

## UNIT - II

### TREASURY AND CASH MANAGEMENT

#### 7. TREASURY MANAGEMENT: MEANING

In the wake of the competitive business environment resulting from the liberalization of the economy, there is a pressure to manage cash scientifically. The demand for funds for expansions coupled with high interest rates, foreign exchange volatility and the growing volume of financial transactions have necessitated efficient management of money.

Treasury management encompasses planning, organizing & controlling the funds & working capital of an enterprise in order to ensure best use of funds, maintain liquidity, reduce overall cost of funds and mitigating operational & financial risk. It involves the corporate handling of all financial matters, the generation of external and internal funds for business, the management of currencies and cash flows and the complex, strategies, policies and procedures of corporate finance.

The treasury management mainly deals with:-

- Working capital management; and
- Financial risk management (It includes forex and interest rate management).

The key goals of treasury management are:-

- Maximize the return on the available cash;
- Minimize interest cost on borrowings;
- Mobilise as much cash as possible for corporate ventures for maximum returns; and
- Effective dealing in forex, money and commodity markets to reduce risks arising because of fluctuating exchange rates, interest rates and prices which can in turn affect the profitability of the organization.



## 8. FUNCTIONS OF TREASURY DEPARTMENT

The treasury department have evolved in importance over number of years from being responsible for only cash handling issues to technical areas revolving around hedging forex risks, composition of capital structure etc. The fundamental tasks for which treasury department of any enterprise is responsible are :-

1. **Cash Management:** It involves efficient cash collection process and managing payment of cash both inside the organisation and to third parties.

There may be complete centralization within a group treasury or the treasury may simply advise subsidiaries and divisions on policy matter viz., collection/payment periods, discounts, etc.

Treasury will also manage surplus funds in an investment portfolio. Investment policy will consider future needs for liquid funds and acceptable levels of risk as determined by company policy.

2. **Currency Management:** The treasury department manages the foreign currency risk exposure of the company. In a large multinational company (MNC) the first step will usually be to set off intra-group indebtedness. The use of matching receipts and payments in the same currency will save transaction costs and also will save the organization from any unfavorable exchange movements. Accordingly, Treasury might advise on the currency to be used when invoicing overseas sales.

The treasury will manage any net exchange exposures in accordance with company policy. If risks are to be minimized then forward contracts can be used either to buy or sell currency forward.

3. **Fund Management:** Treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs. They also facilitate temporary investment of surplus funds by mapping the time gap between funds inflow and outflow. Treasury department will also participate in the decision on capital structure and forecast future interest and foreign currency rates.
4. **Banking:** It is important that a company maintains a good relationship with its bankers. Treasury department carry out negotiations with bankers with respect to interest rates, foreign exchange rates etc. and act as the initial point of contact with them. Short-term finance can come in the form of bank loans or through the sale of commercial paper in the money market.

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

## 9. MANAGEMENT OF CASH

Management of cash is an important function of the finance manager. It is concerned with the managing of:

- (i) Cash flows into and out of the firm;
- (ii) Cash flows within the firm; and
- (iii) Cash balances held by the firm at a point of time by financing deficit or investing surplus cash.

The main objectives of cash management for a business are:-

- Provide adequate cash to each of its units as per requirements;
- No funds are blocked in idle cash; and
- The surplus cash (if any) should be invested in order to maximize returns for the business.

A cash management scheme therefore, is a delicate balance between the twin objectives of liquidity and costs.

### 9.1 The Need for Cash

The following are three basic considerations in determining the amount of cash or liquidity as have been outlined by Lord Keynes, a British Economist:

- *Transaction need:* Cash facilitates the meeting of the day-to-day expenses and other debt payments. Normally, inflows of cash from operations should be sufficient for this purpose. But sometimes this inflow may be temporarily blocked. In such cases, it is only the reserve cash balance that can enable the firm to make its payments in time.

- *Speculative needs:* Cash may be held in order to take advantage of profitable opportunities that may present themselves and which may be lost for want of ready cash/settlement.
- *Precautionary needs:* Cash may be held to act as for providing safety against unexpected events. Safety as is explained by the saying that a man has only three friends an old wife, an old dog and money at bank.

## 9.2 Cash Planning

Cash Planning is a technique to plan and control the use of cash. This protects the financial conditions of the firm by developing a projected cash statement from a forecast of expected cash inflows and outflows for a given period. This may be done periodically either on daily, weekly or monthly basis. The period and frequency of cash planning generally depends upon the size of the firm and philosophy of the management. As firms grows and business operations become complex, cash planning becomes inevitable for continuing success.

The very first step in this direction is to estimate the requirement of cash. For this purpose, cash flow statements and cash budget are required to be prepared. The technique of preparing cash flow and funds flow statements have been discussed in Accounting paper at Intermediate level of CA course. The preparation of cash budget has however, been demonstrated here.

## 9.3 Cash Budget

Cash Budget is the most significant device to plan for and control cash receipts and payments. This represents cash requirements of business during the budget period.

The various purposes of cash budgets are:-

- Coordinate the timings of cash needs. It identifies the period(s) when there might either be a shortage of cash or an abnormally large cash requirement;
- It also helps to pinpoint period(s) when there is likely to be excess cash;
- It enables firm which has sufficient cash to take advantage like cash discounts on its accounts payable; and
- Lastly it helps to plan/arrange adequately needed funds (avoiding excess/shortage of cash) on favorable terms.

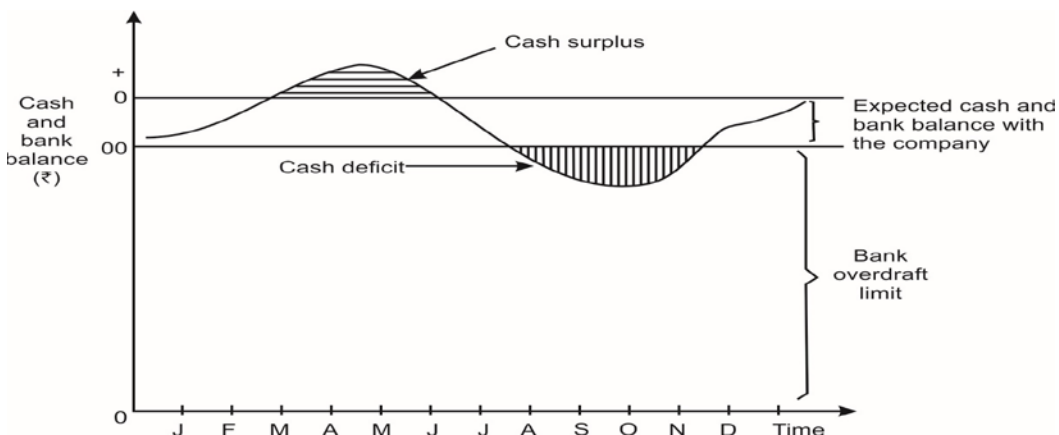
On the basis of cash budget, the firm can decide to invest surplus cash in marketable securities and earn profits. On the contrary, any shortages can also be managed by making overdraft or credit arrangements with banks.

### Main Components of Cash Budget

*Preparation of cash budget involves the following steps:-*

- (a) Selection of the period of time to be covered by the budget. It also defines the planning horizon.
- (b) Selection of factors that have a bearing on cash flows. The factors that generate cash flows are generally divided into following two categories:-
  - (i) Operating (cash flows generated by operations of the firm); and
  - (ii) Financial (cash flows generated by financial activities of the firm).

The following figure highlights the cash surplus and cash shortage position over the period of cash budget for preplanning to take corrective and necessary steps.



## 10. METHODS OF CASH FLOW BUDGETING

A cash budget can be prepared in the following ways:

1. **Receipts and Payments Method:** In this method all the expected receipts and payments for budget period are considered. All the cash inflow and outflow of all functional budgets including capital expenditure budgets are considered. Accruals and adjustments in accounts will not affect the cash

flow budget. Anticipated cash inflow is added to the opening balance of cash and all cash payments are deducted from this to arrive at the closing balance of cash. This method is commonly used in business organizations.

2. **Adjusted Income Method:** In this method the annual cash flows are calculated by adjusting the sales revenue and cost figures for delays in receipts and payments (change in debtors and creditors) and eliminating non-cash items such as depreciation.
3. **Adjusted Balance Sheet Method:** In this method, the budgeted balance sheet is predicted by expressing each type of asset (except cash & bank) and short-term liabilities as percentage of the expected sales. The profit is also calculated as a percentage of sales, so that the increase in owner's equity can be forecasted. Known adjustments, may be made to long-term liabilities and the balance sheet will then show if additional finance is needed (if budgeted assets exceed budgeted liabilities) or if there will be a positive cash balance (if budgeted liabilities exceed budgeted assets).

It is important to note that the capital budget will also be considered in the preparation of cash flow budget because the annual budget may disclose a need for new capital investments and also, the costs and revenues of any new projects coming on stream will need to be incorporated in the short-term budgets.

The Cash Budget can be prepared for short period or for long period.

## 10.1 Cash budget for short period

Preparation of cash budget month by month would require the following estimates:

- (a) *As regards receipts:*
  1. Receipts from debtors;
  2. Cash Sales; and
  3. Any other source of receipts of cash (say, dividend from a subsidiary company)
- (b) *As regards payments:*
  1. Payments to be made for purchases;

2. Payments to be made for expenses;
3. Payments that are made periodically but not every month;
  - (i) Debenture interest;
  - (ii) Income tax paid in advance;
  - (iii) Sales tax or GST etc.
4. Special payments to be made in a particular month, for example, dividends to shareholders, redemption of debentures, repayments of loan, payment of assets acquired, etc.

### Format of Cash Budget

\_\_\_\_\_ Co. Ltd.

#### Cash Budget

Period \_\_\_\_\_

	Month 1	Month 2	Month 3		Month 12
<i>Receipts:</i>					
1. Opening balance					
2. Collection from debtors					
3. Cash sales					
4. Loans from banks					
5. Share capital					
6. Miscellaneous receipts					
7. Other items					
<b>Total</b>					
<i>Payments:</i>					
1. Payments to creditors					
2. Wages					

3. Overheads					
(a)					
(b)					
(c)					
4. Interest					
5. Dividend					
6. Corporate tax					
7. Capital expenditure					
8. Other items					
<b>Total</b>					
Closing balance					
[Surplus (+)/Shortfall (-)]					

Students are required to do good practice in preparing the cash budgets. The following illustration will show how short-term cash budgets can be prepared.

### ILLUSTRATION 6

*PREPARE monthly cash budget for six months beginning from April 2022 on the basis of the following information:*

(i) *Estimated monthly sales are as follows:*

	₹		₹
January	1,00,000	June	80,000
February	1,20,000	July	1,00,000
March	1,40,000	August	80,000
April	80,000	September	60,000
May	60,000	October	1,00,000

(ii) *Wages and salaries are estimated to be payable as follows:-*

	₹		₹
April	9,000	July	10,000



May	8,000	August	9,000
June	10,000	September	9,000

- (iii) Of the sales, 80% is on credit and 20% for cash. 75% of the credit sales are collected within one month after sale and the balance in two months after sale. There are no bad debt losses.
- (iv) Purchases amount to 80% of sales and are made on credit and paid for in the month preceding the sales.
- (v) The firm has 10% debentures of ₹ 1,20,000. Interest on these has to be paid quarterly in January, April and so on.
- (vi) The firm is to make an advance payment of tax of ₹ 5,000 in July, 2022.
- (vii) The firm had a cash balance of ₹ 20,000 on April 1, 2022, which is the minimum desired level of cash balance. Any cash surplus/deficit above/below this level is made up by temporary investments/liquidation of temporary investments or temporary borrowings at the end of each month (interest on these to be ignored).

### SOLUTION

#### Workings:

Collection from debtors:

(Amount in ₹)

	February	March	April	May	June	July	August	September
Total sales	1,20,000	1,40,000	80,000	60,000	80,000	1,00,000	80,000	60,000
Credit sales (80% of total sales)	96,000	1,12,000	64,000	48,000	64,000	80,000	64,000	48,000
Collections:								
One month		72,000	84,000	48,000	36,000	48,000	60,000	48,000
Two months			24,000	28,000	16,000	12,000	16,000	20,000
Total collections			1,08,000	76,000	52,000	60,000	76,000	68,000

### Monthly Cash Budget for Six months, April to September, 2022

(Amount in ₹)

	April	May	June	July	August	September
<b>Receipts:</b>						
Opening balance	20,000	20,000	20,000	20,000	20,000	20,000
Cash sales	16,000	12,000	16,000	20,000	16,000	12,000
Collection from debtors	1,08,000	76,000	52,000	60,000	76,000	68,000
Total cash available (A)	1,44,000	1,08,000	88,000	1,00,000	1,12,000	1,00,000
<b>Payments:</b>						
Purchases	48,000	64,000	80,000	64,000	48,000	80,000
Wages & salaries	9,000	8,000	10,000	10,000	9,000	9,000
Interest on debentures	3,000	---	---	3,000	---	---
Tax payment	---	---	---	5,000	---	---
Total payments (B)	60,000	72,000	90,000	82,000	57,000	89,000
Minimum cash balance desired	20,000	20,000	20,000	20,000	20,000	20,000
Total cash needed (C)	80,000	92,000	1,10,000	1,02,000	77,000	1,09,000
Surplus - deficit (A-C)	64,000	16,000	(22,000)	(2,000)	35,000	(9,000)
<b>Investment/financing</b>						
Temporary Investments	(64,000)	(16,000)	----		(35,000)	-----
Liquidation of temporary investments or temporary borrowings	----	----	22,000	2,000	----	9,000
Total effect of investment/financing (D)	(64,000)	(16,000)	22,000	2,000	(35,000)	9,000
Closing cash balance (A+D-B)	20,000	20,000	20,000	20,000	20,000	20,000

### ILLUSTRATION 7

From the following information relating to a departmental store, you are required to PREPARE for the three months ending 31<sup>st</sup> March, 2022:

- (a) Month-wise cash budget on receipts and payments basis; and  
 (b) Statement of Sources and uses of funds for the three months period.

It is anticipated that the working capital & other account balances at 1<sup>st</sup> January, 2022 will be as follows:

			₹ in '000
Cash in hand and at bank			545
Short term investments			300
Debtors			2,570
Stock			1,300
Trade creditors			2,110
Other creditors			200
Dividends payable			485
Tax due			320
Plant			800

<b>Budgeted Profit Statement:</b>	₹ in '000		
	<b>January</b>	<b>February</b>	<b>March</b>
Sales	2,100	1,800	1,700
Cost of goods sold	1,635	1,405	1,330
Gross Profit	465	395	370
Administrative, Selling and Distribution Expenses	315	270	255
Net Profit before tax	150	125	115

<b>Budgeted balances at the end of each months</b>	₹ in '000		
	<b>31<sup>st</sup> Jan.</b>	<b>28<sup>th</sup> Feb.</b>	<b>31<sup>st</sup> March</b>
Short term investments	700	---	200
Debtors	2,600	2,500	2,350
Stock	1,200	1,100	1,000

Trade creditors	2,000	1,950	1,900
Other creditors	200	200	200
Dividends payable	485	--	--
Tax due	320	320	320
Plant (depreciation ignored)	800	1,600	1,550

Depreciation amount to ₹ 60,000 is included in the budgeted expenditure for each month.

### SOLUTION

### WORKING

		₹ in '000		
		Jan.	Feb.	March
(1)	Payments to creditors:			
	Cost of goods sold	1,635	1,405	1,330
	Add: Closing Stocks	1,200	1,100	1,000
		2,835	2,505	2,330
	Less: Opening Stocks	1,300	1,200	1,100
	Purchases	1,535	1,305	1,230
	Add: Trade Creditors, Opening balance	2,110	2,000	1,950
		3,645	3,305	3,180
	Less: Trade Creditors, closing balance	2,000	1,950	1,900
	Payment	1,645	1,355	1,280
(2)	Receipts from debtors:			
	Debtors, Opening balances	2,570	2,600	2,500
	Add: Sales	2,100	1,800	1,700
		4,670	4,400	4,200
	Less: Debtors, closing balance	2,600	2,500	2,350
	Receipt	2,070	1,900	1,850

**CASH BUDGET****(a) 3 months ending 31<sup>st</sup> March, 2022**

(₹ in 000)			
	January, 2022	February, 2022	March, 2022
Opening cash balances	545	315	65
<i>Add: Receipts:</i>			
From Debtors	2,070	1,900	1,850
Sale of Investments	---	700	----
Sale of Plant	---	---	50
Total (A)	2,615	2,915	1,965
<i>Deduct: Payments</i>			
Creditors	1,645	1,355	1,280
Expenses	255	210	195
Capital Expenditure	---	800	---
Payment of dividend	---	485	---
Purchase of investments	400	---	200
Total payments (B)	2,300	2,850	1,675
Closing cash balance (A-B)	315	65	290

**(b) Statement of Sources and uses of Funds for the three month period ending 31<sup>st</sup> March, 2022**

	₹ '000	₹ '000
Sources:		
Funds from operation:		
Net profit (150+125+115)	390	
<i>Add: Depreciation (60×3)</i>	180	570
Sale of plant		50
		620

Decrease in Working Capital (Refer Statement of changes in working capital)		665
Total		1,285
Uses:		
Purchase of plant		800
Payment by dividends		485
Total		1,285

### Statement of Changes in Working Capital

	January,22	March,22	Increase	Decrease
	₹' 000	₹' 000	₹' 000	₹' 000
<i>Current Assets</i>				
Cash in hand and at Bank	545	290		255
Short term Investments	300	200		100
Debtors	2,570	2,350		220
Stock	1,300	1,000		300
	4,715	3,840		
<i>Current Liabilities</i>				
Trade Creditors	2,110	1,900	210	---
Other Creditors	200	200	---	---
Tax Due	320	320	---	---
	2,630	2,420		
Working Capital	2,085	1,420		
Decrease	-	665	665	
	2,085	2,085	875	875

## 10.2 Cash Budget for long period

Long-range cash forecast often resemble the projected sources and application of funds statement. The following procedure may be adopted to prepare long-range cash forecasts:

- Take the cash at bank and in the beginning of the year**

(ii) **Add:**

- (a) Trading profit (before tax) expected to be earned;
- (b) Depreciation and other development expenses incurred to be written off;
- (c) Sale proceeds of assets;
- (d) Proceeds of fresh issue of shares or debentures; and
- (e) Reduction in working capital that is current assets (except cash) less current liabilities.

(iii) **Deduct:**

- (a) Dividends to be paid.
- (b) Cost of assets to be purchased.
- (c) Taxes to be paid.
- (d) Debentures or preference shares to be redeemed.
- (e) Increase in working capital that is current assets (except cash) less current liabilities.

**ILLUSTRATION 8**

You are given below the Profit & Loss Accounts for two years for a company:

**Profit and Loss Account**

	Year 1	Year 2		Year 1	Year 2
	₹	₹		₹	₹
To Opening stock	80,00,000	1,00,00,000	By Sales	8,00,00,000	10,00,00,000
To Raw materials	3,00,00,000	4,00,00,000	By Closing stock	1,00,00,000	1,50,00,000
To Stores	1,00,00,000	1,20,00,000	By Misc. Income	10,00,000	10,00,000
To Manufacturing Expenses	1,00,00,000	1,60,00,000			
To Other Expenses	1,00,00,000	1,00,00,000			
To Depreciation	1,00,00,000	1,00,00,000			
To Net Profit	1,30,00,000	1,80,00,000		-	-
	9,10,00,000	11,60,00,000		9,10,00,000	11,60,00,000

Sales are expected to be ₹ 12,00,00,000 in year 3.

As a result, other expenses will increase by ₹ 50,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan. COMPUTE how much cash from operations will be available in year 3 for the purpose? Ignore income tax.

### SOLUTION

#### Projected Profit and Loss Account for the year 3

	Year 2 Actual (₹ in lakhs)	Year 3 Projected (₹ in lakhs)		Year 2 Actual (₹ in lakhs)	Year 3 Projected (₹ in lakhs)
To Materials consumed	350	420	By Sales	1,000	1,200
To Stores	120	144	By Misc. Income	10	10
To Mfg. Expenses	160	192			
To Other expenses	100	150			
To Depreciation	100	100			
To Net profit	180	204			
	1,010	1,210		1,010	1,210

#### Cash Flow:

	(₹ in lakhs)
Profit	204
Add: Depreciation	100
	304
Less: Cash required for increase in stock	50
Net cash inflow	254

Available for servicing the loan: 75% of ₹ 2,54,00,000 or ₹ 1,90,50,000



**Working Notes:**

- (i) Material consumed in year 2: 35% of sales.

Likely consumption in year 3: ₹1,200 ×  $\frac{35}{100}$  or ₹420 (lakhs)

- (ii) Stores are 12% of sales, as in year 2.

- (iii) Manufacturing expenses are 16% of sales.

**Note:** The above also shows how a projected profit and loss account is prepared.

### 10.3 Managing Cash Collection and Disbursements

Having prepared the cash budget, the finance manager should ensure that there is not a significant deviation between projected cash flows and actual cash flows.

To achieve this cash management, efficiency will have to be brought in by proper control of cash collection and disbursement.

The twin objectives in managing the cash flows should be:-

- Accelerate cash collections as much as possible; and
- Decelerate or delay cash disbursements within permissible time frame.

Let's discuss each of the two objectives individually.

### 10.4 Accelerating Cash Collections

**Different Kinds of Float with reference to Management of Cash:** First, let's understand the time involved in the cash collection process. The term float is used to refer to the periods that affect cash as it moves through the different stages of the collection process. Four kinds of float with reference to management of cash are:

- **Billing float:** An invoice is the formal document that a seller prepares and sends to the purchaser as the payment request for goods sold or services provided. The time between the sale and the mailing of the invoice is known as billing float.
- **Mail float:** This is the time when a cheque is being carried by post office, messenger service or other means of delivery.

- **Cheque processing float:** This is the time required for the seller to sort, record and deposit the cheque after it has been received by the company.
- **Banking processing float:** This is the time from the deposit of the cheque to the crediting of funds in the sellers' account.

There are multiple ways in which a firm can attempt to reduce or eliminate any or all types of floats above. For instance:

- ◆ A firm can conserve cash and reduce its requirements for cash balances if it can speed up its cash collections by issuing invoices quickly (reducing / eliminating billing float);
- ◆ By reducing the time lag between a customer pays bill and the cheque is collected (reducing / eliminating mail float);
- ◆ Making funds become available for the firm's use (reducing / eliminating processing floats).

A firm can also use decentralized collection system known as concentration banking and lock box system to speed up cash collection and reduce float time.

- (i) **Concentration Banking:** In concentration banking, the company establishes a number of strategic collection centers in different regions instead of a single collection center at the head office. This system reduces the period between the time a customer mails in his remittances and the time when they become spendable funds with the company. Payments received by the different collection centers are deposited with their respective local banks which in turn transfer all surplus funds to the concentration bank of head office. The concentration bank with which the company has its major bank account is generally located at the headquarters. Concentration banking is one important and popular way of reducing the size of the float.
- (ii) **Lock Box System:** Another means to accelerate the flow of funds is a lock box system. While concentration banking, remittances are received by a collection center and deposited in the bank after processing. The purpose of lock box system is to eliminate the time between the receipts of remittances by the company and deposited in the bank. A lock box arrangement usually is on regional basis which a company chooses according to its billing patterns.

Under this arrangement, the company rents the local post-office box and authorizes its bank at each of the locations to pick up remittances in the boxes. Customers are billed with instructions to mail their remittances to the lock boxes. The bank picks up the mail several times a day and deposits the cheques in the company's account. The cheques may be micro-filmed for record purposes and cleared for collection. The company receives a deposit slip and lists all payments together with any other material in the envelope. This procedure frees the company from handling and depositing the cheques.

The main advantage of lock box system is that cheques are deposited with the banks sooner and become collected funds sooner than if they were processed by the company prior to deposit. In other words, lag between the time cheques are received by the company and the time they are actually deposited in the bank (i.e. cheque processing float) is eliminated.

The main drawback of lock box system is the cost of its operation. The bank provides a number of services in addition to usual clearing of cheques and requires compensation for them. Since the cost is almost directly proportional to the number of cheques deposited. Lock box arrangements are usually not profitable if the average remittance is small. The appropriate rule for deciding whether or not to use a lock box system or for that matter, concentration banking, is simply to compare the added cost of the most efficient system with the marginal income that can be generated from the released funds. If costs are less than income, the system is profitable and if the system is not profitable, it is not worth undertaking.

## 10.5 Controlling Payments

An effective control over payments can also cause faster turnover of cash. This is possible only by making payments on the due date, making excessive use of draft (bill of exchange) instead of cheques.

Availability of cash can be maximized by playing the float. In this, a firm estimates accurately the time when the cheques issued will be presented for encashment and thus utilizes the float period to its advantage by issuing more cheques but having in the bank account only so much cash balance as will be sufficient to honour those cheques which are actually expected to be presented on a particular date.

Also, the company may make payment to its outstation suppliers by a cheque and send it through mail. The delay in transit and collection of the cheque, will be used to increase the float.

### ILLUSTRATION 9

*Prachi Ltd is a manufacturing company producing and selling a range of cleaning products to wholesale customers. It has three suppliers and two customers. Prachi Ltd relies on its cleared funds forecast to manage its cash.*

*You are an accounting technician for the company and have been asked to prepare a cleared funds forecast for the period Saturday 9 August to Wednesday 13 August 20X2 inclusive. You have been provided with the following information:*

#### (1) Receipts from customers

	<b>Credit terms</b>	<b>Payment method</b>	<b>9 Aug 20X2 sales</b>	<b>9 Jul 20X2 sales</b>
W Ltd	1 calendar month	BACS	₹ 150,000	₹ 130,000
X Ltd	None	Cheque	₹ 180,000	₹ 160,000

- (a) Receipt of money by BACS (**Bankers' Automated Clearing Services**) is instantaneous.
- (b) X Ltd's cheque will be paid into Prachi Ltd's bank account on the same day as the sale is made and will clear on the third day following this (excluding day of payment).

#### (2) Payments to suppliers

<b>Supplier name</b>	<b>Credit terms</b>	<b>Payment method</b>	<b>9 Aug 20X2 purchases</b>	<b>9 Jul 20X2 purchases</b>	<b>9 Jun 20X2 purchases</b>
A Ltd	1 calendar month	Standing order	₹ 65,000	₹ 55,000	₹ 45,000
B Ltd	2 calendar months	Cheque	₹ 85,000	₹ 80,000	₹ 75,000
C Ltd	None	Cheque	₹ 95,000	₹ 90,000	₹ 85,000

- (a) Prachi Ltd has set up a standing order for ₹ 45,000 a month to pay for supplies from A Ltd. This will leave Prachi's bank account on 9 August.

*Every few months, an adjustment is made to reflect the actual cost of supplies purchased (you do NOT need to make this adjustment).*

- (b) *Prachi Ltd will send out, by post, cheques to B Ltd and C Ltd on 9 August. The amounts will leave its bank account on the second day following this (excluding the day of posting).*

**(3) Wages and salaries**

	<b>July 20X2</b>	<b>August 20X2</b>
Weekly wages	₹ 12,000	₹ 13,000
Monthly salaries	₹ 56,000	₹ 59,000

- (a) *Factory workers are paid cash wages (weekly). They will be paid one week's wages, on 13 August, for the last week's work done in July (i.e. they work a week in hand).*
- (b) *All the office workers are paid salaries (monthly) by BACS. Salaries for July will be paid on 9 August.*

**(4) Other miscellaneous payments**

- (a) *Every Saturday morning, the petty cashier withdraws ₹ 200 from the company bank account for the petty cash. The money leaves Prachi's bank account straight away.*
- (b) *The room cleaner is paid ₹ 30 from petty cash every Monday morning.*
- (c) *Office stationery will be ordered by telephone on Sunday 10 August to the value of ₹ 300. This is paid for by company debit card. Such payments are generally seen to leave the company account on the next working day.*
- (d) *Five new softwares will be ordered over the Internet on 12 August at a total cost of ₹ 6,500. A cheque will be sent out on the same day. The amount will leave Prachi Ltd's bank account on the second day following this (excluding the day of posting).*

**(5) Other information**

*The balance on Prachi's bank account will be ₹ 200,000 on 9 August 20X2. This represents both the book balance and the cleared funds.*

*PREPARE a cleared funds forecast for the period Saturday 7th August to Wednesday 13th August 20X2 inclusive using the information provided. Show clearly the uncleared funds float each day.*

**SOLUTION****Cleared Funds Forecast**

	9 Aug (Saturday) ₹	10 Aug (Sunday) ₹	11 Aug (Monday) ₹	12 Aug (Tuesday) ₹	13Aug (Wednesday) ₹
<b>Receipts</b>					
W Ltd	1,30,000	0	0	0	0
X Ltd	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,80,000</u>	<u>0</u>
<b>(a)</b>	<b><u>1,30,000</u></b>	<b><u>0</u></b>	<b><u>0</u></b>	<b><u>1,80,000</u></b>	<b><u>0</u></b>
<b>Payments</b>					
A Ltd	45,000	0	0	0	0
B Ltd	0	0	75,000	0	0
C Ltd	0	0	95,000	0	0
Wages	0	0	0	0	12,000
Salaries	56,000	0	0	0	0
Petty Cash	200	0	0	0	0
Stationery	<u>0</u>	<u>0</u>	<u>300</u>	<u>0</u>	<u>0</u>
<b>(b)</b>	<b><u>1,01,200</u></b>	<b><u>0</u></b>	<b><u>1,70,300</u></b>	<b><u>0</u></b>	<b><u>12,000</u></b>
Cleared excess Receipts over payments (a) – (b)	28,800	0	(1,70,300)	1,80,000	(12,000)
Cleared balance b/f	<u>2,00,000</u>	<u>2,28,800</u>	<u>2,28,800</u>	<u>58,500</u>	<u>2,38,500</u>
<b>Cleared balance c/f (c)</b>	<b><u>2,28,800</u></b>	<b><u>2,28,800</u></b>	<b><u>58,500</u></b>	<b><u>2,38,500</u></b>	<b><u>2,26,500</u></b>
<b>Uncleared funds float</b>					
Receipts	1,80,000	1,80,000	1,80,000	0	0
Payments	<u>(1,70,000)</u>	<u>(1,70,300)</u>	<u>0</u>	<u>(6,500)</u>	<u>(6,500)</u>
<b>(d)</b>	<b><u>10,000</u></b>	<b><u>9,700</u></b>	<b><u>180,000</u></b>	<b><u>(6,500)</u></b>	<b><u>(6,500)</u></b>
Total book balance c/f	<b>2,38,800</b>	<b>2,38,500</b>	<b>2,38,500</b>	<b>2,32,000</b>	<b>2,20,000</b>
<b>(c) + (d)</b>					

## 10.6 Determining the Optimum Cash Balance

A firm should maintain optimum cash balance to cater to the day-to-day operations. It may also carry additional cash as a buffer or safety stock. The amount of cash balance will depend on the risk-return trade off. The firm should maintain an optimum level i.e. just enough, i.e. neither too much (to avoid any opportunity cost) nor too little cash balance (to settle day to day payments). This, however, poses a question. How to determine the optimum cash balance if cash flows are predictable and if they are not predictable?

## 11. CASH MANAGEMENT MODELS

In recent years several types of mathematical models have been developed which helps to determine the optimum cash balance to be carried by a business organization.

The purpose of all these models is to ensure that cash does not remain idle unnecessarily and at the same time the firm is not confronted with a situation of cash shortage.

All these models can be put in two categories:

Inventory type models; and Stochastic models.

Inventory type models have been constructed to aid the finance manager to determine optimum cash balance of his firm. William J. Baumol's economic order quantity model applies equally to cash management problems under conditions of certainty or where the cash flows are predictable.

However, in a situation where the EOQ Model is not applicable, stochastic model of cash management helps in determining the optimum level of cash balance. It happens when the demand for cash is stochastic and not known in advance.

### 11.1 William J. Baumol's Economic Order Quantity Model,(1952)

According to this model, **optimum cash level is that level of cash where the carrying costs and transactions costs are the minimum.**

The carrying costs refer to the cost of holding cash, namely, the opportunity cost or interest foregone on marketable securities. The transaction costs refer to the cost involved in getting the marketable securities converted into cash. This happens when the firm falls short of cash and has to sell the securities resulting in clerical, brokerage, registration and other costs.

The optimum cash balance according to this model will be that point where these two costs are minimum. The formula for determining optimum cash balance is:

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

Where,

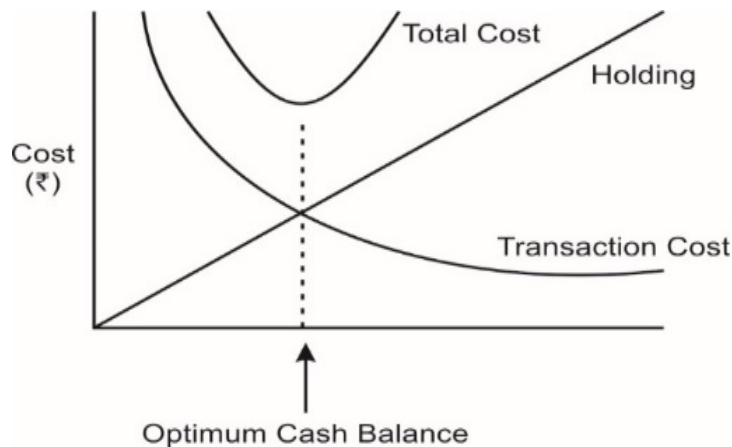
C = Optimum cash balance

U = Annual (or monthly) cash disbursement

P = Fixed cost per transaction.

S = Opportunity cost of one rupee p.a. (or p.m.)

This can be explained with the following diagram:



The model is based on the following assumptions:

- (i) Cash needs of the firm are known with certainty.
- (ii) The cash is used uniformly over a period of time and it is also known with certainty.
- (iii) The holding cost is known and it is constant.
- (iv) The transaction cost also remains constant.



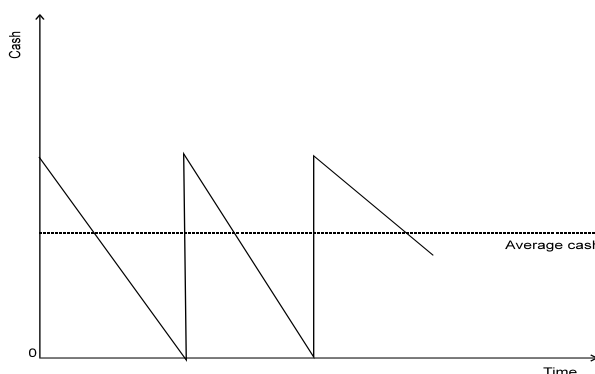
**ILLUSTRATION 10**

A firm maintains a separate account for cash disbursement. Total disbursement are ₹ 1,05,000 per month or ₹ 12,60,000 per year. Administrative and transaction cost of transferring cash to disbursement account is ₹ 20 per transfer. Marketable securities yield is 8% per annum.

DETERMINE the optimum cash balance according to William J. Baumol model.

**SOLUTION**

$$\text{The optimum cash balance } C = \sqrt{\frac{2 \times ₹ 12,60,000 \times ₹ 20}{0.08}} = ₹ 25,100$$



The limitation of the Baumol's model is that it does not allow the cash flows to fluctuate. Firms in practice do not use their cash balance uniformly nor are they able to predict daily cash inflows and outflows. The Miller-Orr (MO) model, as discussed below, overcomes this shortcoming and allows for daily cash flow variation.

**11.2 Miller-Orr Cash Management Model (1966)**

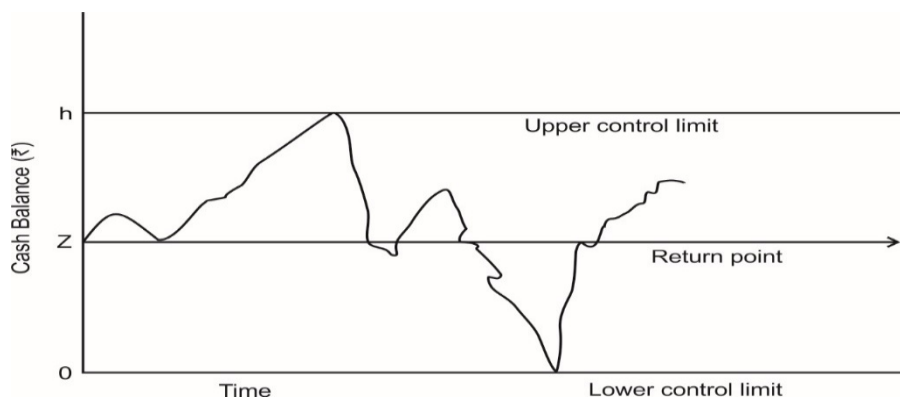
According to this model the net **cash flow is completely stochastic**.

When changes in cash balance occur randomly the application of control theory serves a useful purpose. The Miller-Orr model is one of such control limit models.

This model is designed to determine the time and size of transfers between an investment account and cash account. In this model control limits are set for cash balances. These limits may consist of  $h$  as upper limit,  $z$  as the return point; and zero as the lower limit.

- When the cash balance reaches the upper limit, the transfer of cash equal to  $h - z$  is invested in marketable securities account.
- When it touches the lower limit, a transfer from marketable securities account to cash account is made.
- During the period when cash balance stays between  $(h, z)$  and  $(z, 0)$  i.e. high and low limits no transactions between cash and marketable securities account is made.

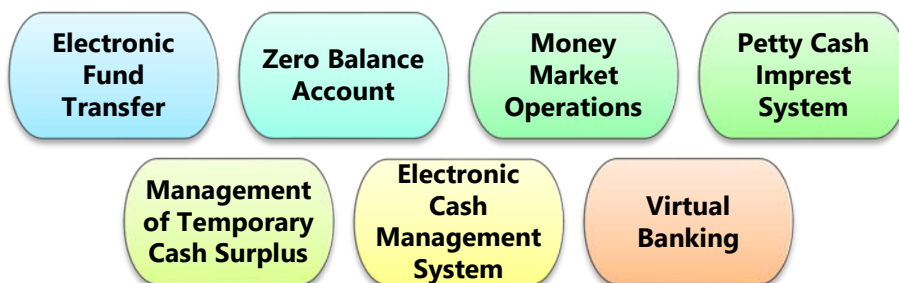
The high and low limits of cash balance are set up on the basis of fixed cost associated with the securities transactions, the opportunity cost of holding cash and the degree of likely fluctuations in cash balances. These limits satisfy the demands for cash at the lowest possible total costs. The following diagram illustrates the Miller-Orr model.



The MO Model is more realistic since it allows variations in cash balance within lower and upper limits. The finance manager can set the limits according to the firm's liquidity requirements i.e., maintaining minimum and maximum cash balance.

## 12. RECENT DEVELOPMENTS IN CASH MANAGEMENT

It is important to understand the latest developments in the field of cash management, since it has a great impact on how we manage our cash. Both technological advancement and desire to reduce cost of operations has led to some innovative techniques in managing cash. Some of them are:-



## 12.1 Electronic Fund Transfer

With the developments which took place in the Information technology, the present banking system is switching over to the computerisation of banks branches to offer efficient banking services and cash management services to their customers. The network will be linked to the different branches, banks. This will help the customers in the following ways:

- Instant updating of accounts.
- Quick transfer of funds.
- Instant information about foreign exchange rates.

## 12.2 Zero Balance Account

For efficient cash management some firms employ an extensive policy of substituting marketable securities for cash by the use of zero balance accounts. Every day the firm totals the cheques presented for payment against the account. The firm transfers the balance amount of cash (in excess of payments) in the account if any, for buying marketable securities. In case of shortage of cash, the firm sells the marketable securities.

## 12.3 Money Market Operations

One of the tasks of '*treasury function*' of larger companies is the investment of surplus funds in the money market. The chief characteristic of money market banking is one of size. Banks obtain funds by competing in the money market for the deposits by the companies, public authorities, High Net worth Investors (HNI), and other banks. Deposits are made for specific periods ranging from overnight to one year; highly competitive rates which reflect supply and demand on a daily, even

hourly basis are quoted. Consequently, the rates can fluctuate quite dramatically, especially for the shorter-term deposits. Surplus funds can thus be invested in money market easily.

## 12.4 Petty Cash Imprest System

For better control on cash, generally the companies use petty cash imprest system wherein the day-to-day petty expenses are estimated taking into account past experience and future needs and generally a week's requirement of cash will be kept separate for making petty expenses. Again, the next week will commence with the pre-determined balance. This will reduce the strain of the management in managing petty cash expenses and help in the managing cash efficiently.

## 12.5 Management of Temporary Cash Surplus

Temporary cash surpluses can be profitably invested in the following:

- Short-term deposits in Banks and financial institutions.
  - Short-term debt market instruments.
  - Or Long Term Debt Instruments with flexible maturity dates
- Shares of Blue chip listed companies.

Choice of investment can be based on economic situation, volatility of returns and also the risk appetite of the organization.

## 12.6 Electronic Cash Management System

Most of the cash management systems now-a-days are electronically based, since 'speed' is the essence of any cash management system. Electronically, transfer of data as well as funds play a key role in any cash management system. Various elements in the process of cash management are linked through a satellite. Various places that are interlinked may be the place where the instrument is collected, the place where cash is to be transferred in company's account, the place where the payment is to be transferred etc.

Certain networked cash management system may also provide a very limited access to third parties like parties having very regular dealings of receipts and payments with the company etc. A finance company accepting deposits from public through

sub-brokers may give a limited access to sub-brokers to verify the collections made through him for determination of his commission among other things.

### **Electronic-scientific cash management results in:**

- Significant saving in time.
- Increase in interest earned & decrease in interest expense.
- Reduces paper-work & hence manpower.
- Greater accounting accuracy as it allows easy detection of book-keeping errors.
- More control over time and funds.
- Supports electronic payments.
- Faster transfer of funds from one location to another, where required.
- Speedy conversion of various instruments into cash.
- Making available funds wherever required, whenever required.
- Reduction in the amount of 'idle float' to the maximum possible extent.
- Ensures no idle funds are placed at any place in the organization.
- It makes inter-bank balancing of funds much easier.
- It is a true form of centralized 'Cash Management'.
- Produces faster electronic reconciliation.
- Reduces the number of cheques issued.

## **12.7 Virtual Banking**

The practice of banking has undergone a significant change in the nineties. While banks are striving to strengthen customer base and relationship and move towards relationship banking, customers are increasingly moving away from the confines of traditional branch banking and are seeking the convenience of remote electronic banking services including net banking & mobile banking. And even within the broad spectrum of electronic banking the virtual banking has gained prominence

Broadly virtual banking denotes the provision of banking and related services through extensive use of information technology without direct recourse to the bank by the customer. The origin of virtual banking in the developed countries can be traced back to the seventies with the installation of Automated Teller Machines

(ATMs). Subsequently, driven by the competitive market environment as well as various technological and customer pressures, other types of virtual banking services have grown in prominence throughout the world.

The Reserve Bank of India has been taking a number of initiatives, which will facilitate the active involvement of commercial banks in the sophisticated cash management system. One of the pre-requisites to ensure faster and reliable mobility of funds in a country is to have an efficient payment system. Considering the importance of speed in payment system to the economy, the RBI has taken numerous measures since mid-Eighties to strengthen the payments mechanism in the country.

Introduction of computerized settlement of clearing transactions, use of Magnetic Ink Character Recognition (MICR) technology, provision of inter-city clearing facilities and high value clearing facilities, Electronic Clearing Service Scheme (ECSS), Electronic Funds Transfer (EFT) scheme, UPI payment platforms, Real Time Gross Settlement System (RTGS), Delivery vs. Payment (DVP) for Government securities transactions, setting up of Indian Financial Network (INFINET) are some of the significant developments.

Other than above, Introduction of Centralised Funds Management System (CFMS), Securities Services System (SSS) and Structured Financial Messaging System (SFMS) have been the other top priority items on the agenda to transform the existing system into a state-of-the art payment infrastructure in India.

The current vision envisaged for the payment systems reforms is one, which contemplates linking up of all the remaining bank branches with the domestic payment systems network thereby facilitating cross border connectivity. With the help of the systems already put in place in India and which are coming into being, both banks and corporates can exercise effective control over the cash management.

### **Advantages of Virtual Banking**

The advantages of virtual banking services are as follows:

- Lower cost of handling a transaction.
- The increased speed of response to customer requirements.

- The lower cost of operating branch network along with reduced staff costs leads to cost efficiency.
- Virtual banking allows the possibility of improved and a range of services being made available to the customer rapidly, accurately and at his convenience.

The popularity which virtual banking services have won among customers is due to the speed, convenience and round the clock access they offer.

### 13. MANAGEMENT OF MARKETABLE SECURITIES

Management of marketable securities is an integral part of investment of cash as this may serve both the purposes of liquidity and cash, provided choice of investment is made correctly. As the working capital needs are fluctuating, it is possible to park excess funds in some short-term securities, which can be liquidated when need for cash is felt. The selection of securities should be guided by three principles.

- *Safety:* Return and risks go hand in hand. As the objective in this investment is ensuring liquidity, minimum risk is the criterion of selection.
- *Maturity:* Matching of maturity and forecasted cash needs is essential. Prices of long term securities fluctuate more with changes in interest rates and are therefore, riskier. Since this is for temporary excess funds, short term securities are preferred.
- *Marketability:* It refers to the convenience, speed and cost at which a security can be converted into cash. If the security can be sold quickly without loss of time and price it is highly liquid or marketable.

The choice of marketable securities is mainly limited to Government treasury bills, Deposits with banks and Inter-corporate deposits. Units of Unit Trust of India and commercial papers of corporates are other attractive means of parking surplus funds for companies along with deposits with sister concerns or associate companies.

Besides this Money Market Mutual Funds (MMMFs) have also emerged as one of the avenues of short-term investment.

**ILLUSTRATION 11**

*The following information is available in respect of Sai trading company:*

- (i) *On an average, debtors are collected after 45 days; inventories have an average holding period of 75 days and creditor's payment period on an average is 30 days.*
- (ii) *The firm spends a total of ₹ 120 lakhs annually at a constant rate.*
- (iii) *It can earn 10 per cent on investments.*

*From the above information, you are required to CALCULATE:*

- (a) *The cash cycle and cash turnover,*
- (b) *Minimum amounts of cash to be maintained to meet payments as they become due,*
- (c) *Savings by reducing the average inventory holding period by 30 days.*

**SOLUTION**

- (a)** Cash cycle = 45 days + 75 days – 30 days = 90 days (3 months)

Cash turnover = 12 months (360 days)/3 months (90 days) = 4.

- (b)** Minimum operating cash = Total operating annual outlay/cash turnover, that is, ₹ 120 lakhs/4 = ₹ 30 lakhs.

- (c)** Cash cycle = 45 days + 45 days – 30 days = 60 days (2 months).

Cash turnover = 12 months (360 days)/2 months (60 days) = 6.

Minimum operating cash = ₹ 120 lakhs/6 = ₹ 20 lakhs.

Reduction in investments = ₹ 30 lakhs – ₹ 20 lakhs = ₹ 10 lakhs.

Savings = 0.10 × ₹ 10 lakhs = ₹ 1 lakh.