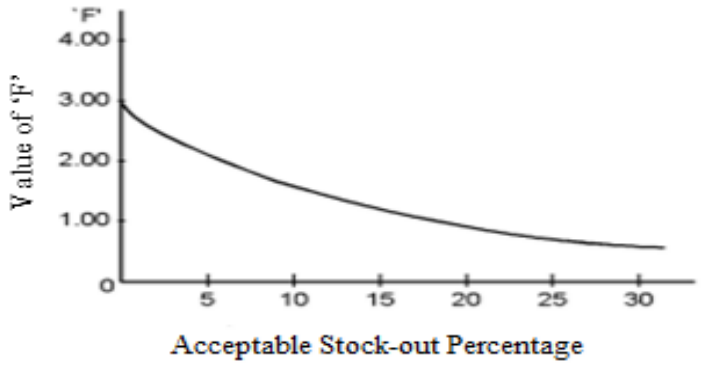
L = Lead time in days

R = Average number of units per order

F = Stockout acceptance factor

The stock-out acceptance factor, 'F', depends on the stock-out percentage rate specified and the probability distribution of usage (which is assumed to follow a Poisson distribution). For any specified acceptable stock out percentage, the value of 'F' can be obtained from the figure presented below.

**Figure 14.4: Value of 'F' for Different Stocks Out Percentage**




*Source: ICFAI Research Center*

**Illustration 14.6**

For Apex company the average daily usage of a material is 100 units, lead time for procuring material is 20 days and the average number of units per order is 2000 units. The stock-out acceptance factor is considered to be 1.3. What is the reorder level for the company?

From the data contained in the problem we have

S = 100 units

L = 20 days

R = 2,000 units

F = 1.3

Reorder level = $S \times L + F \sqrt{(S \times R \times L)}$

= $100 \times 20 + 1.3 \sqrt{(100 \times 2,000 \times 20)}$

= $2,000 + 1.3 \times 2,000 = 4,600$ units

Reorder for replenishment of stock should be placed when the inventory level reaches 4,600 units.

**Stock-level Subsystem**

This stock level subsystem keeps track of the goods held by the firm, the issuance of goods, and the arrival of orders. It maintains records of the current level of inventory. For any period of time, the current level is calculated by taking the beginning inventory, adding the inventory received, and subtracting the cost of goods sold. Whenever this subsystem reports that an item is at or below the reorder point level, the firm will begin to place an order for the item.

## 14.8 The Total System of Inventory Management

The three subsystems are tied together in a single inventory management system. The inventory management system can also be illustrated in terms of the three subsystems that comprise it. The Figure 14.5 below ties each subsystem together and shows the three items of information needed for the decision to order additional inventory.

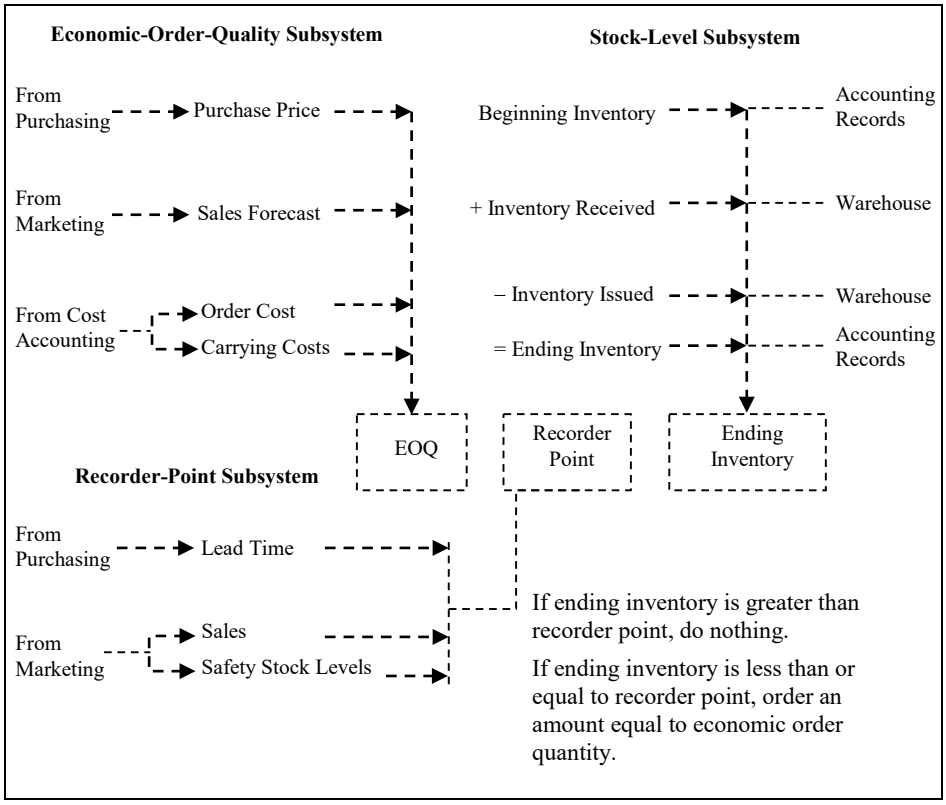
### 14.8.1 Inventory Planning

An important task of working-capital management is to ensure that inventories are incorporated into the firm's planning and budgeting process. Sometimes, the level of inventory reflects the orders received by the general manager of the plant without serious analysis as to the need for the materials or parts. This lack of planning can be costly for the firm, either because of the carrying and financing costs of excess inventory or the lost sales from inadequate inventory. The inventory requirements to support production and marketing should be incorporated into the firm's planning process in an orderly fashion.

### 14.8.2 The Production Side

The first step in inventory planning deals with the manufacturing mix of inventory items and end products. Every product is made up of a specified list of components. The analyst must recognize the different mix of components in each finished product. Each item maintained in inventory will have a cost. This cost may vary based on volume purchases, lead time for an order, historical agreements, or other factors. For the purpose of preparing a budget, each item must be assigned a unit cost.

**Figure 14.5: Three Subsystems of the Inventory-Management System**




*Source: ICFAI Research Center*

Once the mix of components is known and each component has been assigned a value, the analyst can calculate the materials cost for each product, which is the weighted average of the components and the individual products.

### 14.8.3 The Marketing Side

The second step in inventory planning involves a forecast of unit requirements during the future period. Both a sales forecast and an estimate of the safety level to support unexpected sales opportunities are required. The marketing department should also provide pricing information so that higher profit items receive more attention.

### 14.8.4 Inventory Database

An important component of inventory planning involves access to an inventory database. A database is a collection of data items arranged in files, fields and records. Essentially, we are working with a structured framework that contains the information needed to manage all items of inventory effectively, from raw materials to finished goods. This information includes the classification and amount of inventories, demand for the items, cost to the firm for each item, ordering costs, carrying costs, and other data.

**Example: Use of Technology for Inventory Management**

BJC Health Care is one of the largest non-profit health care organization in the United States. It runs its facilities in Illinois and Missouri. It uses Radio Frequency Identification Technology (RFID) to track and deal with huge number of surgery tools, medicinal stock supplies, and track their validity dates. In comparison to manual reordering process which often resulted in excess inventory, through RFID the organization could gain a real-time view of each medicine and its location, expiration date, etc. It automatically orders medicine when a medicine stock is low. This shows how with the use of technology inventory management can be much effective.

*Source: https://www.assetinfinity.com/blog/big-brands-uses-rfid-technology (Accessed on 28.06.22)*

The first component of inventory data base deals with the movement of individual items and the second component of inventory management data involves information needed to make decisions on rendering or replenishing the items.

The task of inventory planning can be highly complex in manufacturing environments. At the same time, it rests on fundamental principles. The system used for inventory must tie into the operations of the firm. Inventory planning and management must be responsive to the needs of the firm. The firm should design systems, including reports that allow it to make proper business decisions.

## Check Your Progress - 2

6. What is Economic Order Quantity (EOQ)?
   a. Optimal order size
   b. Constant order size
   c. Minimum order size
   d. Maximum order size
   e. Fluctuating order size
7. Which of the following indicates the total ordering cost?
   a. UF / Q
   b. QPC / 2
   c. UD
   d. UF /2 + QPC /2
   e. 2 UF = $Q^2PC$
8. Which of the following is not a causal effect on the EOQ model due to constant price increases in inventories?
   a. Anticipatory buying
   b. Increase in interest rates
   c. Decline in optimal order quantity

d. Decline in carrying cost
e. High incidence of cost of carrying inventory

9. How would you assess the re-order point that is the point that allows the firm to protect against shortages by placing new orders, to avoid out of stock with minimum inventories held?
   a. Normal consumption during lead time + average stock
   b. Normal Consumption during lead time + safety stock
   c. Normal Consumption during lead time – safety stock
   d. Normal Consumption during lead time – average stock
   e. Normal Consumption during lead time + re-order stock
10. Which of the following options represent the forecasting of the inventory requirements of business based on the production and marketing department's budgets?
   a. Inventory planning
   b. Operational financing
   c. Tactical planning
   d. Inventory sub-system
   e. Inventory financing

## 14.9 Other Inventory Management Techniques

In the above paragraphs we dealt with the importance of inventory management and some of the techniques used in inventory management . It may be noted that there is no the technique that fits all situations in all firms. For instance, EOQ is used mostly for ascertaining the order size that is economical while it may not give you information on how to control inventories. Thus, there is a need to be aware of other inventory management techniques which provide this information.

Though EOQ is a popular inventory management, there are other methods which have gained significance. Among them, two methods – the ABC system and the VED analysis are worth a mention.

### 14.9.1 The ABC System

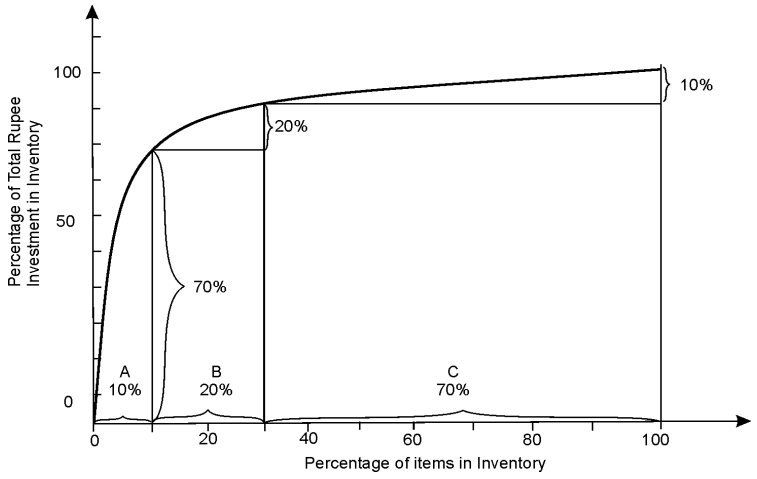
In the case of a manufacturing company of reasonable size, the number of items of inventory runs into hundreds, if not more. From the point of view of monitoring information for control, it becomes extremely difficult to consider each one of these items. The ABC analysis comes in quite handy and enables the management to concentrate attention and keep a close watch on a relatively less number of items which account for a high percentage of the value of annual usage of all items of inventory.

A firm using the ABC system segregates its inventory into three groups – A, B and C. The A items are those in which it has the largest rupee investment. In the Figure 14.6, which depicts the typical distribution of inventory items, 'A' group

consists about 10 percent of the inventory items that account approximately for 70 percent of the firm's rupee investment. These are the most costly or the slowest turning items of inventory. The 'B' group consists of the items accounting for the next largest investment. This group consists approximately 20 percent of the items accounting for about 20 percent of the firm's rupee investment. The C group typically consists of a large number of items accounting for a small rupee investment. 'C' group consists of approximately 70 percent of all the items of inventory, but accounts for only about 10 percent of the firm's rupee investment. Items such as screws, nails, and washers would be in this group.

Dividing its inventory into A, B, and C items allows the firm to determine the level and types of inventory control procedures needed. Control of the A items should be most intensive due to the high rupee investments involved, while the B and C items would be subject to correspondingly less sophisticated control procedures.

**Figure 14.6: Typical Distribution of Inventory Items – ABC System**




*Source: ICFAI Research Center*

The general procedure for categorization of items into 'A', 'B' and 'C' groups is briefly outlined below followed by an illustration.

- All the items of inventory are to be ranked in the descending order of their annual usage value.
- The cumulative totals of annual usage values of these items along with their percentages to the total annual usage value are to be noted alongside.
- The cumulative percentage of items to the total number of items is also to be recorded in another column.
- An approximate categorization of items into A, B, and C groups can be made by comparing the cumulative percentage of items with the cumulative percentage of the corresponding usage values.

**Illustration 14.7**

From the following details, draw a plan of ABC Selective Control.

Inventory Items and Unit Cost of XY Ltd.

| Item | Units | Unit Cost (₹) |
|---|---|---|
| 1. | 7,000 | 5.00 |
| 2. | 24,000 | 3.00 |
| 3. | 1,500 | 10.00 |
| 4. | 600 | 22.00 |
| 5. | 38,000 | 1.50 |
| 6. | 40,000 | 0.50 |
| 7. | 60,000 | 0.20 |
| 8. | 3,000 | 3.50 |
| 9. | 300 | 8.00 |
| 10. | 29,000 | 0.40 |
| 11. | 11,500 | 7.10 |
| 12. | 4,100 | 6.20 |

**Solution**

Ranking of Items According to their Usage Value

| Item | Units | Unit Cost (₹) | Total Cost (₹) | % of Total Cost | Ranking |
|---|---|---|---|---|---|
| 1. | 7,000 | 5.00 | 35,000 | 9.8 | 4 |
| 2. | 24,000 | 3.00 | 72,000 | 20.2 | 2 |
| 3. | 1,500 | 10.00 | 15,000 | 4.2 | 7 |
| 4. | 600 | 22.00 | 13,200 | 3.7 | 8 |
| 5. | 38,000 | 1.50 | 57,000 | 16.0 | 3 |
| 6. | 40,000 | 0.50 | 20,000 | 5.6 | 6 |
| 7. | 60,000 | 0.20 | 12,000 | 3.4 | 9 |
| 8. | 3,000 | 3.50 | 10,500 | 3.0 | 11 |
| 9. | 300 | 8.00 | 2,400 | 0.7 | 12 |
| 10. | 29,000 | 0.40 | 11,600 | 3.3 | 10 |
| 11. | 11,500 | 7.10 | 81,650 | 23.0 | 1 |
| 12. | 4,100 | 6.20 | 25,420 | 7.1 | 5 |
| | | | 3,55,770 | 100.0 | |

The advantages of this system are as follows:

i. It ensures closer control on costly items in which a large amount of capital has been invested.

ii. It helps in developing a scientific method of controlling inventories, clerical costs are reduced and stock is maintained at optimum level.

iii. It helps in achieving the main objective of inventory control at minimum cost. The stock turnover rate can be maintained at a comparatively higher level through scientific control of inventories.

The system of ABC analysis suffers from a serious limitation. The system analyzes the items according to their value and not according to their importance in the production process. It may, therefore, sometimes create difficult problems. For example, an item of inventory may not be very costly and hence it may have been put in category C. However, the item may be very important to the production process because of its scarcity. Such an item as a matter of fact requires the utmost attention of the management though it is not advisable to do so as per the system of ABC analysis. Hence, the system of ABC analysis should not be followed blindly.

The required plan of ABC selective control can now be drawn as:

ABC Plan of XY Ltd.

| Items in order of ranking | Item numbers | Percentage of total items | Value | Cumulative value (₹) | Cumulative percentage | Percentage of total value | Category |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 25% | 81,650 | 81,650 | 23.0 | 59.2% | A |
| 2 | | | 72,000 | 1,53,650 | 43.2 | | |
| 3 | | | 57,000 | 2,10,650 | 59.2 | | |
| 4 | 4 | 33.3% | 35,000 | 2,45,650 | 69.0 | 26.8% | B |
| 5 | | | 25,420 | 2,71,070 | 76.2 | | |
| 6 | | | 20,000 | 2,91,070 | 81.8 | | |
| 7 | | | 15,000 | 3,06,070 | 86.0 | | |
| 8 | 5 | 41.7% | 13,200 | 3,19,270 | 89.7 | 14% | C |
| 9 | | | 12,000 | 3,31,270 | 93.1 | | |
| 10 | | | 11,600 | 3,42,870 | 96.4 | | |
| 11 | | | 10,500 | 3,53,370 | 99.3 | | |
| 12 | – | – | 2,400 | 3,55,770 | 100.0 | – | |
| **Total** | **12** | **100** | **3,55,770** | | | **100** | |

### 14.9.2 Monitoring of Stores and Spares – VED analysis

Just like ABC Analysis for classification of inventories, there is an inventory management technique called VED Analysis for monitoring and control of stores and spares inventory by classifying them into 3 categories viz., Vital, Essential and Desirable. The mechanics of VED analysis are similar to those of ABC Analysis.

### 14.9.3 Pricing of Inventories

There are different ways of valuing the inventories and a knowledge of these methods of valuing stocks is essential for an efficient inventory management process. The following methods can be adopted to value the raw material:

- First-In-First-Out (FIFO): When a firm adopts the FIFO method to price its raw material, the issue of material from the stores will be in the order, which it was received. Thus, the pricing will be based on the cost of material that was obtained first.
- Last-In-First-Out (LIFO): In the LIFO method, the material issued will be priced based on the material that has been purchased recently.
- Weighted Average Cost Method: The pricing of materials will be done on weighted average basis (weights will be given based on the quantity).
- Standard Price Method: Material is priced based on a standard cost that is predetermined. When the material is purchased, the stock account will be debited with the standard price. The difference between the purchase price and the standard price will be carried into a variance account.
- Replacement/Current Price Method: In this method, material is priced at the value that is realizable at the time of the issue.

**Illustration 14.8**

The following information is extracted from the stores ledger of M/s Meena Ltd.

Material: X

Opening Stock: NIL

| | |
|---|---|
| Purchases: | |
| July 1 | 175 units @ ₹ 1 per unit |
| July 12 | 175 units @ ₹ 2 per unit |
| Issues: | |
| July 21 | 105 units |
| July 30 | 70 units |

i. Complete the receipts and issues valuation by adopting the FIFO, LIFO and Weighted Average Method.

ii. If the standard price is ₹ 1.25 per unit for the year and the replacement costs of the material on July 21 and July 30 are ₹ 1.25 and ₹ 1.75 respectively, then show the stock ledger account using the standard price method and the replacement price method.

The illustration has been solved in the following tables.

### 14.9.4 Valuation of Work-in-process and Finished Stock

The valuation of work-in-process and finished goods inventory depends to a certain extent on the method of pricing the raw material and to a large extent on the method of costing used to apportion the fixed manufacturing overheads. Direct Costing and Absorption Costing are the two techniques used for allocation of costs to the inventory.

Direct costing is based on the traceability of cost to the cost objective. All indirect costs (which may include fixed manufacturing overheads) are charged to the income statement and are known as period costs. If the fixed costs are directly identifiable, then it is considered for inventory valuation.

Absorption costing is a technique that treats the fixed manufacturing overheads as product costs. Thus, all costs, i.e., both fixed and variable will be assigned to the inventory value.

This difference in approach to costing will affect the inventory value and also the profits. The direct costing method lowers the inventory value (by not considering the indirect costs) and increases profits with a decrease in inventory level (when the inventory level decreases the direct costs come down while the fixed costs remain the same). Contrary to this, the inventory valuation will be higher for stocks valued under absorption costing method as it considers all the fixed manufacturing overheads.

i. Statement showing the valuation of raw material using FIFO, LIFO and Weighted Average Methods:

**Stores Ledger for Material X**

| | | | | | FIFO Method | | | | | | LIFO Method | | | | | | Weighted Average Method | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Receipts | | | Issues | | | Balance | | | Issues | | | Balance | | | Issues | | | Balance | | |
| Date | Particulars | Qty. | Rate (₹) | Value (₹) | Qty. | Rate (₹) | Value (₹) | Qty. | Rate (₹) | Value (₹) | Qty. | Rate (₹) | Value (₹) | Qty. | Rate (₹) | Value (₹) | Qty. | Rate (₹) | Value (₹) | Qty. | Rate (₹) | Value (₹) |
| July 1 | Purchases | 175 | 1 | 175 | | | | 175 | 1 | 175 | | | | 175 | 1 | 175 | | | | 175 | 1 | 175 |
| July 12 | Purchases | 175 | 2 | 350 | | | | 350 | 2 | 525 | | | | 350 | 2 | 525 | | | | 350 | 2 | 525 |
| July 21 | Issued | | | | 105 | 1 | 105 | 70 | 1 | 70 | 105 | 2 | 210 | 175 | 1 | 175 | 105 | 1.5* | 157.5 | 245 | 1.5 | 367.5 |
| | | | | | | | | 175 | 2 | 350 | | | | 70 | 2 | 140 | | | | | | |
| July 30 | Issued | | | | 70 | 1 | 70 | 175 | 2 | 350 | 70 | 2 | 140 | 175 | 1 | 175 | 70 | 1.5 | 105 | 140 | 1.5 | 262.50 |
| | | | | | 35 | 2 | 70 | 140 | 2 | 280 | 35 | 1 | 35 | 140 | 1 | 140 | | | | | | |

* Weight Average Rate $= \frac{175 \times 1 + 175 \times 2}{175 + 175} = 1.50$

ii. Statement showing the valuation of stock using the standard price method and replacement method:

**Stores Ledger Account**

| | | | | Standard Price Method | | | | | Replacement Method | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Receipts | | | Issues | | | Stock | | Issues | | | Stock | |
| Date | Qty. | Rate (₹) | Value (₹) | Qty. | Rate (₹) | Value (₹) | Qty. | Value (₹) | Qty. | Rate (₹) | Value (₹) | Qty. | Value (₹) |
| July 1 | 175 | 1 | 175 | | | | 175 | 175 | | | | 175 | 175 |
| July 12 | 175 | 2 | 350 | | | | 350 | 525 | | | | 350 | 525 |
| July 21 | | | | 105 | 1.15 | 120.75 | 245 | 404.25 | 105 | 1.25 | 131.25 | 245 | 393.75 |
| July 30 | | | | 70 | 1.15 | 80.50 | 175 | 323.75 | 70 | 1.75 | 122.75 | 175 | 271.25 |

## 14.10 Inventory and the Finance Manager

Although inventory management usually is not the direct operating responsibility of the finance manager, the allocation of funds for inventory is an important aspect of financial management. Consequently, the finance manager must be familiar with ways to control inventories effectively, so that capital may be allocated efficiently.

The inventory control methods described in this unit give us a means for determining an optimal level of inventory, as well as how much should be ordered and when. These tools are necessary for managing inventory efficiently and balancing the advantages of additional inventory against the cost of carrying it. Computers have opened new vistas in inventory control, and operations research has many applications to inventory management – all beyond the scope of this unit.

The greater the opportunity cost of funds invested in inventory, the lower is the optimal level of average inventory and also the lower the optimal order quantity, all other things held constant. The EOQ model also can be useful to the Finance Manager in planning for inventory financing.

When demand or usage of inventory is uncertain, the finance manager may try to effect policies that will reduce the average lead time required to receive inventory, once an order is placed. The lower the average lead time, the lower is the safety stock needed and lower is the total investment in inventory, all other things held constant. The greater the opportunity cost of funds invested in inventory, the greater is the incentive to reduce this lead time. The purchasing department may try to find new vendors that promise quicker delivery, or it may pressure existing vendors to deliver faster. The production department may be able to deliver finished goods faster by producing a smaller run. In either case, there is tradeoff between the added cost involved in reducing the lead time and the opportunity cost of funds tied up in inventory.

The finance manager is also concerned with the risks involved in carrying inventory. The major risk is that the market value of specific inventories will be less than the value at which they were acquired. Certain types of inventory are

subject to obsolescence, whether it be in technology or in consumer tastes. A change in technology may make an electronic component worthless. A change in style may cause a retailer to sell dresses at substantially reduced prices. Other inventories, such as agricultural products, are subject to physical deterioration. With deterioration, of course, inventories will have to be sold at lower and lower prices, all other things remaining the same. In other situations, the principal risk is that of fluctuations in market price. Some items of inventory, such as copper, are subject to rather wide price swings. The finance manager is perhaps the best person to make an objective analysis of the risks associated with the firm's investment in inventories. These risks must be considered in determining the appropriate level of inventory the firm should carry.

The opportunity cost of funds is the link by which the finance manager ties inventory management to the overall objective of the firm. In this regard, inventory can be treated as an asset to which capital is committed, as in any capital-budgeting project. Different items of inventory may involve different risks, and these differences can be incorporated into an analysis of risk similar to that for capital budgeting. Our discussion in this chapter has focused on determining an optimal level of investment. We know that greater the efficiency with which the firm manages its inventory, lower is the required investment and greater is the shareholder wealth, all other things remaining the same.

| **Activity 14.2** |
| --- |
| With the system of medicinal requirements transforming into a more complex, effective, sophisticated and expensive system, there is a need for an efficient inventory control system to estimate and analyze the usage of each drug consumption to bring a better control in terms of expenditure and shelf life. In this context, assuming yourself as medical stores manager, which method of inventory control system will you implement and why? |
| **Answer:** |
| |
| |
| |

## 14.11 Summary

- Inventory forms a substantial part of current assets for any manufacturing or trading organization and includes raw materials, stores and spares, work-in-progress and finished goods.
- Maintaining an inventory is absolutely essential for most companies for five main reasons: avoiding lost sales, gaining quantity discounts, reducing order

costs, achieving efficient production runs and reducing the risk of production shortages.

- Inventory management comprises control of assets that are being produced for the purpose of sale. The objective of inventory management is to minimize total costs – both direct as well as indirect.
- The direct costs include material costs, ordering costs and carrying costs, while the indirect costs comprise the cost of funds tied up in inventory and the cost of running out of goods.
- While an increase in the size of the order can decrease the ordering costs, this will however increase the carrying costs. Therefore, a proper balance between the two is required to minimize the total costs of holding inventory.
- Economic order quantity is the optimal order size that will result in the lowest total ordering and carrying costs for a given usage level, and given ordering costs and carrying costs.
- Although inventory management usually is not the direct operating responsibility of the finance manager, the investment of funds in inventory is an important aspect of financial management. Consequently, the finance manager must be familiar with ways to control inventories effectively, so that capital may be allocated efficiently.
- The greater the opportunity cost of funds invested in inventory, the lower is the optimal level of average inventory and also the optimal order quantity, all other things held constant. The EOQ model is useful to the finance manager planning for inventory financing.
- When demand or usage of inventory is uncertain, the finance manager may try to effect policies that will reduce the average lead time required to receive inventory, once an order is placed.
- The lower the average lead time, the lower is the safety stock needed and the lower is the total investment in inventory, all other things held constant. The greater the opportunity cost of funds invested in inventory, the greater is the incentive to reduce this lead time.
- The purchasing department may try to find new vendors that promise quicker delivery, or it may pressurize existing vendors to deliver faster. The production department may be able to deliver finished goods faster by producing a smaller run. In either case, there is a tradeoff between the added cost involved in reducing the lead time and the opportunity cost of funds tied up in inventory.
- The Finance Manager is also concerned with the risks involved in carrying inventory. The major risk is that the market value of specific inventories will be less than the value at which they were acquired.
- Certain types of inventory are subject to obsolescence, whether it be in technology or in consumer tastes. A change in technology may make an electronic component worthless. A change in style may cause a retailer to sell dresses at substantially reduced prices. Other inventories, such as agricultural

products, are subject to physical deterioration. With deterioration, of course, inventories will have to be sold at lower and lower prices, all other things remaining the same.

- In other situations, the principal risk is that of fluctuations in market price. Some items of inventory, such as copper, are subject to rather wide price swings.
- The finance manager, perhaps, is the best person to make an objective analysis of the risks associated with the firm's investment in inventories. These risks must be considered in determining the appropriate level of inventory the firm should carry.

## 14.12 Glossary

**ABC Analysis** is a selective approach to inventory control which calls for a greater concentration on inventory items accounting for the bulk of usage value.

**Absorption Costing** is a technique that treats the fixed manufacturing overheads as product costs.

**Carrying Cost** is cost of holding inventory that includes warehouse costs, financial costs and inventory costs.

**Cost of Running Out of Goods** are costs associated with the inability to provide materials to the production department and/or inability to provide finished goods to the marketing department as the requisite inventories are not available.

**Creation Lag** is the time lag involved between creation of inventory and making the payment for it. This time lag gives liquidity to the business.

**Direct Costing** is based on the traceability of cost to the cost objective. All indirect costs (which may include fixed manufacturing overheads) are charged to the income statement and are known as period costs.

**Economic Order Quantity** is the quantity of goods ordered which minimizes the sum of inventory ordering cost and inventory carrying cost.

**Inflation** is the act of rise in prices levels leading to fall in purchasing value of currency.

**Inventories** include raw material inventory, work-in process inventory and finished goods inventory.

**Inventory Management** involves the control of assets being produced for the purposes of sale in the normal course of the company's operations.

**Lead Time** is the time gap between placement of order and delivery of goods scheduled.

**Material Costs** are the costs of purchasing the goods including transportation and handling costs.

**Optimum Production Size** is at that level where the total of the set-up cost and the inventory carrying cost is the minimum.

**Ordering cost** is the cost incurred in placing an order for inventory.

**Raw Material Inventory** consists of basic materials that have not yet been committed to production in a manufacturing firm.

**Re-order Point** is the inventory level that triggers to place new orders for replenishment.

**Sales Lag** is the time lag in converting credit sales into cash. It represents a cost to the business.

**Shelf Stock** refers to items that are stored by the firm and sold with little or no modification to customers.

**Stock Level Subsystem** keeps track of the goods held by the firm, the issuance of goods, and the arrival of orders. It maintains records of the current level of inventory.

**Stock Out Cost** is the cost associated with loss of funds caused by exhaustion of inventory.

**Storage Lag** is the time lag in converting goods available for sale into sales. It represents a cost to the business.

**Stores and Spares** includes those products, which are accessories to the main products produced for the purpose of sale. Examples of stores and spares items are bolts, nuts, clamps, screws, etc.

**VED Analysis** is used to categorize items on the basis of criticality namely Vital, Essential and Desirable items for an industry or company.

**Work-in-process Inventory** includes those materials that have been committed to the production process but have not been completed.

## 14.13 Self-Assessment Test

1. How does inventory play a vital part in working capital? – Discuss.
2. State the nature and purpose of inventories.
3. How are costs classified? Describe the cost categories associated with inventories.
4. Explain the inventory technique used to measure the optimal production quantity of a firm's inventory.
5. Enumerate on the changes that effect when the order size is greater or equal to minimum quantity quoted by the supplier to avail bulk purchase discount with example.
6. What is reorder point? Explain the method of reorder stock system.
7. Explain the various methods adopted in valuing raw material, drafted in stores ledger with necessary examples.
8. Give a detailed note on the roles and responsibilities of Finance Manager for an effective working system of inventory management.

## 14.14 Suggested Readings / Reference Material

1. Brealey Myers (2020). Principles of Corporate Finance, 13th edition, USA: McGraw-Hill Companies Inc.
2. Prasanna Chandra (2019). Financial Management – Theory and Practice, 10th edition, New Delhi: Tata McGraw-Hill.
3. I.M. Pandey (2021). Financial Management, 12th edition, New Delhi: Pearson Education.
4. Francis Cherunilam (2020). International Business — Text and Cases, 6th Edition, PHI Learning.
5. P.G. Apte (2020). International Financial Management, 8th Edition, McGraw Hill Education (India) Private Limited.
6. John Tennent (2018). The Economist Guide to Financial Management. Economist Books.

## 14.15 Answers to Check Your Progress Questions

**1. (d) Liquidity lags**

Inventories are tied to the firm's pool of working capital in a process that is referred to as liquidity lags. It involves three specific lags-creation lag, sales lag and storage lag.

**2. (a) To avoid lost sales**

Without goods on hand that are ready to be sold, most firms would lose business. In most cases, however, a firm must be prepared to deliver goods on demand.

**3. (b) Stores and spares**

This category includes those products, which are accessories to the main products produced for the purpose of sale. Examples of stores and spares items are bolts, nuts, clamps, screws, etc.

**4. (e) Opportunity costs**

Opportunity costs refer to the costs incurred by firms which are tied-up with excess inventory representing lost funds, by foregoing the use of such funds in profit-making or other business activities.

**5. (a) Cost of running out of goods**

These are costs associated with the inability to provide materials to the production department and/or inability to provide finished goods to the marketing department as the requisite inventories are not available. In other words, the requisite items have run out of stock for want of timely replenishment. These costs have both quantitative and qualitative dimensions.

**6. (a) Optimal order size**

Economic Order Quantity (EOQ) refers to the optimal order size at a pre-determined ordering and carrying costs of inventory.

**7. (e) $2UF = Q^2 PC$**

The order quantity Q becomes EOQ when the total ordering costs at Q is equal to the total carrying costs. Using the notation, it amounts to stating:

$$\frac{UF}{Q} = \frac{QPC}{2} \qquad \text{(i.e.) } 2UF = Q^2 PC$$

**8. (a) Anticipatory Buying**

Inflation affects the EOQ model in two major ways. First, while the EOQ model can be modified to assume constant price increases, many times major price increases occur only once or twice a year and are announced ahead of time. If this is the case, the EOQ model may lose its applicability and may be replaced with anticipatory buying – that is buying in anticipation of a price increase in order to secure the goods at a lower cost.

**9. (b) Reorder Point= Normal consumption during lead time + Safety Stock.**

It is calculated by the formula,

Reorder Point = Normal consumption during lead time + Safety Stock.

**10. (a) Inventory Planning**

The inventory requirements to support production and marketing should be incorporated into the firm's planning process in an orderly fashion.

# Unit 15

# Receivables Management

## Structure



*"Entrepreneurs believe that profit is what matters most in a new enterprise. But profit is secondary. Cash flow matters most."*

– Peter Drucker

## 15.1 Introduction

And from where does business get its cash flows? One of the Sources for cash inflows is 'Receivables'. Hence receivables management is of paramount importance for any business organization. Business firms generally sell goods on credit, to facilitate sales, especially from those customers who cannot borrow from other Sources, or find it very expensive or difficult to do so.

Finished goods sold on credit are converted (from the point of view of the selling firm) into receivables (book debts) which when realized generate cash. Since receivables often account for a significant proportion of the total assets, the management of receivables assumes significance.

**Example: Working Capital Pressures due to Rising Receivables of Indian SMEs in 2022**

According to ratings and research firm 'India Ratings & Research (Ind-Ra)', Small and Micro Enterprises (SMEs) in the country are going through elevated working capital pressures largely due to rising receivables with their buyers and a lack of a similar increase in creditors.

*Contd. .....*

After analyzing data of the top 1,500 non-financial large corporates in April 2022, Ind-Ra found that the payables by top 10 large corporates to SMEs, as a share of their total payables, had jumped to 1.24 percent in FY21 from 0.35 percent in FY18. The rise in payables was much sharper among the top 51-100 corporates to 2.76 percent in FY21 from 0.12 percent in FY15.

*Source: https://www.financialexpress.com/industry/sme/msme-fin-smes-facing-elevated-working-capital-pressures-largely-due-to-rising-receivables-india-ratings/2485291/ Dated April 8, 2022 (Accessed on 6th July, 2022)*

## 15.2 Objectives

After reading through the unit, you should be able to:

- Understand the significance of receivables management in meeting the business objective of profitability through improved sales revenue.
- Identify the costs involved in maintaining receivables to compare them with the benefits accrued from receivables and arrive at optimum level of receivables
- Analyse the inter-relationship of firm's credit policy and the level of investments in receivables to arrive at a credit policy that promotes sales
- Determine the variables in a credit policy that will ensure that the policy is neither too stringent nor liberal
- Monitor the receivables using various techniques to ensure their timely realization

## 15.3 Purpose of Receivables

A firm has to manage its receivables effectively for the sustenance of the business . To meet this goal one of the important things to focus is maintaining receivables at "affordable levels" and the monitor the costs associated with such receivables. Only after making a cost-benefit analysis the business will be able to arrive at the right level of receivables that will boost its sales and revenue without inflating the costs.

The purpose of receivables can be understood if we can grasp the basic objective of receivables management. The objective of receivables management is to promote sales and profits until that point is reached where the returns that the company gets from funding of receivables is less than the cost that the company has to incur in order to fund these receivables. Hence, the purpose of receivables is directly connected with the company's objectives of making credit sales, which are:

- To increase total sales- because when a company sells goods on credit, it will be in a position to sell more goods than if it insists on immediate cash payment.
- To increase profits- because this results in an increase in sales not only in volume, but also because companies charge a higher margin of profit on credit sales as compared to cash sales.

– To meet increasing competition; and for this the company may have to grant better credit facilities than those offered by its competitors.

### 15.3.1 Cost of Maintaining Receivables

Though receivables are maintained with the objective of increasing sales, their maintenance involves cost. The components of such cost are:

**Additional fund requirement for the company**

When a firm maintains receivables, some of the firm's reSources remain blocked in them because there is a time lag between the credit sale to the customer and receipt of cash from them as payment. To the extent that the firm's reSources are blocked in its receivables, it has to arrange additional finance to meet its own obligations towards its creditors and employees, like payments for purchases, salaries and other production and administrative expenses. Whether this additional finance is met from its own reSources or from outside, it involves a cost to the firm in terms of interest (if financed from outside) or opportunity costs (if internal reSources, they could have been put to some other use.)

**Administrative costs**

When a company maintains receivables, it has to incur additional administrative expenses in the form of salaries to clerks who maintain records of debtors, expenses on investigating the creditworthiness of debtors, etc.

**Collection costs**

These are costs, which the firm has to incur for collection of the amounts at the appropriate time from the customers.

**Defaulting costs**

When customers make default in payments, not only is the collection effort to be increased but the firm may also have to incur losses from bad debts.

The size of receivables or investment in receivables is determined by the firm's credit policy and the level of its sales. The following aspects of receivables management are discussed in this unit:

- Formulation of credit policy
- Credit evaluation
- Credit granting decision
- Monitoring receivables

**Example: Accounts Receivables Management of Health Care Industry**

Typically, most of the debtors of health providers are not the consumers themselves but the insurance companies. It was reported that medical billing companies lose a lot of money due to a lack of follow-up on outstanding claims with the insurance companies. The 'e-care AR follow-up services' are structured to be a complete solution provider to address difficulties that occur in cash flows and are operated as a part of the medical billing team.

*Contd. ……*

The AR team works to recover the funds owed to the client as quickly as possible. They aim at accelerating cash flows and reducing the accounts receivable days by submitting error-free clean claims, proper analysis of denied claims, and regular follow-ups with insurance companies and patients for outstanding claims and dues. Here the fee charged by AR has to be compared with the internal costs of running the department and additional revenues generated by the AR firm to finalize a decision.

*Source: https://www.ecareindia.com/accounts-receivable-management.html (Accessed June 5, 2022)*

## 15.4 Credit Policy

Whenever a firm decides to conduct credit sales, it has to look into several factors that impact this decision. These factors can be:

- How should the customers be selected?
- How much time should be given to the customers for repayment?
- How to encourage the customers to make prompt payment?
- How to collect the payment?

The answer to all these questions lie in evolving a credit policy that outlines a company's policy towards receivables and its management. A critical component of receivables management is thus formulating a credit policy that is nether too stringent nor liberal.

The credit policy of a company can be regarded as a kind of trade-off between increased credit sales leading to increase in profit and the cost of having a larger amount of cash locked up in the form of receivables and the loss due to the incidence of bad debts. In a competitive market, the credit policy adopted by a company is considerably influenced by the practices followed by the industry. A change in the credit policy of a company, say, by extending credit period to 30 days, when the other companies are following a credit period of 15 days can result in such a high demand for the company's product that it cannot cope with. Further, other companies also may have to fall in line in the long run. It is assumed generally that such factors have already been taken into consideration before making changes in the credit policy of a company.

The term credit policy encompasses the policy of a company in respect of the credit standards adopted, the period over which credit is extended to customers, any incentive in the form of cash discount offered, as also the period over which the discount can be utilized by the customers and the collection effort made by the company.

Thus, the various variables associated with credit policy are:

1. Credit standards
2. Credit period
3. Cash discount
4. Collection program.

All these variables underlying a company's credit policy influence sales, the amount locked up in the form of receivables and some of the receivables turning sour and eventually becoming bad debts. While the variables of credit policy are related to each other, for the purpose of clarity in understanding, we shall follow what is technically known as comparative static analysis by considering each variable independently, holding some or all others constant, to study the impact of a change in that variable on the company's profit. It is also assumed that the company is making profits and has adequate unutilized capacity to meet the increased sales caused by a change in some variables without incurring additional fixed costs like wages and salaries, rent, etc.

### 15.4.1 Credit Standards

When a company is confronted with the question of the standards to be applied to customers before deciding whether to extend credit or not, application of very stiff standards for the purpose is likely to result in a low level of sales, less amount of money locked up in the form of receivables, virtually no bad debt losses and less amount to be spent for collection. On the other hand, indiscriminate extension of credit without bothering much about the credit standards expected of the customers is likely to increase sales. However, in its wake, the company is more likely to be saddled with a large quantum of money locked up in the form of accounts receivable, higher incidence of bad debt losses and increased expenses on the collection front. In the United States, there are excellent professional credit rating agencies such as Dun and Bradstreet[6] whose services can be utilized for a consideration. In the Indian situation, most of the reputed agencies exist for credit rating of public issues. Let us assume for the time being (because we shall consider these aspects in the section on credit evaluation) that the company has rated the customers into four categories ranging from 'high', 'good', 'fair' and 'limited' in the descending order of credit rating. Let us also assume that the company has been currently extending credit to only those customers rated as high and good. This way, the company has been foregoing sales from 'fair' and 'limited' categories. The company has been contemplating to increase its sales from its existing level by liberalizing or relaxing its credit standards to some extent. What course of action should it take – liberalize or not?

The answer to the above question lies in making a comparison of the incremental benefits associated with a liberalized policy and the associated incremental costs. The decision to liberalize will be justified only when the net incremental benefits are positive. Before going into the analysis, we have to reckon with the factor that the existing and top-rated customers may take a lenient view in their paying habit once they come to know that the lowly rated customers of the company are taking a longer period for payment than what they themselves have been taking to pay.

[6] An American business services company that provides commercial data to businesses on credit history, business-to-business sales and marketing, counterparty risk exposure, supply chain management, lead scoring and social identity matching.The company's database contains information on more than 265 million companies across 200 countries worldwide.

With a view to facilitate the exposition, it is assumed that the existing customers will not alter their paying habit even after liberalization of credit by the company (lest they be relegated to the lower rated groups) and the company can meet the increase in sales demand without incurring additional fixed costs as stated earlier on.

Let us now consider the items of incremental benefits and incremental costs[7] under the simplified assumptions. A numerical illustration will help in understanding the incremental cost benefit analysis.

**Example: Establishing and Tracking KPIs**

According to 'Gaviti', the A/R Solutions firm, Key Performance Indicators (KPIs) can be used to establish credit standards and optimize the collection management process. The following steps are involved:

1. Setting up KPIs: This should be based on the nature of the business, industry specific and adapted to the size of the organization.
2. Setting up benchmarks for each such metric: This should take the local factors in the country, competition and the times we are in (pandemic/post-pandemic). For example, the ideal debt collection period cannot be the same for normal and pandemic times.

Monitoring KPIs from time to time helps you to identify and predict areas of trouble and take corrective actions.

*Source: https://gaviti.com/5-best-practices-for-improving-a-r-collections-and-management/ Dated July 15, 2020(Accessed June 5, 2022)*

**Illustration 15.1**

The existing sales of Laxmi company are ₹ 2 crore. The current customers are drawn from companies having 'high' or 'good' credit rating. With partially liberalized credit standards the company's sales are likely to go up by ₹ 24 lakh, the mix of new customers being 67 percent and 33 percent from the groups rated 'fair' and 'limited' respectively. The average collection period is likely to be 45 days and the incidence of bad debt losses 10 percent for the new customers. The contribution to sales ratio for Laxmi company is 20 percent and the cost of funds is 15 percent[8].

[7] Ignore Taxes

[8] Under the assumption that fixed costs like salaries and wages, rent, etc. have already been recovered from existing sales, the total contribution on new sales will be the additional profit. Contribution is the difference between sales revenue and variable costs (like the cost of raw material). Thus contribution sales ratio

$$= \frac{\text{Total Contribution}}{\text{Sales Revenue}} = \frac{(\text{Sales Revenue} - \text{Variable Costs})}{\text{Sales Revenue}}$$

When fixed costs are already recovered, the additional contribution will be the profit and is given by Additional Sales Revenue x Contribution to Sales Ratio by the same token the variable costs to be incurred for additional sales

$$= \text{Sales Revenue} \quad 1 - \frac{\text{Contribution}}{\text{Sales Revenue}}$$

Additional profit from increased sales

$$= \text{Increase in sales revenues x } \frac{\text{Contribution}}{\text{Sales revenue}}$$

$$= ₹\ 24,00,000 \text{ x } \frac{20}{100} = ₹\ 4,80,000 \qquad \text{.....(a)}$$

Additional receivables

$$= \frac{\text{Additional Sales Revenue}}{360 \text{ days}} \text{ x Collection Period}$$

$$= \frac{24,00,000}{360} \text{ x } 45 \text{ days} = ₹\ 3,00,000$$

Additional investment in receivables

$$= \text{ Amount of receivables x } \frac{\text{Variable cost}}{\text{Sales revenue}}$$

$$= 3,00,000 \text{ x } \frac{80}{100} = ₹\ 2,40,000$$

Cost of financing the additional investment in receivables

$$= ₹\ 2,40,000 \text{ x } \frac{15}{100} = ₹\ 36,000 \qquad \text{.....(b)}$$

Total amount of bad debt losses

= New sales x Bad debt percentage

$$= ₹\ 24,00,000 \text{ x } \frac{10}{100} = ₹\ 2,40,000 \qquad \text{.....(c)}$$

We have now calculated the relevant amounts in terms of additional benefits and additional costs.

a. Additional profit on new sales = ₹ 4,80,000

**Additional Costs:**

b. Cost of financing additional investment in receivables = ₹ 36,000

c. Amount of bad debt losses on new sales = ₹ 2,40,000

Total of additional costs (b + c) = ₹ 2,76,000

Net additional benefit (a – b – c) = ₹ 2,04,000

Since the net additional benefit is positive being ₹ 2,04,000 liberalization of credit standards is to the advantage of the company and should, therefore, be followed.

The effect of relaxing the credit standards on profit may also be estimated by using the following formula.

$$\Delta P = \Delta S (1 - V) - k \Delta I - b_n \Delta S$$

Where,

$\Delta P$ = Change in profit

$\Delta S$ = Increase in sales

V = Variable costs to sales ratio

$k$ = Cost of capital

$\Delta I$ = Increase in receivables investment

$= \frac{\Delta S}{360}$ x Average Collection Period (ACP) x V

$b_n$ = Bad debts loss ratio on new sales

$1 - V$ = Contribution to sales ratio.

Illustration 15.1 can be reworked by using the above equation to find out the effect of relaxing the credit standards on profit as follows:

$$\Delta P = 24,00,000 \times 0.2 - 0.15 \times \frac{24,00,000}{360} \times 45 \times 0.8$$

$$- 0.1 \times 24,00,000$$

$$= 4,80,000 - 36,000 - 2,40,000 = ₹\ 2,04,000$$

### 15.4.2 Credit Period

The credit period refers to the length of time allowed to customers to pay for their purchases. It generally varies from 15 days to 60 days. If a firm allows, say, 45 days of credit with no discount to induce early payment, its credit terms are stated as "net 45".

Lengthening of the credit period pushes sales up by inducing existing customers to purchase more and attracting additional customers, at the same time increasing receivables investment and incidence of bad debt loss. A shortening of credit period will tend to lower sales as customers decrease; reduce investment in receivables, and reduce the incidence of bad debt loss. Let us consider the impact of lengthening credit period by means of an illustration.

**Illustration 15.2**

Radha company's existing sales are ₹ 180 lakh. It is currently extending a credit period of 'net 30 days' to its customers. The company's contribution to sales ratio is 20 percent and the cost of funds is 15 percent. The company is contemplating to increase its sales by ₹ 16 lakh to be achieved by means of lengthening the existing period to 'net 45 days'. The bad debt losses on additional sales are expected to be 5 percent. Should the company go in for a policy change or not?

To answer the above question, we have to consider the incremental benefits and costs associated with the policy change and a favorable decision taken only if the incremental benefits exceed the incremental costs.

The calculation procedure is outlined below:

Additional profit arising out of new sales

$$= \text{Amount of additional sales} \times \frac{\text{Contribution}}{\text{Sales revenue}}$$

$$= ₹\ 16,00,000 \times \frac{20}{100} = ₹\ 3,20,000 \qquad \text{.....(a)}$$

Because of elongation in the credit period, the existing customers will pay after 45 days, instead of 30 days.

Consequently the increase in receivables on existing sales will be

$$(45 - 30) \text{ x } ₹ \frac{1,80,00,000}{360} = ₹ 7,50,000$$

As the increase in receivables is only on existing sales, which have arisen because of lengthening credit period by 15 days, the full amount of ₹ 7,50,000 will be regarded as investment in receivables.

The amount of receivables arising out of new sales

$$= \text{Amount of new sales x } \frac{45}{360}$$

$$\text{or } ₹ 16,00,000 \text{ x } \frac{45}{360} = ₹ 2,00,000$$

The investment in receivables on new sales

$$= ₹ 2,00,000 \text{ x } \frac{\text{Variable cost}}{\text{Sales revenue}}$$

$$= ₹ 2,00,000 \text{ x } \frac{80}{100}$$

$$= ₹ 1,60,000$$

The total amount of investment in receivables

$$= ₹ 7,50,000 + ₹ 1,60,000$$

$$= ₹ 9,10,000$$

The cost of additional investment in receivables

$$= ₹ 9,10,000 \text{ x } \frac{15}{100}$$

$$= ₹ 1,36,500 \qquad \text{.....(b)}$$

The cost of bad debt losses on new sales

$$= ₹ 16,00,000 \text{ x } \frac{5}{100}$$

$$= ₹ 80,000 \qquad \text{.....(c)}$$

The amount of additional cost associated with increasing credit period = (b) + (c) = ₹ 1,36,500 + ₹ 80,000 or ₹ 2,16,500

The net additional benefit

$$= a - (b + c)$$

$$= ₹ 3,20,000 - ₹ 2,16,500 = ₹ 1,03,500$$

As the net additional benefit is a positive amount of ₹ 1,03,500, the policy change is beneficial to the company.

The effects of increasing the credit period are similar to that of relaxing credit standards and hence, we can estimate the effect on profit of change in credit period using the same formula.

$$\Delta P = \Delta S(1-V) - k\,\Delta I - b_n\,\Delta s$$

The components of the formula are same except

$$\Delta I = (ACP_N - ACP_O)\left[\frac{S_o}{360}\right] + V(ACP_N)\frac{\Delta S}{360}$$

Where,

$\Delta I$ = Increase in investment
$ACP_N$ = New average credit period (after increasing credit period)
$ACP_O$ = Old average credit period
$V$ = Ratio of variable cost to sales
$\Delta S$ = Increase in sales.

The above illustration can be worked out as follows:

$$\Delta P = \Delta S(1-V) - k\,\Delta I - b_n\,\Delta s$$

$$\Delta I = (ACP_N - ACP_0)\left[\frac{S_o}{360}\right] + V(ACP_N)\frac{\Delta S}{360}$$

$$= (45 - 30)\left[\frac{180}{360}\right] + 0.8 \text{ x } 45 \text{ x } \frac{16}{360}$$

$$= 7.5 + 1.6 = ₹\ 9.1 \text{ lakh}$$

$$P = 16\,(0.2) - 0.15 \text{ x } 9.1 - 0.05 \text{ x } 16$$

$$= 3.2 - 1.365 - 0.8$$

$$= ₹\ 1.035 \text{ lakh or } ₹\ 1{,}03{,}500.$$

### 15.4.3 Cash Discount

Firms generally offer cash discounts to induce prompt payments. Credit terms reflect the percentage of discount and the period during which it is available. For example, credit terms of 1/20, net 30 mean that a discount of 1 percent is offered if the payment is made by the 20th day, otherwise the full payment is due by the 30th day.

A company, which is not offering cash discount, may introduce it later to induce prompt payment. Alternatively, a company which has already been offering an incentive of say '1/10, net 30 days may further liberalize by either increasing the rate of discount and/or extending the period of discount. It may be noted that extending the period of discount will only result in customers' taking the discount at the end of the extended period and may not be very fruitful.

Even in the case of cash discount the incremental benefits arising out of additional sales and the reduction in the cost of funds locked up in the form of receivables have to be compared with the amount to be paid in the form of discount and a decision to provide/liberalize cash discount has to be taken only when the incremental net benefit is positive. The steps involved in the incremental analysis are illustrated by means of an illustration.

**Illustration 15.3**

Rama and Co., is presently having sales of ₹ 108 lakh. Its existing credit terms are 1/10, net 45 days and the average collection period is 30 days. Fifty percent of customers in terms of sales revenue are utilizing the cash discount incentive. The contribution to sales ratio of the company is 20 percent and cost of funds 15 percent. In order to hasten the collection process further as also to increase sales, if possible, the company is contemplating liberalization of its existing credit terms to 2/10, net 45 days. It is expected that sales are likely to increase by ₹ 3 lakh and average collection period to decline to 20 days. Eighty percent of customers in terms of sales revenue are expected to avail themselves of the cash discount under the liberalization scheme. Should the company increase its cash discount?

Let us consider the incremental benefits associated with the liberalization of credit terms. These are:

Profit associated with additional sales to be generated and cost savings on the release of funds locked up in receivables.

The incremental costs are:

The cost of funds invested in the receivables arising out of new sales. Additional amount to be paid as cash discount.

Profit to be generated by increase in sales

$$\text{Amount of sales} \times \frac{\text{Contribution}}{\text{Sales}}$$

= ₹ 3,00,000 x 0.2 or ₹ 60,000 .....(a)

Existing cost of carrying receivables

$$= \frac{₹\ 1,08,00,000}{360 \text{ days}} \times 30 \text{ days} \times 0.15$$

= ₹ 1,35,000

Cost of carrying receivables after liberalization

$$= \frac{₹\ 1,08,00,000}{360 \text{ days}} \times 20 \text{ days} \times 0.15$$

= ₹ 90,000

Savings in the cost of carrying receivables

= ₹ 1,35,000 – ₹ 90,000 = ₹ 45,000 .....(b)

Thus, incremental benefits

= a + b = ₹ 60,000 + ₹ 45,000

= ₹ 1,05,000 .....(c)

The cost of funds invested in the receivables arising out of new sales

$$= \frac{₹\ 3,00,000}{360 \text{ days}} \times 20 \text{ days} \times 0.8 \times 0.15$$

= ₹ 2,000 .....(d)

Amount of discount presently paid

$$= ₹\ 1,08,00,000 \times \frac{50}{100} \times \frac{1}{100} = ₹\ 54,000$$

Amount of discount payable after liberalization

$$= ₹\ 1,11,00,000 \times \frac{80}{100} \times \frac{2}{100} = 1,77,600$$

The additional amount of discount payable

= ₹ 1,77,600 – ₹ 54,000 = ₹ 1,23,600 .....(e)

Thus, incremental costs

= (d + e) = ₹ 2,000 + ₹ 1,23,600

= ₹ 1,25,600 .....(f)

A comparison of items (c) and (f), the total incremental benefits and incremental costs reveal that the net incremental benefit is

= ₹ 1,05,000 – ₹ 1,25,600 = – ₹ 20,600

It is, therefore, not advisable to increase the rate of cash discount from 1 to 2 percent.

The effect of such an action on gross profit may be estimated by the following formula.

$$\Delta P = \Delta S(1-V) + k\,\Delta I - \Delta DIS$$

Where,

$\Delta S$ = Increase in sales

V = Ratio of variable cost to sales

k = Cost of capital

$\Delta I$ = Savings in receivables management.

$$= \frac{S_o}{360}(ACP_o - ACP_N) - V\frac{\Delta S}{360}ACP_N$$

$\Delta DIS$ = increase in discount cost

$= p_n (S_o + \Delta S)\, d_n - p_o\, S_o\, d_o$

Where,

$p_n$ = Proportion of discount sales after liberalizing

$S_o$ = Sales before liberalizing

$\Delta S$ = Increase in sales

$d_n$ = New discount percentage

$p_o$ = Proportion of discount sales before liberalizing

$d_o$ = Old discount percentage

The above illustration 15.3 can also be solved using the equation as follows:

$$\Delta P = \Delta S (1 - V) + k \Delta I - \Delta DIS$$

$$\Delta I = \frac{S_o}{360}(ACP_o - ACP_N) - V\frac{\Delta S}{360}ACP_N$$

$$= \frac{108}{360}(30 - 20) - 0.8 \times \frac{3}{360} \times 20 = ₹\ 2,86,667$$

$$\Delta DIS = p_n (S_o + \Delta S) d_n - p_o S_o d_o$$

$$= 0.8 \times 111 \times 0.02 - 0.5 \times 108 \times 0.01$$

$$= ₹\ 1,23,600$$

$$DP = 3,00,000 (0.2) + 0.15 \times 2,86,667 - 1,23,600$$

$$= ₹\ -20,600$$

Liberal cash discount policy involves increasing the discount percentage or lengthening the discount period. Such a policy tends to enhance sales (because the discount is regarded as price reduction), reduce the average collection period (as customers pay promptly), and increase the cost of discount.

| **Activity 15.1**<br>Receivables management involves careful consideration of forming, executing and formulating the credit policies. Illustrate the variables associated with setting credit policy terms.<br>**Answer**: |
|---|
| |
| |
| |
| |

### 15.4.4 Collection Program

The collection effort of a company is decided by the collection policy, which is a part of the overall credit policy of the company. The objective of collection policy is to achieve timely collection of receivables, thereby releasing funds locked up in receivables for a longer period than they should have been under the credit terms and to minimize bad debt losses.

The collection program consists of the following:

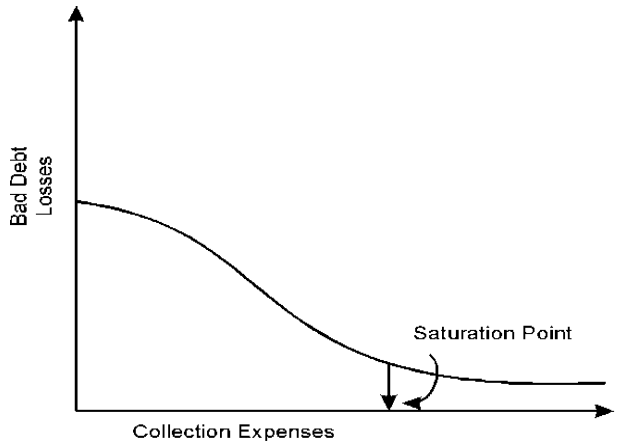
- Monitoring the state of receivables.

- Dispatch of letters to customers whose due date is approaching.
- Telegraphic and telephonic advice to customers around the due date.
- Threat of legal action to overdue accounts.
- Legal action against overdue accounts.

While formulating the collection policy a company should reckon with the factor that a very rigorous collection policy may act as an irritant to customers, thereby jeopardizing the good customer relations built over the years. Further, the sales of the company may decline as customers with some over-dues may fear to place further orders. However, the amount of receivables and bad debt losses will reduce to a certain extent as the company increases the collection expense associated with collection programs.

The general pattern of the relationship between collection expenses incurred and bad debt losses will be such that initial increase may not have a perceptible impact while subsequent amounts up to a certain level will have a pronounced impact in reducing bad debt losses. This is depicted in the form of a graph below. The amount of expenses incurred beyond the saturation point is likely to have very little impact on bad debt losses.

**Figure 15.1: Behavior of Bad Debt Losses/Collection Expenses**




*Source: ICFAI Research Center*

Similarly, deliberate laxity on the part of the company in the rigor of collection effort is likely to increase sales, increase average collection period, increase bad debt losses and to some extent reduce collection expenses.

Once again, the incremental financial benefits in the form of the cost of funds released by a reduction in the level of receivables and the reduction in bad debt losses have to be compared with the incremental costs associated with additional collection expenses; and policy change is warranted only when the incremental net benefits are positive. The following illustration is intended to illustrate the analytical approach to be adopted in taking decisions on collection effort.

### Illustration 15.4

The present sales of PK Ltd. are ₹ 108 lakh, the average collection period 60 days, bad debt losses 6 percent of sales and collection expenses ₹ 1 lakh. The company's cost of funds is 15 percent. It is contemplating to increase the collection effort through special programs to reduce the amount of receivables and the incidence of bad debt losses. Two separate programs called A and B are under consideration. Program A is likely to reduce the average collection period to 45 days, decrease bad debt losses to 4 percent of sales and involve collection expenses of ₹ 3 lakh. Program B is envisaged to reduce the average collection period to 30 days, decrease bad debt losses to 3 percent sales and involve collection expenses of ₹ 5 lakh. On the assumption that sales are not likely to get affected, should the company go in for any of the programs under consideration?

Let us consider the incremental benefits and costs associated with each of the programs under consideration.

**Relaxation of Collection Effort: Incremental Costs and Benefits**

| | | Present Program (₹) | Program A (₹) | Program B (₹) |
|---|---|---|---|---|
| 1. | Sales revenue | 1,08,00,000 | 1,08,00,000 | 1,08,00,000 |
| 2. | Average collection period | 60 days | 45 days | 30 days |
| 3. | Accounts receivable | $\frac{1,08,00,000 \times 60}{360}$ = 18,00,000 | $\frac{1,08,00,000 \times 45}{360}$ = 13,50,000 | $\frac{1,08,00,000 \times 30}{360}$ = 9,00,000 |
| 4. | Reduction in receivables from present level | | 4,50,000 | 9,00,000 |
| 5. | Cost savings @ 15% on reduction in receivables | | 67,500 | 1,35,000 |
| 6. | Bad debt losses on sales | 6% | 4% | 3% |
| 7. | Amount of bad debt losses | 6,48,000 | 4,32,000 | 3,24,000 |
| 8. | Reduction in bad-debt losses from present level | | 2,16,000 | 3,24,000 |
| 9. | Incremental benefits of Program A due to cost savings and reduction in bad debt losses compared to present program (5 + 8) | | 2,83,500 | 4,59,000 |
| 10. | Collection expenses | 1,00,000 | 3,00,000 | 5,00,000 |
| 11. | Incremental collection expenses from present level | | 2,00,000 | 4,00,000 |
| 12. | Incremental net benefits (9 – 11) | | 83,500 | 59,000 |

From the calculations presented, it can be seen that the incremental net benefits associated with program A are ₹ 83,500 while program B has resulted in an

incremental net gain of ₹ 59,000. It is, therefore, financially prudent to go in for program A instead of program B.

The effect of decreasing the rigor of collection program on profit may be estimated as:

$$\Delta P = \Delta S\ (1 - V) - k\ \Delta I - \Delta BD - \Delta C$$

Where,

$\Delta P$ = Change in profits

$\Delta S$ = Increase in sales

$V$ = Variable costs to sales ratio

$k$ = Cost of capital

$\Delta I$ = increase in investment in receivables.

$$= \frac{S_o}{360}(ACP_N - ACP_0) + \frac{\Delta S}{360} ACP_N \times V$$

$\Delta BD$= Increase in bad debts cost

$$= b_n (S_o + \Delta S) - b_o S_o$$

$\Delta C$ = Increase in collection expenses.

The illustration is reworked using the equation given above as follows:

Program A:

$$\Delta P = \Delta S\ (1 - V) - \Delta BD - k\ \Delta I - \Delta C$$

$$\Delta BD = b_n (S_o + \Delta S) - b_o S_o$$

$$= 0.04 \times 108 - 0.06 \times 108$$

$$= -₹\ 2.16 \text{ lakh}$$

$$\Delta I = \frac{S_o}{360}(ACP_N - ACP_0) + \frac{\Delta S}{360} ACP_N \times V$$

As there is no change in sales

$$\Delta I = \frac{108}{360} \times (45 - 60) = -₹\ 4.5 \text{ lakh}$$

$$\Delta C = 3 - 1 = ₹\ 2 \text{ lakh}$$

$$\Delta NP = 0 - (-2.16) - 0.15\ (-4.5) - 2$$

$$= ₹\ 83{,}500$$

Program B:

$$\Delta BD = (0.03 - 0.06)\ 108$$

$$= -₹\ 3.24 \text{ lakh}$$

$$\Delta I = \frac{108}{360} \times (30 - 60) = -₹\ 9 \text{ lakh}$$

$$\Delta C = 5 - 1 = ₹\ 4 \text{ lakh}$$

$$\Delta P = 0 + 3.24 + 9 \times 0.15 - 4$$

$$= ₹\ 59{,}000$$

At times, a company may tend to relax the rigor of its collection effort deliberately with a view to increasing its sales. This practice is not usually followed as it is likely to increase the average collection period and bad debt losses. There may be a marginal decrease in collection expenses. Here also a consideration of the incremental benefits and incremental costs helps in decision-making as the following illustration illustrates.

**Illustration 15.5**

Alpha company is contemplating to relax its collection effort with a view to increase its sales. Its existing sales are ₹ 240 lakh, average collection period 30 days, bad debt losses 5 percent of sales, contribution to sales ratio 20 percent and cost of funds 15 percent. After relaxing the collection effort, sales are expected to increase by ₹ 60 lakh. Average collection period is increased to 60 days. Bad debt losses rose to 7 percent. Should the company go in for relaxing its collection effort?

Let us work out the incremental benefits and incremental costs associated with the contemplated decision.

Increase in profit due to increase in sales

= ₹ 60,00,000 x 0.2

= ₹ 12,00,000 .....(a)

Existing amount of receivables

$$= \frac{₹\ 2,40,00,000}{360\ \text{days}} \times 30 = ₹\ 20,00,000$$

Amount of receivables on existing sales after relaxation

$$= \frac{₹\ 2,40,00,000}{360\ \text{days}} \times 60 = ₹\ 40,00,000$$

Increase in the investment in receivables on existing sales

= ₹ 40,00,000 – ₹ 20,00,000

= ₹ 20,00,000 .....(b)

Amount of receivables on additional sales

$$= \frac{₹\ 60,00,000}{360\ \text{days}} \times 60 = ₹\ 10,00,000$$

Investment in the receivables on additional sales

= ₹ 10,00,000 x 0.8

= ₹ 8,00,000 .....(c)

Incremental investment in receivables

(b) + (c) = ₹ 28,00,000

Cost of financing additional investment in receivables @ 15%

= ₹ 28,00,000 x 0.15

= ₹ 4,20,000 .....(d)

Existing bad debt losses

= ₹ 2,40,00,000 x 0.05 = ₹ 12,00,000

Bad debt losses after relaxation

= ₹ 3,00,00,000 x 0.07 = ₹ 21,00,000

Increase in bad debt losses

= ₹ 21,00,000 – ₹ 12,00,000

= ₹ 9,00,000 .....(e)

Incremental costs (d) + (e) = ₹ 13,20,000

Net incremental benefits a – (d + e)

= ₹ 12,00,000 – ₹ 13,20,000 = – ₹ 1,20,000

As the contemplated relaxation results in a net incremental loss of ₹ 1,20,000, it is not financially prudent to relax the collection effort by the company.

## Check Your Progress - 1

1. Receivable management is an aspect of firm's current asset management used to determine the optimum credit policy associated to the firm. From the following points identify that which is not a purpose of receivables management.
   a. To evaluate creditworthiness of customer before granting credit
   b. To maximize cost of investment in receivables
   c. To maintain trade between cost and benefits associated to credit policy
   d. To increase to total sales
   e. To minimize bad debt losses
2. Which of the following refers to expenses incurred due to collection from customers during appropriate period?
   a. Interest costs
   b. Opportunity costs
   c. Administrative costs
   d. Collection costs
   e. Default costs
3. After setting the credit standards, the firm will decide upon the length of period that will be allowed for customers for payment or to offer discounts for early payments. Identify the discount type that induces customers for prompt payment after making complete credit sale to customers.
   a. Cash discount
   b. Trade discount
   c. Seasonal discount
   d. Quantity discount
   e. Credit discount

4. Surech Polymers showed a net sale of ₹ 10 lakhs attaining a profit of ₹ 2 lakhs with a contribution to sales ratio at 20 percent and cost of funds being 10 percent. The firm's customers have been availing cash discount regularly and the average collection period was 20 days. To add up the sales to ₹ 80,000 the firm has liberalized its credit terms from 1/10 net 45 days to 2/15 net 30 days. Ascertain the cost associated with incremental benefits for new profits if the existing average collection period is reduced to 10 days to hasten its collection process.
   a. ₹ 16,000
   b. ₹ 18,000
   c. ₹ 18,778
   d. ₹ 16,778
   e. ₹ 20,000
5. Identify the effort made by the company to avoid lock up of funds in receivables and to minimize bad debt losses.
   a. Receivables maintenance
   b. Credit standards
   c. Credit policy
   d. Collection program
   e. Credit period

## 15.5 Credit Evaluation

Credit sales is a popular way of increasing the sales revenue as allowing the customer to take the goods or avail the services for promise of a later payment incentivize the clients to do the early sales transaction. However, there is always a risk involved in credit sales as the customer may or may not honor his commitment. Hence, it is required for business firms to evaluate the credit worthiness of the customer before granting credit.

In judging the creditworthiness of an applicant, three basic factors – the three Cs have to be considered. In addition, they are – character, capacity, and collateral. Character refers to the willingness of the customer to honor his obligations. It reflects integrity, a moral attribute, considered very important by credit managers. Capacity refers to the ability of the customer to pay on time. It depends on the financial situation (particularly the working capital position and profitability) and the general business conditions affecting the performance of the customer. Collateral represents the security offered by the firm in the form of mortgages.

Credit evaluation of the prospective customer involves obtaining information from which the financial capacity as also the paying habits can be evaluated. It should, however, be noted that the procedure of evaluation is related to the amount or order likely to be placed by the prospective customer and the cost of obtaining information. If evaluating the information gathered is likely to exceed

the profit generated by the order, then a detailed evaluation is not warranted. Further, the evaluation procedure should not be lengthy and time consuming. In a competitive market by the time the evaluation is completed, the prospective customer may have been 'snatched away' by one of the competitors in the market. The absence of reputed professional credit-rating agencies makes the task of credit-evaluation more difficult in India. However, some of the relevant information can be gathered from the financial statements.

The annual reports of a company provide considerable information in the form of balance sheets and profit and loss accounts besides detailed notes and the auditors' report. The prospective customer company's audited annual reports over the past three or four years can be sought. In case, the company declines to oblige, that in itself can arouse suspicion about the creditworthiness of the company.

When the financial statements are obtained, the financial strengths and weaknesses can be gauged by the application of ratio analysis. Some of the important ratios are briefly mentioned below.

a. Current ratio $= \dfrac{\text{Current Assets}}{\text{Current Liabilities}}$

b. Quick ratio $= \dfrac{\text{Current Assets–Inventory}}{\text{Current Liabilities}}$

The above two ratios are widely used to assess the liquidity position of a company in meeting its short-term obligations. These can be supplemented with other ratios.

c. Average payment period $= \dfrac{\text{Average Balance of Sundry Creditors}}{\text{Average Daily (Credit) Purchases}}$

d. Average collection period $= \dfrac{\text{Average Balance of Sundry Debtors}}{\text{Average Daily (Credit) Sales}}$

e. Capital structure ratio

$= \dfrac{\text{Debt}}{\text{Equity}}$ (also called Debt – Equity Ratio)

f. Return on equity $= \dfrac{\text{Net profit after tax and preference share dividend}}{\text{Owners' equity}}$

The ratios mentioned above will indicate the payment period, collection periods of the company, and return on owner's equity. When calculated for three or four consecutive years in the recent past, the ratios will throw adequate light on the financial strength of the company and whether the trend over the years is favorable or not.

In addition to ratio analysis, an idea of the changes in the funds position can be obtained by preparing funds flow statements, even if they are sketchy.

### 15.5.1 Obtaining Bank References

The prospective customers' bank must be having a lot of information obtained in the normal course for granting cash credit/overdraft facility. However, it may not be advisable to directly approach the customer's bank for information and rely on the bank's own assessment of the customer, as the bankers are generally reluctant to part with 'confidential' information about their client. It will be embarrassing to ask the prospective customer to issue a letter to its bank for furnishing such information, which is considered important. A better course of action is to obtain information through the company's bank from the customer's bank. This approach can provide useful information needed to assess the financial strength of the customer.

### 15.5.2 Firm's Experience

If the firm has had previous dealings with the customers, it can judge the customer's creditworthiness by the latter's promptness in payments in the past. If the customer is approached for the first time, the company salesman's opinion about the customer's integrity is important.

**Example: Credit Evaluation during COVID Pandemic**

Exceptional times like pandemics call for a re-evaluation of customer level risk by fine-tuning credit-risk models and adjusting credit limits and payment terms. The following matrix was developed by 'Nexdigm' to make such an evaluation during COVID Pandemic.

Data Sources of Credit Evaluation:

| Internal Data | Economic Indicators | External Proxy Data | Other Factors |
|---|---|---|---|
| Customer Order and Payment History | Impact on industry and region | Liquidity Indicators | Sales disruption due to lockdown |
| Customer Master Data | Customer Credit Rating | Consumer Sentiments | Logistical disruptions |
| Customer Credit Terms | D&B Data | Govt. Support to the sector | Unavailability of labor |
| CRM and Follow-up data | IHS Markit PMI | | Raw material supply disruptions |

*Source: https://www.nexdigm.com/data/reSource/Nexdigm_(SKP)_ia3_article_thought_leadership%20during_COVID-html?utm_Source=Mondaq&utm_medium=syndication&utm_campaign=LinkedIn- integration (Accessed June 5, 2022)*

### 15.5.3 Numerical Credit Scoring

A numerical credit index based on several factors is framed to study the creditworthiness of a customer. For example, any firm selling consumer durables on installments may determine the numerical credit index of its customers as follows:

Credit Index = $W_1$ Income level + $W_2$ Years of residence in the present place + $W_3$ Number of dependents.

The credit index is simply a weighted sum of facts, which ostensibly has a bearing on creditworthiness. In the above case, $W_1$ and $W_2$ would be positive and $W_3$ would be negative.

From the information obtained, a quantitative evaluation can be made using the techniques of ratio and funds flow analysis of the customer's financial statements as a qualitative evaluation as to the character of the customer. In the light of evaluation, the standing of the prospective customer vis-à-vis the existing standards followed by the company can be made. For convenience sake, a format of the credit evaluation report is presented in Table 15.1.

**Table 15.1: Credit Evaluation Report on X Co. Ltd.**

| Item Head | For X Co. Ltd. | Standard | Remarks |
|---|---|---|---|
| Current Ratio | 1.70 | 1.75 | Liquidity position is |
| Quick Ratio | 1.15 | 1.00 | Good |
| Average Payment Period | 45 days | 40 days | Can be persuaded to pay within 40 days |
| Average Collection Period | 40 days | 30 days | This may have caused delay in payments |
| Debt-Equity Ratio | 1.5:1 | 2:1 | Lower because of Capital Structure |
| Return on Equity | 15% | 18% | |

*Source: ICFAI Research Center*

Paying Habit: Good (Usually prompt; deviation occurred only once 2 years back when there was a fire in the godown).
Integrity & Honesty: Good (As from the statements of other suppliers).
Based on the above evaluation, customers may be classified into various risk categories. A simple risk classification scheme is shown in the Table 15.2.

**Table 15.2: Risk Classification Scheme**

| Risk class | Description |
|---|---|
| 1. | Customers with no risk of default |
| 2. | Customers with negligible risk of default (default rate less than 2 percent) |
| 3. | Customers with a little risk of default (default rate between 2 and 5 percent) |
| 4. | Customers with some risk of default (default rate between 5 and 10 percent) |
| 5. | Customers with significant risk of default (default rate in excess of 10 percent) |

*Source: ICFAI Research Center*

## 15.6 Credit Granting Decision: Decision-Tree Approach

Credit evaluation, discussed earlier, attempts to formalize the procedure to gauge the creditworthiness of a prospective customer. It is a precursor to the final decision whether to grant credit to the prospective customer or not as it provides the decision-maker with necessary input data for decision-making. However, the decision whether to grant credit or not depends on the cost benefit analysis. If the customer pays, the company will make profit on the sale and if he fails to do so, then the amount of cost gone into the product will be lost by the company. An astute manager, more often than not, can form a subjective opinion based on credit evaluation about the chance of getting payment and the chance of not getting the payment. The relative chances of getting the payment or not is at the back of his mind while taking a decision. The feeling can, perhaps be translated into numerical figures such as there is a nine-in-ten chance that the payment will be made while the chance of the account turning into a bad debt is one-in-ten. Once, these relative chances are expressed in the above terms one can say that the probability of getting payment is 0.9 and the probability of not getting the payment is 0.1. It is then possible to obtain the financial consequences of granting credit as a weighted average of the profit to be obtained and the loss to be sustained where the weights are the respective probabilities. If the weighted average is positive, it can be concluded that the weighted benefits exceed the weighted loss, and hence it is prudent to grant credit, otherwise not. It should be noted that the probabilities are always non-negative and add up to unity. The process of credit granting decision is illustrated by means of numerical examples.

**Illustration 15.6**

The Rex company is considering whether to grant credit to a prospective customer or not. A close scrutiny of the credit evaluation made by the credit manager reveals that there is going to be nine-in-ten chance of payment being made and one-in-ten chance of non-payment. The revenue from the order is going to be ₹ 80,000 whose cost is ₹ 60,000. Should credit be granted to the customer?

Based on the above information, the financial consequences of granting credit can be summarized as follows:

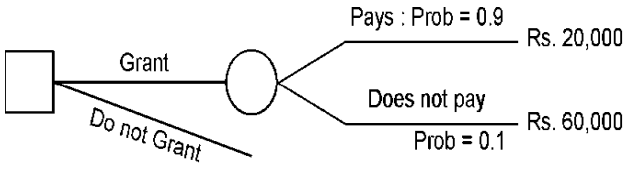
Revenue from the order = ₹ 80,000

Cost of the order = ₹ 60,000

Financial benefit or profit from the order = ₹ 20,000

Thus, if the customer pays, the company gets a profit of ₹ 20,000 while it loses ₹ 60,000 if he fails to pay. The benefit and cost associated with granting credit along with their respective probabilities are depicted below in the form of a decision-tree for visual impact. It may be noted that a square represents a decision point and a circle, a chance event.

**Figure 15.2: Credit Granting Decision: Decision Tree Approach (Single Order)**




*Source: ICFAI Research Center*

The weighted net benefit is ₹ 20,000 x 0.9 – ₹ 60,000 x 0.1 or ₹ 12,000. Hence, it is preferable to grant credit as the weighted net benefit is positive.

The above problem can also be solved in the following way:

The expected profit for the action 'offer credit' is

p (REV – cost) – (1 – p) cost

where p is the probability that the customer pays his dues, (1 – p) is the probability that the customer defaults, REV is the revenue from sale, COST is the cost of goods sold.

The expected profit in the above illustration is

0.9 (80,000 – 60,000) – 0.1 (60,000) = ₹ 12,000.

The expected profit for the action 'refuse credit' is 0. Obviously, the expected profit from the course of action 'offer credit' is positive, i.e. ₹ 12,000 it is desirable to extend credit.

**Illustration 15.7**

Sunshine Industries is considering offering credit to a customer. The probability that the customer would pay is 0.5 and the probability that the customer would default is 0.5. The revenues from the sale would be ₹ 2,500, and the cost of sale would be ₹ 1,700.

The expected profit from offering credit, given the above information, is:

0.5 (2,500 – 1,700) – 0.5 (1,700) = – ₹ 450

As this is negative, the company cannot offer credit.

### 15.6.1 Repeat Order Situation

Generally, the sales order from a customer is not going to be a single order as considered earlier. The customer, once granted credit, is likely to place repeat orders and the company will be favorably inclined to oblige the customer provided he made timely payment for the first shipment. In case there is a repeat order, the chance of not paying will become less than in the case of single order.

Consequently, the net benefits to the company accruing from both the orders will be higher than two separate single orders. This is highlighted by an illustration.

**Illustration 15.8**

X Company Ltd. is considering whether to grant credit to a prospective customer who is likely to place a repeat order for the same quantity. Initially the probability of payment is considered 0.9 and that by default 0.1. In case the customer pays for the first order, the probability of default for the repeat order is likely to be 0.05 while that of payment increases to 0.95. The revenue from each order is going to be ₹ 1 lakh and the associated cost ₹ 70,000, leaving a profit of ₹ 30,000 if payment is made and a loss of ₹ 70,000 if payment is not made.

The financial consequences of the first order are a profit of ₹ 30,000 with a probability of 0.9 and a loss of ₹ 70,000 with a probability of 0.1. Given that the customer has paid with 0.9 probability for the first order, the financial consequences of the second order will be ₹ 30,000 with a probability of 0.95 and a loss of ₹ 70,000 with a probability of 0.05. These can be visualized better when presented in the form of a decision-tree.

The net weighted financial benefit in the above situation can be calculated in two steps.

a. The net weighted financial benefit on the initial order is calculated in the same way as in the case of a single order (i.e.)

   0.9 x ₹ 30,000 – 0.1 x ₹ 70,000 or

   ₹ 27,000 – ₹ 7,000 = ₹ 20,000

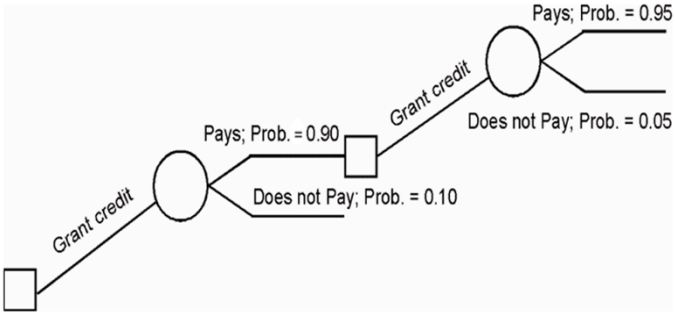
b. Given that the first order is paid with a probability of 0.9, the net weighted benefit from the repeat order will be

   0.9 [0.95 x ₹ 30,000 – 0.05 x ₹ 70,000]
   = 0.9 [₹ 28,500 – ₹ 3,500]
   = 0.9 (₹ 25,000) or ₹ 22,500.

The multiplication with 0.9 is necessitated by the fact that credit granting for repeat order is conditional upon the payment of first order whose probability is 0.9. Combining (a) and (b), the net weighted financial benefit is an amount of ₹ 42,500 that is higher than two separate individual orders for the same amount with probabilities 0.9 and 0.1 for payment and default respectively.

The decision tree approach has greater visual impact. However, as the number of chance events, decision points and branches indicating alternatives increase, it becomes quite unwieldy as shown in Figure 15.3 below. Then, one may tend to miss the ‘decision woods’ for the ‘decision trees’.

**Figure 15.3: Credit Granting Decision: Decision-tree Approach (Separate Order)**




*Source: ICFAI Research Center*

**Example: Role of FinTech in Granting Credit**

Information availability challenges have denied access to formal credit to several small businesses in India. Fintech lender Indifi Technologies was successful in bridging the credit gap of these underserved businesses by leveraging data and technology, mitigating the underwriting challenges associated with MSMEs, especially those operating on platforms like Amazon, Zomato, and Swiggy by partnering with those platforms. In January 2022, Indifi Technologies collaborated with Google Pay to provide instant loans to eligible small merchants on the Google Pay platform. The biggest challenge that most small business owners face was working capital management and the speed of securing capital to manage it. The collaboration aims to address this problem and help small merchants to meet their working capital needs.

*Source: https://economictimes.indiatimes.com/small-biz/sme-sector/indifi-gpay-join-hands-to-offer-instant-digital-credit-to-smes/articleshow/88891433.cms (Accessed June 6, 202) Source 2: https://www.financialexpress.com/industry/indifi-technologies-to-offer-loans-to-merchants-through-google-pay/2406894/ (Accessed June 6, 2022)*

**Activity 15.2**

Every small business is in the need to grant credit to its customers. Granting credit is actually an investment in firm's customers and forms as a major part and Source in way of accounts receivables. As a credit manager of a firm, evaluate the ways and means of making credit-granting decisions.

**Answer:**

## 15.7 Monitoring Receivables

An important aspect of receivables management is to monitor the payment of receivables. Monitoring receivables ensures their timely realization and prevents the occurrence of bad debts. The credit manager can employ several measures for this purpose like (i) Days Sales Outstanding (ii) Ageing Schedule and (iii) Collection Matrix.

The average collection period is based on year-end balance of receivables. For the purpose of internal control, monitoring has to be made more frequently. Further, year-end balance can be misleading when the sales are subject to seasonality or have grown towards the end of the year. For this reason, two approaches, viz., 'days' sales outstanding' and 'aging schedule of receivables' are followed for control purpose. These are described below.

**Example: Automation of Receivables Management**

By installing accounts receivable software, organizations can automate their cash collection process and minimize delays in payments. It provides timely reports about the collection, aging, etc., and generates monthly customer statements. The software can set reminders for customers to pay on time, and forecast cash payments from customers based on their payment history.

The popular 'Accounts Receivables' softwares among the wide variety of softwares available are FreshBooks, Xero, Quickbooks Online, QuickBooks Desktop Enterprise, Oracle's NetSuite, etc.

*Source: https://www.capterra.com/accounts-receivable-software/ (Accessed June 6, 2022)*

### 15.7.1 Days Sales Outstanding

The average number of days' sales outstanding at any time, say end of the month or end of the quarter, is obtained by following the formula which is not very different from the usual formula for average collection period. Day's sales outstanding

$$= \frac{\text{Accounts receivable at time chosen}}{\text{Average daily sales}}$$

**Illustration 15.9**

To illustrate the calculation of this measure, consider the monthly sales and month-end accounts receivable for a product line as given below.

Sales and Receivables Data

| Month | Sales | Receivable | Month | Sales | Receivables |
|---|---|---|---|---|---|
| January | 200 | 460 | July | 200 | 340 |
| February | 225 | 360 | August | 200 | 360 |
| March | 230 | 315 | September | 220 | 360 |
| April | 150 | 310 | October | 230 | 390 |
| May | 150 | 300 | November | 245 | 500 |
| June | 180 | 320 | December | 250 | 520 |

The average collection period is calculated at the end of each quarter as follows.

Average Collection Period of each Quarter

| Quarter | Average Collection Period |
|---|---|
| First | $\frac{315}{(200+225+230)\div 90} = 43$ days |
| Second | $\frac{320}{(150+150+180)\div 91} = 61$ days |
| Third | $\frac{360}{(200+200+220)\div 92} = 53$ days |
| Fourth | $\frac{520}{(230+245+250)\div 92} = 66$ days |

In case, the daily sales outstanding is within a pre-specified norm linked to the credit period followed by the company then the status of receivables is regarded to be under control. In case it is found to be higher, then the collection policy has to be strengthened, as the collections are slow.

### 15.7.2 Ageing Schedule

The age-wise distribution of accounts receivable at a given time is depicted in the ageing schedule.

**Illustration 15.10**

For Illustration 15.9, the ageing schedule at the end of various quarters may be as follows:

**Outstanding Accounts Receivable**

| Age | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|---|---|---|---|---|
| 0-30 days | 40% | 42% | 44% | 46% |
| 31-60 | 30% | 28% | 26% | 25% |
| 61-90 | 20% | 22% | 25% | 23% |
| 120 | 10% | 8% | 5% | 6% |

A comparison of ageing schedules at periodic intervals help to identify changes in the payment behavior of customers.

The ageing schedule can be compared with the credit period extended by the company. When the percentage of receivables belonging to higher age groups is above a stipulated norm, action has to be initiated before they turn into bad debts. If the company's credit terms are, say 'net sixty days' then control needs to be exercised in the form of follow-up measures in respect of the bottom 20 percent accounts.

The average collection period and the ageing schedule have traditionally been popular measures for monitoring receivables. However, they suffer from a limitation. They are influenced by the sales pattern as well as the payment

behaviors of the customers. If sales are decreasing, average collection period and the ageing schedule will differ from what they would be if sales were constant. This holds even when the payment behavior of customers remains unchanged. The reason is simple: a greater portion of sales is billed currently. Similarly, decreasing sales lead to the same results. The reason here is that a smaller portion of sales is billed currently. It can be explained well with an illustration.

**Illustration 15.11**

Presented below are the monthly sales of ABC Company Ltd. for the period April to December with quarterly break-up. Collections are made at the rate of ten percent during the month of sales followed by 50 percent, 30 percent and 10 percent during the three succeeding months. Consequently the receivables balance at the end of a quarter will be the sum of ten percent of the sales of first month, 40 percent of the sales of second month and 90 percent of the sales of the third month. The daily sales are calculated by considering a period of 30 days, 60 days and 90 days. The end of quarter receivables, the DSO and the behavior of Ageing Schedule at the end of the quarter, for the three periods chosen for averaging, are calculated by using the formula stated earlier.

The daily sales with an average period of 30 days is obtained by dividing the sale of the most recent month, i.e., during the second quarter for a 30 day average period daily sales of ₹ 3,000 are calculated by dividing ₹ 90,000 (sale of the most recent month i.e. September) by 30. For a 60 day average period during the same quarter daily sales are ₹ 2,500 [i.e., (90,000 + 60,000)/60].

Behavior of Ageing Schedule

| Month | Sales | End of quarter receivables | Age group | Percent of total | Daily sales if average period is | | | DSO if average period is | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (₹ '000) | (₹ '000) | (Days) | | 30 days | 60 days (₹ '000) | 90 days (₹ '000) | 30 days (₹ '000) | 60 days (₹ '000) | 90 days (₹ '000) |
| April | 60 | 6 | 61-90 | 7.1 | | | | | | |
| May | 60 | 24 | 31-60 | 28.6 | | | | | | |
| June | 60 | 54 | 0-30 | 64.3 | | | | | | |
| | | 84 | | 100 | 2 | 2.0 | 2 | 42 | 42 | 42 |
| July | 30 | 3 | 61-90 | 2.8 | | | | | | |
| August | 60 | 24 | 31-60 | 22.2 | | | | | | |
| September | 90 | 81 | 0-30 | 75.0 | | | | | | |
| | | 108 | | 100.0 | 3 | 2.5 | 2 | 36 | 43 | 54 |
| October | 90 | 9 | 61-90 | 15.0 | | | | | | |
| November | 60 | 24 | 31-60 | 40.0 | | | | | | |
| December | 30 | 27 | 0-30 | 45.0 | | | | | | |
| | | 60 | | 100.0 | 1 | 1.5 | 2 | 60 | 40 | 30 |

*Contd….*

be noticed from the table that during the first quarter when the sales are uniform the DSO is also uniform at ₹ 2,000 and during the second quarter when the sales are exhibiting an increasing trend, the daily sales decrease and DSO increase with an increase in the averaging period. During the third quarter when the sales are decreasing, the daily sales increase and DSO decrease with an increase in the average period.

As far as the Ageing Schedule is concerned, it can be noticed from the table that in a period of increasing sales (Quarter July-Sept) a larger proportion of current receivables, i.e., receivables belonging to the lowest age group emerged during the third quarter, a relatively low percentage 45, as compared to 75 of quarter II belonging to the age group 0-30 days. This need not imply that liquidity of receivables is higher in quarter II as compared to quarter III. It so happens that because of the increasing pattern of sales in quarter II, a larger percentage of sales is billed during September and exactly the opposite situation prevailed in quarter III.

### 15.7.3 Collection Matrix

In order to study correctly the changes in the payment behavior of customers, it is helpful to look at the pattern of collections associated with credit sales. Table 15.3 below shows an illustrative collection matrix. For example, the credit sales during the month of January are collected as follows: 10 percent in January (the month of sales), 42 percent in February (the first following month), 36 percent in March (the second following month), and 12 percent in April (the third following month).

From the collection pattern, one can judge whether the collection is improving, stable, or deteriorating. A secondary benefit of such an analysis is that it provides a historical record of collection percentages that could be useful in projecting monthly receipts for each budgeting period

**Table 15.3: Collection Matrix**

| Percentage of receivables collected during the | January sales | February sales | March sales | April sales | May sales | June sales |
|---|---|---|---|---|---|---|
| Month of sales | 10 | 14 | 15 | 12 | 9 | 13 |
| First following month | 42 | 35 | 40 | 38 | 35 | 31 |
| Second following month | 36 | 40 | 21 | 26 | 26 | 26 |
| Third following month | 12 | 11 | 24 | 19 | 25 | 25 |
| Fourth following month | | | | 5 | 5 | 5 |

*Source: ICFAI Research Center*

Though various techniques have been discussed here for the management of accounts receivables, in practice very few Indian companies have a stated and systematic credit policy. Companies have to strengthen their management of receivables by having explicit and articulate credit policies, an efficient collection

program and better co-ordination between production, sales and finance departments.

## Check Your Progress - 2

6. What is 'Day's Sales Outstanding'?
   a. Shows the age-wise classification of receivables
   b. Is superior to the collection matrix
   c. Is an indication of the sales orders of the company yet to be executed
   d. Is an indication of average collection period
   e. Indicates the percentage of receivables outstanding on a daily basis
7. What constitutes an ageing schedule?
   a. Profit and present value
   b. Accounts receivable and proportion of sales
   c. Employees and age of their service
   d. Accounts receivables and their average time outstanding
   e. Current ratio and the corresponding year
8. What effect takes place when the company's cash discount policy is liberalized?
   a. Increase in its average collection period accompanied by a decrease in sales
   b. Decrease in its average collection period accompanied by an increase in the cost of discount
   c. Increase in its average collection period accompanied by an increase in the cost of discount
   d. Decrease in the discount percentage
   e. Increased receivables
9. Identify the pattern of collections associated with the credit sales.
   a. Day sales outstanding
   b. Ratio analysis
   c. Average collection period analysis
   d. Collection matrix
   e. Ageing schedule
10. JM Confectioners targets it average collection period of 25 days. For the financial year 2016, it targets a sales turnover of ₹ 500 lakhs. What should be the maximum amount of average receivables? (Assume 360 days in a year)

a. ₹ 34.75 Lakhs

b. ₹ 30 Lakhs

c. ₹ 32.54 Lakhs

d. ₹ 35 Lakhs

e. ₹ 29.74 Lakhs

## 15.8 Summary

- Any business firm operates by selling goods on credit. Thus, finished goods sold on credit become receivables, which again form a major part of the current assets of a firm. The main objective of receivables management is to boost sales to a point where the returns that the company gets from the receivables is less than the cost that the company has to incur in order to fund these receivables.
- Maintaining receivables is no free job. The cost of maintaining receivables includes the additional funding required by the company, administrative costs, collection costs and default costs. Every company requires a proper credit policy to make sure that the cost of maintaining receivables is minimized.
- The credit policy looks at ways for a trade-off between increase credit sales leading to increased profits and the cost of having a larger amount of cash locked up in receivables as well as the losses due to bad debts. The variables associated with credit policy include credit standards, credit period, cash discount and collection program. While application of stiff credit standards might lead to lower receivables, it also reduces sales. On the other hand, liberal credit standards increase sales, but also have a high incidence of bad debts.
- Credit period refers to the time period allowed for customers to pay for their purchases. Increasing the credit normally increases sales as well as the incidence of bad debts and vice-versa. Cash discounts are the discounts offered by companies to induce customers to pay much earlier than the normal credit period. A liberal cash discount policy involves increasing the discount percentage or lengthening the discount period.
- Collection program is the efforts made by a company to collect its payments that are due. This includes monitoring the state of receivables, dispatching letters reminding customers of their due dates, telegraphic and telephonic advice to customers, and threat of legal action against overdue payment.

## 15.9 Glossary

**Administration Cost** is cost of general administration expenses tied to individual departments of an organization.

**Ageing Schedule** is a statement showing age-wise distribution of debtors (accounts receivable).

**Collection Costs** are the costs incurred on cash collection from customers in the appropriate period.

**Collection Matrix** gives the collection pattern from which one can judge whether the collection is improving, stable, or deteriorating.

**Credit Evaluation** is done to seek information on the creditworthiness of that customer for granting credit.

**Credit Period** is the length of time customers are allowed for their credit purchases.

**Credit Policy** refers to the credit terms and condition regarding the supply of goods and services to customers to bring a trade-off between increased credit sales leading to increase in profit and the cost of having a larger amount of cash locked up in the form of receivables and the loss due to the incidence of bad debts.

**Credit Standards** are a set of standards maintained by companies to assess the creditworthiness of an individual or firm with regard to credit sales done.

**Days Sales Outstanding** is the ratio of receivables outstanding to average daily sales.

**Default Costs** are the cost incurred due to debtors having failed to meet the obligations of debt repayment causing bad debts losses to the firm.

**Liberal Cash Discount Policy** involves increasing the discount percentage or lengthening the discount period.

**Line of Credit** is an agreement under which a financial institution agrees to provide credit up to a specified limit during a given period.

**Quick Ratio** is a liquidity measure which is defined as: (current assets – inventories) /current liabilities.

**Receivables** are the amount due from customers to the company to whom goods were sold on credit.

## 15.10 Self-Assessment Test

1. What is the purpose and cost involved in maintaining receivables?
2. Enumerate on the various variables associated with credit policy.
3. Explain the measures used to evaluate the credit worthiness of a firm.
4. It is a precursor to the final decision whether to grant credit to the prospective customer or not as it provides the decision-maker with necessary input data for decision-making"- Narrate.
5. Explain the measures employed by the credit manager to monitor a firm's receivables.

6. 'A firm's credit policy achieves to bring a trade-off between increase credit sales leading to increased profits and the firm's credit period refers to the time period allowed for customers to pay for their purchases'- Comment

## 15.11 Suggested Readings / Reference Material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## 15.12 Answers to Check Your Progress Questions

**1. (b) To maximize the cost of investment in receivables.**

The purpose of receivables management to minimize the cost of maintaining receivables.

**2. (d) Collection Costs**

These are costs, which the firm has to incur for collection of the amounts at the appropriate time from the customers.

**3. (a) Cash Discount**

Firms generally offer cash discounts to induce prompt payments. Credit terms reflect the percentage of discount and the period during which it is available.

**4. (c) ₹ 18,778**

New Profits = ₹ 80,000 * 0.2 = ₹ 16,000

Exciting cost of carrying receivables = ₹ 10,00,000 / 360 days x 20 days x 0.10 = ₹ 5556

Cost of receivable after liberalization = ₹ 10,00,000 / 360 days x 10 days x 0.10 = ₹ 2778

Savings = ₹ 5556 – 2778 = ₹ 2778.

Hence incremental benefits = 16,000 + 2778 = ₹ 18,778.

**5. (d) Collection Program**

Collection program is the efforts made by a company to collect its payments that are due. This includes monitoring the state of receivables, dispatching letters reminding customers of their due dates, telegraphic and telephonic advice to customers and threat of legal action against overdue payment.

**6. (d) Is an indication of the average collection period**

The average number of days sales outstanding at any time is called the days sale outstanding given by the formula = Accounts Receivables at the time chosen / Average daily sales.

**7. (d) Accounts receivables and their average time outstanding**

The age-wise distribution of accounts receivables at a given time is depicted in the ageing schedule.

**8. (c) Increase in its average collection period accompanied by an increase in the cost of discount**

Liberalizing cash discount will increase the average collection period and will increase the cost of discount.

**9. (d) Collection matrix**

In collection matrix, the payment behavior of the customers is studied through the pattern of collections associated with the credit sales.

**10. (a) ₹ 34.75 Lakhs**

Average collection period = Average accounts receivables / Average daily cr. sales.

= 500 / 360 = 1.39

Thus, maximum amount of average accounts receivables of the year 2016 = ₹ 34.75 lakhs.

(1.39 x 25 days)

# Unit 16

# Cash Management

## Structure



***"Money often costs too much."***

- Ralph Waldo Emerson, essayist, lecturer and philosopher

## 16.1 Introduction

Cash Management is an important aspect that is to be addressed in working capital management. Businesses need to maintain an optimal balance of cash to avoid liquidity crisis. Having too less cash balance may result in inability to fund business operations and meet short-term obligations while maintaining too high cash balance may result in idle funds that do not contribute to productive investment. Thus maintaining an adequate cash balance is most important function of a finance manager.

The present unit discusses the objectives of cash management, and the need for such management. It also describes the various investment avenues that can be used to invest surplus cash and evaluates the role of treasury department and internal audit department in effective cash management.

## 16.2 Objectives

After reading through the unit, you should be able to:

- Appreciate the meaning of profits and cash from a business perspective

- Understand the importance of maintaining liquidity in an organization and judge the optimal balance of cash holdings
- Visualize the cash requirements of a business that enables preparation of cash budget
- Estimate the cash requirements of a business to fund cash shortage or invest surplus cash
- Understand the uses of internal controls in cash management and ensure proper audit systems are in place to counter cash misappropriations

## 16.3 Difference between Profits and Cash

A business may be earnings profits, but may be facing a cash crunch if adequate cash balances are not maintained. Similarly a business may be having huge idle cash balances without that being used for any productive purposes in the organization thereby resulting in operational losses . Hence maintaining adequate balances of cash, the most liquid asset and also referred to as the life blood of a business enterprise, is of vital importance to the daily operations of business firms. Its efficient management is crucial to the solvency of the business because cash is the focal point of the fund flows in a business.

### 16.3.1 Profits vs. Cash

There is a general tendency to confuse profits with cash. But there is a difference between the two. Profits can be said to be the excess of income over the expenditure of the business entity, for a particular accounting period. They include, both cash incomes (cash sales, interest on investments, etc.), and non-cash incomes (credit sales, discounts received, excess provisions like provision for doubtful debts charged in the previous accounting period, etc.). Similarly, both expenses in cash/check (payment of salaries, wages, interest on term loans, etc.), and non-cash expenses (depreciation, preliminary expenses incurred during incorporation which are written-off every year, outstanding expenses like unpaid salaries or rent or insurance), where there is no actual outflow of cash at the time of accounting are included. 'Cash' refers to the cash as well as the bank balances of a company at the end of the accounting period, as reflected in its balance sheet. While profits reflect the earning capacity of a company, cash reflects its liquidity position.

**Example: Liquidity Issues and Liquidity Crunch – Go Together**

As per the data analysed by the Acuite Ratings & Research Ltd. in the month of April 2020, 55% of the top 500 NSE listed corporates in India had less than 100% coverage to meet their fixed expenses for the first quarter of the financial year 2020-2021 in terms of available liquidity. Out of the top 500 companies, banks were excluded as they were supposed to be having enough liquidity even to fund other companies in case needed. The analysis further revealed that 153

*Contd….*

companies out of the top 500 companies did not have even 50% cushion in cash or cash equivalents to cover their fixed costs although all these companies were profitable as per their Annual Reports. These companies needed to inject funds through debts or equity issues or else cut on its routine expenses to survive. The report concluded that it is not only the MSMEs which face severe liquidity issues but the problem is evident in established corporates too.

*Source: https://www.thehindu.com/business/over-half-of-top-500-firms-could-face-liquidity-crisis/article31377417.ece Dated April 18, 2020 (Accessed on 07.06.22)*

### 16.3.2 Meaning of Cash

There are two ways of viewing the term 'cash'. In a narrow sense, it includes actual cash in the form of notes and coins and bank drafts held by a firm and the deposits that can be withdrawn on demand. And in a broader sense, it includes even marketable securities which can be immediately sold or converted into cash.

## 16.4 Need for and Objectives of Cash Management

We have seen earlier that cash is embedded in different forms of current assets ranging from raw material inventory to accounts receivables and comes back in the form of cash again along with profit after completing one round of the company's operating cycle. In view of the 'flow of cash' through successive phases of the operating cycle, cash can be regarded as the life-blood of a body corporate. Being the life blood, its deficiency or surplus can both prove detrimental to the business. Hence, arriving at an optimal cash balance is essential.

Cash, either in hand or at bank, is the most liquid of all the current assets. Thus larger cash and bank balances indicate high liquidity position of a company. It must, however, be noted that cash lying in the coffers of a company or in the current account of banks fetches no return to the company. Consequently, the higher liquidity position attained by holding a large amount of cash will result in lower profitability as idle cash fetches no return, while the same when invested in the assets of the company will result in profits. Why should companies, then, hold cash and bank balances knowing well that no return can be expected of them?

### 16.4.1 Why do Companies Hold Cash?

Let us now turn to the need for holding cash (which is taken to be inclusive of cash at bank as well) by the corporate sector. The need for holding cash arises from a variety of reasons which are briefly summarized below.

**Transaction Motive**

A company is always entering into transactions with other entities. While some of these transactions may not result in an immediate inflow/outflow of cash (for example, credit purchases and sales), other transactions cause immediate cash

inflows and outflows. So firms always keep a certain amount as cash to deal with routine transactions where immediate cash payment is required.

**Precautionary Motive**

Contingencies have a habit of cropping up when least expected. A sudden fire may break out, accidents may happen, employees may go on strike, creditors may present bills earlier than expected or debtors may make payments later than warranted. The company has to be prepared to meet these contingencies to minimize its losses. For this purpose, companies generally maintain some amount in the form of cash.

**Example: Liquidity Management in Tata Motors, to face Unwarranted Issues**

Tata Motors Ltd, a leading auto maker in India, decided to cut its investment spending for the fiscal year 2020-2021 by $ 1.5 billion. The company management said that it planned to cut its spending in India in the areas of Research and Development by 70% in comparison to the previous year. The cut was planned in its spending on its British subsidiary Jaguar Land Rover by 24%. The company further said that it planned to focus on conserving cash by rigorously managing cost and investment spends to protect liquidity. The company also deferred or cancelled its low margin and non-critical investments. All this was done in an effort to preserve liquidity as a precautionary measure to face the troubled time.

*Source: https://asia.nikkei.com/Business/Automobiles/India-s-Tata-Motors-cuts-investment-by-1.5bn-to-hold-cash Dated June 16, 2020 (Accessed on 07.06.22)*

**Speculative Motive**

Firms also maintain cash balances in order to take advantage of opportunities that do not take place in the course of routine business activities. For example, there may be a sudden decrease in the price of raw materials which is not expected to last long or the firm may want to invest in securities of other companies when the price is just right. These transactions are of a purely speculative nature for which the firms need cash.

**Lack of Proper Synchronization between Cash Inflows and Outflows**

In the case of reasonably well-managed profitable companies, the total amount of cash inflows for the year is usually higher than the total amount of cash outflows. However, the company can have spells of cash deficits and surpluses. This kind of a situation arises mainly due to lack of proper synchronization between cash inflows and outflows. Seasonal industries such as tea, jute are typical examples of mismatching of inflows and outflows. Consequently, these companies tend to follow a conservative cash management policy by holding more cash.

**Asymmetry in the Consequence of 'Shortages' and 'Surpluses' of Cash**

Orgler comes out with an interesting argument that the Finance Manager is more worried about the situation of an 'uncovered cash deficit' than the situation of

surplus cash lying idle in the bank. This attitude on the part of the Finance Manager is quite understandable as the deficiencies in cash management are more likely to come out into the open during a period of cash crunch than in a period of cash surplus. As the opportunity loss sustained by the company for keeping excess cash at bank is not likely to affect all sections of the employees while inability to meet wages and salaries does, the Finance Manager may feel tempted to err, if at all, on the conservative side. This will have the impact of the need for additional cash lying at bank.

### 16.4.2 Objectives of Cash Management

All or some of the reasons explained above give rise to the company's need for cash. The question will naturally arise as to the amount of cash to be maintained by a company. While trying to answer this question one should not lose sight of the fact that cash is the most liquid of all the assets and can be put to alternative uses. So, idle cash has an opportunity cost as the same could have been invested to fetch a positive return. Thus, the objective of cash management can be regarded as one of making short-term forecasts of cash position, finding avenues for financing during periods when cash deficits are anticipated and arranging for repayment/investment during periods when cash surpluses are anticipated with a view to minimizing idle cash as far as possible. Towards this end, short-term forecasts of cash receipts and payments are made in the structured form of cash budgets, information is monitored at appropriate intervals for the purpose of control and taking suitable measures as warranted by the situation.

### 16.4.3 Cash Forecasting and Budget

The principal tool of cash management is cash budgeting or short-term cash forecasting. Usually, the time chosen for making short-term forecast for preparing cash budgets is taken to be one year. For the purpose of better monitoring and control, however, the year is divided into quarters, quarters into months and months into weeks. Under critical conditions, a week is further divided into days.

Cash budget becomes a part of the total budgeting process under which other budgets and statements are prepared. The information generated during the preparation of operating budgets such as sales forecasts, wages and salaries, manufacturing expenses overheads etc., will become useful. While the operating budgets are prepared based on the principles of accrual, cash budget is concerned with cash inflows and outflows.

Short-term cash forecasting is prepared under the receipts and payments method, showing the time and magnitude of expected cash receipts and payments. The various items of cash receipts and payments and the basis for estimating them is listed below in Table 16.1:

**Table 16.1: The Basis of Estimation for Cash Receipts and Payments**

| Items of Cash Inflow | Basis of Estimation |
|---|---|
| Cash sales | This is based on the projected Sales. The ratio of cash sales and credit sales are based on previous year's avearge. |
| Collections from credit sales | Based on the projected sales and ratio of cash to credit sales. |
| Proceeds from sale of scrap and/or by-products | This generally taken as a percentage of sales. |
| Receipts of interest and dividends | Based on the company's investment portfolio and the returns expected there from. |
| Increase in long-term loans, public deposits and issuance of other long-term securities | Based on projected capital budget and future exapansion plans |
| Sale of assets | Based on the projected sale of assets |
| Payments for purchases | Depends on projected sales, projected inventory levels of RM, SFG, stores, spares, FG, projected ratio of cash and credit purchases. Past patterns will be considered . |
| Wages and salary payments | Projected HR budget , proposed hikes , exapnsion plans, statutory guidelines |
| Payments for other manufacturing expenses such as power, fuel etc. | production plan and past experience will be the base |
| Payments for selling and distribution and general administration expenses | Based on projected sales budget abd related manpower planning, distribution costs, salary structure of personnel in the marketing and general administration; generally as percentage of sales projection |
| Interest payment and repayment of loans and redemption of debentures and preference shares; repayment of public deposits | Projected capex budget, existing service requirements |
| Payment of dividends | Based on projected after-tax profit and past trend in divident payment history. |
| Payments for the purchase of capital assets | Based on capital expenditure budget and projected cash flows |
| Lease rentals | Based on the terms and conditions of the existing lease agreements |
| Taxes | Based on estimated pre-tax profit. |

*Source: ICFAI Research Center*

**Preparation of Cash Budget and its Usefulness**

On the basis of information discussed above the cash budget for a company can be prepared. It will be useful to prepare initially a work sheet containing items of cash inflows and outflows and the resultant net cash inflows and outflows and the net cash flows. At this state one can have an idea of cash by scrutinizing the pattern and amount of inflows and outflows to see whether some of the items of outflows can be either advanced or postponed so that outflows are not clustered during certain months. This is possible only with discretionary payments, such as, payment for purchase of capital equipment, non-recurring items of outflows for research and development activities etc. While these are important, no significant impact on the profitability of the company is likely to be felt if these items of cash outflows are deferred by a couple of months. This flexibility will not be available to mandatory payments such as meeting the installments on term loans obtained. Let us now consider first the preparation of a work sheet and then have the cash budget. This is illustrated by means of an illustration for a six month period.

The most important input in the entire process of cash forecasting is the estimated sales figure because business plans are closely related to estimated plans.

**Illustration 16.1**

VRK Industries manufactures razor blades. Its sales figures are given below.

Actual and Forecasted Sales of VRK Industries

| Month | Actual Sales (₹) | Month | Forecasted Sales (₹) |
|---|---|---|---|
| November | 1,00,000 | January | 1,00,000 |
| December | 1,00,000 | February | 1,00,000 |
| | | March | 1,20,000 |
| | | April | 1,20,000 |
| | | May | 1,40,000 |
| | | June | 1,40,000 |

- Cash and credit sales are expected to be 20 percent and 80 percent respectively.
- Receivables from credit sales are expected to be collected as follows: 50% percent of receivables, on an average, one month from the date of sale and balance 50 percent, on an average, two months from the date of sale.
- No bad debt losses.
- ₹ 50,000 expected from the sale of a machine in March and ₹ 2,000 expected as interest on securities in June.

Actual and Forecasted Purchases of VRK Industries

| Month | Actual Purchases (₹) | Month | Forecasted Purchases (₹) |
|---|---|---|---|
| December | 40,000 | January | 40,000 |
| | | February | 40,000 |
| | | March | 45,000 |
| | | April | 50,000 |
| | | May | 55,000 |
| | | June | 55,000 |

- The payments for these purchases are made a month after the purchase. The payment for purchases in December will be made in January.
- Miscellaneous cash purchases of ₹ 2,500 per month are planned from January through June.
- Wage payments are expected to be ₹ 16,000 per month, January through June. Manufacturing expenses expected to be ₹ 20,000 per month; general administrative and selling expenses are expected to be ₹ 10,000 per month.
- Dividend payment of ₹ 20,000 and tax payment of ₹ 18,000 are scheduled in June.
- A machine worth ₹ 1,15,000 proposed to be purchased on cash in March.
- Opening cash balance is ₹ 20,000. The management policy is to maintain a minimum cash balance of ₹ 18,000. Given the above information work out a statement of Cash Receipts forecast, Cash Payments forecast and the Cash Budget for the period January - June.

**Solution**

**Forecast of Cash Receipts (January-June)**

₹

| S.No. | Item of Cash Receipts | January | February | March | April | May | June |
|---|---|---|---|---|---|---|---|
| 1. | Cash Sales | 20,000 | 20,000 | 24,000 | 24,000 | 28,000 | 28,000 |
| 2. | Collection on Credit Sales | 80,000 | 80,000 | 80,000 | 88,000 | 96,000 | 1,04,000 |
| 3. | Sale of Machine | – | – | 50,000 | – | – | – |
| 4. | Interest on Securities | – | – | – | – | – | 2,000 |
| | Total Cash Receipts (1+2+3+4) | 1,00,000 | 1,00,000 | 1,54,000 | 1,12,000 | 1,24,000 | 1,34,000 |

**Forecast of Cash Payments (January-June)**

₹

| S.No. | Item of Cash Payment | Jan. | Feb. | March | April | May | June |
|---|---|---|---|---|---|---|---|
| 1. | Payment on Credit Purchases | 40,000 | 40,000 | 40,000 | 45,000 | 50,000 | 55,000 |
| 2. | Misc. Cash purchases | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 |
| 3. | Wage Payments | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 |
| 4. | Manufacturing Expenses | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| 5. | General Administration & Selling Expenses | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |
| 6. | Dividend | – | – | – | – | – | 20,000 |
| 7. | Tax | – | – | – | – | – | 18,000 |
| 8. | Capital Equipment Purchase | – | | 1,15,000 | – | – | |
| | Total Cash Payments | 88,500 | 88,500 | 2,03,500 | 93,500 | 98,500 | 1,41,500 |

**Cash Budget for the Period (January-June)**

₹

| S.No. | Item | Jan. | Feb. | March | April | May | June |
|---|---|---|---|---|---|---|---|
| 1. | Opening Cash Balance | 20,000 | – | | – | – | – |
| 2. | Total Receipts | 1,00,000 | 1,00,000 | 1,54,000 | 1,12,000 | 1,24,000 | 1,34,000 |
| 3. | Total Payments | 88,500 | 88,500 | 2,03,500 | 93,500 | 98,500 | 1,41,500 |
| 4. | Net Cash Flow (2-3) | 11,500 | 11,500 | (49,500) | 18,500 | 25,500 | (7,500) |
| 5. | Cumulative Net Cash Flow | 11,500 | 23,000 | (26,500) | 52,000 | 77,500 | 70,000 |
| 6. | Opening Cash Balance + Cum-NCF (H 5) | 31,500 | 43,000 | (6,500) | 72,000 | 97,500 | 90,000 |
| 7. | Minimum Cash Balance | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 |
| 8. | Surplus or Deficit in relation to Min. Cash balance | 13,500 | 25,000 | (24,500) | 54,000 | 79,500 | 72,000 |

From the above statement of cash budget it can be seen that a cash shortage is expected during the month of March. From the month of April cash balance would improve as the business operations would bring in cash flows. Further, the shortage expected during March is due to the proposed capital expenditure decision. This shortage can be avoided by the management by adopting one of the following options: (i) postponement of the asset acquisition to a later month when cash inflows improve, (ii) deferring a portion of the payment for the capital asset to April, May & June, and (iii) resorting to short-term borrowing in the month of March.

| **Activity 16.1** |
|---|
| Companies usually prepare a cash flow statement along with income statement and balance sheet as part of their financial statements. Analyse how this cash flow statement differs from the cash budget? Does an organization have to prepare both statements? Discuss. |
| |
| |
| |

### 16.4.4 Cash Reports

Cash budgets are nothing but short-term cash forecasts and their advantage lies in their amenability in monitoring actuals for exercising control. The purpose of monthly cash reports will be served when cash inflows and outflows do not fluctuate very much and the collection and payment patterns are stabilized. When there is high uncertainty in the cash flows, then the need arises to monitor information on the cash position more frequently on a weekly or sometimes on daily basis and to revise the budget for the subsequent period based on the variance between the actual and budgeted figures and the reasons thereof.

For a multi-product multi-branch company, it is better to have cash budgets and cash reports both product-wise and branch-wise.

Thus cash reports provide a comparative picture of actual with forecasted figures and help in controlling and revising cash forecasts continuously. Cash reports can be prepared in several ways and the important ones are (i) the daily cash report, (ii) the daily treasury report, and (iii) the monthly cash report. Exhibits 16.1, 16.2 and 16.3 give the formats of a daily cash report, daily treasury report and monthly cash report.

**Exhibit 16.1: Daily Cash Report**

| | | | |
|---|---|---|---|
| 1. | Opening Cash Balance | | _ |
| 2. | Receipts | | _ |
| | Cash sales | **** | |
| | Collection on Credit Sales | **** | |
| | Loans | **** | |
| | Others Receipts | **** | **** |
| 3. | Payments | | |
| | Cash Purchases | **** | |
| | Payment to Creditors | **** | |
| | Repayment of Loans | **** | |
| | Other Payments | **** | **** |
| 4. | Net Cash flow (2-3) | | **** |
| 5. | Closing Cash Balance (1 + 4) | | **** |

*Source: ICFAI Research Center*

The daily cash report provides information on the cash position on a daily basis. Though this information is helpful for control purposes, it does not indicate the position of Accounts Receivables, Accounts payable and marketable securities of the company. Hence, a close watch is required to get a comprehensive picture of changes in cash, marketable securities, debtors, and creditors. Therefore, a daily treasury report has to be prepared which will indicate the opening and closing net treasury positions.

**Exhibit 16.2: Daily Treasury Report**

| S.No. | | Today | This month to date |
|---|---|---|---|
| 1. | Cash | | |
| | a) Opening Balance | xxx | xxx |
| | b) Receipts | xxx | xxx |
| | c) Payments | xxx | xxx |
| | d) Closing Balance(a+b-c) | xxx | xxx |
| 2. | Marketable Securities | xxx | xxx |
| | a) Opening Balance | xxx | xxx |
| | b) Purchases | xxx | xxx |
| | c) Sales | xxx | xxx |
| | d) Closing Balance (a+b-c) | xxx | xxx |
| 3. | Accounts Receivable | | |
| | a) Opening Balance | xxx | xxx |
| | b) Bills Raised | xxx | |
| | c) Cash Receipts | xxx | xxx |
| | d) Closing Balance (a+b-c) | xxx | xxx |
| 4. | Accounts Payable | | |
| | a) Opening Balance | xxx | xxx |
| | b) Bills Received | xxx | xxx |
| | c) Cash Payment | Xxx | |
| | d) Closing Balance (a + b – c) | xxx | xxx |
| 5. | Opening Net Treasury Position (1a + 2a + 3a - 4a) | xxx | xxx |
| 6. | Closing Net Treasury Position (1d + 2d + 3d - 4d) | xxx | xxx |

**Exhibit 16.3: Cash Report for the Month of**

| | This Month | | Year to Date | |
|---|---|---|---|---|
| | **Actual Budget** | **Variance** | **Actual Budget** | **Variance** |
| **Cash Receipts**<br>Cash Sales<br>Collections on Credit Sales<br>Interest and Dividend Receipts<br>Short-term borrowings<br>Long-term borrowings<br>Issue of Long-term securities<br>Sale of Assets<br>Total | | | | |
| **Cash payments**<br>Cash Purchases<br>Payment for credit purchases<br>Wages and Salaries<br>Manufacturing Expenses<br>General, Administration and selling expenses<br>Interest Dividends<br>Taxes<br>Capital equipment purchases<br>Repayment of Loans<br>Redemptions of long-term securities<br>Total | | | | |

The monthly cash report, thus, shows the cash position on a monthly basis.

### 16.4.5 Factors for Efficient Cash Management

Cash reports help in monitoring actual data for comparison with the budgeted amounts, understanding the reasons for the deviation between the two and in the light of this knowledge, controlling and revising the budget on a regular basis. The efficiency of cash management can be enhanced considerably by keeping a close watch and controlling a few important factors briefly described and illustrated below:

**Prompt Billing and Mailing**

A time lag occurs from the date of dispatching goods to the date of preparing invoice documents and mailing the same to the customers. If this time gap can be minimized early remittances can be expected, otherwise remittances get delayed.

In the case of one organization it was observed that the time lag was as high as one week. Subsequent scrutiny revealed that the reason for delay was the practice

of preparing bills and mailing them in 'bunches'. As a result the bills on earlier sales got delayed resulting in late realization. Once the reason for the delay was identified, corrective measures were taken to prevent the accumulation of bills. This reduced the delay in remittances. Thus accelerating the process of preparing and mailing bills will help reduce the delay in remittances and early realization of cash.

**Collection of Cheques and Remittance of Cash**

Delay in the receipt of cheques and depositing the same in the bank will inevitably result in delayed cash realization. This delay can be reduced by taking measures to hasten the process of collecting and depositing cheques/cash from customers. An Illustration will help understand how this can be achieved

- An organization having branches in all the districts of West Bengal had been selling fertilizers to a great extent by a vast network of consignees receiving a margin for the services rendered. Quite often the consignees would make remittances to the head office in Kolkata resulting in delays in cash realization. An in-depth study revealed that delays could be considerably reduced by adopting the following procedure:
- The consignees should be asked to prepare challan-cum-invoice on credit sales which would cut-short the work of raising separate bills.
- Non-operating collection accounts had to be opened in the district level branches of the head office bank into which checks and cash from sales are to be deposited by the consignees, under advice to the branch manager. The amounts so deposited are to be transferred to the main bank account of the head office telegraphically, under advice to the head office. The branch managers/their assistants should make occasional visits to the bank branches as also to the consignees for ensuring compliance with the instructions issued.

The above practice considerably reduced the delay in receipts with a resultant decrease in the incidence of interest on the cash credit account of the head office.

With the advent of online banking transactions and digital payments, the traditional practice of transacting through cheques has come down. People started migrating to online payments as they are faster, more secure and more accessible. However, complete shift to an online platform is still in the pipeline.

One major reason for delay in cash realizations occurs due to the time lag involved in collection of cheques by banks. To counter this, in 2010, RBI introduced the Cheque Truncation System[9] (CTS) for faster clearing of cheques. This is an online image based clearing system through which the cheque image and MICR data is transmitted electronically through to the drawee bank. Since 2013, only CTS-2010 compliant cheques are accepted by banks for clearing.

[9] Cheque truncation system is an online image-based cheque clearing system where cheque images and magnetic ink character recognition (MICR) data are captured at the collecting bank branch and transmitted electronically.

According to RBI, this system not only increases the speed of collection of cheques but also results in rendering better services to customers, reduces the scope of loss of instruments in transit, lowers the cost of collection of cheques and removes the reconciliation related and logistics related problems. Though the scheme was introduced in 2010, it ensured complete implementation only in 2015 when government cheques were also processed through the CTS without the back- up of the physical cheque.

**Centralized Purchases and Payments to Suppliers**

The company can gain some advantages, as listed below, when purchases and payments to suppliers are centralized at the head office:

- By the sheer size of purchases there is scope to obtain bulk purchase discounts on certain items which will effectively reduce the cost.
- As cash receipts get consolidated at the head office, the disbursement schedule can be more effectively implemented. As far as possible, the company can make an arrangement with suppliers so that the payment schedule matches with the schedule of cash receipts.
- As far as possible cash discounts on purchases can be utilized, preferably by remitting cheques on the last day for utilizing such facility. This will release cash within the discount period and the company can also avoid the implicit rate of interest underlying the failure to avail cash discount[10], as this rate will be considerably high.
- Under the centralized purchase system, arrangements can be made with the suppliers for direct shipment of materials to the company's units located at different parts. This will reduce to some extent the total cost of transportation, handling and storage.

With new ways of managing supplies such as the Just In Time (JIT)[11] technique, companies are able to operate with minimum inventory levels by entering into arrangements with suppliers to deliver the components as and when required. The car manufacturer, Maruti Suzuki initially gave a month's requirement of materials to its suppliers but later reduced this to 15 days, resulting in inventory levels falling by 70% inside the plant. From there, the company has progressed to daily projection of material requirements which is communicated to the suppliers through an online system. This information is further broken down to hourly based supply system enabling the company to function with minimum or zero inventory costs.

**Playing the Float**

The basis for the concept of 'float' arises from the practice of banks not to credit the customer's account in its books when a cheque is deposited by him and not to debit his account in its books when a cheque is issued by him until the cheque is

[10] This has been discussed with numerical illustrations in Unit 15 on Receivables Management.

[11] JIT is an inventory strategy companies employ to increase efficiency and decrease waste by receiving goods only as they are needed in the production process, thereby reducing inventory costs.

cleared and cash is realized or paid respectively. In the normal course of business, a company issues cheques to suppliers and deposits cheques received from customers. It can take advantage of the concept of float, while doing so. Let us see what float means.

Whenever cheques are deposited with the bank, the credit balance increases in the company's books of account but not in the books of the bank until the cheques are cleared and money realized. The amount of cheques deposited by a company in the bank awaiting clearance is called 'collection float'. Similarly, the amount of cheques issued by the company awaiting payment by the bank is called 'payment float'. The difference between 'payment float' and 'collection float' is called 'net float'. Obviously, when the net float is positive, the balance in the books of the company is less than that in the bank's books; when net float is negative, the book balance of the company is more than that in the bank's books.

When a company has a 'positive net float', it may issue cheques to the extent that the amount shown in the bank's books is higher than the amount shown in the company's books, even if the company's books indicate an overdrawn position. The company is then said to have been playing the float. This is illustrated by means of a numerical illustration before considering the merits and demerits of playing the float.

Suppose, the opening credit balance of a company with the bank is ₹ 10,000. Let us assume that it deposits cheques daily to the amount of ₹ 30,000 and it takes three days for realization. Let us also assume that the company issues cheques daily to the amount of ₹ 30,000 and it takes five days for actual payment. The opening balance in the company's books as also in the bank's books will remain the same at ₹ 10,000. The closing balance in the books of the company and in the books of the bank is presented in Table 16.2 below:

**Table 16.2: Closing Balance in the Books of the Company and in the Books of the Bank**

| Day | Books of the Company | Books of the Bank |
|---|---|---|
| 1. | Remains at ₹ 10,000 as the decrease of ₹ 30,000, the amount of cheques issued is offset by the increase of ₹ 30,000, the amount of cheques deposited. | The opening balance of ₹ 10,000 will remain as the closing balance and the company's accounting will remain unchanged. |
| 2. | – Do – | – Do – |
| 3. | – Do – | – Do – |
| 4. | – Do – | The opening balance of ₹ 10,000 increases by ₹ 30,000 as the amount of the first day's cheque gets encashed. The closing balance is ₹ 40,000. |

*Contd. .....*

| Day | Books of the Company | Books of the Bank |
|---|---|---|
| 5. | – Do – | The opening balance of ₹ 40,000 will increase by the amount of ₹ 30,000 due to the encashment of the second day's cheque deposited. Thus, the closing balance is ₹ 70,000. |
| 6. | – Do – | The opening balance of ₹ 70,000 is increased by ₹ 30,000 due to the encashment of the third day's cheque deposited and reduced by ₹ 30,000 due to the payment of the cheque issued on the first day. So, the closing balance from now onwards will remain at ₹ 70,000. |

From Table 16.2, it can be noticed that from day six onwards the closing balance remains stable at ₹ 70,000 in the books of the bank. The closing balance in the company's books will, however, remain at ₹ 10,000. Consequently, the company will continue to enjoy a net float of ₹ 60,000 (₹ 70,000 – ₹ 10,000). As a result of this, the company issues cheques amounting to ₹ 40,000 or ₹ 50,000 even if the company's book balance is only ₹ 10,000 because of the net float of ₹ 60,000 available to it. While the number of cheques issued and deposited by the company is assumed to be the same for the sake of simplicity, it can differ. Then, the net float will become the difference between the balance in the bank's books and the balance in the company's books.

While a company can obtain greater mileage out of its cash balance by playing the float, there are certain inherent risks involved. When the clearing system operates much faster than anticipated, the cheques issued may come for payment earlier than anticipated leading to financial embarrassment to the company. When the word goes round that the cheques issued by the company to a supplier had bounced the company's image will be at stake. In order to minimize the risks associated with playing the float a company can take some of the following precautionary measures and obtain greater mileage out of its cash resources.

- A minimum amount of cash can always be maintained with the bank.
- Desist from the temptation to use a larger proportion of the net float.
- Preferably have an overdraft arrangement with the bank to avoid financial embarrassment.

With the advent of RTGS (Real Time Gross Settlement)[12] and NEFT[13] (National Electronic Funds Transfer) electronic payment systems which allow transfer of funds electronically, the concept of "playing the float" by the companies has

[12] RTGS is a continuous (real-time) settlement of funds individually on an order by order basis. It is usually meant for large value transactions.

[13] NEFT is an electronic fund transfer system that operates on a Deferred Net Settlement (DNS) basis which settles transactions in batches.

reduced drastically. Electronic Data Interchange (EDI) involves electronic transfer of financial information and funds between the buyer and seller. In this, the seller sends the bill electronically to the buyer who authorizes his banker electronically for payment. The transaction is complete with the banker transferring funds electronically to the seller's bank. The advent of EDI is predicted to eliminate the need for playing the float completely.

In November 2016, the Government of India in a strategic move to control black money demonetized ₹ 500 and ₹ 1,000 notes resulting in a major cash management exercise by banks and RBI.

## 16.5 Investment of Surplus Cash

Investing surplus cash involves two basic problems:

i. Determining the amount of surplus cash

ii. Determining the channels of investment

### Determination of Surplus Cash

The cash in excess of the firm's normal cash requirements is termed as surplus cash. Before determining the amount of surplus cash, the minimum cash balance required by the firm has to be accounted. This minimum level may be termed as a 'safety level for cash.'

The safety level of cash is determined by the Finance Manager separately for normal and peak period. In both the cases, the two basic factors to be decided are:

a. Desired days of cash: This is the number of days for which cash balance should be sufficient to cover payments.

b. Average daily cash outflows: This is the average amount of disbursements to be made daily.

The 'desired days of cash' and 'average daily cash outflows' are to be determined separately for normal and peak period. Then the safety level of cash can be calculated as follows:

*During Normal Periods*

Safety level of cash = Desired days of cash x Average daily cash outflows;

### Illustration 16.2

The Finance Manager feels that a safety level should provide sufficient cash to cover cash payments for a week and firm's average daily cash outflows are ₹ 15,000. The safety level of cash will be ₹ 1,05,000 i.e., 7 x 15,000.

*During Peak Periods*

Safety level of cash = Desired days of cash at the business period x Average of highest daily cash outflows.

**Illustration 16.3**

During the four busiest days in the month of March, a firm's cash outflows were ₹ 6,000, ₹ 7,000, ₹ 8,000 and ₹ 9,000. The Finance manager desires sufficient cash to cover payments for 4 days during the peak periods. Calculate the safety level.

**Solution:**

The average cash outflow

$$= \frac{6,000 + 7,000 + 8,000 + 9,000}{4}$$

= ₹ 7,500

Safety level = 4 x 7,500 = ₹ 30,000

**Illustration 16.4**

Ascertain whether the firm has surplus or deficiency of cash (from the following data):

| | Normal Periods | Peak Periods |
|---|---|---|
| Desired days of cash | 7 | 5 |
| Average daily outflows | 25,000 | 50,000 |
| Actual cash balance | 1,00,000 | 2,50,000 |

**Solution:**

During normal periods – The firm has a cash balance of ₹ 1,00,000. The average daily cash outflows are ₹ 25,000. It means the firm has cash available only for 4 days as compared to a requirement for 7 days. Hence, the firm is cash deficient.

During peak periods – Cash balance is ₹ 2,50,000, and average daily cash outflows ₹ 50,000. The firm has cash available for 5 days which is equal to the required 5 days. Hence, the firm is neither cash deficient nor cash surplus. It has just sufficient cash.

**Determination of Channels of Investment**

The Finance Manager can determine the amount of surplus cash, by comparing the actual amount of cash available with the safety level or minimum level of cash, as explained in the preceding pages. Such surplus cash may be either of a temporary or a permanent nature. Temporary cash surplus consists of funds which are available for investment on a short-term basis (maximum 6 months), since they are required to meet regular obligations such as those of taxes, dividends, etc. Permanent cash surplus consists of funds which are kept by the firm to use in some unforeseen profitable opportunity of expansion or acquisition of some asset. Such funds are, therefore, available for investment for a period ranging from six months to a year.

**Example: Surplus Cash and Capital Expenditure – A Critical Comparison**

As per a report published in October 2021, Indian corporates were sitting on a cash surplus post pandemic. Indian companies were looking to step up their capital expenditure and investment plans. Favourable monetary policy coupled with various government incentives were the key reasons behind such optimism. As per the Managing Director of Kotak Asset Management

Company, corporates are sitting on cash pile post pandemic and they are looking to invest in order to capture available opportunity and global demand revival. Sectors most likely to take the lead would be IT, pharma, steel, sugar, cement, real estate and infrastructure. It is assumed that the available surplus would be for a longer term and hence the emphasis will be on the high yielding longer term investments.

*Source: https://economictimes.indiatimes.com/news/economy/indicators/flush-with-cash-indian-companies-eye-capex-investment-push/articleshow/87196050.cms Dated Oct 22, 2021(Accessed on 07.06.22)*

**Criteria for Investment:** In most of the companies, there are usually no formal written instructions for investing the surplus cash. It is left to the discretion and judgment of the finance manager. While exercising such discretion or judgment, he usually takes into consideration the following factors:

a. **Security:** This can be ensured by investing money in securities whose price remains more or less stable and where a minimum return is guaranteed.

b. **Liquidity:** This can be ensured by investing money in short-term securities including short-term fixed deposits with the bank.

c. **Yield:** Most corporate managers give less emphasis to yield as compared to security and liquidity of investment. They, therefore, prefer short-term Government securities for investing surplus cash. However, some corporate managers follow aggressive investment policies which maximize the yield on their investments.

d. **Maturity:** Surplus cash is not available for an indefinite period. Hence, it will be advisable to select securities according to their maturities keeping in view the period for which surplus cash is available. If such selection is done carefully, the Finance Manager can maximize the yield as well as maintain the liquidity of investments.

For example, a firm can divide the surplus cash available with it in three categories:

i. Surplus cash, which is to be made available for meeting unforeseen disbursements. Such cash should, therefore, be invested in securities which can be immediately sold without much loss. In case of such cash, liquidity is more important than yield.

ii. Surplus cash, which is to be made available on certain definite dates for making specific payments such as those on account of tax, dividends, capital expenditure, etc. Such cash should, therefore be invested in securities whose maturities coincide with the dates of payment.

iii. Surplus cash, which is a sort of general reserve and not required to meet any specific payment. Such cash can therefore, be invested in securities with relatively longer maturities and more favorable yields.

## Check Your Progress - 1

1. Which of the following is the basis of estimation for receipts of interest and dividend in the cash budget?
   a. Receipts pattern of the past
   b. Financial forecast
   c. Company's investment portfolio
   d. Proportion of interest and dividend to total sales in the past
   e. Past proportion of interest and dividend to total sales + annual growth rate
2. What could be the paramount reason for investing surplus cash by a firm?
   a. Yield
   b. Liquidity
   c. Tax shelter
   d. Security
   e. Maturity
3. Identify the element that is not associated with the cash management of a firm.
   a. Maintaining liquidity
   b. Avoiding idle funds in long-term securities
   c. Speedy collection of receivables
   d. Stretching accounts payable without affecting the credit of the firm
   e. Investing surplus funds in long-term securities.
4. Which of the following is not a motive for holding cash?
   a. Transaction motive
   b. Precaution against unexpected expenses
   c. Extending loans to group companies
   d. Speculation purpose
   e. Mismatch in cash inflows and outflows
5. What is playing the float?

a. Issuing cheques without balance in the account
b. Purchasing machinery and dishonoring the instrument after the delivery of machinery
c. Converting a credit customer into a cash account
d. Expediting the implementation of the project to the firm's convenience before sanction of loan
e. Manipulating the books of accounts

### 16.5.1 Forms of Liquidity and Choice of Liquidity Mix

While a company's demand for cash has already been discussed above, it does not always keep the entire amount in the form of cash balance in the current account for the simple reason that the opportunity cost of idle cash is considerably high. That is why, companies try to maintain, besides cash, other liquid assets which provide some return but at the same time can be converted into cash within a reasonably short time with relatively low risk. Let us first consider the forms of liquidity and then the choice of liquidity mix.

Forms of Liquidity

***Cash Balance in the Current Account:*** This is the highest form of liquid asset a company can conceive of, but the return provided by it is nil. However, companies maintain approximately four to five per cent of their total assets, on the average, in this form despite no returns for reasons already explained.

***Keeping Reserve Drawing Power under Cash Credit/Overdraft Arrangement*:** This form of liquidity appears to be quite attractive as it can have access to bank borrowing. However, constraints imposed by the banking sector made it much less attractive than what it once used to be. Close scrutiny of the quarterly budgets of the company by banks and imposition of penal interest of two per cent over and above the normal rate of interest on under- or over-utilization make this form more tedious and time consuming. However, a built-in cushion may possibly be included while preparing the quarterly budgets and during some periods the full amount may be drawn. The tax benefit on the interest makes effective after-tax rate to be much less costly, even if part of it is held in the form of idle cash. This not only helps as a liquid Source but also helps in obtaining equal or higher limits during the forthcoming year.

***Marketable Securities*:** These are short-term securities of government such as treasury bills and other gilt-edged securities whose default risk is nil and, for that very reason, the return is low. It is preferable to ensure the maturity structure of these short-term securities with the likely periods of excessive cash drain on the part of the company. Then, the transaction costs can be considerably minimized as early liquidation prior to maturity may result in low return from these assets.

***Investment in Inter-corporate Deposits*:** A company can invest money with other companies in the form of short-term deposits ranging from two or three months to five or six months at remunerative rates. However, these deposits being unsecured in nature are subject to considerable risk, unless the companies accepting such deposits have excellent antecedents as to their paying habits.

From among the different forms of liquidity available to a company, a deliberate choice has to be made in selecting an appropriate mix that suits the liquidity requirements of the company and disposition of its management towards risk.

**Choice of Liquidity Mix**

The choice of selecting the portfolio of cash and near cash assets also known as the choice of liquidity mix is governed by a variety of factors which is briefly explained below:

***Uncertainty Surrounding Cash Flow Projections*:** It is generally said that the only certain factor in the corporate environment is its uncertainty. Even if cash flow projections have been made with the utmost care, the general uncertainty can at times make the projections go awry. However, the degree of uncertainty is more in certain types of industries than in others. For example, general engineering industry is more recession prone than others. Consequently, the onset of recession which was not anticipated may call for a thorough revision of cash flows and policy changes in respect of production plans, dividend payments, etc. Similarly tea plantations can get adversely affected with an untimely hailstorm. Even within the same company which is stable and growing certain types of cash flows, especially collections and payables tend to be more uncertain than others. When the degree of uncertainty is high as evidenced by the sensitivity of cash forecasts to adverse changes in some of the underlying assumptions, the company will do well to have the liquidity mix tilted largely towards cash balance and in so far as possible reserve drawing power under the cash credit/overdraft arrangement and to a less extent gilt-edged securities.

On the other hand certain types of industries such as synthetic fabrics, electrical appliances enjoy stable and growing demand. Once a company has established its image the degree of uncertainty surrounding cash flow projections will be comparatively less. Consequently, the liquidity mix of such companies will be tilted more towards marketable securities and inter-corporate deposits.

***Attitude of the Management towards Risk*:** When the management of the company attaches greater importance to a given percentage increase in return than to the same percentage increase in liquidity, the portfolio of liquid assets held by such company will have a higher proportion of inter-corporate deposits and a lower proportion of marketable securities and cash balances.

When the attitude of the management towards risk is quite conservative the liquidity mix chosen tends to have a higher proportion of cash balance and marketable securities and a lower proportion of inter-corporate deposits.

***Ability to Raise Non-bank Funds and/or Control its Cash Flows*:** When a company is favorably placed in a position to have ready access to non-bank funds it can afford to have less proportion of cash and more of inter-corporate deposits and marketable securities. This kind of a situation arises mostly in the case of group companies. For example, when a manufacturing company promoted by a group faces cash shortage, a finance and investment company promoted by the same group can come to its rescue by providing funds. Such a company need not maintain a large portion of its liquid assets in the form of cash. Similarly, companies which can control their cash flows effectively need not hold a large proportion of idle cash in their liquidity mix. This kind of situation can arise in the case of companies that have horizontal or vertical integration. For example a manufacturing company which has got substantial interest and/or has promoted another company for the supply of raw materials the company can exercise greater control on payables.

On the other hand, companies which do not enjoy ready access to non-bank Sources of funds and/or not in a position to control cash flows may need to have greater proportion of cash and reserve drawing power in their liquidity mix.

### 16.5.2 Models for Determining Optimal Cash

Given the overall transactions and precautionary balances, the finance manager of a firm would like to consider the appropriate balance between cash and marketable securities. This is because, optimal levels of cash and marketable securities would reduce and minimize the costs such as (a) transaction costs – costs incurred for transferring marketable securities to cash or vice versa, (b) inconvenience costs; and (c) opportunity costs – the interest earnings foregone on marketable securities for holding cash. In this section, we will discuss' three models for determining an appropriate balance between cash and marketable securities.

**Inventory Model**

If future cash flows were known with certainty, the EOQ model (used in inventory management) is one of the simple models for determining the optimal average amount of transaction cash. Here, in this model, the opportunity (carrying) cost of holding cash is balanced against the fixed costs associated with securities transactions to arrive at an optimal balance.

By using the EOQ formula, the firm attempts to determine the funds transfer size that will minimize the total cash costs that is total transaction cost and total carrying (opportunity) costs.

Total cost = Transaction cost + Carrying (opportunity) cost

This cost can be expressed as: F (T/C) + I(C/2).

Where,

F = Fixed transaction cost associated with a transaction *
T = Total demand for cash over the specified period

I = Interest rate on marketable securities for the period **
C = Cash balance for the period

Note that:

* Assumed to be independent of the amount transferred.
** Assumed to be constant.

In the above formula, T/C reflects the number of transactions during the period. If we multiply T/C with F that is, fixed cost per transaction, we will get total fixed cost for the period. C/2 implies the average level of cash balance over the period of time involved and when it is multiplied with the interest rate (I), we will obtain the total carrying (opportunity) cost. From the above equation, we conclude that the larger the C or C/2, the smaller the total transaction cost [F (T/C)] and the higher the opportunity cost [I (C/2)]. Balancing the two costs can minimize total costs. The optimal level of cash can be determined using the underlying equation.

$$C = \sqrt{\frac{2FT}{I}}$$

**Illustration 16.5**

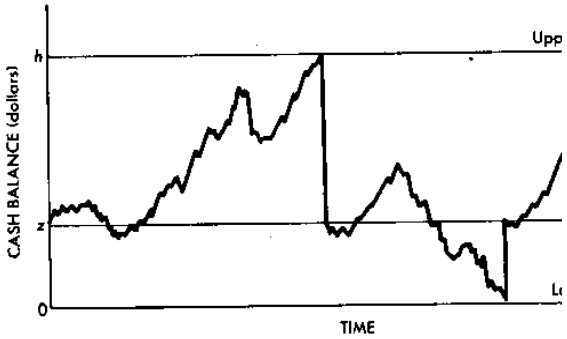
Suppose ABC Ltd., a manufacturing firm, expects its total cash payments over the planning period (2-months) to be ₹ 10,00,000, while the fixed cost per transaction is ₹ 100 and the interest rate on marketable securities is 12 percent per annum, or 2.0 percent for the 2-month period. Substituting these values, $C = \sqrt{(2\times10,00,000\times100/2} = (\sqrt{10,00,00,000} =$ ₹ 10,000.) Thus, if the firm maintains an average cash balance of ₹ 10,000, it can minimize its total costs. It is noted that the limitations and assumptions of this model are similar to that of the EOQ inventory model.

**Stochastic Models**

Since the EOQ model assumes a constant demand for cash, this inventory model becomes inappropriate when the cash flows of the firms are relatively or reasonably unpredictable, and some other models must be employed to determine optimal cash balances. If cash balances fluctuate randomly, we can apply control theory to the problem. To apply, assume that the cash flows are stochastic and random, and then set control limits such that when cash balance touches the upper bound, a conversion of cash into marketable securities is undertaken and when it approaches the lower bound, a transfer from marketable securities to cash is activated. And, no transactions take place as long as the cash balance remains within these bounds.

Here, the question is how to set these boundaries (bounds) such that they should depend upon both fixed costs of a transaction and the opportunity cost of holding cash. For determining these limits, there are many control limit models. However, we study a relatively trouble-free one, the Miller-Orr model. This model specifies two bounds – h dollars as an upper bound and 0 (zero) dollars as a lower bound; is demonstrated in the following figure, assuming that there is no underlying movement in the cash flows during the period.

**Figure 16.1: Changes in Cash Balances as per Miller-Orr Model**




*Prasanna Chandra (2019). Financial Management – Theory and Practice, 10th edition, New Delhi: Tata McGraw-Hill.*

From the figure, we can observe that when the cash balance reaches the upper bound, h-z dollars (cash) are converted into marketable securities and the new balance becomes z dollars (return point). When the cash balances hit the lower bound (zero dollars), z dollars of marketable securities are transferred to cash and the new balance again becomes z dollars. And, as long as the cash balances stays within the bounds, no transaction is undertaken. Note that the lower bound (control limit) is taken as zero only for our better explanation, and can be set higher than zero.

The optimal value of return point, z is:

$$z = \sqrt[3]{\frac{3F\sigma^2}{4i}}$$

Where 'F' is the fixed transaction cost, 'σ' is the variance of daily net cash balances, and 'i' is the interest rate per day on marketable securities. The optimal value of 'h' is 3z. The model reduces the total fixed transaction cost and total opportunity cost by setting these bounds. However, the average cash balance recommended by the control-limit models will be higher than that of the EOQ model, as these models assume that cash flows are stochastic and unpredictable.

**Probability Approach**

In practice, depending upon the nature of the business, the cash flows of a firm can be predictable within a range. Although the economic-order-quantity (EOQ) model assumes constant demand, when there is only moderate uncertainty, the model can be modified through the inclusion of safety (buffer) cash against uncertainty. And, for those cases, where the uncertainty is large, the EOQ model becomes inappropriate. In contrast, when the cash flows of the firm are relatively or reasonably unpredictable, a stochastic model can be employed to make automatic transfers between cash and marketable securities. This is because, when we employ this model in place of the EOQ model, we will always end up with a higher level of average cash balance and this higher level of average cash balance is not appropriate for those firms, whose cash flows are reasonably predictable.

For those firms, whose cash flows are neither reasonably predictable, nor reasonably unpredictable, a probabilistic approach can be applied. To get a probability distribution, end-of-period cash balances are to be estimated for different cash flow outcomes. For more accuracy, length of the period used should be short say, one-week or less. This probabilistic information, together with information about the fixed (transaction) cost and interest earnings on investments in marketable securities is required to estimate the initial balance between cash and marketable securities. Once the information is available, compute the expected net earnings [interest earned – (fixed transaction cost + opportunity cost)] associated with initial levels of marketable securities for different possible cash flow outcomes. The level at which expected net earnings are maximized is the optimal level of marketable securities.

## 16.6 Internal Treasury Controls

In large organizations, the management of cash is entrusted to a specialized department within the finance department. This specialized department is called the treasury department. One of the major activities of the treasury department whose central role is cash forecasting and cash management. Treasury activity is considered as sensitive as they deal with large amount of funds. The department, in order to maintain the liquidity of the business and to protect the business against risks, puts in place internal checks and controls that help in identifying, managing and mitigating risks.

**Example: Merck's Treasury Management**

Merck, a global German giant, engaged in science and technology had a strong presence in India. In the year 2021, it transformed its internal treasury controls upside down especially in India. The key changes adopted by the company were as follows:

a. Central to Regional – The company was having a very centralised approach towards treasury control but with the Asian countries including South Korea and Taiwan reaching a sizable turnover, the company decided to go regional.
b. Turning treasury inside out - The whole treasury business in India turned inside out. "This holistic approach was what made it special and challenging at the same time. Every gear had to mesh together." said the head of treasury operations, Merck.
c. Rule based FX hedging - This move was accomplished by creating a rule-based, automated workflow, based on Robotic Process Automation (RPA) and designed to work with minimal human involvement.
d. Reducing costs through standardisation – Savings could be achieved due to standardisation and automation of processes.

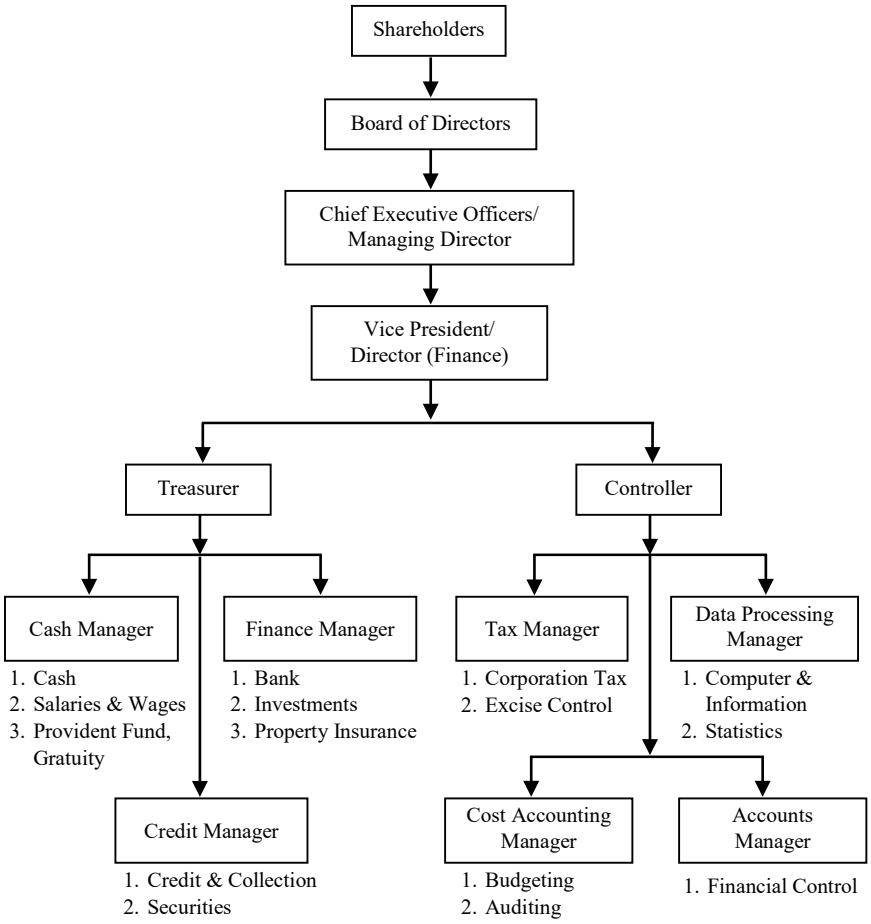
*Source: https://flow.db.com/cash-management/boosting-treasury-in-india Dated Nov 11, 2021 (Accessed on 07.06.22)*

The organization of finance department differs from company to company. There is no statutory pattern. Legally and theoretically, the right of managing a company vests in its shareholders, but their numbers being large and scattered, this task is entrusted to the Board of Directors. The main representative of the Board of Directors is the Chief Executive Officer/Managing Director. He/She is the competent authority to take decisions on matters relating to the overall policy formulations and execution. To learn about the constitution of the treasury, a study can be made about the constitution of the finance department. The finance department is headed by the Vice President (Finance) to whom the Treasurer and the Controller are responsible.

### 16.6.1 Structure and Organization of Treasury

The treasury department is an integral part of the structure of an organization. The financial management of an organization typically consists of treasury operations and control functions. The treasury department is entrusted with cash management, investment management and credit management while the controller's activities involve reporting, budgeting and auditing. Figure 16.2 depicts the organization of treasury in an organization.

**Figure 16.2: Organisation Structure of Treasury**




*Source: ICFAI Research Center*

### Treasurer

As the treasurer in the finance department deals with liquid assets, the treasurer has a major responsibility of being a custodian of cash and other liquid assets. The other functions of the treasurer are:

- Formulate capital structure for the organization in accordance with business goals and implement the same
- Management of liquid assets including cash
- Acts as a cashier
- Role of an authorized signatory on payment checks including the authority to approve such checks
- Reconciliation in checking accounts
- Overall management of the credit functions of the firm
- Authority to utilize surplus cash of the company in short-term beneficial investments
- Establishes the company policy with respect to decision on trade discounts and vendor payment aging
- Establishes relationship with the bankers and investors

All the above mentioned functions are implemented by the treasury with the co-operation of the cash manager, finance manager and the credit manager.

### Controller

Just as the treasurer deals with liquid assets, the controller of the organization has to record the transactions of these liquid assets. It is the combined and effective working of both the departments that gives rise to an effective system of internal controls.

Some of the functions of the Controller are:

- Records all transactions in the general ledger, the accounts receivables and the accounts payables sub ledger, transactions with respect to fixed assets such as depreciation, inventory control etc.
- Looks into the aspect of taxes and insurance
- Keeps track of the company's short-term investments by recording and reconciling the transactions with those of the brokerage firms
- Looks into the regulatory aspects and implementation of the company's policy on trade discounts and receivables aging
- Acts as planning director
- Keeping a record of the attendance of the employees, their movement timings so as to facilitate in preparing payroll
- Reporting information to the management

To assist the controller in accomplishing the above are the tax manager, data processing manager, cost accounting manager and accounting manager. Thus, the

functions of financial accounting, internal audit, taxation, management accounting and control, budgeting, planning and control are accomplished.

**Other Aspects**

The size of the treasury depends on the size of the organization. Big companies, usually the public limited companies and large private sector giants like Reliance Industries Ltd., ITC, etc., may have the structures as mentioned above or similar to it. However, small fledgling organizations usually have the Director (Finance) to take major policy decisions and fulfill the role of both the treasurer and controller. He/She will have the finance manager, accounts officer and the cashier to look into aspects of the implementation and thus assist him, or in some cases, some of these officials are responsible even for more than one of the above listed functions. Once the rules and regulations are framed in respect of various functions of the treasury, it is important that these standards of accounting and control are properly implemented and strictly adhered to.

**Accounting and Control**

In small family holdings, sole proprietorship and partnership firms, accounting and control measures are closely held between the promoters. They would do everything on their own and see to the day-to-day transactions. However, as the organization grows, it will become humanly impossible to check individually and thus the need for a system of internal accounting control would be felt. The types of risks a company would face are:

- Entry of counterfeit documents, vouchers, challans, receipts into the accounting system
- A 'no-care attitude' towards the policies introduced by the management
- Loss/Misplacement of important documents
- Inaccuracy in reporting and recording transactions
- Unauthorized disposal of assets
- Failure and inefficiency in safeguarding the assets
- Neglect of work in the event of non-allocation of authority and responsibility

### 16.6.2 Purpose of Establishing Control

Ideally, the internal control system is designed to prevent any financial impropriety by the employees. The thrust is not on detection of such a happening, but to prevent it. When implemented a proper control system automatically hints at the weakness of the major policies with respect to managing cash, receivables, discounts, investments, etc.

Implementation of effective system of accounting and controls deters the people from committing any act of fraud. The very fact that their actions are being monitored will prevent them from committing any such acts. Of course, people inclined to steal/misappropriate will go elsewhere where they have easy access.

**Example:** The unauthorized use of telephones by the staff for personal purpose. The cost controller of a company was quite concerned about the highly inflated telephone bill. As it was not possible for him to personally tell each employee to minimize the use of telephone for personal use, he installed a printing machine on to the telephone which would give details on the telephone calls with respect to the number dialed and duration of the call. This automatically created awareness among the employees that their calls would be monitored. It was not surprising therefore to note, that the bill for the subsequent months had reduced.

However, every company should understand that people who 'want to make hay, while the sun shines' will do so, whatever be the systems of control implemented. One can only hope that the system implemented is strict and fool-proof which will make risk taking even more difficult.

### 16.6.3 Design of Internal Control

Internal control systems are designed according to the size of the firms. Large firms either have the audit staff to design and implement the control system or appoint experts of the treasury and control function to design the same. Smaller companies whose treasurer and controller may not have the experience in formulating a system of control often employ the services of consultants or their auditors. Some of the guidelines which are adhered to while designing an internal control system are:

- A plan to segregate responsibilities based on functions.
- Allocation of responsibilities between the maintenance of records (by the controller) and custodianship of cash and other liquid assets (by the treasurer).
- A system for proper documentation and recording procedures.
- Formulation of policies and procedures in tune with the organization's long-term goal and a systematic model for implementation of those policies.
- Appointment of suitable personnel whose qualifications, interest and experience are commensurate with the nature of job and responsibilities to be entrusted to them so as to obtain maximum job enrichment.

Companies today are extensively using the ERP systems for continuously monitoring and improving the internal control systems. The ERP system helps in integrating the internal controls into the Accounting software systems and other business processes. In such systems, care should be taken while segregating the duties of personnel in charge as the chances of fraud are higher if a single person has ERP authorizations with payment generation capabilities.

### 16.6.4 Manning the System

Human reSources are the most important reSource available to an organization to successfully implement the control system. Capable persons must demonstrate their ability to execute the job which has been entrusted to them. The treasurer

and controller should emphasize on the basic skills and qualifications a prospective employee needs to have for a particular type of job. Experienced people are particularly selected when they have in-depth knowledge of the procedures, documentation, loopholes in the system and how the same can be detected. If inexperienced people are placed in responsible positions, the more experienced people may take advantage of this and misguide them to suit their own convenience. Certain companies also introduce sessions of 'Personnel development' and other training programs in order to familiarize them with current business practices and latest software technology.

### 16.6.5 Maintenance and Monitoring of Internal Control Systems

a. **Identification of problem:** The control system must be able to identify an upcoming problem and suggest solutions to each situation at the earliest. For instance, A ledger clerk responsible for making regular payment of rent for advertising was also in charge of a machine that printed cheques. Numerous small cheques were made out by him for the correct amounts but payable to him. It was several months before complaints from creditors, (who had not received their cheques) were investigated and the fraud uncovered. This kind of duplication or wrong segregation of duties can be unearthed by establishing an internal control system

b. **Cost-Benefit Analysis:** Every control system has costs involved in both monetary terms and in terms of time spent by people to prepare and review the control systems. Whatever be the case, a company is benefited only when the cost of controls does not exceed the loss it is trying to prevent from occurring.

   To effectively implement cost beneficial controls, one should make a study of:

   – The opportunity costs in preventing the occurrence of frauds, misappropriations, theft, errors, negligence.
   – Recurrence of such misappropriations and its cost if the control system was not implemented.
   – The total costs incurred in establishing a control system.

c. **Monitoring for Compliance:** Just as policies and procedures of a company require to be complied with, so also the rules with internal control systems. Each system needs to be monitored constantly to ensure that it is implemented. It is especially important when the employees do not feel the necessity for a particular type of control.

   One of the methods for ensuring compliance is to select a representative sample and test them. The procedure which can be followed is:

   – Define the test: It is very important to define a particular control to be tested. For instance, The controller and treasurer of a company decide to measure their internal deposit float – the time taken to record and deposit a customer's cheque. The procedure to be followed would be to first check their daily

deposit register with the number of cheques received on the relevant day. A study of the bank statement will also be made to know if the deposits have been accounted for at the bank. The number of days from the receipt of the cheques to their deposit at the bank will be the internal deposit float. Of course, an important observation here is that the deposit float should be for one day. Such results should then be compared to the projections as given by the management policy. Any deviation, if noted can be rectified by suitable means.

– *Select the transactions for testing:* In usual cases, a representative sample is taken for testing, a non-compliance of which would mean losses. If such results are obtained for some tests, one can also take up a statistically significant sample. Size of the sample is important. However, one should also provide for certain errors which can occur while using statistically significant samples. In order to prevent such errors, a pre- determined rate of tolerable error and the expected rate of error in the population should be accounted for. There are published tables which will provide sample sizes based on tolerable error and expected error.

– *Conduct the test:* Using the selection method, the test methodology and sample size the test should be conducted. As the rate of tolerable error has already been established, all results falling outside the purview of this error will be the number of exceptions.

**Example: Computing Non-compliance of a Control**

We assume that 5% is the tolerable error on continuing with internal deposit float. It means that the internal float can be greater than 1 day, not more than 5% of the time and the results of the test show that the float exceeds 1 day, 10% of the time. If the average daily deposit is ₹ 1,00,000 and the borrowing rate is 10%, then

To compute the cost of non-compliance of the control:

| | | |
|---|---|---|
| Daily deposit | = | ₹ 1,00,000 |
| Exception rate – | = | 5% |
| Tolerable rate (10% – 5%) | | |
| Daily deposit not incompliance | = | ₹ 5,000 |
| Annual interest rate | = | 10% |
| Annual cost of non-compliance | = | ₹ 500 |

Certainly the cost of non-compliance of ₹ 500 is insignificant when compared to the daily deposit inflow of ₹ 1,00,000. However, if more such costs are obtained for non-compliance of the internal control measures, it will certainly add up to a sizeable sum.

## 16.7 Internal Audit

Once the internal controls are put in place by the treasury department, the next step would be to check periodically whether such controls are being followed diligently by employees or not. Such checks are essential for effective

management of cash and also for identifying any cash frauds/misappropriations. These checks are conducted by a separate department referred to as Internal Audit department.

**Example: Significance of Internal Control Systems**

As per a survey conducted by EY in the year 2019, only 34% of the companies said that they have mature internal control programs. A review of an organization's internal control program may not only identify areas requiring control enhancements in response to changes in the business and regulatory environment, but also suggest ways to improve the efficiency. They may also be able to increase collaboration among the business, IT, internal audit (IA) and compliance functions; enhance communication with external auditors; and improve the effectiveness and efficiency of their internal controls.

*Source: https://www.ey.com/en_in/consulting/twenty-questions-to-enhance-your-internal-controls (Accessed on 07.06.22)*

The Institute of Internal Auditors has defined Internal Audit as "An independent appraisal activity, within an organization, of the review of accountancy, financial and other operations as a basis for service to the management. It is a managerial control which functions by measuring and evaluating the effectiveness of other controls."

Internal audit is therefore an independent appraisal activity within an organization. Not only is its nature to check matters relating to pure finance, but also reviews and undertakes a critical appraisal of the policies and procedures of the company.

Small companies with lots of attention from the senior management who look into the operations of the firm on a daily basis may not have the necessity of conducting an internal audit. However, as companies grow and diversify, it becomes difficult for the management to involve them in the day-to-day administration. To prevent non-compliance of the company's rules, regulations and procedures, the management delegates this responsibility to internal audit staff. The audit staff on completion of their review, submit their reports to the top management. In public limited companies, an audit committee plays the role of the internal audit staff.

### 16.7.1 Objectives of Internal Audit

Unlike an independent auditor, the internal auditor has to look into the working of the whole organization – let alone only the financial operations.

a. **Evaluation of Internal Controls:** Internal controls in the areas of treasury, accounting and operations are evaluated and reviewed by the internal auditors to assess the operations and the adequacy and effectiveness of such controls. They should also assess the costs incurred in implementing an internal control

system and see that the costs do not exceed the losses that the control systems are designed to avoid.

b. **Verification of Documentation:** Verification of documents is particularly important for companies whose branches are geographically located in remote places. Reconciliation of accounts of the head office with the branch office, though time consuming, is essential. The top management cannot always be present at the site daily to check the proceedings. For the same reason, internal auditors conduct verification regarding –

   – Equity
   – Accounting books and records
   – Appraisal of quality of work in carrying out assignments
   – The extent to which the company's assets are accounted and the methods to safeguard against losses
   – Accuracy of the reports to the head office
   – Recommending operational innovations.

c. **Compliance:** "Sticking to the rules" is one of the primary aspects to be considered by the internal auditors. Framing rules and regulations for an organization is one thing and ensuring that these regulations are adhered to is another thing. Having strict and regulated controls which are not followed renders the whole system redundant. People also have a tendency to revert to the initial procedures if they do not find the controls convenient to stick to. They would also like to simplify their work by following previous practices without being aware of the consequences such changes may have on other control functions of the company. For most corporate offices which have their branches at remote places, design of control system is initiated at the corporate office and the same system is implemented at the branch. However, if the corporate office has incorporated some new system without realizing the necessity of the same in the branch, the system may not be used at all in the branch. A compliance review conducted by the internal auditors would then help unearth the flaws in such a system. In this manner, the internal audit staff will act as a link and a medium of express communication between the head office and the branch office.

To summarize, the other objectives of an internal audit are:

– To ensure the management that the internal control systems and the accounting procedures are effective in design and operation.
– To assist management to obtain maximum utilization of reSources.
– To help in preparation of reports and this would be helpful to the lower, middle and top management.

– To ensure that liabilities have been incurred for legitimate purpose of the business.
– To facilitate the annual audit to be conducted by the external auditor.

### 16.7.2 Elements of Internal Audit

Successful completion of internal audit depends on the elements of internal audit to which due importance is given. The elements also represent the basic procedures which will simplify the completion of internal audit, they are:

a. **Totality:** This concept demands that all aspects of the organization should be considered for purpose of review and control. If the system is imposed partially, it may not give the desired effect to promote overall efficiency in the controls of the organization.

b. **Expertize:** This represents the professional aspects of the job. Only those with professional qualifications and experience and who are well acquainted with the principles and practices of internal audit are appointed as internal auditors.

c. **Independence:** This means that the internal auditors have the opportunity and permission to report directly to the senior management.

d. **Objectivity:** The objectivity aspect of internal audit judges the efficiency and effectiveness of the system when put into operation. The system should not only be able to ensure accuracy and reliability of records, but should also be able to safeguard the assets.

e. **Utility:** All the systems are finally put to practice, to be of ultimate utility to the management and not to lead to redundancy.

### 16.7.3 Limitations of Internal Audit

As every procedure has its pros and cons, the system of internal audit is not without the following drawbacks:

- Inefficient staff will not undertake adequate examination of the records. Thus, the very purpose of 'Totality' is defeated.
- Inefficiency will creep in if the records are not checked immediately after they are prepared.

Internal audit will not serve its rightful purpose if the internal auditor is also performing other executive functions of the company.

### 16.7.4 Differences between Internal Audit and Independent Audit

The above internal audit failure in Toshiba clearly points the importance of independent audit. So, how does an internal audit differ from independent audit? Table 16.3 below summarizes these differences:

**Table 16.3: Differences between Internal Audit and Independent Audit**

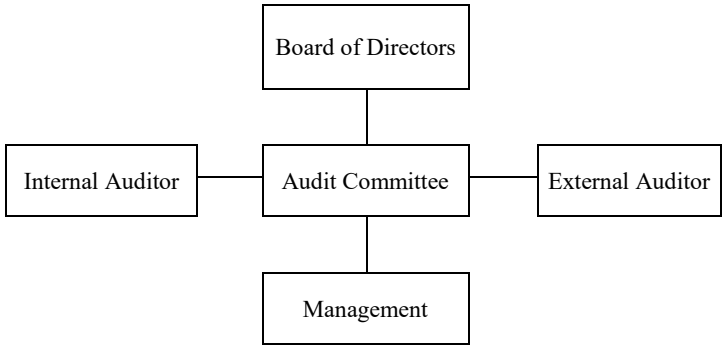
| | Internal Audit | Independent Audit |
|---|---|---|
| a. Objectives | Scrutiny of policies and procedures of the management to improve operational efficiency. | Report on the financial position and operating capacity of the firm. |
| | Equal importance to economy and efficiency of business. | Report to be true and fair. |
| b. Appointment | Optional | Statutory according to law. |
| | By the board of directors/management | Appointed by the shareholders/proprietor. |
| c. Scope | To ensure compliance to the policies of the management (which are laid down by the management). | To ascertain the accuracy of accounting information, accounting principles and procedures. |
| | Free to adopt any method of Report to the top management on the adequacy of internal control working. | Specialized/Statutory procedure of working. |
| | Report to the top management on the adequacy; of internal control. | Report to the shareholders. |
| | Concerned about detection of fraud, misrepresentation, forgery, irregularities. | Not to detect fraud, unless it quantitatively effects the financial statements. |
| d. Approach | To ensure substantial accuracy of records and compliance to the rules already set. | To ensure true and fair presentation of accounts. |
| e. Independence | They are employees of the firm, but must have no affiliation to either the treasurer or the controller or any department which they audit. | They are not employees of the company whose auditing has been undertaken and are strictly independent from the company. |
| f. Periodicity | Continuous review of company's operations. | Audit is undertaken on a periodic basis – Once a year. |

*Source: ICFAI Research Center*

### 16.7.5 Audit Committee

A new dimension given to the concept of auditing is the formation of audit committees in corporate entities to further strengthen the credibility of financial information. The audit committee is a sub-committee of the Board of Directors and is primarily responsible to review the financial statements before submitting the same to the Board of Directors. They also have to oversee the process of internal audit and the hiring and working of the external auditor. The audit committee can be considered as a valuable link between the management, the internal auditor, external auditor and the Board of Directors and will also help build a better understanding of the policies of the company and a sound process of decision making. Figure 16.3 shows the position of audit committee in an organization.

**Figure 16.3: Audit Committee Position in an Organisation**




*Source: ICFAI Research Center*

**Objectives of Audit Committee**

- Evaluation of financial reports and policies of the company which are distributed to shareholders and other parties interested in them.
- Assessment of the extent of performance, levels of the management and staff.
- Assurance to the shareholders that the actions of the company are in line with the target and that the company is exercising proper social responsibility.
- Monitoring of solutions to various operational problems.
- Acting as an independent reporting channel for the internal audit department.
- To have an overview of the implementation of the recommendations of the internal and external auditors.

**Effectiveness of Audit Committee**

Formation of an audit committee is not the be-all and end-all of the process of accounting and control. It is important that the audit committees comprise of efficient members to accomplish the tasks assigned to them.

- Member directors need to be strong to question the policies and practices of the top management (when necessary).
- They should have the authority to direct the external auditor to certain inadequacies which are already unearthed by the internal auditors.
- Qualified and independent directors who represent the interests of the company and work for the progress of the company should be selected for the audit committee.

### 16.7.6 Physical – Custodial Controls

Common controls in the accounting department center round the recording of transactions wherein the risk of losing/misplacing a document is greater than theft.

As treasury controls generally affect cash and investment, the treasury has to verify various accounting and procedural controls. Both physical and custodial controls comprise the following methods by which the risk of losses is reduced:

1. **Control of Authorized Signatories**

   The most efficient method of fixing the limits for the authorized signatories is to follow the hierarchical format in the organization. Thus, one can establish the signature authority for a particular departmental head up to a particular rupee level. Any transactions which exceed the limit will call for permission from the next higher official. After the limits of authorization are fixed, the accounting department has to match the signatures of the authorized individuals to the transactions. This is usually supervised by the treasurer.

2. **Control over Mail Receivables**

   As the treasury is concerned with receipt of the monetary instruments like cash and cheque, strict control should be enforced over the mail receivables. Cheques are usually recorded in the cheques receipt register and then forwarded to the bank and accounts department for records and documentation. Reconciliation can be made from time to time to know the flaws in the control system.

3. **Control over Petty Cash**

   Petty cash is one of those areas where the most liquid asset, i.e. cash is kept. Therefore, a system designed to minimize the risk of loss at acceptable levels should be implemented.

   a. *Recording of Vouchers:* Vouchers should record the date of disbursement, the name of the recipient and the purpose of the disbursement along with the signature of the authorized person for the value of the voucher. After recording these vouchers, the accounting department replenishes the cash box. At the end of the financial year, the accounting department should receive all the vouchers to record the expenses.

   b. *Reconciliation of Petty Cash:* Some companies with an active petty cash usually reconcile the accounts on a day-to-day basis. This reconciliation should be conducted by an individual independent of the functions of the maintenance of petty cash transactions.

   c. *Establishment of Petty Cash Amount:* In practice, a fixed amount is maintained for the petty expenses of one month. Ideally, the cash is as low as possible in order to minimize the risk of loss. If the requirements exceed the fixed amount, vendors have to submit the invoices for their requirement.

4. **Control of Bad Debts and Account Credits**

   Individuals who are entrusted with the responsibility of recording new receivables should not be in a position to credit the same accounts. These credits can be:

   – Writing-off bad debts
   – Credit memos
   – Discounts

- Refunds
- Reconciliation of Accounts.

This practice is to prevent them from having an opportunity to reduce their own balances in accounts.

**5. Control over Receivables and Customer Payments**

There should be a demarcation over the duties of individuals who receive cash and those who record the receipts of cash. The person who records the cash receipts should not deal with incoming mail or prepare any statements for the customers. Such controls will prevent misappropriation of cash receipts and recording. For instance, If there is no demarcation of duties, money received from customer A will be misappropriated, the payment received from customer B will be credited in A's account, payment from customer C will be credited in B's account and the chain goes on.

The treasurer should be entrusted with the responsibility of reconciling the receivables ledgers. As he also holds the prime responsibility of collection of all dues, supervision of the treasurer is important. If a person other than the treasurer is checking the books, he can countercheck the accounts with the treasurer. Requests for confirmation can be had from the customer by sending a statement of account by mail. Here also, care should be taken that the person preparing the confirmation list is different from the person holding the accounts receivables function. If not, the person preparing the confirmation list would change the address on the confirm list and see that these statements reach his own house rather than the customer. Obviously, the response received will state that the statement of account is right.

**6. Control over Investments**

One of the responsibilities of the treasurer is to invest surplus funds into profitable investments on behalf of the company. As the size of these investments is considerable, strict control is very important. The investment controls deal with issues such as:

a. *Accountability*: The Board of Directors authorizes an individual (usually the treasurer) to deal with the investment portfolio. Special instructions for the treasurer are also incorporated, some of which are:
   - Comprehensive responsibility
   - Authorized persons to assist the treasury department
   - Securities for investment
   - Acceptable risk
   - Term for investment
   - Qualification of brokerage firms
   - Reporting about transactions

- Custodianship
- Procedures for change in policy.

b. *Dual controlled custody*: Dual controlled custody involves keeping securities in a bank safety deposit box with two keys. The controller and the treasurer have one key each.

c. *Authorization:* Only individuals who have the qualifications and competency to make investment decisions on behalf of the company are given authorization for selection of brokerage firms, etc. A brokerage firm's track record with respect to their response for complaints, investigation, arbitration disputes should be studied in detail before committing the business of the company.

d. *Execution:* After surplus funds are invested in various firms, a periodic monthly review should be conducted by the company with the brokerage firm. An individual independent of the investment function should perform the function of reconciliation. After review, a report on the firm's investment function is forwarded to the Board of Directors for their information. It may be recalled that many banks lost heavily in the securities scam of 1992, because the brokers had virtually a free run and nobody reconciled the transactions for a long time.

**7. Control over Disbursements**

The disbursement function includes maintaining the custody of stock of checks, preparation of checks and supervising the disbursing function. The controller has the sole responsibility of being the custodian of checks. He has to maintain a log book on the checks issued. The treasurer reconciles the accounts after the controller has made the record of disbursements.

In addition to the duty of check disbursements, the controller also plays an active role in preventing payroll fraud. Some of the common issues which perpetuate fraud in this system are:

- Inaccurate tax deductions and withholding from payroll.
- Payment to fictitious employees.
- Overpayment to employees (for work not done).
- Payment irregularities to government (regarding certain taxes and provision).
- Inaccurate accumulation of payroll statistics.

**8. Control over Capital Stock and Dividends**

Exercising control over the capital stock and dividends can be accomplished by:

- Accurate recording of all transactions;

- Compliance with the directives of the management;
- Adherence to the rules of the government.

a. *Services of a Registrar*: According to law, all public trading firms should employ the services of a stock registrar. According to the charter of the corporation, the registrar issues stock. Only those stock certificates which bear the signature of the registrar are considered valid. In case, individuals purchase stock without the signature of the registrar, it is a sure case of fraudulent issue by the company.

   However, with the introduction of dematerialization of shares, the role of the Registrar underwent a change. The Registrar finalizes the list of eligible allottees after deleting the invalid applications and ensures that the corporate action for crediting of shares to the demat accounts of the applicants is done and the dispatch of refund orders to those applicable are sent. The Lead manager coordinates with the Registrar to ensure follow up so that that the flow of applications from collecting bank branches, processing of the applications and other matters till the basis of allotment is finalized, dispatch security certificates and refund orders completed and securities listed.

   As per the SEBI no. CIR/CFD/POLICYCELL/11/2015 dated November 10, 2015 in addition to the Self Certified Syndicate Banks (SCSBs), Syndicate Members and Registered Brokers of Stock Exchanges, the Registrars to an Issue and Share Transfer Agents (RTAs) and Depository Participants (DPs) registered with SEBI are now permitted to accept application forms (both physical as well as online) in public issues. RTAs and DPs shall regularly update the said details by furnishing current information to the stock exchanges which shall be disclosed by the stock exchanges.

   Private placements need not comply with the formality of appointing a registrar. The Board of Directors appoints officers for this purpose. They have the authorization to sign the stock certificates.

b. *Services of a Transfer Agent:* On appointment of a registrar, a transfer agent is also appointed for maintaining a record of the shareholders and for executing all other formalities concerned with the transfer of stock ownership.

   On request by the company, the transfer agent should give the list of the shareholders to the Board of Directors. Such a list will enable the company to not only determine the number of votes each shareholder is entitled to, but also helps to determine a dividend declaration date.

   For disbursal of dividends, the management usually forwards one check covering the payment to the transfer agent and the agent accordingly arranges for individual cheques to the shareholders.

### 16.7.7 Insurance Control

A part of the internal control mechanism also deals with protection of assets. This is where insurance becomes an important aspect. Large companies usually engage insurance specialists/professional consultants to give them the necessary guidance to insure their assets. Most companies also insure against catastrophic loss where they feel that losses may affect the operational capacity of the firm.

**Insurance Review and Analysis**

Professionals recommend that all organizations conduct an annual review and analysis of the insurance aspects – both at macro and micro level. Thus, the firm's overall risk of loss can be analyzed. To enable such an analysis, the internal control procedures should have the following components:

- A list of all the policies of the company;
- Assurance that all the policies are stored in a safe place;
- Verification that none of the policies are redundant in the aspect of coverage;
- A written statement that the coverage taken is adequate and not excessive.

A detailed study of the above will bring to light certain shortcomings for which adjustment will have to be made in areas such as:

- Increase or decrease of fixed assets;
- Number of employees;
- The range of business/activity the firm engages in.

**Coverage**

Depending on the size, the line of activity and the extent of risk, companies may opt for various types of insurance coverage.

a. *Blanket (Umbrella) Policies:* Also called excess liability coverage, such policies insure all other risks which are not covered under any policy. When claims exceed the coverage of all other policies, this coverage can be resorted to. For instance, if a personal judgment injury exceeds the limit specified in a policy, the excess liability will be covered by the blanket policy. If the liability exceeds the blanket policy's limits, then the insured is to be borne by him or her.

b. *Insurance against Business Interruption:* Business interruption insurance covers losses which result from occurrences which halt the proceedings of an organization. Most common occurrences attributable are:
   - Riots and strikes
   - Floods
   - Storm

- Fire
- Explosions
- Loss of data due to failure in computer systems.

This apart, some companies may depend on an uninterrupted supply of materials from another company. Therefore, they can buy a policy against interruptions of that supply.

c. *Employees Health Insurance:* A standard prerequisite expected by employees in companies is medical benefits for themselves and their dependents. However, some companies also provide a policy wherein the employee and the employer contribute a portion as premium each month. The Employees State Insurance Act (which is next only to the Provident Fund Act in terms of being a powerful legal provision) has made it compulsory for all organizations to cover their employees under this act (who draw above ₹ 100 a day).

d. *Insurance against Non-performance:* When non-performance of tasks can result in material damages such as in the construction of buildings or other capital assets, these types of insurance coverage are particularly useful. It thus covers a third party beneficiary if your company does not perform as agreed upon.

e. *Insurance against Employees:* Job hopping has become a common phenomenon in today's world of emerging career opportunities. Moreover, a company's work would suffer if employees placed at suitably responsible positions leave their work undone. Though the concept of Fidelity bonds have yet to emerge in the Indian scenario, these bonds have been enforced in countries like the USA, Canada. Fidelity bonds cover the actions of its employees against the company and its customers. Some companies resort to obtaining a comprehensive bond (which will cover all employees) rather than take up individual bonds for each employee. Employees whose jobs involve considerable risk to the firm such as investment officers usually have to execute a separate bond.

f. *Life Insurance of Key Personnel:* Loss of life of key personnel of a firm would do the firm considerable material damage. Some companies who have an insurable interest in the life of their key personnel also arrange for an insurance policy for them. Such a policy would provide for and compensate the loss of service and subsequent profits which were to be obtained. However, if the company is the beneficiary in such policies, such premiums are not tax deductible as they cannot be considered a necessary business expense.

**Activity 16.2**

1. Internal audit is a tool to assist the organizations to achieve its corporate goals through consistent evaluation to measure the effectiveness of activities related to a company's operations. Analyze the objectives, elements and limitations of a company's internal audit system.

2. 'As treasury controls generally affect cash and investment, the treasury has to verify various accounting and procedural controls'. Evaluate the controlling methods used to reduce the risk of loss arising due to inappropriate treasury management system.

### 16.7.8 Information Systems and Reporting

Information systems were in vogue even before the advent of computers. Such systems provided managers with vital information to plan and control operations. The computers have now only added speed, accuracy and increased database which offer a wide range of alternatives to arrive at a decision.

The basis of an information system in the treasury is the flow of money throughout the organization. Periodically, the management provides a financial plan (also called the master budget). Responsibilities relating to maintenance of investment, income, expenditure within the limits are assigned to the respective departments. These plans form the basis for generation of reports periodically and become the devices through which control is exercised.

Some of the essential features of an effective reporting system are:

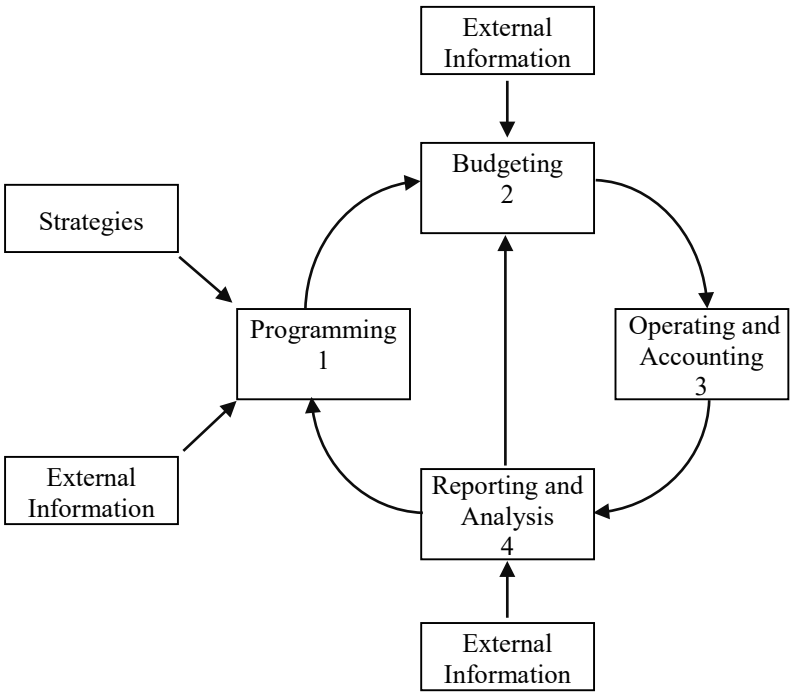
- Result orientation
- All encompassing
- Accuracy
- Promptness
- Forecast for future
- Size of reports is inversely proportional to the management level
- Comparative statements
- Costs and benefits analysis.

To have an understanding of the process of information systems and control studying the following flow chart will be useful.

Most of the information systems involve reporting by means of informal communication channels like memoranda, meetings and conversations. However, a more formal methodology involves the following steps:

1. Programming
   These are the long-term policies and the short-term programs (for achieving these policies), a company will undertake. It involves formulations of various strategies to achieve the results in a desired manner. For instance, if a strategy is adopted in a pharmaceutical company to improve on the existing products and also search for new products, an R&D program is formulated aimed at bringing in more development in an existing product and another program will be made to bring in innovations to mark

**Figure 16.4: Information System**




*Source: ICFAI Research Center*

2. Budgeting

   Budget is a plan expressed in monetary terms over a specific time period. Every strategy makes a forecast of the costs to be incurred on implementing the same.

3. Operating and Accounting

   During actual operations, accounts of the resources actually consumed and the revenues earned are maintained. These results are then compared to the budgeted figures to study for any deviations. Such data is later used as a base for future programming and measuring the performance of managers of each responsibility center.

4. Reporting and Analysis

   After analysis of all transactions, various reports are prepared from each department for review and reporting to the management. These include information collected from the workings within the organization and outside. As reports are a basis for control, the prescribed format of reports is to have a comparison between the budgeted projections and the actual results obtained from operating and accounting. Any deviations are to be explained and suitable options given to change the plans and initiate a new planning process.

   Some of the reports which can be generated by the treasury would be:

   – Daily stock report on Raw materials, Work-in-progress, finished goods
   – Bank deposits, withdrawals
   – Report on cash inflow and outflow
   – Total accounts receivables
   – Individual party account
   – Payroll
   – Comparison between sales and accounts receivables
   – Cost analysis of acquisition of capital assets and their maintenance

The contents of the above report will be in line with the extent of information required by the management. The ultimate information should be of use and based on the outcome of such reports, necessary remedial action will be initiated by structuring a new program.

Delegation of responsibility in a reporting system is such that no single person has independent authority over a particular decision. For instance, invoices are recorded in the accounts payable sub-ledger by the controller. He also prints the payment cheques with details. Treasurer being the authorized signatory for the cheque, signs it and dispatches it. Treasurer also maintains a record of the pre-numbered cheques and the whole stock of cheques. Thus, a check is kept over the

number of leaves issued to the controller. The controller finally conducts a reconciliation statement to verify about the disbursement of funds.

### 16.7.9 Measuring Treasury Performance

Hitherto, the ways and means of maximizing performance of treasury have been discussed with the help of various measures like formulating programs, preparing budgets, executing the programs. However, equally important is to know whether the treasury has achieved its targets.

One could argue that it is virtually impossible for organizations to function without some goals and plans. A goal is a future target that an organization wishes to achieve and a plan is the means devised to attain this goal. Every operating unit has a set of goals to facilitate performance. In order to be effective, goals should have five major characteristics:

- Challenging
- Attainable
- Specific and measurable
- Time limited
- Relevant.

Once the goals and forecasts are decided; financial personnel should devise ways and means of financing the ventures in order to achieve their goals. Costs incurred for acquiring capital, risks involved and securities are to be analyzed before making a commitment on investments.

Control systems should also be such that the targets and allocation of responsibilities are segregated to different departments. Common costs can be shared and care should be taken to see that no conflicts arise because such conflicts will affect the performance of the management in the long run.

In order to quantify and analyze the profits, they can be compared to the profits generated in the previous financial year. A statement of cash inflows and outflows is the common methodology adopted. A statement on the accounts receivables with the mode of payment will also bring to the notice of the management the most common mode of payment which is realized at the earliest. For instance, if after a study of the sales report for a financial year, it is noted that "Letter of Credit" payment term is realized soon, the management can then decide to concentrate primarily on L/C backed orders.

Thus, just as it is important to devise policies for a company, it is equally important to review its progress time and again, both on quantitative and qualitative terms in order to maximize the performance of the treasury.

## 16.8 Failure of Controls

While effective implementation of internal treasury controls lead to better cash management, the lack of such controls may result in failure of segregation of duties, occurrence of frauds, mis-management of resources etc. There could be

various reasons for such failures of internal controls such as poor judgment in decision making, human errors, control procedures being circumvented by employees, management overriding controls etc. A finance manager should be aware of the causes as well as the consequences of such failure of controls. The following illustrations enrich the learner to know how the lack of controls could result in losses to or downfall of the institutions.

**Example: Auditor's Qualification Report on Vadilal's Internal Control Mechanism**

The statutory auditors of Vadilal Enterprises Ltd, a well-known ice cream manufacturer, qualified their report for the financial statements of the company for the fiscal year 2020-2021. The key reason for the qualification was the failure of control mechanism in the company. As per their report, marketing and advertisement expenses amounting to Rs. 38 crore during the period 2015-16 to 2018-19 were alleged by one promoter director to be paid by the company on approval by another promoter director without following due process. Such failure of internal control mechanism impacted the company's annual report in 2020-21 in the form of qualification by the auditor.

*Source:https://www.business-standard.com/company/vadilal-enterp-1849/annual-report/auditors-report 2020-21 (Accessed on 07.06.22)*

### 16.8.1 The Sumitomo Debacle

One of the major disasters in the history of derivatives trading was losses incurred by Sumitomo Corporation.

The loss was incurred due to the actions of a single trader, Yasuo Hamanaka. The Sumitomo Corporation is one of the world's largest commodities trading firm, and a 300 year old company with a market value of $11.85 billion. Most of its trading was done in metals, chemicals and energy products. In June, 1996, Sumitomo collapsed due to lack of control on exposure limits, accounting for a loss of $1.8 billion.

Yasuo Hamanaka, a 48 year old Tokyo-based copper trader, is the central figure in the Sumitomo debacle. He was Sumitomo's star trader having over 20 years experience in copper trading. He won acclaims from the company for his profits on copper trading which helped Sumitomo cover its cheap sales of copper in Asia. He was trading in the copper since 1975 and was made the head of copper futures trading division. Hamanaka traded copper for Sumitomo mainly on the London Metal Exchange.

Sumitomo was not a member of LME and its trades were executed by members of the exchange. Hamanaka held large long positions in copper periodically over several maturity periods and several million dollars worth of copper futures contracts annually with the objective of closing them at a profit He held tremendous influence over the copper trading sections and for almost a decade he was able to hold copper prices on the LME higher or lower at his will through his control over international copper stocks and volumes of trades. The strategy was

to amass large stocks of copper, squeeze the prices of copper on LME and profit from the derivatives trade. For a very long time, the US hedge funds showed little interest in the commodities market. But around 1994-95, these funds, constantly on prowl for a kill based on their research, expected a fall in copper prices because of new copper production. So, they entered the copper market and started short selling large quantity of copper in the forward market hoping to buy them back at lower prices. Hamanaka took an opposite position and went on a buying spree. It seems that the US hedge funds could not bring the copper prices down even after selling around 1 million tonne of copper; that was the kind of influence Hamanaka wielded in the market. Two Chinese state-owned firms hastened the exit of Hamanaka. These firms and Sumitomo had a joint venture in copper trades and derivatives. Hamanaka used this venture to control copper prices and both of them profited from this relationship. But these Chinese companies dealt the final blow to Hamanaka, when they went against him by selling copper. The US hedge funds, George Soros and the Chinese firms together brought down copper prices and Hamanaka with it. Hamanaka made huge losses on his long-positions and it is said that these losses constituted the major part of $1.8 bn loss made by Sumitomo over a period of 10 years.

In the aftermath that followed, Hamanaka was the first to make a quiet exit into oblivion. The shares of Sumitomo fell by 200 yen on a single day, once the news spread that Sumitomo was in trouble. This was market's reaction to the fear that Sumitomo may sell its large copper holdings.

Sumitomo let Hamanaka to have a free rein in copper futures trading out of greed for profits, without actually understanding the extent of risk it is exposed to. Another reason that may have contributed to the loss is the lack of strict vigilance of the Japanese Government over these trading companies that trade outside Japan.

But uncontrolled and irrational use of derivatives with the sole intention of earning speculative profits has been the main reason for the losses.

### 16.8.2 Indian Bank Fiasco

Indian Bank declared the biggest loss ever made by a commercial bank in India, the loss being ₹ 1,336.40 cr. in 1995–96. The major reasons behind this were – loans extended to corporate becoming sticky, booking the interest on NPAs and not following the classification norms. The bank also made an operating loss due to high interest cost of borrowings.

This loss had wiped out the net worth of Indian Bank and had turned its capital adequacy ratio to zero. Indian Bank had surpassed the previous record of ₹ 1,089.15 crore loss by the Bank of India in 1993-94. The losses were mainly made due to the sticky loans to corporates including the East – West Airlines, the Poddar Group of Kolkata, SM Deychem and MVR exports. These bad loans were not provided for earlier and amounted to ₹ 980.62 crore. The bank did not follow

the classification norms for non-performing assets and booked interest on them. These, when reclassified in the year 1995-96, resulted in an interest reversal of ₹ 132.1 crore. The bank also made an operating loss of ₹ 223.68 crore largely on account of the high interest cost of borrowings from the money market. The RBI has blacklisted two auditors of the bank – for failing to spot accounting malpractices that helped the bank management conceal the losses.

### 16.8.3 CRB Fiasco

CRB Group had come a long way since its inception as CRB Consultants in 1985 and went on to become CRB Capital Markets in November, 1991. A year after its incorporation, it went public with an issue of ₹ 4.6 crore. In September 1994, the group ventured into the mutual fund industry and mopped up ₹ 229 crore from its maiden MF Scheme.

However, a year later SEBI had discovered certain irregularities in the Scheme. Nearly 85 per cent of the mutual funds operations were handled by the group's stock-broking company, CRB Share & Stocking, located in the same premises. Apart from this, the securities of the fund were found to be kept in the possession of the CRB Caps instead of CRB Mutual Fund. With the total corpus of the fund having shrunk by 51 per cent and NAV dropping to ₹ 4.95, as of March 1997, (assets worth was ₹ 113 crore), the company became irregular in publishing its NAV. Following these irregularities, SEBI imposed a ban on the CRB Mutual Fund from floating any further schemes since April, 1996.

Continuing its expansion plans, in July 1996, the Group entered the banking sector and got an in-principle approval from the RBI for starting the CRB Global Bank. After this, the decline of CRB Capital Markets had begun. Later, during the year, in September 1996, CRB Caps applied to the RBI for registration as an NBFC. When the RBI started an audit for the registration purpose, one by one the irregularities of the company came into picture. These include, the inter-corporate deposits and the NRI deposits crossing the stipulated limits and the company defaulting on its ICDs; the deposit periods going beyond the specified limits; broker incentives being very high. And to worsen things, there was a severe asset-liability mismatch in the company.

CRB owed huge amounts of money to the market. The assets of CRB (₹ 230 crore) were less than its liabilities (₹ 600 crore). The company was not in a position to pay-off (nearly 200 crore) to its depositors.

If the CRB case is examined keenly it can be observed that there has been a severe mismatch between the assets and liabilities of the company. This was however, not checked at the right time and as a consequence, there was the downfall of CRB Capital Markets. Similar examples can be cited in Indian context with regard to the Satyam Computers debacle which shook the Indian IT sector.

**Check Your Progress - 2**

6. Cash Management does not call for _____
   a. Lengthening creditors period
   b. Lengthening receivables period
   c. Investing surplus funds
   d. Nullifying idle funds
   e. Ignoring the existence of float
7. When the net float is negative, what does it infer?
   a. Company has used the short-term funds for financing long-term assets
   b. The current ratio is less than unity
   c. The payment float is larger than the collection float
   d. The balance in books of bank is less than the balance in books of firm
   e. The outstanding debtors are more than the outstanding creditors
8. Identify that statement that is true, if internal rate of return on a project is same as the cost of capital.
   a. Net benefit cost ratio is equal to zero
   b. Net benefit cost ratio is negative
   c. Net benefit cost ratio is positive
   d. NPV is negative
   e. Project provides excess returns to equity share-holders.
9. Which of the following is not a relevant factor of an efficient cash management system for a business entity?
   a. Prompt billing and mailing the same to customer
   b. Interest payment on term loans whenever it is due
   c. Receivables collection from the branch level
   d. Depositing cheques immediately to banks once received from customers
   e. Making centralized payment system for suppliers
10. As information systems involve reporting by means of informal communication channels, indicate which of the following is not a step in the formal methodology of information system and reporting.
    a. Programming
    b. Budgeting
    c. Operating and accounting

d. Reporting and analysis

e. Specific and measurable

## 16.9 Summary

- The need for holding cash arises from a variety of reasons, viz. Transaction Motive, Speculative Motive and Precautionary Motive.
- The objective of cash management can be regarded as one of making short-term forecasts of cash position, finding avenues for financing during periods when cash deficits are anticipated and arranging for repayment/investment during periods when cash surplus are anticipated with a view to minimize ideal cash as far as possible.
- Cash budget becomes a part of the total budgeting process under which other budgets and statements are prepared. Short-term cash forecasting is prepared under the receipts and payment method.
- The finance manager of a firm would like to consider the appropriate balance between cash and marketable securities. This is because the optimal level of cash and marketable securities would reduce and minimize the transaction cost, inconvenience cost and opportunity cost.
- Inventory model, Stochastic Model and Probability approach are used to determine the optimum cash balance.
- Internal audit is an independent appraisal activity within an organization. Small companies with lots of attention from the senior management who look into the operations of the firm on a daily basis may not have the necessity of conducting an internal audit. However, as companies grow and diversify, it becomes difficult for the management to involve itself in the day-to-day administration. To prevent non-compliance of the company's rules, regulations and procedures, the management delegates this responsibility to internal audit staff.
- Lack of control due to inefficiency in cash management is illustrated with the Sumitomo Debacle, Indian Bank Fiasco and CRB Fiasco.

## 16.10 Glossary

**Audit Committee** is a sub-committee of the Board of Directors and is primarily responsible to review the financial statements before submitting the same to the Board of Directors. They also have to oversee the process of internal audit and the hiring and working of the external auditor.

**Blanket (Umbrella) Policies** are also called excess liability coverage, such policies insure all other risks which are not covered under any policy.

**Budget** is a plan expressed in monetary terms over a specific time period. Every strategy makes a forecast of the costs to be incurred on implementing the same.

**Business Interruption Insurance** covers losses which result from occurrences which halt the proceedings of an organization. Most common occurrences attributable are - riots and strikes, floods, storm, fire, explosions and loss of data due to failure in computer systems.

**Cash Budget** is a statement showing the forecast of cash receipts, cash disbursements, and net cash balance over a period of time on a roll over basis.

**Cash Deficit** refers to the shortfall of cash consideration due to excess of cash disbursements over cash receipts in a particular time period.

**Cash** is the term used to refer to cash as well as bank balances of a company at the end of the accounting period, as reflected in the balance sheet.

**Cash Reports** assist in ascertaining the cash position regarding its inflows and outflows.

**Collection Float** is the amount of cheques deposited by the firm in the bank but not cleared.

**Controller** is the financial officer responsible for accounting and control.

**Demonetisation** is the process of removing the legal tender status for a currency unit.

**ERP (Enterprise Re**Source **Planning)** system is an automated system that establishes internal controls and helps in assessing their effectiveness.

**Float** refers to funds represented by checks which have been issued but which have not been collected.

**Incremental Cash Flows** is the cash flows that result from the acceptance of a capital budgeting project.

**Internal Auditing** is an independent appraisal activity within a company to examine and analyse the activities of company's operations to monitor the company's financial performance.

**Marketable Securities** are easily traded financial instruments in a stock exchange that can be bought, sold or redeemed within a year.

**Payment Float** is the amount of cheques issued by the firm but not paid for by the bank.

**Post Audit** is the comparison of the actual results and expected results of an investment project.

**Processing Float** refers to the funds tied up during the time required for the firm to process remittance checks before they can be deposited in the bank.

**Transfer Agent** is appointed for maintaining a record of the shareholders and for executing all other formalities concerned with the transfer of stock ownership.

**Transit Float** are the funds tied up during the time necessary for a deposited check to clear through the commercial banking system and become usable funds to the company.

**Treasurer** is the financial officer concerned mainly with the task of financing and activities related thereto.

## 16.11 Self-Assessment Test

1. Explain the need and objectives of cash management.
2. Briefly explain the important factors with necessary examples for efficient cash management system.
3. Enumerate on the determinant with respect to surplus cash and investment channels.
4. Explain the different forms of liquidity and liquidity mix.
5. How does inventory and stochastic model assist in governing an appropriate balance between cash and marketable securities? - Explain.
6. Describe the functions of a treasury and a controller.
7. Discuss the factors involved in maintenance and monitoring of internal control system.
8. State the differences between internal and independent audit.
9. 'Common controls in the accounting department center around the recording of transactions wherein the risk of losing/misplacing a document is greater than theft' - Comment.

## 16.12 Suggested Readings / Refernce Material

1. Brealey Myers (2020). Principles of Corporate Finance, 13th edition, USA: McGraw-Hill Companies Inc.
2. Prasanna Chandra (2019). Financial Management – Theory and Practice, 10th edition, New Delhi: Tata McGraw-Hill.
3. I.M. Pandey (2021). Financial Management, 12th edition, New Delhi: Pearson Education.
4. Francis Cherunilam (2020). International Business — Text and Cases, 6th Edition, PHI Learning.
5. P.G. Apte (2020). International Financial Management, 8th Edition, McGraw Hill Education (India) Private Limited.
6. John Tennent (2018). The Economist Guide to Financial Management. Economist Books

## 16.13 Answers to Check Your Progress Questions

**1. (c) Company's investment portfolio**

The basis of estimation for receipts of interest and dividend in cash budget is usually the company's investment portfolio and the returns expected there from.

**2. (d) Security**

It is the assurance of getting of getting back original amount and takes paramount importance for investing surplus cash by firm.

**3. (c) Cash management involves managing short–term liquid funds**

**4. (c) Extending loans to group companies**

Cash management is held for all purposes except for the above

**5. (a) Issuing cheques without balance in the account**

When a company has positive float, it may issue cheques to the extent shown in the bank books higher than the amount shown in company's book, even it shows overdrawn position. The company is said to have a playing float.

**6. (b) Lengthening receivables period**

The objective of cash management is to minimize idle cash as far as possible. Hence, lengthening of receivables is not a part of cash management.

**7. (d) The balance in books of bank is less than the balance in books of firm**

When the net float is negative, the balance in the books of bank is less than the balance in the books of the firm. The relationship between current assets and current liability does not play any role in determination of net float, as it is related to cash balance.

**8. (a) Net benefit cost ratio is equal to zero**

If the IRR is zero at the cost of capital, the NPV of the project will also be zero, which in turn implies a zero net benefit cost ratio for the project.

**9. (b) Interest payment on term loans whenever it is due**

Whether or not to pay the outstanding interest lies with the decision based on financial position of the company and its willingness to pay the same. A cash management policy may influence this but this payment is not a part of cash management policy.

**10. (e) Specific and measurable**

Specific and measurable is not a step involved in formal methods of information system and reporting. It is a characteristic of measuring treasury performance.

# Financial Management

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