LOVELY PROFESSIONAL UNIVERSITY

MANAGEMENT ACCOUNTING

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SYLLABUS

Management Accounting

Objectives: To equip the students with advanced managerial accounting techniques of cost analysis & cost control for decision making.

Management Accounting

Sr. No.	Description
1.	Introduction to Accounting: Management accounting as a area of accounting; Branches of Accounting & its inter relationships, and Role of Management Accountant
2.	Understanding Corporate Financial statements: types, form, content, uses and limitations
3.	Financial Statement Analysis: Common-size statements, Comparative statements, Trend analysis.
4.	Ratio Analysis: Liquidity, Solvency, Profitability, Turnover Ratios; Calculation and relevance for analysis
5.	Fund Flow Statement & Cash Flow Statement
6.	Budgeting: meaning, features, types and preparation of Budgets & Budgetary Control System: features, objectives and Zero-base Budgeting
7.	Standard Costing and Variance Analysis
8.	Responsibility Accounting and Transfer Pricing
9.	Introduction to methods of costing: Absorption costing, Marginal costing & CVP Analysis, Use of cost data in decision making: Decisions involving alternative choices, pricing Decisions
10.	Management Reporting and MIS

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Unit 1: Introduction to Accounting

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Objectives

Introduction

1.1 Management Accounting as an Area of Accounting

1.2 Branches of Accounting and its Interrelationships

1.3 Role of Management Accountants

1.4 Summary

1.5 Keywords

1.6 Review Questions

1.7 Further Readings

Objectives

After studying this unit, you will be able to:

- Describe management accounting as an area of accounting
- Identify the branches of accounting and it's inter relationships
- Discuss the role of management accountants

Introduction

Accounting is a business language that elucidates the various kinds of transactions during the given period of time. Accounting is defined as either recording or recounting the information of the business enterprise, transpired during the specific period in the summarized form. The American Institute of Certified Public Accountants Association defines the term accounting as follows: **"Accounting is the process of recording, classifying, summarizing in a significant manner, of transactions which are financial in nature and finally interpreting the results."**

Management accounting is the accounting system for making decisions of the business enterprise. Management accounting furnishes the necessary information to assist the business enterprise to make rational decisions through the development of policies and procedures in order to meet the day to day commitments of the enterprise.

Did u know? ***Is accounting an equivalent function to book-keeping?***

No, accounting is broader in scope than the book-keeping; the former cannot be equated to the later.

1.1 Management Accounting as an Area of Accounting

Management accounting as a new branch of accounting is of recent origin. Financial accounting recorded business transactions on double-entry basis and helped ascertainment of profit or loss for the given period and valuation of stock of assets and liabilities on a given date. Financial accounting enabled the concern with the liabilities and safeguard the assets entrusted and therefore,

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was also known as custodial or stewardship accounting. Basically meant for consumption of owners, creditors, statutory authorities, the reporting was for a concern as a whole.

In olden days, when the concern was small and catering to the local area of operation, the proprietor who managed the show was aware of all the happenings and could control the business well without additional information. But as businesses grew bigger, and the area of operations widened, there came into existence a separate cadre of people called the management. Since the rewards of management were entirely dependent on performance, they wanted a lot of information on the concern and outside, which was necessary to be effective. They also wanted information quickly, which made financial accounting inadequate.

The need for a new type of accounting was felt. This gave birth to cost accounting. The emergence of cost accounting to large extent satisfied the need of management. Cost accounting identified expenses to the origin (product, department or territory) by classifying them as direct or indirect expenses and depending upon their variability, categorised them as variable or fixed expenses. These helped the cost assembly, planning, fixing of standards and monitoring of variance and made it an easy job to control cost through responsibility accounting.

Responsibility accounting apart from serving as a control mechanism was also a motivational tool for achievement and rewards. Since management knew the incidence of expense and its origin, early steps for correction could be taken promptly. Meaningful reports to suit the hierarchy were instituted for periodical submission. People lower down the order got all the information quantitatively; middle management both quantity and value. The higher echelons got reported on the basis of exceptions on monetary values. Computerization also took place to process voluminous data and for timely submission of reports. In course of time, cost accounting assimilated techniques from various other disciplines like operations research, statistics, economics, behavioural science and techniques of management to aid decision making. The term cost accounting brings to mind only the function of cost finding and therefore, this large comprehensive discipline was renamed management accounting or managerial accounting. Recently, finance has also been brought under this umbrella.

Caution The term 'Management Accounting' refers to accounting for the management. Management accounting provides necessary information to assist the management in the creation of policy and in the day-to-day operations. It enables the management to discharge all its functions, i.e., planning, organization, staffing, direction and control efficiently with the help of accounting information.

Self Assessment

Fill in the blanks:

1. …… recorded business transactions on double-entry basis and helped ascertainment of profit or loss for the given period and valuation of stock of assets and liabilities on a given date.
2. Financial accounting enabled the concern with the liabilities and safeguard the assets entrusted and therefore was also known as …… accounting.
3. …… identified expenses to the origin by classifying them as direct or indirect expenses and depending upon their variability, categorised them as variable or fixed expenses.

1.2 Branches of Accounting and its Interrelationships

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The main objectives of accounting are to record the business transactions and to provide the necessary information to the internal and external users of the financial statements. In order to achieve the above objectives, the accounting is classified into followings branches:

1. ***Financial Accounting:*** It is the original form of accounting. It refers to the recording of daily business financial transaction. Recording of the transaction is done in such a way that the profit of the business may be ascertained after a definite period and the picture of the financial position of the business may be presented.
2. ***Cost Accounting:*** As the name indicates, this accounting is related with the ascertainment of cost of the product in a period. Under this system, record of raw materials used in production, wages and labour paid and other expanses incurred on production are kept to control the costs.
3. ***Management Accounting:*** The accounting which provides the necessary information to the management is called management accounting. Under this, the analysis and interpretation of the accounts, prepared by financial accounting, are done in a manner so that the managers may forecast, plan for future and frame the policy.
4. ***Tax Accounting:*** Under tax accounting, the accountants prepare the accounts as per the provisions of taxation. The accounts prepared as per taxation provisions may differ from the accounts prepared as per financial accounting.
5. ***Inflation Accounting:*** The financial statements are prepared on the basis of historical cost which do not present the true picture of the financial position and correct profit or loss of the business due to inflation. Thus, the fresh financial statements are prepared keeping in mind the price level changes under inflation accounting.
6. ***Human Resource Accounting:*** Human Resource Accounting means the accounting for human being as now in an organization human being is treated as an asset like other physical assets. It is recorded in the books like other assets. HRA deals with the measurement of costs on recruiting, selecting, hiring, training, placing and development of the employees in one side and on the other side it deals with the present economic value of the employees. For the determination of the value of human being different methods are used under HRA.
7. ***Responsibility Accounting:*** Responsibility accounting is a special technique of management under which accountability is established according to the responsibility delegated to the various levels of management. A management information and reporting system is instituted to give adequate feedback in terms of the delegated responsibility. Under this system, units of an organization, under a specified authority in a person, are developed as responsibility center and evaluated individually for their performance.

Relationship of Financial, Cost and Management Accounting

The ICMA, London, defines management accounting as "the application of professional knowledge and skill in the preparation and presentation of accounting information in such a way as to assist management in the formulation of various policies and in the planning and control of the operation of the undertaking".

The American Accounting Association, committee on management accounting, defines management accounting as "the application of appropriate techniques and concepts in processing the historical and projected economic data of an entity to assist management in establishing a plan for reasonable economic objectives and in the making of rational decisions with a view towards achieving these objectives".

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Though some number of differences can be identified between cost accounting and management accounting, the line of difference is very thin. Because, cost accounting, at present, comprises of some of the advanced techniques and systems of costing such as budgetary control, marginal costing, standard costing, etc. and therefore, it tends to conform to management accounting. Consequently, not much difference can be found between the two. The main differences between cost accounting and management accounting are given as under:

Table 1.1: Cost Accounting vs. Management Accounting

Sl.No.	Point of Difference	Cost Accounting	Management Accounting
1.	Objectives	Its main purpose is to ascertain the cost.	Its major objective is to make decisions through supplement presentation of accounting information.
2.	Scope	It deals only with the cost and related aspects.	It not only deals with the cost but also revenue. It is wider than cost accounting.
3.	Utilisation of Data	It uses only quantitative information pertaining to the transactions.	It uses both qualitative and quantitative information for decision- making.
4.	Utility	It ends only at the presentation of information.	It starts from where cost accounting ends; meaningful cost informations are major inputs for decision-making.
5.	Nature	It deals with the past and present data.	It deals with future policies and course of actions.

The cost accounting is very closely-related to financial accounting. Few authorities of accounting consider cost accounting to be the branch of financial accounting. But it may be said that cost accounting is complementary to financial accounting. Financial accounting and cost accounting are both similar in various ways. The main relationship between financial accounting and cost accounting are given as under:

1. The fundamental principles of double entry system are applicable in financial accounting as well as cost accounting.
2. The results of business or organisation are revealed by both the systems of accounts.
3. The determination of future business activities and policy is guided by both accounting systems.
4. A basis for comparison of expenditures is being provided by both the accounting systems.
5. The invoices and vouchers constitute the common basis for recording transactions under both the systems of accounting.
6. The causes for losses and wastages of a business or industry are provided by financial and cost accounting.

The main differences between financial accounting and cost accounting are given as under:

Notes

Table 1.2: Financial Accounting vs. Management Accounting

Sl.No	Point of Difference	Financial Accounting	Management Accounting
1.	Objectives	The supply of information about the enterprise through P&L A/c and balance sheet to outside parties – Mainly for external use.	Information is supplied with the purpose of making decisions – for internal use only.
2.	Analysis of performance	It extends over the total performance of the firm in general.	It deals with detailed analysis of performance of each and every department of the organisation.
3.	Utilisation of Data	It handles only the past data of the enterprise.	It envisages the future policies and plans.
4.	Nature	It is a measurement of performance, i.e. more objective.	It is a judgment of performance—more subjective.
5.	Accuracy of results	It has to ensure the accuracy forever.	It need not, instead it is mainly for internal use depends upon approximation.
6.	Legal responsibility	Compulsory for joint stock companies – Accounting period concept.	It is not compulsory but optional.
7.	Limitation on transactions	It provides room only for the monetary transactions.	It considers both monetary and non- monetary transactions at a time together—Qualitative changes are considered.
8.	Exercise the path of control	Being the contributory of past information; not able to monitor the plans properly.	It is able to highlight the deviations of the actual from the plans and earmark the reasons for the deviations.

Task Prepare the proforma of key financial statements prepared under financial accounting and cost accounting.

Self Assessment

Fill in the blanks:

4. The fundamental principles of …… are applicable in financial accounting as well as cost accounting.
5. …… deals with detailed analysis of performance of each and every department of the organisation.
6. Main purpose of …… is to ascertain the cost.
7. …… uses only quantitative information pertaining to the transactions.
8. The causes for losses and wastages of a business or industry are provided by …… and cost accounting.
9. Few authorities of accounting consider cost accounting to be the branch of …… accounting.

Notes

10. The major objective of …… is to make decisions through supplement presentation of accounting information.

11. The key objective of …… is to supply information about the enterprise through P&L A/c and balance sheet to outside parties-Mainly for external use.

1.3 Role of Management Accountants

A management accountant is a very important key person in the organization. His main job in the organization is planning and control.

Planning is of two types. One is a short-term plan known as a budget. A budget is a quantitative expression of management's short-term intentions. Budget serves also as a tool for co-ordinating the various activities and to the extent the actuals compared to budget works as a tool of control.

The other type of planning is called long-term plan or corporate plan or strategic plan. This type of plan is usually prepared for three to five years. Long-term plans indicate the management's intent where the organization should reach in that time span. By a series of budgets, long-term plans are reached.

It is the responsibility of the management accountant to prepare both the type of plans and watch their actual performance. For this purpose, he has to re-classify the accounting data and assemble them to suit the user department's need. He also has to scan the environment for external information. He has to be particularly careful of the performance of his competitors and try and obtain information about their long-term strategy.

The management accountant should arrange for various reviews of the budget and corporate plan in order to take action on deviations. If the deviation or variances are seasonal he may not take steps to correct the plans; otherwise he should modify the plan in consultation with the top management.

The management accountant will undertake a number of special studies for capital expenditure; make or buy decisions, lease or buy decisions.

It will be the responsibility of the management accountant to establish a good system for the use of management, devise all paper work and prescribe the periodicity of reports and manner of submission.

We have already seen the management accountant's role as a purely staff function, in relation to other departments. In view of the great use of management accounting, the controller now attends all important policy meetings and participates. As one foreign publication has stated, "the management accountant participates as the part of management in assuring that the organization operates as a unified whole in its long-run, intermediate and short-run best interests."

We may sum up saying, 'the management accountant's role is that of purveyor, processor and presenter of information and also a planner for the achievement of corporate goals both short and long-run.'

Self Assessment

State whether the following statements are true or false:

12. A budget is a qualitative expression of management's short-term intentions.

13. Long-term plans indicate the management's intent where the organization should reach in that time span.

14. Short-term plans are also called strategic plans.

15. Budget serves as a tool for co-ordinating the various activities and to the extent the actuals compared to budget works as a tool of control.

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1.4 Summary

- Financial accounting recorded business transactions on double-entry basis and helped ascertainment of profit or loss for the given period and valuation of stock of assets and liabilities on a given date.
- Management accounting is the accounting system for making decisions of the business enterprise.
- Cost accounting is related with the ascertainment of cost of the product in a period.
- Human Resource Accounting means the accounting for human being as now in an organization human being is treated as an asset like other physical assets. It is recorded in the books like other assets.
- Responsibility accounting is a special technique of management under which accountability is established according to the responsibility delegated to the various levels of management.
- Management accounting is based on the past or yesteryear information of cost accounting and financial accounting which influences the effectiveness of the entire management accounting.
- The cost accounting is very closely-related to financial accounting.
- Few authorities of accounting consider cost accounting to be the branch of financial accounting.
- The fundamental principles of double entry system are applicable in financial accounting as well as cost accounting.

1.5 Keywords

Cost Accounting: This helps management to conduct performance appraisal and also facilitates in formulating price policies.

Financial Accounting: Financial accounting is a traditional method of accounting that supplies historical information about the firm during the past.

Human Resource Accounting: Human Resource Accounting means the accounting for human being as now in an organization human being is treated as an asset like other physical assets. It is recorded in the books like other assets.

Management Accounting: Management accounting provides necessary information to assist the management in the creation of policy and in the day-to-day operations.

Responsibility Accounting: Responsibility accounting is a special technique of management under which accountability is established according to the responsibility delegated to the various levels of management.

1.6 Review Questions

1. Do you think management accounting is different from financial accounting? Discuss.
2. Elucidate the various functions of management accounting.
3. Write brief notes on the key branches of accounting.

Notes

4. Distinguish between the management accounting and cost accounting.
5. List out the contradictory areas of interest in between management accounting and financial accounting.
6. Management accounting is the accounting system for making decisions of the business enterprise. Discuss.
7. "Management accounting serves as a tool to management." Analyze this statement.
8. Analysis the scope of management accounting.
9. Write briefly of the evaluation of management accounting.
10. The cost accounting is very closely-related to financial accounting. Give some suggestions to support the above statement.

Answers: Self Assessment

1.	Financial accounting	2.	custodial or stewardship
3.	Cost accounting	4.	double entry system
5.	Management Accounting	6.	Cost accounting
7.	Cost accounting	8.	financial
9.	financial	10.	Management accounting
11.	Financial accounting	12.	False
13.	True	14.	False
15.	True		

1.7 Further Readings

Books

I.M. Pandey, *Financial Management*, Vikas Publishing, New Delhi.

Khan and Jain, *Management Accounting*.

Nitin Balwani, *Accounting & Finance for Managers*, Excel Books, New Delhi.

Prasanna Chandra, *Financial Management - Theory and Practice*, Tata McGraw Hill, New Delhi (1994).

R.L. Gupta and Radhaswamy, *Advanced Accountancy*.

S. Bhat, *Financial Management*, Excel Books, New Delhi.

S.N. Maheswari, *Management Accounting*.

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Online link

www.futureaccountant.com

Unit 2: Understanding Corporate Financial Statements

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2.2 Form and Contents of Financial Statements

2.2.1 Trading and Profit & Loss Account

2.2.2 Balance Sheet

2.3 Uses of Financial Statements

2.4 Limitations of Financial Statements

2.5 Summary

2.6 Keywords

2.7 Review Questions

2.8 Further Readings

Objectives

After studying this unit, you will be able to:

- Know the types of financial statements
- Illustrate the form and contents of financial statements
- Describe the uses and limitations

Introduction

Financial statements are also known as financial reports. These are formal records of the financial activities of a business, person, or other entity. Since we are referring to the corporate financial statements, the corporate financial reports refer to the records of a corporate house.

Corporate financial statements provide an overview of a business's financial condition in both short-term and long-term. All the relevant financial information of a business enterprise, presented in a structured manner and in a form easy to understand, is thus called the financial statement. These statements comprise Balance Sheet or Position Statement and Profit and Loss Account or Income Statement. Of course, to give a full view of the financial affairs of an undertaking, in addition to the above, the business may also prepare a Statement of Retained Earnings and a Cash Flow Statement.

Caution In India, every company has to present its financial statements in the form and contents as prescribed under Section 211 of the Companies Act, 1956.

Notes

2.1 Types of Financial Statements

There are four different types of financial statements. The different types of financial statements indicate the different activities occurring in a particular business house.

1. Income Statement
2. Retained Earnings Statement
3. Balance Sheet
4. Statement of Cash Flows
5. Fund Flow Statement

Let us understand each of them one by one.

1. ***Income Statement:*** Income statement, also called profit and loss statement (P&L) and Statement of Operations, is a company's financial statement that indicates how the revenue (money received from the sale of products and services before expenses are taken out, also known as the "top line") is transformed into the net income (the result after all revenues and expenses have been accounted for, also known as the "bottom line"). The purpose of the income statement is to show managers and investors whether the company made or lost money during the period being reported. The important thing to remember about an income statement is that it represents a period of time.

Example: The following example shows some of the common elements of the Income Statement

Sample Company Income Statement
January 1, 2009 to December 31, 2009

Particulars	Amount	Amount
Income		
Gross Sales	346,400	
Less returns and allowances	1,000	
Net Sales		345,400
Cost of Goods		
Merchandise Inventory, January 1	160,000	
Purchases	90,000	
Freight Charges	2,000	
Total Merchandise Handled	252,000	
Less Inventory, December 31	100,000	
Cost of Goods Sold		152,000
Gross Profit		193,400
Interest Income		500
Total Income		**193,900**
Expenses		
Salaries	68,250	
Utilities	5,800	
Rent	23,000	
Office Supplies	2,250	
Insurance	3,900	

Contd…

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Advertising	8,650	
Telephone	2,700	
Travel and Entertainment	2,550	
Dues & Subscriptions	1,100	
Interest Paid	2,140	
Repairs & Maintenance	1,250	
Taxes & Licenses	11,700	
Total Expenses		**133,290**
Net Income		**₹ 60,110**

2. ***Retained Earnings Statement:*** As the name suggests, a retained earnings statement explains the changes in a company's retained earnings over the reporting period. It breaks down changes affecting the account, such as profits or losses from operations, dividends paid, and any other items charged or credited to retained earnings. A retained earnings statement is required by Generally Accepted Accounting Principles (GAAP) whenever comparative balance sheets and income statements are presented. It may appear in the balance sheet, in a combined income statement and changes in retained earnings statement, or as a separate schedule.

Example: Written below is a sample of a retained earnings statement.

Quartz Corporation
Statements of Retained Earnings
For the year ending December 31, 2009

Retained earning - January 1, 2009	$400,000
Add: Net income	115,000
	$515,000
Less: Dividends	35,000
Retained earnings - December 31, 2009	$480,000

3. ***Balance Sheet:*** The balance sheet provides an insight into the financial status of a company at a particular time. The balance sheet is different in comparison to the other types of financial statements. Other financial statements are prepared by taking into account the financial health of the company over a considerable span of time.

Example: Sample Balance Sheet

Sample Balance Sheet
for the Month Ended _____

Assets	₹	Liabilities	₹
Cash	15,300	Accounts Payable	–
Accounts Receivable	1,000	Equity	600
Supplies	500	Sample Business Plan, Capital	51,200
Land	10,000	Other	–
Building	25,000	Total Liabilities	–
Total Assets	51,800	Owner's Equity	51,800

4. ***Fund-flow Statement:*** Fund Flow Statements can be understood as the summary of a firm's changes in financial position from one period to another; it is also called a "sources and uses of funds statement" or a "statement of changes in financial position". Simply put, it tells

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investors where funds have come from and where funds have gone. The statements are often used to determine whether companies efficiently source and utilize funds available to them.

Did u know? ***How to Prepare a Fund Flow Statement***

Fund flow statements are prepared by taking the balance sheets for two dates representing the coverage period. The increases and decreases must then be calculated for each item. Finally, the changes are classified under four categories: (1) Long-term sources, (2) long-term uses, (3) short-term sources, (4) short-term uses.

It is also important to zero out the non-fund based adjustments in order to capture only the changes that are accompanies by flow of funds. However, income accrued but received and expenses incurred but not received reckoned in the profit and loss statement should not be excluded from the profit figure for the fund flow statement.

Fund flow statements can be used to identify a variety of problems in the way a company operates. For example, companies that are using short-term money to finance long-term investments may run into liquidity problems in the future. Meanwhile, a company that is using long-term money to finance short-term investments may not be efficiently utilizing its capital.

Example: Determination of Sources and Uses

Assets	2007	2006	+/–	S/U
Cash and C.E.	$90	$100	–	S
Acct. Rec.	394	410	–	S
Inventories	696	616	+	U
Prepaid Exp	5	5		–
Accum Tax Prepay	10	9	+	U
Current Assets	$1,195	$1,140		N/A
Fixed Assets (@Cost)	1030	930		N/A
Less: Acc. Depr.	(329)	(299)		N/A
Net Fix. Assets	$701	$631	+	U
Investment, LT	50	50		–
Other Assets, LT	223	223		–
Total Assets	$2,169	$2,044		

Assets	2007	2006	+/–	S/U
Cash and C.E.	$90	$100	10	S
Acct. Rec.	394	410	16	S
Inventories	696	616	80	U
Prepaid Exp	5	5		–
Accum Tax Prepay	10	9	1	U
Current Assets	$1,195	$1,140		N/A
Fixed Assets (@Cost)	1030	930		N/A
Less: Acc. Depr.	(329)	(299)		N/A
Net Fix. Assets	$701	$631	70	U
Investment, LT	50	50		–

Contd…

Notes

Other Assets, LT	223	223		–
Total Assets	$2,169	$2,044		

Liabilities and Equity	2007	2006	+/–	S/U
Notes Payable	$290	$295	–	U
Acct. Payable	94	94		–
Accrued Taxes	16	16		–
Other Accrued Liab.	100	100		–
Current Liab.	$500	$505		N/A
Long-Term Debt	530	453	+	S
Shareholders' Equity				
Com. Stock ($1 par)	200	200		–
Add Pd in Capital	729	729		–
Retained Earnings	210	157	+	S
Total Equity	$1,139	$1086		N/A
Total Liab/Equity	$2,169	$2,044		

Liabilities and Equity	2007	2006	+/–	S/U
Notes Payable	$290	$295	$5	U
Acct. Payable	94	94		–
Accrued Taxes	16	16		–
Other Accrued Liab.	100	100		–
Current Liab.	$500	$505		N/A
Long-Term Debt	530	453	77	S
Shareholders' Equity				
Com. Stock ($1 par)	200	200		–
Add Pd in Capital	729	729		–
Retained Earnings	210	157	53	S
Total Equity	$1,139	$1086		N/A
Total Liab/Equity	$2,169	$2,044		

Fund Flow Statement

Particular	Amount	Amount
Sources		
Increase, Retained Earnings	$ 53	
Decrease, Accounts Receivable	16	
Increase, Long-Term Debt	77	
Decrease, Cash + Cash Equivalents	10	$156
USES		
Increase, Inventories	$80	
Increase, Accum Tax Prepay	1	
Decrease, Notes Payable	5	
Increase, Net Fixed Assets	70	
		$156

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5. ***Statement of Cash Flows:*** Statement of cash flows reports on a company's cash flow over a period of time. The cash flow may be from many activities of a firm involving particularly its operations, investment and finance.

Example: Sample Cash Flow Statement

Sample Business Plan
Sample Cash Flow Statement
Statement for the Month Ended_____.

Cash Flow From Operating Activities		
Net Income		1,800
Non-cash Expenses and Revenues		
Include income		
Increase in Accounts Receivable	1,000	
Increase in Supplies	500	
Increase in Accounts Payable	600	(900)
Net Cash Flow from Operating Activities		900
Cash Flows From Investing Activities		
Purchase of land	(10,000)	
Purchase of Building	(25,000)	
Net Cash Flow used by Investing Activities		
Cash Flow Financing Activities		
Invested	50,000	
Withdrawals	(600)	
Net Cash Flow Provided by Financing Activities		49,400
Net Increase (Decrease) in Cash		15,000

For large corporations, these statements are often complex and may include an extensive set of notes to the financial statements and management discussion and analysis. The notes typically describe each item on the balance sheet, income statement and cash flow statement in further detail. Notes to financial statements are considered an integral part of the financial statements.

Self Assessment

Fill in the blanks:

1. Income statement is also called profit and loss statement (P&L) and ……
2. The purpose of the …… is to show managers and investors whether the company made or lost money during the period being reported.
3. A retained earnings statement explains the …… in a company's retained earnings over the reporting period.
4. The …… provides an insight into the financial status of a company at a particular time.
5. The cash flow may be from many activities of a firm involving particularly its operations, …… and finance.

2.2 Form and Contents of Financial Statements

The following are some important forms and their contents of financial statements:

Notes

2.2.1 Trading and Profit & Loss Account

In the Trading and Profit & Loss Account all those accounts are disclosed which affect the profit or loss of the business. In other words, all the nominal accounts of the Trial Balance are used to prepare the Trading and Profit & Loss Account. In the left hand side, all the expenses incurred during a period and in the right hand side all the incomes earned during a period are disclosed.

Did u know? ***What are the capital and revenue expenditure?***

The expenditure incurred for acquiring a fixed asset or which results in increasing the earning capacity of the business is known as Capital Expenditure. For example, acquisition of a fixed asset.

An expenditure incurred in the course of regular business transactions of a concern is availed during the same accounting year is known as Revenue Expenditure. For example, expenditure incurred on the purchase of raw materials.

This account contains two parts:

1. Trading Account
2. Profit & Loss Account

Trading Account

This is first financial statement prepared by the owner of the enterprise to determine the gross profit during the year, through the matching concept of accounting. The gross profit of the enterprise is calculated through the comparison of purchase expenses, manufacturing expenses, and other direct expenses with the sales.

It is prepared normally for one year in accordance with accounting period concept, i.e. operating cycle of the enterprise, which should not exceed 15 months with reference to the Companies Act 1956. The proforma of Trading Account is given below:

Proforma of Trading Account
In the Books of …….
Trading Account
(for the year ending …….)

To Opening Stock		XXXX	By Cash Sales	XXXX	
To Cash Purchases	XXXX		Add Credit Sales	XXXX	
Add Credit Purchases	XXXX		By Total Sales	XXXX	
To Total Purchases	XXX		Less Sales Return	XXX	
Less Purchase Return	XXX		By Net Sales		XXXX
To Net Purchases		XXXX	By Closing Stock		XXXX
To Wages		XXXX	By Gross Loss C/d**		XXXX
To Carriage Inward		XXXX			
To Factory lighting		XXXX			
To Fuel, coal, oil		XXXX			
To duty on Import of Materials		XXXX			
To Octroi duty		XXXX			
To Gross Profit* C/d		XXXX			

Notes

Notes

1. There is no particular proforma of the Trading Account. The above proforma given is traditional one. That is not as per law. Here the students are advised to follow this proforma.
2. If the total of credit side is more than the total of debit side, difference is called gross profit or vice versa gross loss.

Task Calculate the Gross Profit from the following:

	₹
Opening stock	11,500
Purchases	1,05,000
Wages	3,500
Sales	1,40,000

Hint: ₹ 20,000

Profit & Loss Account

It is a second statement of accounting in connection with the earlier to determine the net profit/loss of the enterprise out of the early found gross profit/loss. This is an accounting statement which matches the administrative, selling and distribution expenses with the gross profit and other incomes of the enterprise.

This is an account prepared for one operating cycle of the firm, i.e. 12 months in period. The transactions are recorded in accordance with golden rules of nominal account. In the profit & loss account, the expenses and losses are debited and incomes and gains are credited. The reason for bringing down the gross loss/gross profit of the trading account into the debit and credit side of Profit & Loss A/c respectively, are only to the tune of nominal accounting ruling with reference to debit all expenses and losses, and credit all incomes and gains.

The expenses that are matched with the credit total of the profit and loss account classified into various categories:

1. Administrative Expenses
2. Selling & Distribution Expenses
3. Financial Expenses
4. Legal Expense.

Did u know? ***What are the capital and revenue receipts?***

The receipts which do not arise out of normal course of business are known as Capital Receipts. For example, receipts from sale of fixed assets.

The receipts which arise out of normal course of a business are known as Revenue Receipts. For example, income from sale of goods.

Notes

The proforma of Profit & Loss Account is given below:

Proforma of Profit & Loss Account
Profit and loss a/c for the year ending…….

To Gross Loss B/d Balancing figure	**XXXX**	**By Gross Profit B/d Balancing Figure**	**XXXX**
Office and Administrative Expenses			
To Salaries			
To Rent, Rates and Taxes		By Rent received	
To Office Lighting			
To Printing and Stationery			
To Insurance premium			
To postage			
To General expenses			
To Miscellaneous expenses			
Selling and Distribution Expenses			
To Salary to sales staff			
To Commission charges		By Commission received	
To Advertising expenses			
To Carriage outward			
To Bad debts			
To Packing expenses			
Financial Expenses			
To Interest on capital		By Interest on drawings	
To Interest on loans		By Interest on investments	
To Trade discount allowed		By Trade discount received	
To Cash discount allowed		By Cash discount received	
Maintenance Expenses			
To Depreciation on Fixed assets			
To Repairs and maintenance of			
Productive Assets			
To loss on sale of assets		To Profit on sale of assets	
Other Expenses To Provision for debts			
To Net profit c/d*		By Net loss c/d**	

The balancing process of the profit and loss account leads to two different categories:

- Net profit is the resultant of excess of income in the credit side over the expenses in the debit side of the Profit and Loss account.
- Net Loss is an outcome of excess of expenses in the debit side over the incomes in the credit side.

Notes

Example: From the following information, prepare the Profit & Loss account.

	Debit ₹	Credit ₹
Gross profit from the trading account	1,00,000	
Manager Salary	30,000	
Office lighting	5,000	
Office Rent	15,000	
Local Taxes	1,000	
Salary paid to salesmen	20,000	
Commission charges paid	10,000	
Legal charges paid	3,000	
Bad debts	1,500	
Advertising charges	25,000	
Package charges	7,500	
Discount allowed	3,000	
Discount received		4,000
Dividend received		2,000
Rent received		1,000
Depreciation charges	10,000	
Repairs and Maintenance	2,500	
Interest on loans	1,500	500

Solution:

Dr **Profit and Loss Account for the year ended ……** Cr

	₹		₹
To Manager Salary	30,000	By Gross profit B/d	1,00,000
To Office lighting	5,000	By Discount received	4,000
To Office Rent	15,000	By Dividend received	2,000
To Salary paid salesman	20,000	By Rent received	1,000
To Commission charges	10,000	By Interest received	500
To Legal charges	3,000	By Net Loss c/d*	24,500
To Bad debts	1,500		
To Advertising charges	25,000		
To Package charges	7,500		
To Depreciation charges	10,000		
To Repairs and maintenance	2,500		
To Interest on loan	1,500		
To Local taxes	1000		
	1,32,000		**1,32,000**

* Net loss is the excess of the expenses total in the debit side ₹24,500 over the incomes total in the credit side of the profit and loss account.

Notes

2.2.2 Balance Sheet

After the determination of the net profit of the business through the Trading and Profit and Loss Account, the businessman wants to know the financial position of the business. For this purpose he prepares a statement which is called the Balance Sheet. The Balance Sheet depicts the financial position of the business on a fixed date. A Balance Sheet is prepared with those balances of Trial Balance which are left out (personal and real accounts) after taking out the nominal accounts' balances to prepare the Trading and Profit and Loss Account. A Balance Sheet has two sides – assets side and liabilities side. The assets and liabilities are shown in a particular order.

Marshalling of Assets and Liabilities

Order of presenting the assets and liabilities in the balance sheet is called marshalling of assets and liabilities. A balance sheet may be prepared by marshalling the assets and liabilities in the following orders:

Balance Sheet prepared in Liquidity Order

Here liquidity means conversion of assets into cash. When a Balance Sheet is prepared on the basis of liquidity order, more easily convertible assets into cash are shown first and those assets which can not be easily converted into cash are shown later and so on. In the case of liabilities, first those liabilities are shown which are payable earlier and then those liabilities are shown which are payable later. The proforma of such a Balance Sheet is given below:

Proforma of Balance Sheet in Order of Liquidity
(as on ……..)

Liabilities		₹	Assets	₹
Current Liabilities			Current Assets	------
Sundry Creditors		------	Cash in Hand	
Bank Overdraft		------	Cash at Bank	------
Short-term Loan		-----	Short-term Investment	------
Outstanding Expenses		-----	Prepaid Expenses	------
Unaccrued Income		-----	Bills Receivable	------
Bills Payable		-----	Accrued Incomes	------
Long-term Liabilities			Debtors	------
Capital	-------		Closing Stock	------
(+) Net Profit	-------		Fixed Assets	
	-------		Land & Building	-----
(–) Drawings	-------	-----	Plant & Machinery	-----
Long-term Loans		-----	Furniture	-----
Contingent Liabilities			Investments (Long-term)	-----
	--------		Goodwill	------
	--------		Patents & Trademarks	------
			Livestock	------
		-------		-------

Notes

Balance Sheet prepared in Permanency Order

Balance Sheet prepared under this order is the reverse of the Balance Sheet prepared in liquidity order. In this case first those assets are shown which are more permanent means fixed assets and then less permanent assets (Current Assets) are shown. Similarly, first long-term liabilities (more permanent) are shown then less permanent (short-term on current) liabilities are shown. The proforma of such type of Balance Sheet is given below:

Proforma of Balance Sheet in Permanency Order
(as on ……..)

Liabilities		₹	Assets	₹
Long-term Liabilities			**Fixed Assets**	
Capital	------		Land & Building	-----
(+) Net Profit	------		Plant & Machinery	-----
	------		Furniture	-----
(–) Drawings	------	------	Long-term Investment	-----
Long-term Loans		------	Goodwill	-----
Current Liabilities			Patents & Trademarks	-----
Sundry Creditors		------	Livestock etc.	-----
Bank Overdraft		------	**Current Assets**	
Bill Payable		------	Cash in Hand	-----
Short-term Loan		------	Cash in Bank	-----
Outstanding Expenses		------	Short-term Investments	-----
Un-accrued Incomes		------	Bill Receivable	-----
			Prepaid Expenses	-----
			Accrued Incomes	-----
			Debtors	-----
			Closing Stock	-----
		------		-----

Example: From the following Trial Balance of Mr. Aditya, prepare a Trading Manufacturing and Profit and Loss Account and Balance Sheet as on 31st December, 2007.

Trial Balance
(as on 31st December, 2007)

Particulars	₹	₹
Stock on 1.1.2007:		
Raw Materials	8,000	---
Work-in-Progress	20,000	---
Finished Goods	40,000	---
Manufacturing Wages	40,000	---
Purchases of Raw Materials	1,20,000	---
Factory Rent	20,000	---
Carriage of Raw Materials	12,000	---
Salary of the Works Manager	8,000	---
Office Rent	8,000	---

Contd…

Notes

Printing and Stationary	4,000	---
Bad Debts	4,000	---
Sales	---	2,40,000
Land and Buildings	1,20,000	---
Plant and Machinery	80,000	---
Depreciation on Plant	8,000	---
Sundry Debtors	20,000	---
Sundry Creditors	---	1,20,000
Cash in Hand	20,000	---
Capital	---	1,72,000
	5,32,000	**5,32,000**

Closing stock on 31st December, 2007 were as follows:

	₹
Raw Materials	20,000
Work-in-Progress	16,000
Finished Goods	40,000

Solution:

In the Books of Mr. Aditya Manufacturing Account
(for the year ended 31st December, 2007)

Particulars		₹	Particulars		₹
To Opening Stock:			By Closing Stock:		
To Raw Materials	8,000		By Raw Material	20,000	
To Work-in-Progress	20,000	28,000	By Work-in-Progress	16,000	36,000
To Purchase of Materials		1,20,000	By Cost of Production		
To Carriage on Raw Materials		12,000	(Transfer to Trading A/c.)		2,00,000
To Depreciation on Plant		8,000			
To Manufacturing Wages		40,000			
To Factory Rent		20,000			
To Salary of Works Manager		8,000			
		2,36,000			**2,36,000**

Trading and Profit & Loss Account
(for the year ending 31st December, 2007)

Particulars	₹		₹
To Opening Stock:		By Sales	2,40,000
Finished Goods	40,000	By Closing Stock	
To Cost of Production	2,00,000	Finished Goods	40,000
(Transfer from Manufacturing A/c)			
To Gross Profit			
(carried to P& L A/c)	40,000		
	2,80,000		**2,80,000**

Notes

To Office Rent	8,000	By Gross Profit (brought from	40,000
To Printing & Stationary	4,000	Trading A/c)	
To Bad Debts	4,000		
To Net Profit (carried to Capital A/c)	24,000		
	40,000		**40,000**

Balance Sheet
(as on 31st December, 2007)

Liabilities		₹	Assets	₹
Capital	1,72,000		Land and Buildings	1,20,000
(+) Net Profit	24,000	1,96,000	Plant and Machinery	80,000
Sundry Creditors		1,20,000	Sundry Debtors	20,000
			Stock on 31st Dec., 2007:	
			Raw Materials	20,000
			Work-in-Progress	16,000
			Finished Goods	40,000
			Cash in Hand	20,000
		3,16,000		**3,16,000**

Self Assessment

Fill in the blanks:

6. …… is the comparison of sales and purchase.
7. The excess of credit side over debit side is called ……
8. The Balance Sheet depicts the …… of the business on a fixed date.
9. Order of presenting the assets and liabilities in the balance sheet is called …… of assets and liabilities.
10. If in the business some goods are being manufactured along with the trading activities, a …… is also prepared.

2.3 Uses of Financial Statements

The uses of financial statements vary from entity to entity. For different people, they have different uses. Though no complete list can be provided for their uses, presented under is a brief list of benefits they give to their users:

1. ***For Equity Investors and Lenders:*** The existing equity investors and lenders to a company need to monitor their investments and to evaluate the performance of management. For this purpose, they have no aid else than the financial statements of a firm.

   The prospective equity investors and lenders use financial statements to decide whether or not to invest in an organisation.

2. ***For Finance Specialists:*** Investment analysts, money managers, and stockbrokers, use financial statements to make buy/sell/hold recommendations to their clients.

3. ***For Credit Rating Agencies:*** Rating Agencies such as Moody's and Standard & Poor's assign credit ratings on the basis of the financial statements of a company.

Notes

4. ***For Customers and Suppliers:*** Major customers of and suppliers to an organization evaluate the financial strength and staying power of the company as a dependable resource for their business. For this purpose, the best possible aids are those of the financial statements of the organization.

5. ***For Labor Unions:*** Labor unions use financial statements of a company to gauge how much of a pay increase a company is able to afford in upcoming labor negotiations.

6. ***For the Board of Directors:*** Board of directors of an organization uses its financial statements to review the performance of management in general and company in particular.

7. ***For Managers:*** Managers, too, are interested in measuring the operating performance in terms of profitability and return on invested capital. If they are not owners, managers must still satisfy the owners' expectations in this regard. As managers, they are interested in measures of operating efficiency, asset turnover, and liquidity or solvency. These will help them manage day-to-day activities and evaluate potential credit customers and key suppliers.

8. ***For Competitors:*** Existing Competitors of an organization use its financial statements to benchmark their own financial results.

   Potential competitors of an organization use its financial statements to assess how profitable it may be to enter the industry.

9. ***For Government Agencies:*** The financial statements of a company are very useful for the government agencies responsible for taxing, regulating, or investigating the company.

10. ***For Associated Personnel:*** The financial statements of a company are also useful for politicians, lobbyists, issue groups, consumer advocates, environmentalists, think tanks, foundations, media reporters, and others who are supporting or opposing any particular public issue the company's actions affect.

11. ***For Partners:*** The financial statements of a company are used by actual or potential joint venture partners, franchisors or franchisees, and other business interests who need to know about the company and its financial situation.

Self Assessment

State whether the following statements are true or false:

11. The prospective equity investors and lenders use financial statements to decide whether or not to invest in an organisation.

12. Existing Customers of an organization use its financial statements to benchmark their own financial results.

13. Board of directors of an organization uses its financial statements to review the performance of management in general and company in particular.

2.4 Limitations of Financial Statements

Some of the limitations of the financial statements are as follows:

1. As the historical costs and money measurement concepts govern the preparation of the balance sheet and income statements, hence these financial statements are essentially statements reflecting historical facts. It ignore inflationary trend and does not reflect the true current worth of the enterprise,

2. Certain important qualitative elements are omitted from the financial statements because they are incapable of being measured in monetary terms like the quality and reputation of the management team, employee and other,

Notes

3. There are items in the assets side of the balance sheet which has no real value and are merely deferred charges to future incomes like preliminary/pre-incorporation expenses and other,

4. There are still the following issues or challenges in preparing the financial statements which may amount to overstatement of the accounting profit of an entity:

   (a) When to and how much to recognize revenue in the Income statement.

   (b) The constant challenge of when to expense or to capitalize the expenses. It is important to determine definitely what is revenue expenditure and capital expenditure otherwise the accounting profit will be overstated or understated. For example, Capitalization of borrowing costs, etc.

   (c) Method of depreciations and the rates to depreciate into the income statement are selected by management to suit their business needs. Are the rates intentionally been made lower or the depreciation rates are higher to accelerate the depreciation of the fixed assets,

   (d) Adequacy of provisions and method of providing for doubtful debts. Are the trade debtors recoverable and to what extent the accounting method for provision for doubtful debts shows the realistic picture.

   (e) Basis of valuation of assets-when can costs change to reflect current values? Using replacement or current costs?

   (f) Consolidation challenges-what to eliminates to reflects the overall group performance. Some items might be omitted to show a higher accounting profits.

Self Assessment

Fill in the blanks:

14. Financial statements ignore …… trend and does not reflect the true current worth of the enterprise.

15. There are items in the assets side of the balance sheet which has no real value and are merely deferred charges to future incomes like …… expenses and other.

2.5 Summary

- Financial statements are the most prominent and useful source of information to the investors.
- The objective of general purpose financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions.
- Financial statements also show the results of management's stewardship of the resources entrusted to it.
- To meet this objective, financial statements provide information about an entity's: (a) assets; (b) liabilities; (c) equity; (d) income and expenses, including gains and losses; (e) other changes in equity; and (f) cash flows.
- The companies have four types of financial statements, viz. Balance sheet, Income statement, Statement of retained earnings and Statement of cash flows.
- Financial statements are the most prominent and useful source of information to the investors.

Notes

- Financial statements also provide useful information to the shareholders of a company concerning the company's financial position on a particular day, its performance and growth, its progress or regress, its future, etc.
- Financial statements record only those facts, which are possible to be expressed in financial terms.
- Non-monetary events, howsoever important they may be, are not recorded. Therefore, financial statements do not provide all the information about the firm.

2.6 Keywords

Balance Sheet: The balance sheet provides an insight into the financial status of a company at a particular time.

Marshalling of Assets and Liabilities: Order of presenting the assets and liabilities in the balance sheet is called marshalling of assets and liabilities.

Retained Earnings Statement: A retained earnings statement explains the changes in a company's retained earnings over the reporting period.

Trading Account: This account is prepared to determine the amount of gross profit or gross loss on sales.

2.7 Review Questions

1. Analyse why U.S. airline companies use a "by nature" income statement format.
2. What do you mean by Trading Account? Give the proforma of Trading Account and explain why it is prepared.
3. Calculate the cost of goods sold from the information given below:

	Amount (₹)
Opening stock	20,000
Closing stock	18,000
Purchases	85,000
Carriage on purchases	2,300
Carriage on sales	3,000
Office Rent	5,800
Sales	1,40,000
Wages paid to keep the goods in the godown	3,000
Purchases Returns	5,000

4. How would a change in depreciation expense flow through the financial statements?
5. What could a company do with excess cash on the balance sheet?
6. If you want to assess the health of a company and you could choose between looking at 3 years of income statements or 3 years of balance sheets, which would you choose and why?
7. Which of the three financial reporting statements (balance sheet, income statement, statement of cash flows) is most important and why do you believe this is so?
8. Analyse the interrelationships between the four financial statements.
9. What financial statements are non-profits required to issue?

Notes

10. What do you think as the board's responsibility in investment?
11. Where do you record common stock on the financial statements? Give reason behind it.
12. What would a company need to do to record a loss on an available-for-sale investment? Give reasons to support your answer.

Answers: Self Assessment

1.	statement of operations	2.	income statement
3.	changes	4.	balance sheet
5.	Investment	6.	Trading account
7.	net profit	8.	financial position
9.	marshalling	10.	manufacturing account
11.	true	12.	false
13.	true	14.	inflationary
15.	preliminary/pre-incorporation		

2.8 Further Readings

Books

Benjamin Graham, Spencer B. Meredith, *The Interpretation of Financial Statements,* Harper Business.

Martin Fridson, Fernando Alvarez, *Financial Statement Analysis: A Practitioner's Guide,* Wiley.

Online links

cbdd.wsu.edu

www.textbooksonline.tn.nic.in

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Unit 3: Analysis of Financial Statements

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3.4.2 Comparative (Income) Financial Statement Analysis

3.5 Trend Analysis

3.6 Summary

3.7 Keywords

3.8 Review Questions

3.9 Further Readings

Objectives

After studying this unit, you will be able to:

- Identify the tools of financial statement analysis
- Prepare common size statements
- Construct comparative financial statements
- Illustrate trend analysis

Introduction

Financial statement analysis is the process of examining relationships among financial statement elements and making comparisons with relevant information. It is a valuable tool used by investors and creditors, financial analysts, and others in their decision-making processes related to stocks, bonds, and other financial instruments. The goal in analyzing financial statements is to assess past performance and current financial position and to make predictions about the future performance of a company. Investors who buy stock are primarily interested in a company's profitability and their prospects for earning a return on their investment by receiving dividends and/or increasing the market value of their stock holdings. Creditors and investors who buy debt securities, such as bonds, are more interested in liquidity and solvency: the company's short- and long-run ability to pay its debts. Financial analysts, who frequently specialize in following certain industries, routinely assess the profitability, liquidity, and solvency of companies in order to make recommendations about the purchase or sale of securities, such as stocks and bonds.

Notes

3.1 Meaning and Concept of Financial Statement Analysis

Analysts can obtain useful information by comparing a company's most recent financial statements with its results in previous years and with the results of other companies in the same industry. Three primary types of financial statement analysis are commonly known as horizontal analysis, vertical analysis, and ratio analysis.

Horizontal Analysis

When an analyst compares financial information for two or more years for a single company, the process is referred to as horizontal analysis, since the analyst is reading across the page to compare any single line item, such as sales revenues.

Vertical Analysis

When using vertical analysis, the analyst calculates each item on a single financial statement as a percentage of a total. The term vertical analysis applies because each year's figures are listed vertically on a financial statement. The total used by the analyst on the income statement is net sales revenue, while on the balance sheet it is total assets.

Ratio Analysis

Ratio analysis enables the analyst to compare items on a single financial statement or to examine the relationships between items on two financial statements. After calculating ratios for each year's financial data, the analyst can then examine trends for the company across years. Since ratios adjust for size, using this analytical tool facilitates inter-company as well as intra-company comparisons.

Notes The entire financial statement analysis can be classified into various categories:

- Comparative financial statements
- Common size financial statements
- Trend percentages
- Fund flow statements
- Cash flow statements and
- Ratio analysis

Self Assessment

Fill in the blanks:

1. When an analyst compares financial information for two or more years for a single company, the process is referred to as …… analysis.
2. …… enables the analyst to compare items on a single financial statement or to examine the relationships between items on two financial statements.
3. When using ……, the analyst calculates each item on a single financial statement as a percentage of a total.

Notes

3.2 Tools for Analysis and Interpretation of Financial Statement

In assessing the significance of various financial data, experts engage in ratio analyses, the process of determining and evaluating financial ratios. A financial ratio is a relationship that indicates something about a company's activities, such as the ratio between the company's current assets, current liabilities or between its accounts receivable and its annual sales. The basic sources for these ratios are the company's financial statements that contain figures on assets, liabilities, profits, or losses. Financial ratios are only meaningful when compared with other information. Since they are most often compared with industry data, ratios help an individual understand a company's performance relative to that of competitors; they are often used to trace performance over time.

Ratio analysis can reveal much about a company and its operations. However, there are several points to keep in mind about ratios. First, financial statement ratios are "flags" indicating areas of strength or weakness. One or even several ratios might be misleading, but when combined with other knowledge of a company's management and economic circumstances, ratio analysis can tell much about a corporation. Second, there is no single correct value for a ratio. The observation that the value of a particular ratio is too high, too low, or just right depends on the perspective of the analyst and on the company's competitive strategy. Third, a ratio is meaningful only when it is compared with some standard, such as an industry trend, ratio trend, a ratio trend for the specific company being analyzed, or a stated management objective.

In trend analysis, financial ratios are compared over time, typically years. Year-to-year comparisons can highlight trends, pointing to the need for action. Trend analysis works best with five years of data.

The second type of ratio analysis, cross-sectional analysis, compares the ratios of two or more companies in similar lines of business. One of the most popular forms of cross-sectional analysis compares a company's financial ratios to industry ratio averages.

Your report containing the analysis of the financial statements is broken down into the various ratio categories:

1. Predictor Ratios indicate the potential for growth or failure.
2. Profitability Ratios which use margin analysis and show the return on sales and capital employed.
3. Asset Management Ratios which use turnover measures to show how efficient a company is in its operations and use of assets.
4. Liquidity Ratios which give a picture of a company's short-term financial situation or solvency.
5. Debt Management Ratios which show the extent that debt is used in a company's capital structure.

Notes

1. Tools employed in the horizontal analysis are Comparative statements and Trend percentages.
2. Tools employed in the vertical analysis are Common-size financial statements and financial ratios.

Notes

Self Assessment

Fill in the blanks:

4. In trend analysis, …… are compared over time, typically years.
5. Financial …… are only meaningful when compared with other information.
6. Tools employed in the …… analysis are Common-size financial statements and financial ratios.

3.3 Common-size Statements

A company financial statement that displays all items as percentages of a common base figure is known as common size financial statement. This type of financial statement allows for easy analysis between companies or between time periods of a company.

The values on the common size statement are expressed as percentages of a statement component such as revenue. While most firms don't report their statements in common size, it is beneficial to compute if you want to analyze two or more companies of differing size against each other.

Formatting financial statements in this way reduces the bias that can occur when analyzing companies of differing sizes. It also allows for the analysis of a company over various time periods, revealing,

Example: What percentage of sales is cost of goods sold and how that value has changed over time.

Common size financial statements put all numbers in context, since the act of producing them involves calculating a ratio for each number on the statements. Without common sizing the statements, it is difficult to attach meaning to the numbers or to pick up trends. That is why common size financial statements are used for financial analysis instead of the actual statements themselves.

Caution For Balance sheet, total volume of assets and liabilities are taken into consideration for the computation of a share of each financial factor available under the heading of assets and liabilities.

Example: Prepare the common size statement analysis for the firm ABC Ltd.

Liabilities	2008 (₹)	2009 (₹)	Assets	2008 (₹)	2009 (₹)
Share capital	2,00,000	3,00,000	Fixed assets	2,25,000	4,00,000
Reserves and surpluses	1,00,000	2,00,000	Stock	1,29,000	2,00,000
Bank overdraft	60,000	2,00,000	Quick assets	46,000	2,00,000
Quick liabilities	40,000	1,00,000			
	4,00,000	**8,00,000**		**4,00,000**	**8,00,000**

Solution: Common size statement analysis of the Balance sheet of the firm ABC Ltd.

Particulars	Amount		% of Balance sheet total	
Assets				
	2008 (₹)	2009 (₹)	2008 (₹)	2009 (₹)
Fixed assets	2,25,000	4,00,000	56.25	50

Contd…

Notes

Stock	1,29,000	2,00,000	32.25	25
Quick assets	46,000	2,00,000	11.5	25
	4,00,000	8,00,000	100	100
Liabilities				
Share capital	2,00,000	3,00,000	50	37.5
Reserves and surpluses	1,00,000	2,00,000	25	25
Bank overdraft	60,000	2,00,000	15	25
Quick liabilities	40,000	1,00,000	10	12.5
	4,00,000	8,00,000	100	100

The above illustration highlights the share of every component in the balance sheet out of the total volume of assets and liabilities.

This will certainly facilitate the firm to easily understand not only the share of every component but also facilitates to have a meaningful and relevant comparison with various time horizons.

Self Assessment

State whether the following statements are true or false:

7. Common-size financial statements are a widely used vertical analysis technique.
8. A common-size income statement usually shows each revenue or expense item as a percentage of net sales.

3.4 Comparative Statements

Comparative statements are the financial statements which follow a consistent format but which cover different periods of time. Comparative statements are very useful for spotting trends.

Objectives of Comparative Financial Statements

1. Changes taken place in the financial performance are taken into consideration for further analysis.
2. To reveal qualitative information about the firm in terms of solvency, liquidity profitability and so on are extracted from the analysis of financial statements.
3. With reference to yester financial data of the enterprise, the firm is facilitated to undergo for the preparation of forecasting and planning.

The major part of financial statement analysis is mainly focused on the comparative analysis.

3.4.1 Comparative Balance Sheet

The first and foremost important step is to have the following information and should take preparatory steps:

1. While preparing the comparative statement of balance sheet, the particulars for the financial factors are required.
2. The second most important for the preparation of the comparative balance sheet is yester financial data extracted from the balance sheet or balance sheets.
3. The next most important requirement to have an effective comparison with the yester financial data is current year information extracted from the balance sheet or balance sheet of the firms.

Notes

4. After having been procured the financial data pertaining to various time periods are ready for comparison; to determine or identify the level of increase or decrease taken place in the financial position of the firms

5. To determine the level of increase or decrease in financial position, the percentage analysis to carried out in between them.

Example: From the following information, prepare comparative Balance Sheet of X Ltd.

Particulars	31st Mar, 2004	31st Mar, 2005
Equit share capital	50,00,000	50,00,000
Fixed assets	60,00,000	72,00,000
Reserves and surpluses	10,00,000	12,00,000
Investments	10,00,000	10,00,000
Long-term loans	30,00,000	30,00,000
Current assets	30,00,000	21,00,000
Current liabilities	10,00,000	11,00,000

Solution: As the first step, we have to segregate the available information into two different categories, viz. Assets and Liabilities.

Particulars	2004 (₹)	2005 (₹)	Absolute Change (₹)	% Increase	% Decrease
Fixed Assets	60,00,000	72,00,000	12,00,000	20	-
Investments	10,00,000	10,00,000	N.C	-	-
Current assets	30,00,000	21,00,000	(9,00,000)		30
Total Assets	1,00,00,000	1,03,00,000	3,00,000	3	-
Equity share capital	50,00,000	50,00,000	N.C	-	-
Reserves and surpluses	10,00,000	12,00,000	2,00,000	20	-
Long-term loans	30,00,000	30,00,000	N.C	-	-
Current liabilities	10,00,000	11,00,000	1,00,000	10	-
Total Liabilities	1,00,00,000	1,03,00,000	3,00,000	3	-

N.C = No change in the position during the two years

Formula to Calcalate (%) Increase/Decrease in Statement

$$= \frac{\text{Absolute change}}{\text{Value of Asset/Liability in Previous year}} \times 100$$

where: Absolute change = Value of Asset/Lability in current year – Value of Asset/Lability in previous year.

From the above table, the following are basic inferences:

1. The fixed assets volume got increased 20% from the year 2004 to 2005, amounted ₹ 12,00,000.

2. ₹ 9,00,000 worth of current assets decrease from the year 2004 to 2005 recorded 30%.

3. The total volume of assets recorded 3% increase from the year 2004 to 2005.

4. It obviously understood that 20% increase taken place on the reserves and surpluses.

5. It clearly evidenced that the current liabilities of the firm increased 10% from the year 2004 to 2005.

Notes

6. The firm has not recorded any changes in the investments, equity share capital and long-term loans.

3.4.2 Comparative (Income) Financial Statement Analysis

This analysis is being carried out in between the income statements of the various accounting durations of the firm, with other firms in the industry and with the industrial average.

This will facilitate the firm to know about the stature of itself regarding the financial performance. It facilitates to understand about the changes pertaining to various financial data which closely relevantly connected with the financial performance:

1. Change in the gross sales
2. Change in the net sales
3. Change in gross profit and net profit
4. Change in operating profit
5. Change in operating expenses
6. Change in the volume of non-operating income
7. Change in the non operating expenses.

The ultimate purpose of the comparative (income) financial statement analysis is as follows:

1. To study the income earning and expenditure spending pattern of the firm for two or more years.
2. To identify the changing pattern of the income and expenditure of the firms.
3. The preparatory steps for the preparation of the comparative financial statement (income) analysis

The first and foremost important step is to have the following information and should take preparatory steps

1. While preparing the comparative statement of Profit & Loss Account, the particulars for the financial factors are required.
2. The second most important for the preparation of the comparative Profit & Loss account is yester financial data extracted from the Profit and Loss A/c or Profit and Loss Accounts.
3. The next most important requirement to have an effective comparison with the yester financial data is current year information extracted from the balance sheet of the firm or of the other firms.
4. After having been procured the financial data pertaining to various time periods are ready for comparison; to determine or identify the level of increase or decrease taken place in the operating financial performance of the firms.
5. To determine the level of increase or decrease in financial performance, the percentage analysis to be carried out in between them.

Example: Prepare the comparative income statement from the following:

Particulars	2004 (₹)	2005 (₹)
Sales	2,00,000	2,50,000
(–) Cost of goods sold	1,00,000	1,30,000

Contd…

Notes

	1,00,000	1,20,000
(–) Operating expenses	10,000	10,000
Net profit	90,000	1,10,000

Solution:

Particulars	2004 (₹)	2005 (₹)	Absolute Change (₹)	% Increase	% Decrease
Sales	2,00,000	2,50,000	50,000	25	-
(–) Cost of goods sold	1,00,000	1,30,000	30,000	30	-
	1,00,000	1,20,000	20,000	20	-
(–) Operating expenses	10,000	10,000	N.C	-	-
Net profit	90,000	1,10,000	20,000	22.22	

From the above table, the following inferences can be had:

1. The firm has registered 25% increase in sales from the year 2004 to 2005.
2. Cost of goods sold raised 30% from the year 2004 to 2005.
3. There is no change in the level of operating expenses.
4. The firm has got 22.22% increase in the level of net profits from the year 2004 to 2005.

Self Assessment

Choose the appropriate answer

9. Financial statement analysis is to
   - (i) Inter firm comparison
   - (ii) Intra firm comparison
   - (iii) Industrial average comparison
   - (iv) (i), (ii) & (iii)
10. Comparative financial statement analysis is into
   - (i) Comparison of income and position statements
   - (ii) Common size statements
   - (iii) Trend percentage analysis
   - (iv) (i), (ii) & (iii)
11. Main objectives of the financial statements analysis is
   - (i) To study the changes in the financial performance
   - (ii) To study the liquidity, solvency of the firm
   - (iii) To undergo financial planning based upon the yester financial performance
   - (iv) (i), (ii) & (iii)

State whether the following statements are true or false:

12. Comparability between enterprises is more difficult to obtain than comparability within a single enterprise.

Notes

13. Computation of ratios for an accounting period is a form of horizontal analysis.

14. Generally, the last concern of a financial analyst is a firm's liquidity.

3.5 Trend Analysis

The next important tool of analysis is trend percentage which plays significant role in analyzing the financial stature of the enterprise through base years' performance ratio computation. This not only reveals the trend movement of the financial performance of the enterprise but also highlights the strengths and weaknesses of the enterprise.

The following ratio is being used to compute the trend percentage

$$= \frac{\text{Current year}}{\text{Base year}} \times 100$$

This trend ratio is being computed for every component for many numbers of years which not only facilitates comparison but also guides the firm to understand the trend path of the firm.

In the analysis of financial information, trend analysis is the presentation of amounts as a percentage of a base year.

Example: If I want to see the trend of a company's revenues, net income, and number of clients during the years 2001 through 2007, trend analysis will present 2001 as the base year and the 2001 amounts will be restated to be 100. The amounts for the years 2002 through 2007 will be presented as the percentages of the 2001 amounts.

In other words, each year's amounts will be divided by the 2001 amounts and the resulting percentage will be presented. If revenues for the years 2001 through 2007 might have been ₹ 31,691,000; ₹ 40,930,000; ₹ 50,704,00; ₹ 63,891,000; ₹ 79,341,000; ₹ 101,154,000; ₹ 120,200,000. These revenue amounts will be restated to be 100, 129, 160, 202, 250, 319, and 379.

From this trend analysis we can see that revenues in 2007 were 379% of the 2001 revenues, net income in 2007 was 467% of the 2001 net income, and the number of clients in 2007 was 317% of the number in 2001.

Let's assume that the net income amounts divided by the 2001 amount ended up as 100, 147, 206, 253, 343, 467, and 423. The number of clients when divided by the base year amount are 100, 122, 149, 184, 229, 277, and 317.

Example: In the following example, 2005 has been taken as a base year for the calculation of the sales trend. According to the trend shown below, determine whether the company has made an overall growth or not.

Trend Percentages

	2009	2008	2007	2006	2005
Historical Data					
Inventory	$ 12,309	$12,202	$12,102	$11,973	$11,743
Property & equipment	74,422	78,938	64,203	65,239	68,450
Current liabilities	27,945	30,347	27,670	28,259	26,737
Sales	129,000	97,000	95,000	87,000	81,000
Cost of goods sold	70,950	59,740	48,100	47,200	45,500
Operating expenses	42,600	38,055	32,990	29,690	27,050
Net income (loss)	8,130	(1,400)	7,869	5,093	3,812

Contd…

Notes

Trend Percentages					
Inventory	104.8	103.9	103.1	102.0	100.0
Property & equipment	108.7	115.3	93.8	95.3	100.0
Current liabilities	104.5	113.5	103.5	105.7	100.0
Sales	159.3	119.8	117.3	107.4	100.0
Cost of goods sold	155.9	131.3	105.7	103.7	100.0
Operating expenses	157.5	140.7	122.0	109.8	100.0
Net income (loss)	213.3	(36.7)	206.4	133.6	100.0

Solution: We have to remember that the base year trend percentage is always 100.0%. A trend percentage of less than 100.0% means the balance has decreased below the base year level in that particular year. A trend percentage greater than 100.0% means the balance in that year has increased over the base year. A negative trend percentage represents a negative number.

Also, if the base year is zero or negative, the trend percentage calculated will not be meaningful.

In this example, the sales have increased 59.3% over the five-year period while the cost of goods sold has increased only 55.9% and the operating expenses have increased only 57.5%. The trends look different if evaluated after four years. At the end of 2008, the sales had increased almost 20%, but the cost of goods sold had increased 31%, and the operating expenses had increased almost 41%. These 2008 trend percentages reflect an unfavorable impact on net income because costs increased at a faster rate than sales. On an overall basis, the trend percentages for net income appear to be higher because the base year amount is much smaller than the other balances.

Using the restated amounts from trend analysis makes it much easier to see how effective and efficient the company has been during the recent years. Trends may be categorized as:

1. Short-term trends capture rapidly emerging trends.
2. Mid-term trends capture trends developing in between.
3. Long-term trends capture trends developing over long periods.

Trend analysis is also advantageous for (short-term) sales forecasting, growth rates, growth percentages, trend significance, trending types, and so on. Use of trend analysis includes:

1. Sales trend analysis – revenue and volume analysis.
2. Product sales trend analysis.
3. Market trend analysis.
4. Equity (share) price trend analysis.
5. Accounting trend analysis.
6. Work force recruit forecasting.
7. Healthcare fraud detection and so on.

Timely identification of newly emerging trends is very important to businesses. Trend analysis can also include the monitoring of a company's financial ratios over a period of many years.

Self Assessment

Fill in the blanks:

15. In the analysis of financial information, trend analysis is the presentation of amounts as a …… of a base year.
16. Trend analysis can also include the monitoring of a company's …… over a period of many years.

Notes

Task In financial statement analysis, what is the basic objective of observing trends in data and ratios? Suggest some other standards of comparison.

Case Study

Evaluation of Ford on the basis of Accounting Trends

The success of Ford Motor Company, as well as other corporations, can be measured by analyzing the two most important goals of management, maintaining adequate liquidity and achieving satisfactory profitability. Liquidity can be defined as having enough money on hand to pay bills when they are due and to take care of unexpected needs for cash, while profitability refers to the ability of business to earn a satisfactory income. To enable investors and creditors to analyze these goals, Ford Motor Company distributes annual financial statements. With these financial statements, liquidity of Ford Motor Company is measured by analyzing factors such as working capitol, current ratio, quick ratio, receivable turnover, average days' sales uncollected, inventory turnover and average days' inventory on hand; whereas profitability analyzes the profit margin, asset turnover, return on assets, debt to equity, and return on equity factors.

Liquidity

Working Capital

Ford Motor Company's working capital fluctuated significantly in the years 1991-1995. This phenomenon is directly attributable to the fact that Financial Services current assets and current liabilities are not included in the total company current asset and current liability accounts. For example, the fluctuation from 1994 ($1.4 billion) to 1995 (-$1.5 billion) of $2.5 billion would suggest that Ford would be unable to pay liabilities during the current period. However, examination of the Financial Services side of the business reveals that surpluses of $13.6 billion existed in both 1994 and 1995, convincingly mitigating the figures indicating negative working capital.

Current Ratio & Quick Ratio

The current ratio in the years 1991-1995 has remained stable, fluctuating between 0.9 and 1.1. The quick ratio has also remained stable, fluctuating between 0.5 and 0.6. The larger fluctuation in the current ratio versus the quick ratio is caused by inventories being included in the asset side of the equation. Although inventories were significantly higher in both 1994 and 1995, current liabilities were also higher. In addition, marketable securities decreased substantially in 1994 and 1995. These factors resulted in the stability of both the current ratio and quick ratio.

Receivable Turnover & Average Days' Sales Uncollected

An examination of trends in Ford Motor Company's receivable turnover and average days' sales uncollected ratios reveal positive indicators of Ford's liquidity position. The receivable turnover, a function of net sales and average accounts receivable, has nearly doubled in the years 1993-1995 versus 1991-1992. This trend indicates an extensive increase of net sales in relation to accounts receivable. Receivables were relatively higher in 1994 than in any other of the five years, affecting the ratio for both 1994 and 1995. However, net sales increased 30% in 1994 and 34% in 1995 over the average net sales of 1991-1993. The average days' sales uncollected ratio has decreased significantly over the same period, from 16.9 days in

Contd…

Notes

1991 to 9.7 days in 1995. The substantial decrease in average days' sales uncollected ratio coupled with the near doubling of the receivable turnover ratio is a reflection of Ford's strong sales and effective credit policies in years 1993-1995.

Inventory Turnover & Average Days' Inventory on Hand

An examination of trends in the inventory turnover and average days' inventory on hand ratios also reveal positive indicators of Ford's liquidity position. Inventory turnover, a function of cost of goods sold and inventories, has remained stable between 14.0 and 16.0 times from 1992-1995. The average ratio over these four years (15.1 times) is 40% higher than that of 1991. The average days' inventory on hand, a derivative of the inventory turnover, has conversely decreased to stable level fluctuating between 23.5 and 26.0 days in the years 1992-1995. The operating cycle of Ford Motor Company has decreased significantly as the table below indicates.

	1991	1992	1993	1994	1995
Days:	50.8	29.0	33.8	31.1	34.3

Profitability

Profit Margin

Profit margin, which is net income divided by net sales, is a measure of how many dollars of net income is produced by each dollar of sales. Ford Motor Company had a substantial 4 year rise in profit margin. Using horizontal analysis, the profit margin increased 98% from 1991 to 1992, 566% from 1992 to 1993 and then 79% from 1993 to 1994. Although the profit margin from 1994 to 1995 decreased 26%, that is more than acceptable when you look at the substantial increases in the past few years. In the first year, Ford had a profit margin of -3.1%. That means for every dollar of sales, Ford lost $3.10. This is obviously not a good position to be in. During 1991 and then carried over into 1992, it cost Ford more money to make sales than it did when it recorded the income for those sales. They realized at this time it was important for them to keep things such as selling and administrative expenses lower, as well as the cost of sales, which included their production, manufacturing, and warehousing costs. By following a plan more complex than I can describe here, Ford steadily increased it's sales while it lowered it's expenses and it's cost of sales. This directly increased Ford's profit margin at a substantial rate within the next three years.

Asset Turnover

Asset turnover involves Ford's net sales divided by their average total assets. This ratio demonstrates the efficiency of assets used in producing sales. A company like Ford Motor Company has an enormous amount of assets. Computers to heavy equipment to buildings. All of those assets, plus many more, are all taken into consideration when figuring asset turnover. For example, Ford would like to know that if it decides to purchase 20 new computer-aided engineering stations for a cost of about $2,400,000, they would like to see a higher asset turnover to give them the proof that the investment is being used at maximum efficiency. Ford's asset turnover steadily increased in incremental amounts between the years of 1991-1995, but on average it was about .43 for the entire 5 year period. Using trend analysis to understand this ratio would give you a pretty good idea that the asset turnover of Ford Motor Company is stable. Trend analysis would give you an index number for 1992 of 100, while the index number for 1995 would be 112. These index numbers would result in a slightly positive but relatively straight line across the page. As a prospective investor this would probably cause you to investigate more deeply as to why Ford can't more efficiently use their assets to produce sales. As a current stockholder, this trend over the past five years may give you some comfort because of the incremental increases (at least it isn't going down).

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Notes

Return on Assets

Return on assets is a very good profitability ratio. It is comprehensive when compared to profit margin and asset turnover. Return on assets overcomes the deficiency of profit margin by relating the assets necessary to produce income and it overcomes the deficiency of asset turnover by taking into account the amount of income produced. Mathematically, return on assets is equal to net income divided by average total assets, or more simply put, profit margin times asset turnover. Ford can improve it's overall profitability by increasing it's profit margin, the asset turnover, or both. Looking at the numbers, it was actually Ford's increase in profit margin that really gave it the boost it needed to raise the return on assets from the black to the red. A steady increase in return on assets from -1.3% in 1991 to an acceptable 2.2% in 1994 is a good sign to investors. This steady climb of 169% resulted in an overall increase in the earning power of Ford Motor Company. Ford's increase in profitability shows satisfactory earning power which results in investors continuing to provide capital to it.

Debt to Equity

The debt to equity ratio shows the portion of the company financed by creditors in comparison to that financed by the stockholders. It is total liabilities divided by stockholder's equity. Ford's debt to equity ratio is relatively high. When measuring profitability, a high debt to equity ratio means the company has high debt and must earn more profit to protect the payment of interest to it's creditors. This high debt to equity ratio would also interest stockholders because it shows what part of the business is financed through borrowing or in other words, is debt financed. Of the five years we analyzed, the lowest debt to equity ratio was during 1991 (6.65) and the highest was in 1993 (11.71). In comparison to return on assets, a higher creditor financed year such as 1991 did not have an positive effect on profitability. It seemed that through increased borrowing in 1993, a higher debt to equity ratio was produced, but overall profitability also went up. Debt to equity is only one part in a full profitability analysis. The only real information that the debt to equity ratio can produce is it can show how much expansion is possible through the borrowing of long-term funds; basically it show's a company's long-term solvency. A higher debt to equity ratio essentially means that the company will be able to borrow less money. The company must rely more on stockholder investment. Ford was able to lower it's borrowing of funds from 1993 through 1994 and into 1995, while still effectively increasing it's profit margin and return on assets. This means Ford was able to use stockholder's investments to increase it's profitability rather than borrow the funds to do it.

Return on Equity

Return on equity is the ratio of net income divided by the average stockholder's equity. This ratio is of great interest to stockholders because it shows how much they have earned on their investment in the business. In the years of 1991 and 1992, stockholders lost money on their investment in Ford Motor Company. No one likes to lose money, even if it is a couple of cents on the dollar. A major stockholder could incur quite a loss because of this. In the next three years, return on equity was on the positive side, the peak being in 1994 when stockholders earned about 28% on every dollar invested. Quite a good return considering some investors are happy with a steady 8% return. Considering the previous years, the return on equity for Ford seems to be positive. Common knowledge dictates that most companies experience a downturn every now and then. Ford's investors are able to remain invested in the company because it's overall 5 year return on equity is high enough to give investors the high returns they seek. A return on equity consistently above 16% with a few negative years mixed in is certainly lucrative enough to maintain a strong profitability measurement and project a positive image to the investors of Ford Motor Company.

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Notes

Conclusion

Although Ford Motor Company is one of the largest companies in the world, we can still attribute accounting trends to some of the key events in Ford's history. In 1990, Ford acquired Jaguar Cars, Ltd. Jaguar was a company suffering terrible loses due to poor quality, and lack of sales. Jaguar has been in the black since Ford purchased them until 1994. It is important to note that Ford's net income trend from 1991 to 1995 illustrates this. In 1992, the Ford Taurus became the number one selling car in the United States, which helped increase 1992 net earnings, and in 1994 the Ford Falcon was the top selling car in Australia, helping maintain the trend of increasing net income. It is important to note that Ford's net income has increased from 1991 to 1994, and then decreased in 1995. There are several possible causes for this change in the trend. In 1995, Ford acquired 20% equity in a major Chinese truck manufacturer, and launched several new vehicles; including the Ford Contour, Ford Mondeo, Mercury Mystique, Ford F-150, and Ford Taurus. These additional investments and expenses help explain the decrease in net income in 1995. Overall, the company has done well, and with reorganization in 1996 to decrease spending and increase efficiency, Ford is striving for future periods of growth.

Questions

1. What do you see as the main cause behind the result of trend analysis at Ford?
2. "Ford was able to use stockholder's investments to increase it's profitability rather than borrow the funds to do it". Justify the statement on the basis of the case.

Source: www.ghostpapers.com

3.6 Summary

- Financial statement analysis can be explained as a method used by interested parties such as investors, creditors, and management to evaluate the past, current, and projected conditions and performance of the firm.
- Under the financial statement analysis, the information available are grouped together in order to cull out the meaningful relationship which is already available among them; for interpretation and analysis.
- Three primary types of financial statement analysis are commonly known as horizontal analysis, vertical analysis, and ratio analysis.
- To reveal qualitative information about the firm in terms of solvency, liquidity, profitability, etc., are extracted from the analysis of financial statements.
- Comparative (income) financial statement analysis is being carried out in between the income statements of the various accounting durations of the firm, with other firms in the industry and with the industrial average.
- After having been procured the financial data pertaining to various time periods are ready for comparison; to determine or identify the level of increase or decrease taken place in the operating financial performance of the firms.
- Trend analysis involves calculating each year's financial statement balances as percentages of the first year, also known as the base year. When expressed as percentages, the base year figures are always 100 percent, and percentage changes from the base year can be determined.

Notes

3.7 Keywords

Assets: Assets are economic resources owned by business or company.

Balance Sheet: A balance sheet or statement of financial position is a summary of a person's or organization's balances.

Comparative Statements: Comparative statements are the financial statements which follow a consistent format but which cover different periods of time. Comparative statements are very useful for spotting trends.

Financial Statement: A written report which quantitatively describes the financial health of a company.

Trend analysis: In trend analysis, financial ratios are compared over time, typically years.

3.8 Review Questions

1. From the following information, prepare a comparative income statement:

Particulars	2001 (₹)	2002 (₹)
Sales	10,00,000	8,00,000
Cost of goods sold	6,00,000	4,00,000
Administration Expenses	2,00,000	1,40,000
Other Income	40,000	20,000
Income tax	1,20,000	1,40,000

2. From the following table, prepare the common size statement analysis:

	2000 (₹)	2001 (₹)
Sales	20,00,000	24,00,000
Miscellaneous Income	20,000	16,000
	20,20,000	24,16,000
Materials consumed	11,00,000	12,96,000
Wages	3,00,000	4,08,000
Factory expenses	2,00,000	2,16,000
Office expenses	90,000	1,00,000
Interest	1,00,000	1,20,000
Depreciation	1,40,000	1,50,000
Profit	90,000	1,26,000
	20,20,000	**24,16,000**

3. A company has owner's equity of ₹ 1,00,000. It has supplied the following accounting ratios:

   Current Debt to Total Debt = 0.40

   Total Debt to Owner's Equity = 0.60

   Fixed Assets to Owner's Equity = 0.60

   Total Assets Turnover = 2 times

   Inventory Turnover = 8 times

   With the information given above, you are required to prepare a summarised Balance Sheet of the company.

4. How is an available-for-sale investment recorded on the financial statements?

Notes

5. Comment on the following statements:

   (a) An increase in money sales should always be viewed favorably.

   (b) The influence of price-level changes cannot be detected by using a comparative statement.

   (c) An expansion of plant, property, and equipment should be financed by sales of capital stock.

   (d) Intangible assets should be eliminated when the balance sheet is reconstructed for analytical purposes.

   (e) An increase in liabilities should be viewed with alarm.

6. Is the trend of total liabilities of significance in analyzing the financial condition of a business? If so, what other trends should be used in connection therewith?

7. Write a report in which you list and discuss favorable and unfavorable financial and operating tendencies

8. Analysis shows that Zodiac Corporation incurred the following five-year gross margin and cost histories in serving customer number 128.

	Year 1	Year 2	Year 3	Year 4	Year 5
Gross Margin	602,000	638,000	636,000	652,000	670,000
Cost of engineering changes	6,600	12,120	7,000	7,200	80,250
Special packaging	66,200	73,360	82,600	78,100	80,400

Prepare a trend analysis (in terms of percentage of gross margin) for these two customer relate costs.

9. What different conclusions might the management draw about the behavior of the two costs in question 8?

10. Which is the better analysis horizontal or vertical and why? Which is better between vertical or horizontal ratio and why?

11. The comparative balance sheet of Oak and Tile Flooring Co. for June 30, 2008 and 2007, is as follows:

	June 30, 2008	June 30, 2007
Cash	$24,700	$23,500
Accounts receivable (net)	101,600	92,300
Inventories	146,300	142,100
Investments	0	0
Land	145,000	0
Equipment	215,000	175,500
Accumulated depreciation	(48,600)	(41,300)
	$594,000	$442,100
Liabilities and Stockholders Equity		
Accounts payable (merchandise creditors)	$100,900	$95,200
Accrued expenses (operating expenses)	15,000	13,200
Dividends payable	12,500	10,000
Common stock, $1 par	56,000	50,000
Paid-in capital in excess of par-common stock	220,000	100,000
Retained earnings	189,600	173,700
	$594,000	$442,100

Notes

The following additional information was taken from the records of Oak and Tile Flooring Co:

(a) Equipment and land were acquired for cash.

(b) There were no disposals of equipment during the year.

(c) The investments were sold for $45,000 cash.

(d) The common stock was issued for cash.

(e) There was a $65,900 credit to retain earnings for net income.

(f) There was a $50,000 debit to Retained Earnings for cash dividends declared.

Prepare a statement of cash flow, using the indirect method of presenting cash flows from operating activates.

12. Where is a contract with a customer reported on the balance sheet and why?

Answers: Self Assessment

1.	horizontal	2.	Ratio analysis
3.	vertical analysis	4.	financial ratios
5.	ratios	6.	vertical
7.	True	8.	True
9.	(iv)	10.	(iv)
11.	(iv)	12.	True
13.	True	14.	False
15.	percentage	16.	financial ratios

3.9 Further Readings

Books

Khan and Jain, Management Accounting.

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Online link

www.managementstudyguide.com

Notes

Unit 4: Ratio Analysis

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Objectives

After studying this unit, you will be able to:

- Illustrate the key ratios like liquidity, solvency, profitability and turnover
- Describe DUPONT analysis
- Explain the relevance of ratio analysis

Introduction

The ratio analysis is one of the important tools of financial statement analysis to study the financial stature of the business fleeces, corporate houses and so on.

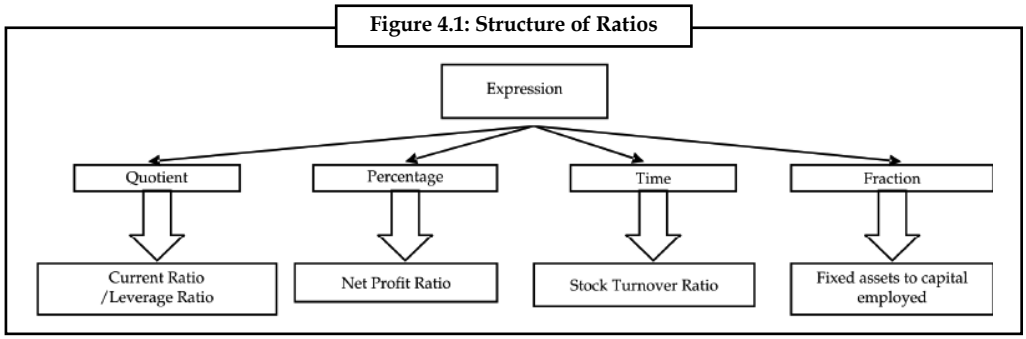
According to J. Batty, "The term accounting ratio is used to describe significant relationships which exist between figures shown in a balance sheet, in a profit and loss account, in a budgetary control system or in any other part of the accounting organization".

Financial statements contain substantial information (figures) relating to profit or loss and financial position of the business. If these items in financial statements are considered independently it may or may not be of much use. To make a meaningful reading of financial statements, these items found in financial statements have to be compared with one another. Ratio analysis, as a technique or analysis of financial statement uses this method of comparing the various items found in financial statements.

4.1 Definition

According to J. Betty, "The term accounting is used to describe relationships significantly which exist in between figures shown in a balance sheet, Profit & Loss A/c, Trading A/c, Budgetary control system or in any part of the accounting organization."

Figure 4.1: Structure of Ratios



According to Myers "Study of relationship among the various financial factors of the enterprise".

Did u know? ***What is meant by the accounting ratio?***

The accounting ratios are computed on the basis available accounting information extracted from the financial statements which are not in a position to reveal the status of the enterprise.

The accounting ratios are applied to study the relationship in between the quantitative information available and to take decision on the financial performance of the firm.

Notes

To understand the methodology of expressing the ratios, various expressions of ratios are highlighted in the Figure 4.1.

Notes Purposes of the Ratio Analysis:

1. To study the short-term solvency of the firm — liquidity of the firm
2. To study the long-term solvency of the firm — leverage position of the firm
3. To interpret the profitability of the firm — Profit earning capacity of the firm
4. To identify the operating efficiency of the firm — turnover of the ratios

4.2 Classification of Ratios

The accounting ratios are classified into various categories, viz.:

1. On the basis of financial statements
2. On the basis of functions

4.2.1 On the basis of Financial Statements

1. ***Income Statement Ratios:*** These ratios are computed from the statements of Trading, Profit & Loss account of the enterprise. Some of the major ratios are as following GP ratio, NP ratio, Expenses Ratio and so on.
2. ***Balance Sheet or Positional Statement Ratios:*** These types of ratios are calculated from the balance sheet of the enterprise which normally reveals the financial status of the position i.e. short-term, long-term financial position, share of the owners on the total assets of the enterprise and so on.
3. ***Inter Statement or Composite Mixture of Ratios:*** Theses ratios are calculated by extracting the accounting information from the both financial statements, in order to identify stock turnover ratio, debtor turnover ratio, return on capital employed and so on.

4.2.2 On the basis of Functions

1. ***On the basis of solvency position of the firms:*** Short-term and long-term solvency position of the firms.
2. ***On the basis of profitability of the firms:*** The profitability of the firms are studied on the basis of the total capital employed, total asset employed and so on.
3. ***On the basis of effectiveness of the firms:*** The effectiveness is studied through the turnover ratios — Stock turnover ratio, Debtor turnover ratio and so on.
4. ***Capital structure ratios:*** The capital structure position are analysed through leverage ratios as well as coverage ratios.

Self Assessment

Notes

Fill in the blanks:

1. Ratio analysis, as a technique or analysis of …… uses this method of comparing the various items found in financial statements.
2. The accounting ratios are applied to study the relationship in between the …… information available and to take decision on the financial performance of the firm.
3. The …… position are analysed through leverage ratios as well as coverage ratios.
4. The …… of the firms are studied on the basis of the total capital employed, total asset employed and so on.

4.3 Liquidity Ratios

To study the short-term solvency or liquidity of the firm, the following are various ratios:

1. Current Assets Ratio
2. Acid Test Ratio or Quick Assets Ratio
3. Super Quick Assets Ratio

4.3.1 Current Assets Ratio

It is one of the important accounting ratios to find out the ability of the business fleeces to meet out the short financial commitment. This is the ratio establishes the relationship in between the current assets and current liabilities.

Did u know? ***What is meant by current assets and current liabilities?***

Current assets are nothing but available in the form of cash, equivalent to cash or easily convertible in to cash.

Current liabilities are nothing but short-term financial resources or payable in short span of time within a year.

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

Example: Company XYZ has current assets worth of ₹ 5 lac, while the liabilities amount to ₹ 3 lac. What is the current ratio of the firm?

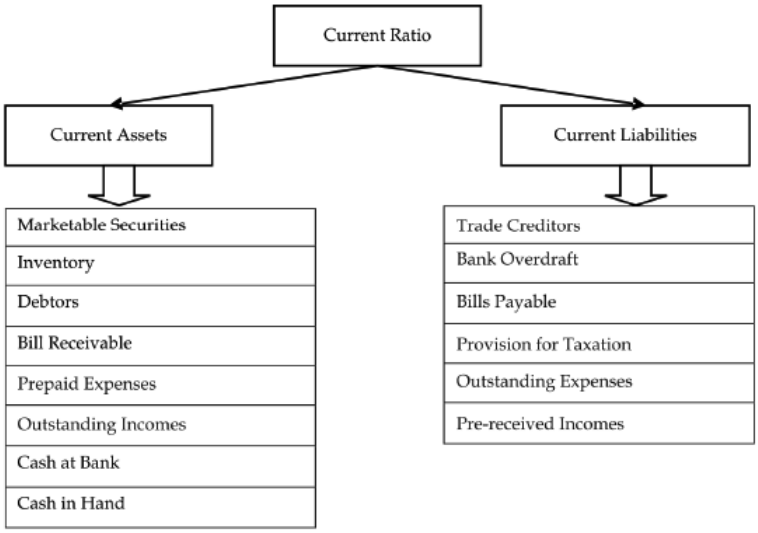
Solution:

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

Current Ratio = 5/3 = 1.666 (approx)

Notes

Figure 4.2: Elements of Current Ratio



Caution Standard norm of the current ratio:

The ideal norm is 2:1; which means that every one rupee of current liability is appropriately covered by two rupees of current assets.

High ratio leads to greater the volume of current assets more than the specified norm denotes that the firm possesses excessive current assets than the requirement portrays idle funds invested in the current assets.

A big limitation of current ratio is that under this ratio, the current assets are equally weighed against each other to match the current liabilities. One rupee of cash is equally weighed at par with the one rupee of closing stock, but the closing stock and prepaid expenses cannot be immediately realized like cash and marketable securities.

Solved Problems for Practice

1. From the following, calculate the current ratio:

Current Assets:	₹
Cash in hand	4,00,000
Sundry Debtors	1,60,000
Stock	2,40,000
Current Liabilities:	
Sundry creditors	3,00,000
Bills Payable	1,00,000

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹8,00,000}{₹4,00,000} = 2$$

The firm satisfies the standard norm of the current asset ratio

2. **Notes**

M/s Shanmuga & Co
Balance sheet as on dated 31st Mar, 2005

Particulars	₹	Particulars	₹
Share capital	42,000	Fixed Assets Net	34,000
Reserve	3,000	Stock	12,400
Annual Profit	5,000	Debtors	6,400
Bank overdraft	4,000	Cash	13,200
Sundry creditors	12,000		
Total	**66,000**	**Total**	**66,000**

From the above, determine current assets ratios

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

$$= \frac{₹32,000}{₹16,000}$$

$$= 2$$

It satisfies the standard norm of the current asset ratio.

4.3.2 Acid Test Ratio

It is a ratio expresses the relationship in between the quick assets and current liabilities. This ratio is to replace the bottleneck associated with the current ratio. It considers only the liquid assets which can be easily translated into cash to meet out the financial commitments.

$$\text{Acid Test Ratio (Quick Assets Ratio)} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

Liquid Asset = Current Assets – (Closing Stock + Prepaid Expenses)

Example: A company has a closing stock of ₹ 30,000 while its prepaid expenses are ₹ 5000. What will be its quick assets ratio if the current assets are worth ₹ 50000 while current liabilities are worth ₹ 15000?

Solution:

Liquid Asset = Current Assets – (Closing Stock + Prepaid Expenses)

= 50000 – (30000 + 5000)

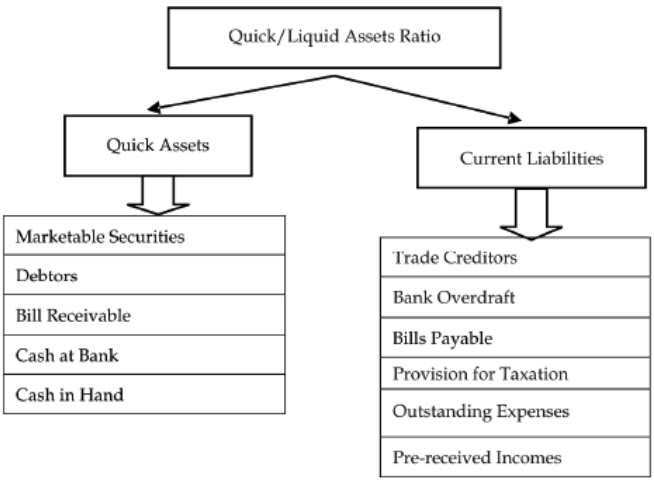
= 15000

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

= 15000/15000 = 1:1

Notes

Figure 4.3: Quick/Liquid Asset Ratio



Caution Standard norm of the ratio:

The ideal norm is 1:1 which means that one rupee of current liabilities is matched with one rupee of quick assets.

4.3.3 Super Quick Assets Ratio

It is the ratio which establishes the relationship in between the super quick assets and quick liabilities of the firm.

The super quick assets are nothing but the current assets which can be more easily converted into cash to meet out the quick liabilities.

The super quick liabilities are the current liabilities should have to be met out at faster pace within shorter span in duration.

$$\text{Super Quick Assets} = \text{Cash} + \text{Marketable Securities}$$

$$\text{Super Quick Liabilities} = \text{Current Liabilities} - \text{Bank Overdraft}$$

$$\text{Super Quick Assets Ratio} = \frac{\text{Super Quick Assets}}{\text{Super Quick Liabilities}}$$

Caution Standard norm of the ratio:

Higher the ratio, better is the position of the firm.

Example: From the following calculate current ratio:

	₹
Current Assets:	
Cash in Hand	4,00,000
Sundry Debtors	1,60,000

Contd…

Notes

Stock	2,40,000
Current Liabilities:	
Sundry Creditors	3,00,000
Bills Payable	1,00,000

Solution:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹8,00,000}{₹4,00,000} = 2$$

Solved Problems for Practice

1. Liquid Assets ₹65,000; Stock ₹20,000; Prepaid expenses ₹5,000; Working capital ₹60,000.

   Calculate the current assets ratio and liquid assets ratio.

   For the computation of current assets ratio, the current assets volume must be known. It is not available in our problem; instead the liquid assets and prepaid expenses are given together which will help to find the total volume of current assets.

   Current Assets = Liquid Asset + Prepaid expenses + Closing stock

   = ₹65,000 + ₹5,000 + 20,000

   = ₹90,000

   The next step is to find out the current liabilities. The volume of current liabilities could be found out through the available information of working capital.

   Net working capital = Current Assets- Current Liabilities

   ₹60,000 = ₹90,000-Current liabilities

   Current liabilities = ₹90,000-₹60,000 = ₹30,000

   From the above, the current ratio could be found out.

   $$\text{Current Ratio} = \frac{₹90,000}{₹30,000} = 3 > 2$$

   The firm satisfies more than the norm of the current ratio. It means that the firm keeps excessive current assets more than that of requirement.

   $$\text{Quick Assets Ratio} = \frac{₹65,000}{₹30,000} = 2.17$$

   The firm keeps more liquid assets than that of the specified norm, meaning that excessive liquid assets are held by the firm than the requirement in the form of idle assets not productive in utility.

2. The current ratio of Bicon Ltd. is 4:5:1 and liquidity ratio is 3:1; stock is ₹6,00,000. Find out the current liabilities.

   To find out the volume of current liabilities, initially the share of closing stock should be found out in the total of current assets.

   Share of stock = Current Assets Ratio- Liquid Assets Ratio

   = 4.5-3.0 = 1.5

   Share of the stock = 1.5

   If the share of the stock is 1.5, which amounted to ₹6,00,000.

Notes

What is the volume of current liabilities for the ratio of 1?

$$\text{Current liabilities} = \frac{₹6,00,000}{1.5} = ₹4,00,000$$

Self Assessment

Fill in the blanks:

5. Current assets ratio establishes the relationship in between the …… and current liabilities.
6. Liquid Asset = Current Assets – (…… + Prepaid Expenses)
7. The …… are nothing but the current assets which can be more easily converted into cash to meet out the quick liabilities.

4.4 Solvency Ratios

Solvency ratios indicates company's ability to meet its long-term liabilities. Therefore, these ratios are also called long-term solvency ratios. The long-term liability of a company comprises of debentures, long-term loans, unpaid installment on hire-purchase, and long-term creditors. The long-term creditors take interest in those ratios which highlight the long-term financial position of the company so that they may ensure regarding the repayment of their principal amount on maturity as well as regular interest on their dues. For this purpose the following solvency ratio are calculated:

4.4.1 Debt-equity Ratio

It is the ratio expresses the relationship between the ownership funds and the outsiders' funds. It is more specifically highlighted that an expression of relationship in between the debt and shareholders' funds. The debt-equity ratio can be obviously understood into two different forms:

1. Long-term debt-equity ratio
2. Total debt-equity ratio

Let us understand each of them one by one.

Long-term Debt-equity Ratio

It is a ratio expressing the relationship in between the outsiders' contribution through debt financial resource and shareholders' contribution through equity share capital, preference share capital and past accumulated profits. It reveals the cover or cushion enjoyed by the firm due to the owners' contribution over the outsiders' contribution.

$$\text{Debt-equity Ratio} = \frac{\text{Debt (Long-term Debt = Debentures/Term Loans)}}{\text{Net Worth/Equity (Shareholders' Fund)}}$$

Example: The long-term debt of company ABC is ₹ 3 crores and the networth of the company is ₹ 5 crores. What is the long-term debt-equity ratio of ABC?

Notes

Solution:

$$\text{Long-term debt-equity Ratio} = \frac{\text{Debt}}{\text{Net Worth}} = 3/5 = .6$$

Higher ratio indicates the riskier financial status of the firm which means that the firm has been financed by the greater outsiders' fund rather than that of the owners' fund contribution and vice versa.

Caution Standard norm of the Debt-Equity Ratio:

The ideal norm is 1:2 which means that every one rupee of debt finance is covered by two rupees of shareholders' fund.

The firm should have a minimum of 50% margin of safety in meeting the long-term financial commitments. If the ratio exceeds the specification, the interest of the firm will be ruined by the outsiders' during the moment at when they are unable to make the payment of interest in time as per the terms of agreement reached earlier. During the moment of liquidation, the greater ratio may facilitate the creditors to recover the amount due lesser holding held by the owners.

Total Debt-equity Ratio

The ultimate purpose of the ratio is to express the relationship total volume of debt irrespective of nature and shareholders' funds. If the owners' contribution is lesser in volume in general irrespective of its nature leads to worse situation in recovering the amount of outsiders' contribution during the moment of liquidation.

$$\text{Total Debt-equity Ratio} = \frac{\text{Short-term Debt} + \text{Long-term Debt}}{\text{Equity (Shareholders' Fund)}}$$

Example: The long-term debt of company ABC is ₹ 3 crores and the networth of the company is ₹ 5 crores. If the company has a short term debt of ₹ 1 crore, what is the total debt-equity ratio of ABC?

Solution:

$$\text{Total Debt-equity Ratio} = \frac{\text{Short-term Debt + Long-term Debt}}{\text{Equity(Shareholders' Fund)}} = \frac{1+3}{5} = 4:5$$

4.4.2 Proprietary Ratio

The ratio illustrates the relationship in between the owners' contribution and the total volume of assets. In simple words, how much funds are contributed by the owners in financing the assets of the firm. Greater the ratio means that greater contribution made by the owners' in financing the assets.

$$\text{Proprietary Ratio} = \frac{\text{Owners' Funds or Equity or Shareholders' Funds}}{\text{Total Assets}}$$

Caution ***Standard Norm of the ratio:*** Higher the ratio, better is the position

Higher ratio is better position for the firm as well as safety to the creditors.

Notes

Example: The net worth of company ABC is ₹ 30 crores and the total assets are worth ₹ 10 crores. What is the proprietary ratio of the firm?

Solution:

$$\text{Proprietary Ratio} = \frac{\text{Owners' Funds or Equity or Shareholders' Funds}}{\text{Total assets}} = \frac{30}{10} = 3:1$$

The ratio shows that the firm is in quite a good financial position.

4.4.3 Fixed Assets Ratio

The ratio establishes the relationship in between the fixed assets and long-term source of funds. Whatever the source of long-term funds raised should be used for the acquisition of long-term assets; it means that the total volume of fixed assets should be equivalent to the volume of long term funds, i.e. the ratio should be equal to 1.

$$\text{Fixed Assets Ratio} = \frac{\text{Shareholders' Funds + Outsiders' Funds}}{\text{Net Fixed Assets}}$$

If the ratio is lesser than one means that the firm made use of the short-term fund for the acquisition of long-term assets. If the ratio is greater than one means that the acquired fixed assets are lesser in quantum than that of the long-term funds raised for the purpose. In other words, the firm makes use of the excessive funds for the built of current assets.

Caution ***Standard norm of the ratio:*** The ideal norm of the ratio is 1:1, which means that the long-term funds raised are utilised for the acquisition of long-term assets of the enterprise.

It facilitates to understand obviously about the over capitalization or under capitalization of the assets of the enterprise.

Example: The networth of company ABC is ₹ 30 crores and the net fixed assets are worth ₹ 100 crores. If the outsider's funds are worth ₹ 70 crores, what is the fixed assets ratio of the firm?

Solution:

$$\text{Fixed Assets Ratio} = \frac{\text{Shareholders' Funds + Outsiders' Funds}}{\text{Net Fixed Assets}} = \frac{30+70}{100} = \frac{100}{100} = 1:1$$

Since the ratio is 1:1, it shows that the firm raises the long term funds utilises them only for the acquisition of long term assets of the enterprise.

4.4.4 Coverage Ratios

These ratios are computed to know the solvency of the firm in making the periodical payment of interest and preference dividends. The interest and preference dividends are to be paid irrespective of the earnings available in the hands of the firm. In other words, these are known as fixed commitment charge of the firm.

Notes

Interest Coverage Ratio

The firms are expected to make the payment of interest on the amount of borrowings without fail. This ratio facilitates the prospective lender to study the strength of the enterprise in making the payment of interest regularly out of the total income. To study the capacity in making the payment of interest is known as interest coverage ratio or debt service coverage ratio.

The ability or capacity is analysed only on the basis of Earnings Before Interest and Taxes (EBIT) available in the hands of the firms.

Greater the ratio means that better the capacity of the firm in making the payment of interest as well as greater the safety and vice versa.

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings before Interest and Taxes}}{\text{Interest}}$$

Lesser the times the ratio means that meager the cushion of the firm which may lead to affect the solvency position of the firm in making payment of interest regularly.

Example: Mr Ashmit Ahuja had an earning of ₹ 3,00,000 before he paid the interests and taxes. What will be the interest coverage ratio if he pays ₹ 30,000 as an interest? What will it mean?

Solution:

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings before Interest and Taxes}}{\text{Interest}} = \frac{3,00,000}{30,000} = 10:1$$

Since the interest coverage ratio is substantially high, it means that Mr. Ahuja has quite a good capacity in making the payment of interest and has a high safety.

Dividend Coverage Ratio

It illustrates the firms' ability in making the payment of preference dividend out of the earnings available in the hands of the firm after the payment of taxation. Greater the size of the profits after taxation, greater is the cushion for the payment of preference dividend and vice versa.

The preference dividends are to be paid without fail irrespective of the profits available in the hands of the firm after the taxation.

$$\text{Dividend Coverage Ratio} = \frac{\text{Earnings after Taxation}}{\text{Preference Dividend}}$$

Example: Hindustan Manufacturers have to make a preference dividend of ₹ 60,000. The earnings after taxation is ₹ 3,00,000. What will be the Dividend coverage ratio? What does it mean?

Solution:

$$\text{Dividend Coverage Ratio} = \frac{\text{Earnings After Taxation}}{\text{Preference Dividend}} = \frac{3,00,000}{60,000} = 5:1$$

Since the value of the dividend coverage ratio is quite high, the company has a strong cushion for the payment of preference dividend.

Notes

Solved Problems for Practice

1. The following is the balance sheet of a company as on 31-3-06

Liabilities	₹	Assets	₹
Equity Shares	40,00,000	Land & building	40,00,000
Reserves & Surplus	20,00,000	Plant & machinery	40,00,000
Debentures	30,00,000	Investments	30,00,000
Long term loans	50,00,000	Stock	25,00,000
Creditors	8,00,000	Debtors	15,00,000
Other current liabilities	12,00,000	Other current assets	10,00,000
	1,60,00000		**1,60,00000**

Calculate:

(a) Current ratio

(b) Stock to working capital ratio

(c) Debt-Equity ratio

(d) Net-worth ratio/proprietor/ratio

(e) Fixed assets to net worth ratio

(f) Current assets to net worth ratio

(g) Solvency ratio

Solution:

(a) Current ratio = Current Assets/Current Liabilities

= 50,00,000/20,00,000 = 2.5

(b) Stock to working capital ratio = Stock/Inventory/Working capital × 100

Working capital= Current Assets – Current Liabilities

= 50,00,000 – 20,00,000 = 30,00,000

= 25,00,000/30,00,000 × 100 = 83.33%

(c) Debt-Equity ratio = Debt/Equity

Debt = Long-term loans 30,00,000+50,00,000=80,00,000

Equity = Share capital + Reserves + Surplus

= 40,00,000 + 20,00,000 = 60,00,000

= 80,00,000/60,00,000 = 1.33

(d) Net worth or proprietary ratio = Net worth (equity)/Total assets

(Net worth) = Share capital + Reserves & Surplus

= 60,00,000/1,60,00,000 = 0.375

(e) Fixed assets to net worth ratio = Net fixed assets

= 80,00,000/60,00,000 = 1.33

(f) Current assets to net worth ratio = Current assets/Net worth

= 50,00,000/60,00,000 = 0.833

Notes

(g) Solvency ratio = Total assets/Total liabilities

Total assets = Total of asset side of balance sheet.

Total liabilities = Both long-term and current liabilities.

= 1,60,00,000/1,00,00,000 = 1.6

2. Yahoo Ltd. has the following profit & loss account for the year ended 31st March, 2007 and the balance sheet as on that date.

Profit & Loss Account for the year ended 31st March, 2007

(₹ in Lakhs)

Particulars	₹	Particulars	₹
Openings stock	1.75	Sales: Credit	12.00
Add: Manufacturing cost	10.75	Cash	3.00
	12.50		
Less: Closing stock	1.50		
Cost of goods sold	11.00		
Gross Profit	4.00		
	15.00		15.00
Administrative expenses	0.35	Gross profit	4.00
Selling expenses	0.25	Other income	0.09
Depreciation	0.50		
Interest	0.47		
Income-tax	1.26		
Net profit	1.26		
	4.09		4.09

Balance Sheet as on 31st March, 2007

(₹ in Lakhs)

Liabilities	₹	Assets	₹
Equity shares of ₹ 10 each	3.50	Plant & machinery	10.00
10% Preference shares	2.00	Less: Depreciation	2.50
Reserves and surplus	2.00	Net plant & machinery	7.50
Long-term loan (12%)	1.00	Goodwill	1.40
Debentures (14%)	2.50	Stock debtors	1.50
Creditors	0.60	Pre-paid expenses	1.00
Bills payable	0.20		0.25
Accured expenses	0.20	Marketable securities	0.75
Provision for tax	0.65	Cash	0.25
	12.65		12.65

The market price of the share of Yahoo Ltd. on 31st March, 2007 is ₹ 45.

(₹ Lakhs)

Reserves at the beginning	1.465
Net profit during the year	1.260
	2.725
Preference dividends	0.200

Contd…

Notes

Equity dividends	0.525
Reserves at the close of year	2.000

Calculate the following ratios – (a) Current ratio, (b) Quick ratio, (c) Debt-equity ratio, (d) Interest coverage, (e) Fixed charge coverage.

Solution:

(a) Current Ratio:

$$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{3,75,000}{1,65,000} = 2.27:1$$

(b) Quick Ratio:

$$\frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities} - \text{Bank overdraft}} = \frac{2,00,000}{1,65,000} = 1.21:1$$

(c) Debt-Equity Ratio:

$$\frac{\text{Long-term debt}}{\text{Shareholders funds}} = \frac{3,50,000}{7,50,000} = 0.467:1$$

(d) Interest Coverage:

$$\frac{\text{PBIDT}}{\text{Interest}} = \frac{1,26,000 + 47,000 + 1,26,000}{47,000} = 6.36 \text{ times}$$

(e) Fixed Charge Coverage:

$$\frac{\text{PBIDT}}{\text{Interest} + \text{Preference dividend}} = \frac{2,99,000}{47,000 + 20,000} = 4,46 \text{ times}$$

Self Assessment

Choose the right answer

8. Solvency position of the firm studied and interpreted through
   - (a) Short-term solvency ratios
   - (b) Long-term solvency ratios
   - (c) Coverage ratios
   - (d) (a), (b) & (c)
9. Efficiency and effectiveness of the firm is studied through
   - (a) Liquidity ratios
   - (b) Leverage ratios
   - (c) Turnover ratios
   - (d) Profitability ratios
10. Standard norm of the Debt to Capital
   - (a) 1:2
   - (b) 1:1
   - (c) 2:1
   - (d) 1:5

4.5 Profitability Ratios

These ratios are measurement of the profitability of the firms in various angles, viz.

1. On sales
2. On investments
3. On capital employed and so on

Notes

While discussing the measure of profitability of the firm, the profits are normally classified into various categories:

1. Gross Profit
2. Net Profit
3. Operating Profit Ratio
4. Return on Assets Ratio
5. Return on Capital Employed

All profitability ratios are normally expressed only in terms of (%). The return is normally expressed only in terms of percentage which warrants the expression of this ratio to be also in percentage.

4.5.1 Gross Profit Ratio

The ratio elucidates the relationship in between the gross profit and sales volume.

It facilitates to study the profit earning capacity of the firm out of the manufacturing or trading operations.

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

Example: Om enterprises has earned a gross profit of ₹ 6,00,000 in the first quarter. Calculate the gross profit ratio if the corresponding sales amounted to a value of ₹ 30,00,000. What does it imply?

Solution:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{6,00,000}{30,00,000} \times 100 = 20:1$$

The ratio implies that the firm has earned good profits out of sales in the first quarter.

Caution ***Standard norm of the ratio:*** Higher the ratio means that the firm has greater cushion in meeting the needs of preference dividend payment against Earnings After Taxation (EAT) and vice versa.

4.5.2 Net Profit Ratio

The ratio expresses the relationship in between the net profit and sales volume. It facilitates to portray the overall operating efficiency of the firm. The net profit ratio is an indicator of over all earning capacity of the firm in terms of return out of sales volume.

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100$$

Example: Om enterprises has earned a net profit of ₹ 3,00,000 in the first quarter. Calculate the net profit ratio if the corresponding sales amounted to a value of ₹ 30,00,000. What does it imply?

Notes

Solution:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100 = \frac{30,000}{30,00,000} \times 100 = 1:1$$

The ratio shows that the company is running on a no profit - no loss state.

Caution ***Standard Norm of the Ratio:*** Higher the ratio, the better the position of the firm is, which means that the firm earns greater profits out of the sales and vice versa.

4.5.3 Operating Profit Ratio

The operating ratio is establishing the relationship in between the cost of goods sold and operating expenses with the total sales volume.

$$\text{Operating Ratio} = \frac{\text{Cost of Goods Sold} + \text{Operating Expenses}}{\text{Net Sales}} \times 100$$

Example: The cost of goods sold by Mangamal operators is ₹ 2,000. What will be the operating ratio of the firm if the operating expenses are ₹ 50,000 and net sales is that of ₹ 5,00,000? What does it mean?

Solution:

$$\text{Operating Ratio} = \frac{\text{Cost of goods sold} + \text{Operating expenses}}{\text{Net sales}} \times 100 = \frac{2,000 + 50,000}{5,00,000} = 1:2$$

Since the ratio is quite low, this means that the firm is in quite favourable position and thus has a high margin of operating profit.

Caution ***Standard norm of the ratio:*** Lower the ratio, the more favourable and better the firm's position is, which highlights the percentage of absorption, cost of goods sold and operating expenses out of sales and vice versa. The lower ratio leads to a higher margin of operating profit.

4.5.4 Return on Assets Ratio

This ratio portrays the relationship in between the earnings and total assets employed in the business enterprise. It highlights the effective utilization of the assets of the firm through the determination of return on total assets employed.

$$\text{Return on Assets} = \frac{\text{Net Profit After Taxes}}{\text{Average Total Assets}} \times 100$$

Example: If one company has an income of ₹ 1 crore and total assets of ₹ 10,00,000, what will be the return on assets if net profit after taxes is ₹ 500000?

Solution:

$$\text{Return on Assets} = \frac{\text{Net Profit After Taxes}}{\text{Average Total Assets}} \times 100 = \frac{5,00,000}{1,00,0000} \times 100 = 50\%$$

Notes

Caution ***Standard norm of the ratio:*** Higher the ratio illustrates that the firm has greater effectiveness in the utilization of assets, means greater profits reaped by the total assets and vice versa.

4.5.5 Return on Capital Employed

The ratio illustrates that how much return is earned in the form of Net profit after taxes out of the total capital employed. The capital employed is nothing but the combination of both non current liabilities and owners' equity. The ratio expresses the relationship in between the total earnings after taxation and the total volume of capital employed.

$$\text{Return on Total Capital Employed} = \frac{\text{Net Profit After Taxes}}{\text{Total Capital Employed}} \times 100$$

Caution ***Standard norm of the ratio:*** Higher the ratio is better the utilization of the long term funds raised under the capital structure means that greater profits are earned out of the total capital employed.

Example: In the previous example, if the total capital employed is worth ₹ 25,00,000, what is the return on total capital employed?

Solution:

$$\text{Return on Total Capital Employed} = \frac{\text{Net Profit After Taxes}}{\text{Total Capital Employed}} \times 100 = \frac{5,00,000}{25,00,000} \times 100 = 20\%$$

Solved Problems for Practice

1. The following figure relates to Poornima Traders Ltd. for the year ended 31st March, 2005.

Treading and Profit & Loss Account
for the year ended 31st March, 2005
Poornima Traders Ltd.

Dr Cr

Particulars	₹	₹	Particulars	₹	₹
To Opening stock		1,50,000	By Sales	10,40,000	
To Purchases		6,50,000	Less: Returns	40,000	
To Gross profit c/d		4,00,000			10,00,000
			By Closing stock		2,00,000
		12,00,000			12,00,000
To Administration	80,000		By Gross profit b/d		4,00,000
To Selling &Distribution	50,000		By Dividend income	18,000	
		1,30,000	By Profit on sale of share	22,000	
To Loss on sale of assets		10,000			40,000
To Net profit c/d		3,00,000			
		4,40,000			4,40,000

Notes

Balance Sheet on 31st March, 2005 of Poornima Traders Ltd.

Liabilities	₹	Assets	₹
Issued capital			
4000 Equity shares of ₹ 100 each	4,00,000	Land and Building	3,00,000
Reserves	1,80,000	Plant and Machinery	1,60,000
Current liabilities	3,00,000	Stock	3,20,000
Profit & Loss A/c	1,20,000	Debtors	1,60,000
		Cash at Bank	60,000
	10,00,000		10,00,000

Calculate the following ratios:

(i) Gross profit ratio (ii) Operating ratio (iii) Operating profit ratio (iv) Net profit ratio

(i) Gross profit ratio =

$$\text{Gross profit ratio} = \frac{\text{Gross profit}}{\text{Sales}} \times 100$$

While calculating the gross profit ratio, which sales should be taken into consideration?

The net sales alone has to be taken into consideration for the computation of calculating the gross profit ratio. What is meant by net sales ?

Net Sales = Gross sales – Sales Return

The firm has not earned any profit on the sales return made by its customers/ consumers. When the firm has not earned any profit out of the sales return, that should be deducted from the gross sales. The chance of earning profit usually prevails only at the moment of payment by the customers, but the customers who returned the goods need not pay in this regard, which does not carry any opportunity for the firm to earn profit.

$$\text{GP Ratio} = \frac{₹4,00,000}{₹10,00,000} \times 100 = 40\%$$

(ii) Operating ratio =

$$\frac{\text{Cost of goods sold} + \text{Administration expenses} + \text{Selling \& Distribution expenses}}{\text{Net sales}} \times 100$$

The information pertaining to cost of goods sold is not available directly.

The cost of goods sold could be found out in two different ways:

Cost of goods sold = opening stock + Purchases -Closing stock

Substitute the values in the above equation

= ₹1,50,000 + ₹6,50,000 - ₹2,00,000

= ₹6,00,000

Alternately, the cost of goods sold could be found out as follows:

Cost of goods sold = Sales - Gross profit

= ₹10,00,000 - ₹4,00,000

= ₹6,00,000

Notes

$$\text{Operating ratio} = \frac{₹6,00,000 + ₹1,30,000}{10,00,000} \times 100 = 73\%$$

(iii) $$\text{Operating profit ratio} = \frac{\text{Operating profit}}{\text{Net sales}} \times 100$$

To find out the operating profit from the profit & loss account, the following methodology will help to determine as effectively as possible.

Pro forma for finding out the operating profit

Particulars	₹
Net Profit	XXXX
Add: Non operating expense/loss	XXXX
Less: Non operating income	XXXX
Operating income	XXXX

Operating profit = ₹3,00,000 - ₹40,000 + ₹10,000 = 2,70,000

$$\text{Operating profit ratio} = \frac{₹2,70,000}{₹10,00,000} \times 100 = 27\%$$

(iv) $$\text{Net profit expenses ratio} = \frac{\text{Net profit}}{\text{Net sales}} \times 100$$

$$= \frac{₹3,00,000}{₹10,00,000} \times 100 = 30\%$$

Self Assessment

Fill in the blanks:

11. The net profit ratio is an indicator of over all …… of the firm in terms of return out of sales volume.
12. The operating ratio is establishing the relationship in between the …… and operating expenses with the total sales volume.
13. The …… is nothing but the combination of both non current liabilities and owners' equity.

4.6 Turnover Ratios

It highlights the relationship in between the sales and various assets. The ratio indicates that the rate of speed which is taken by the firm for converting the assets into sales.

4.6.1 Stock Turnover Ratio

The ratio expresses the speed of converting the stock into sales. In other words, how fast the stock is being converted into sales in a year. The greater the ratio of conversion leads to lesser the number of days/weeks/months required to convert the stock into sales.

$$\text{Stock Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Stock}} \text{ or } \frac{\text{Sales}}{\text{Closing Stock}}$$

Notes

Caution ***Standard norm of the ratio:*** Higher the ratio is better the firm in converting the stock into sales and vice versa.

The next step is to find out the number of days or weeks or months taken or consumed by the firm to convert the stock into sales volume.

$$\text{Stock Velocity} = \frac{\text{365 days / 52 weeks / 12 months}}{\text{Stock Turnover Ratio}}$$

Caution ***Standard norm of the ratio:*** Lower the duration is better the position of the firm in converting the stock into sales and vice versa.

Example: The cost of goods sold is ₹ 500,000. The opening stock is ₹ 40,000 and the closing stock is ₹ 60,000 (at cost). Calculate inventory turnover ratio.

Solution:

$$\text{Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2} = \frac{40{,}000 + 60{,}000}{2} = 50{,}000$$

$$\text{Stock Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average stock}} = \frac{5{,}00{,}000}{50{,}000} = 10:1$$

4.6.2 Debtors Turnover Ratio

This ratio exhibits the speed of the collection process of the firm in collecting the overdues amount from the debtors and against Bills receivables. The speediness is being computed through debtors velocity from the ratio of Debtors Turnover Ratio.

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Debtors}} \text{ or } \frac{\text{Net Credit Sales}}{\text{Debtor + Bills Receivable}}$$

Caution ***Standard norm of the ratio:*** Higher the ratio is better the position of the firm in collecting the overdue means the effectiveness of the collection department and vice versa.

Debtors velocity: This is an extension of the earlier ratio to denote the effectiveness of the collection department in terms of duration.

$$\text{Debtors Velocity} = \frac{\text{365 days / 52 weeks / 12 months}}{\text{Debtor Turnover Ratio}}$$

Caution ***Standard norm of the ratio:*** Lesser the duration shows greater the effectiveness in collecting the dues which means that the collection department takes only minimum period for collection and vice versa.

Example: Sundaram & Co. Sells goods on cash as well as credit basis. The following particulars are extracted from the books of accounts for the calendar 2005:

Notes

Particulars	₹
Total Gross sales	2,00,000
Cash Sales (included in above)	40,000
Sales Returns	14,000
Total Debtors	18,000
Bills Receivable	4,000
Provision for Doubtful Debts	2,000
Total Creditors	20,000

Calculate average collection period.

Solution:

To find out the average collection period, first debtors turnover ratio has to computed

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Bills Receivable} + \text{Debtors}}$$

$$\text{Net Credit Sales} = \text{Gross Sales} - \text{Cash Sales} - \text{Sales Return}$$

$$= 2,00,000 - 40,000 - 14,000 = 1,46,000$$

$$\text{Debtor Turnover Ratio} = \frac{1,46,000}{4,000 + 18,000} = 6.64 \text{ times}$$

$$\text{Debtors Velocity} = \frac{365 \text{ days}}{\text{Debtors Turnover Ratio}} = \frac{365 \text{ days}}{6.64 \text{ times}} = 55 \text{ days}$$

4.6.3 Creditors Turnover Ratio

It shows effectiveness of the firm in making use of credit period allowed by the creditors during the moment of credit purchase.

$$\text{Creditors Turnover Ratio} = \frac{\text{Credit Purchase}}{\text{Average Creditors}} \text{ or } \frac{\text{Credit Purchase}}{\text{Bills Payable} + \text{Sundry Creditors}}$$

Caution ***Standard norm of the ratio:*** Lesser the ratio is better the position of the firm in liquidity management means enjoying the more credit period from the creditors and vice versa.

$$\text{Creditors Velocity} = \frac{365 \text{ days}/52 \text{ weeks}/12 \text{ months}}{\text{Creditors Turnover Ratio}}$$

Caution ***Standard norm of the ratio:*** Greater the duration is better the liquidity management of the firm in availing the credit period of the creditors and vice versa.

Example: Find out the value of creditors from the following:

Sales ₹1,00,000	Opening stock ₹10,000
Gross profit on sales 10%	Closing stock ₹20,000
Creditors velocity 73 days	Bills payable ₹16,000

Note: All purchases are credit purchases

Notes

Solution:

To find out the volume of purchases, the formula of cost of goods sold should be taken into consideration.

Cost of goods sold = Opening Stock + Purchases – Closing Stock

= 10,000 + Purchases – 20,000

Cost of goods sold = Sales – Gross Profit

= 1,00,000 – 10% on 1,00,000 = 90,000

The next step is to apply the found value in the early equation

Purchases = 90,000 – 10,000 + 20,000 = 1,00,000

To find out the value creditors, the creditor velocity and creditors turnover ratio

$$\text{Creditors Velocity} = \frac{365 \text{ days}}{\text{Creditors Turnover Ratio}}$$

$$\text{Creditors Turnover Ratio} = \frac{\text{Credit Purchases}}{\text{Bills Payable + Sundry Creditors}}$$

$$= \frac{1,00,000}{16,000 + \text{ Sundry Creditors}}$$

The next step is to find out the sundry creditors, the reversal process to be adopted

$$73 \text{ days} = \frac{365 \text{ days}}{\text{Creditors Turnover Ratio}}$$

$$\text{Creditors Turnover Ratio} = \frac{365 \text{ days}}{73 \text{ days}} = 5 \text{ times}$$

The next step is to substitute the found value in the equation of creditors turnover ratio

$$16{,}000 + \text{Sundry creditors} = \frac{₹1,00,000}{5}$$

Sundry Creditors = 20,000 – 16,000 = 4,000

Solved Problems for Practice

1. Sundaram & Co. sells goods on cash as well as credit basis. The following particulars are extracted from the books of accounts for the calendar year 2005:

Particulars	₹
Total Gross sales	2,00,000
Cash sales (included in above)	40,000
Sales returns	14,000
Total Debtors	18,000
Bills receivable	4,000
Provision for doubtful debts	2,000
Total creditors	20,000

Calculate the average collection period.

Notes

To find out the average collection period, first the debtors' turnover ratio has to be computed

$$\text{Debtor's turnover ratio} = \frac{\text{Net credit sales}}{\text{Bills receivable} + \text{Debtors}}$$

Net credit sales = Gross sales - cash sales - sales return

= ₹2,00,000 - ₹40,000 - ₹14,000 = ₹1,46,000

$$\text{Debtor turnover ratio} = \frac{₹1,46,000}{₹4,000 + ₹18,000}$$

= 6.64 times

$$\text{Debtor's velocity} = \frac{365 \text{ days}}{\text{Debtors turnover ratio}} = \frac{365 \text{ days}}{6.64 \text{ times}}$$

= 55 days

2. Determine the value of the closing stock from the following details:

Sales ₹8,00,000

Gross profit 10% on sales

Stock velocity 4 times

Closing stock was ₹ 10,000 in excess of opening stock.

To find out the closing stock, stock turnover ratio is to be taken for consideration.

$$\text{Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

Cost of goods sold = Sales-Gross profit

= ₹8,00,000-10% on ₹8,00,000

= ₹8,00,000-80,000 = ₹7,20,000

$$4 \text{ times} = \frac{₹7,20,000}{\text{Average stock}}$$

Average stock = ₹1,80,000

$$\frac{\text{Opening stock} + \text{Closing stock}}{2} = ₹1,80,000 \qquad ...(1)$$

Now, the closing stock value only is to be computed which is excess of ₹ 10,000 over opening stock.

Closing stock = Opening stock + ₹10,000 ...(2)

Substitute the found value of closing stock (2) in the equation (1)

Opening stock + Opening stock + ₹10,000 = ₹3,60,000

2 Opening stock = ₹3,50,000

$$\text{Opening stock} = \frac{₹3,50,000}{2} = ₹1,75,000$$

Closing stock = ₹1,75,000 + ₹10,000 = ₹1,85,000

Notes

3. Find out the value of creditors from the following:

Sales ₹1,00,000	Opening stock ₹10,000
Gross profit on Sales 10%	Closing stock ₹20,000
Creditors velocity 73 days	Bills payable ₹16,000

Note: All purchases are credit purchases.

Solution:

To find out the volume of purchases, the formula of cost of goods sold should be taken into consideration.

Cost of goods sold = Opening stock + Purchases - Closing stock

X = ₹10,000 + Y - ₹20,000

Cost of goods sold = Sales - Gross profit

= ₹1,00,000-10% on ₹1,00,000

= ₹90,000

The next step is to apply the found value in the early equation.

Purchases = ₹ 90,000 - ₹10,000 + ₹20,000

= ₹ 1,00,000

To find out the value of creditors, the creditor velocity and creditors turnover ratio-

$$\text{Creditors velocity} = \frac{365 \text{ days}}{\text{Creditors turnover ratio}}$$

$$\text{Creditors turnover ratio} = \frac{\text{Credit purchases}}{\text{Bills payable} + \text{Sundry creditors}}$$

$$= \frac{₹1,00,000}{₹16,000 + \text{Sundry creditors}}$$

The next step is to find out the sundry creditors; the reversal process is to be adopted.

$$73 \text{ days} = \frac{365 \text{ days}}{\text{Creditors turnover ratio}}$$

$$\text{Creditors turnover ratio} = \frac{365 \text{ days}}{73 \text{ days}} = 5 \text{ times}$$

The next step is to substitute the found value in the equation of creditors turnover ratio.

$$₹16,000 + \text{Sundry creditors} = \frac{₹1,00,000}{5}$$

Sundry creditors = ₹20,000 - ₹16,000 = ₹4,000

Notes

Task From the following particulars, prepare Trading, Profit & Loss account and a balance sheet.

Current ratio -3

Liquid ratio -1.8

Bank overdraft - ₹20,000

Working capital - ₹2,40,000

Debtors velocity -1 month; Gross profit ratio -20%

Proprietary ratio (Fixed assets/shareholders' fund) -.9

Reserves and surpluses -.25 of share capital

Opening stock - ₹1,20,000; 8% Debentures -₹ 3,60,000

Long term investments -₹2,00,000

Stock turnover ratio -10 times

Creditors velocity -1/2 month

Net profit to share capital -20%

Self Assessment

State whether the following statements are true or false:

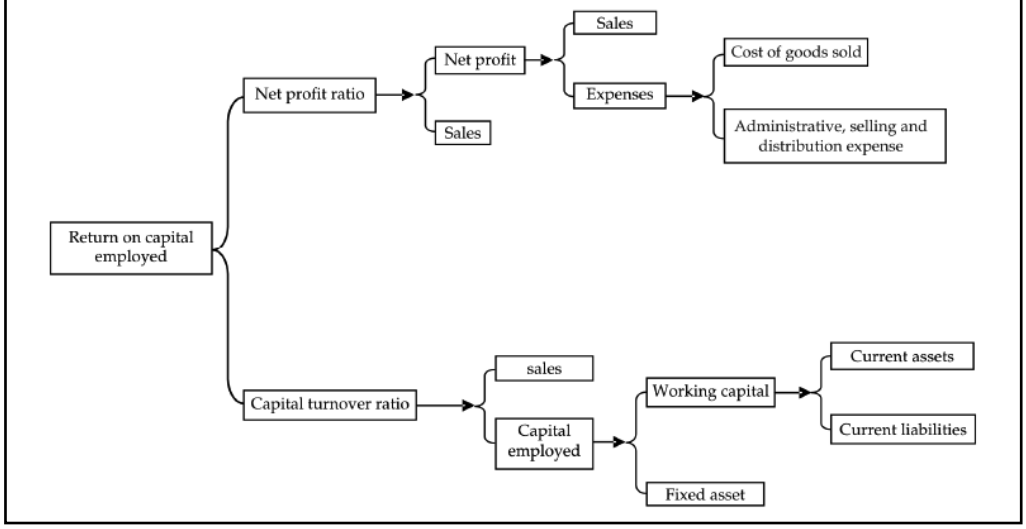
14. The stock turnover ratio expresses the speed of converting the stock into cash.
15. Higher the duration shows greater the effectiveness in collecting the dues.
16. Greater the duration is better the liquidity management of the firm in availing the credit period of the creditors and vice versa.

4.7 DUPONT Analysis

This was an analysis established by the DUPONT INC., USA to study the return on investment. It was the first company developed the chart which depicted the influences of Return on Investment. The company underwent for the consideration two important ratios, Net profit ratio and Capital turnover ratio, for the return on investment. A change in any one of the two ratios reflects immediately on the Return on investment. The various associated factors are considered to study the impact of the profitability of the firm. This type of analysis to correct the problems not only to identify with the specific cause which drastically affects the profitability but also to find the possible ways and means to improve the profitability. Having developed the chart for analysis was called as DUPONT Chart.

Notes

Figure 4.4: DUPONT Chart



4.8 Relevance of Ratio Analysis

Ratio analysis has a lot of utility which may be understood by the following discussion:

1. ***Easy to understand the financial position of the firm:*** The ratio analysis facilitates the parties to read the changes taken place in the financial performance of the firm from one time period to another.
2. ***Measure of expressing the financial performance and position:*** It acts as a measure of financial position through Liquidity ratios and Leverage ratios and also a measure of financial performance through Profitability ratios and Turnover Ratios.
3. ***Intra-firm analysis on the financial information over many number of years:*** The financial performance and position of the firm can be analysed and interpreted with in the firm in between the available financial information of many number of years; which portrays either increase or decrease in the financial performance.
4. ***Inter-firm analysis on the financial information within the industry:*** The financial performance of the firm is studied and interpreted along with the similar firms in the industry to identify the presence and status of the respective firm among others.
5. ***Possibility for financial planning and control:*** It not only guides the firm to earn in accordance with the financial forecasting but also facilitates the firm to identify the major source of expense which drastically has greater influence on the earnings.

Self Assessment

Fill in the blanks:

17. The ratio analysis facilitates the parties to read the changes taken place in the …… of the firm from one time period to another.
18. Ratio analysis acts as a measure of financial position through Liquidity ratios and ……

Notes

4.9 Summary

- Ratio analysis is one of the important tools of financial statement analysis to study the financial structure of the business fleeces.
- Financial ratio analysis is the calculation and comparison of ratios which are derived from the information in a company's financial statements.
- The level and historical trends of these ratios can be used to make inferences about a company's financial condition, its operations and attractiveness as an investment.
- Financial ratios are calculated from one or more pieces of information from a company's financial statements.
- A ratio gains utility by comparison to other data and standards.
- Ratios are classified as liquidity, leverage, profitability, activity, integrated and growth ratio.
- Although financial ratio analysis is well-developed and the actual ratios are well-known, practicing financial analysts often develop their own measures for particular industries and even individual companies.
- Analysts often differ drastically in their conclusions from the same ratio analysis.

4.10 Keywords

Balance Sheet or Positional Statement Ratios: These type of ratios are calculated from the balance sheet of the enterprise which normally reveals the financial status of the position i.e. short-term, long-term financial position, Share of the owners on the total assets of the enterprise and so on.

Capital Structure Ratios: The capital structure position are analysed through leverage ratios as well as coverage ratios.

Current Assets: Current assets are in the form of cash, equivalent to cash or easily convertible into cash.

Current Liabilities: Current liabilities are short-term financial resources or payable in short span of time within a year.

Income Statement Ratios: These ratios are computed from the statements of Trading, Profit & Loss account of the enterprise.

4.11 Review Questions

1. Is the firm satisfies the standard norm of the current asset ratio and liquid assets ratio?

M/s Shanmuga & Co
Balance sheet as on dated 31st Mar, 2005

Liabilities	₹	Assets	₹
Share capital	42,000	Fixed Assets Net	34,000
Reserve	3,000	Stock	12,400
Annual Profit	5,000	Debtors	6,400
Bank overdraft	4,000	Cash	13,200
Sundry creditors	12,000		
	66,000		**66,000**

Notes

2. Liquid Assets ₹ 65,000; Stock ₹ 20,000; Pre-paid expenses ₹ 5,000; Working capital ₹ 60,000. Calculate current assets ratio and liquid assets ratio.

3. The current ratio of Bicon Ltd. is 4.5:1 and liquidity ratio is 3:1 stock is ₹ 6,00,000. Find out the current liabilities.

4. From the following information, prepare a balance sheet show the workings

		₹
(a)	Working capital	75,000
(b)	Reserves and surplus	1,00,000
(c)	Bank overdraft	60,000
(d)	Current ratio	1.75
(e)	Liquid Ratio	1.15
(f)	Fixed assets to proprietors' fund	.75
(g)	Long term liabilities	Nil

5.

Debtors velocity	3 months
Creditors velocity	2 months
Stock velocity	8 times
Capital turnover ratio	2.5 times
Fixed assets turnover ratio	8 times
Gross profit turnover ratio	25%

Gross profit in a year amounts to ₹ 1,60,000 .There is no long term loan or overdraft. Reserves and surplus amount to ₹ 56,000. Liquid assets are ₹ 1,94,666. Closing stock of the year is ₹ 4,000 more than the opening stock Bill receivable amount to ₹ 10,000 and bills payable to ₹ 4,000

(a) Find out

(i) Sales

(ii) Closing stock

(iii) Sundry debtors

(iv) Fixed assets

(v) Sundry creditors

(vi) Proprietors' fund.

(b) Draft the balance sheet with as many as details as possible.

6. You have been hired as an analyst for Mellon Bank and your team is working on an independent assessment of Daffy Duck Food In(c) (DDF In(c)) DDF In(c) is a firm that specializes in the production of freshly imported farm products from France. Your assistant has provided you with the following data for Flipper Inc. and their industry.

Ratios	2009	2008	2007	2009-Industry Average
Long-term debt	0.45	0.40	0.35	0.35
Inventory Turnover	62.65	42.42	32.25	53.25

Contd…

Notes

Depreciation/Total Assets	0.25	0.014	0.018	0.015
Days' sales in receivables	113	98	94	130.25
Debt to Equity	0.75	0.85	0.90	0.88
Profit Margin	0.082	0.07	0.06	0.075
Total Asset Turnover	0.54	0.65	0.70	0.40
Quick Ratio	1.028	1.03	1.029	1.031
Current Ratio	1.33	1.21	1.15	1.25
Times Interest Earned	0.9	4.375	4.45	4.65
Equity Multiplier	1.75	1.85	1.90	1.88

In the annual report to the shareholders, the CEO of Flipper Inc wrote, "2007 was a good year for the firm with respect to our ability to meet our short-term obligations. We had higher liquidity largely due to an increase in highly liquid current assets (cash, account receivables and short-term marketable securities)." Is the CEO correct? Explain and use only relevant information in your analysis.

7. In the above question, what will you say when you are asked to provide the shareholders with an assessment of the firm's solvency and leverage. Be as complete as possible given the above information, but do not use any irrelevant information.

8. Firm A has a Return on Equity (ROE) equal to 24%, while firm B has an ROE of 15% during the same year. Both firms have a total debt ratio (D/V) equal to 0.8. Firm A has an asset turnover ratio of 0.9, while firm B has an asset turnover ratio equal to 0.4. What can we analyse about the relationship between both the firms?

9. If a firm has ₹ 1,00,000 in inventories, a current ratio equal to 1.2, and a quick ratio equal to 1.1, what is the firm's Net Working Capital?

10. What can you say about the asset management of the firm discussed in question 6? Be as complete as possible given the above information, but do not use any irrelevant information.

11. The data summarised in the table below show the performance of two firms A and B, over five years.

	Firm	Years				
		1	2	3	4	5
Gross profit margin %	A	42	37	35	37	35
	B	30	32	32	33	34
Net profit margin %	A	16	13	12	12	10
	B	10	11	11	12	12
Return on capital employeed %	A	14	13	12	12	11
	B	9	10	10	11	11
Acid Test Ratio	A	2.7	2.6	2.5	2.5	2.4
	B	1.7	1.8	1.5	0.8	1.0

(a) Using the information in the table explain the comparative attractiveness of the two firms to a potential investor.

(b) Why is it important that potential investors should be aware of the ratio of ordinary share capital to other forms of long-term finance?

Answers: Self Assessment

1. financial statement
2. quantitative
3. capital structure
4. profitability

Notes

5.	current assets	6.	Closing Stock
7.	super quick assets	8.	(d)
9.	(d)	10.	(c)
11.	earning capacity	12.	cost of goods sold
13.	capital employed	14.	False
15.	False	16.	True
17.	financial performance	18.	Leverage ratios

4.12 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.

Online links

www.authorstream.com

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Notes

Unit 5: Fund Flow Statement

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Objectives

After studying this unit, you will be able to:

- Explain the meaning of fund flow statement
- Prepare the statement of changes in working capital
- Construct fund flow statement

Introduction

Every business establishment usually prepares the balance sheet at the end of the fiscal year which highlights the financial position of the yester years It is subject to change in the volume of the business not only illustrates the financial structure but also expresses the value of the applications in the liabilities side and assets side respectively. Normally, Balance sheet reveals the status of the firm only at the end of the year, not at the beginning of the year. It never discloses the changes in between the value position of the firm at two different time periods/dates.

The method of portraying the changes on the volume of financial position is the analysis of fund flow statement.

5.1 Meaning of Fund Flow Statement

In a narrow sense, the term fund means cash, and the fund flow statement depicts the cash receipts and cash disbursements/payments. It highlights the changes in the cash receipts and payments as a cash flow statement in addition to the cash balances i.e. opening cash balance and closing cash balance. Contrary to the earlier, the fund means working capital, i.e. the differences between the current assets and current liabilities.

The term flow denotes the change. Flow of funds means the change in funds or in working capital. The change on the working capital leads to the net changes taken place on the working capital,

Notes

i.e. especially due to either increase or decrease in the working capital. Some of the transactions may lead to increase or decrease the volume of working capital. Some other transactions register neither an increase nor decrease in the volume of working capital.

According to Foulke, "A statement of source and application of funds is a technical device designed to analyse the changes to the financial condition of a business enterprise in between two dates."

Various facets of fund flow statement are as follows:

1. Statement of sources and application of funds
2. Statement changes in financial position
3. Analysis of working capital changes and
4. Movement of funds statement
5. Depreciation charged on assets
6. Appropriation of profits to reserves
7. Payment of interim dividends
8. Payment and appropriations in relation to provisions for taxation/dividends where they are treated as non-current liabilities.

Fund flow statement has following objectives:

1. It pinpoints the mobilization of resources and the further utilization of resources.
2. It highlights the financing of the general expansion of the business firms.
3. It exemplifies the utilization of debt finance in the structure of financing.
4. It portrays the relationship between the financing, investments, liquidity and dividend decision of the firm during the given point of time.

Notes Steps in the Preparation of Fund Flow Statement:

1. First and foremost step is to prepare the statement of changes in working capital, i.e. to identify the flow of fund/movement of fund through the detection of changes in the volume of working capital.
2. Second step is the preparation of Non-current A/c items-Changes in the volume of Non-current A/cs have to be prepared only in order to quantify the flow fund, i.e. either sources or application of fund.
3. Third step is the preparation Adjusted Profit & Loss A/c, which already elaborately discussed in the early part of the unit.
4. Last step is the preparation of fund flow statement.

Self Assessment

Fill in the blanks:

1. The fund flow statement depicts the …… receipts and cash disbursements/ payments.
2. Fund flow means a study of ……

5.2 Preparation of Statement of Changes in Working Capital

Notes

The ultimate purpose of preparing the schedule of changes in the working capital illustrates the changes in the volume of net working capital which envisages either sources or application of fund. The schedule of changes is focused as follows:

Increase in Current Assets	Increase in Working Capital
Decrease in Current Assets	Decrease in Working Capital
Increase in Current Liabilities	Decrease in Working Capital
Decrease in Current Liabilities	Increase in Working Capital

Particulars	Previous Year	Current Year	Increase in Working Capital (+)	Decrease in Working Capital (-)
(A) Current Assets: Cash in Hand Cash at Bank Marketable Securities Bills Receivable Sundry Debtors Closing Stock Prepaid Expenses				
(B) Current Liabilities: Creditors Bills Payable Outstanding expenses Pre received Income Provision for doubtful and bad debts				
Net Working Capital(A-B) Increase/Decrease Working Capital				

Example: From the following details prepare a statement showing changes in working capital during 2006.

Balance Sheet of Pioneer Ltd
as on 31st December

Liabilities	2005 (₹)	2006 (₹)	Assets	2005 (₹)	2006 (₹)
Share capital	5,00,000	6,00,000	Fixed assets	10,00,000	11,20,000
Reserves	1,50,000	1,80,000	Less: Depreciation	3,70,000	4,60,000
Profit and Loss A/c	40,000	65,000		6,30,000	6,60,000
Debentures	3,00,000	2,50,000	Stock	2,40,000	3,70,000
Creditors for goods	1,70,000	1,60,000	Book Debts	2,50,000	2,30,000
Provision for tax	60,000	80,000	Cash in hand	80,000	60,000

Contd…

Notes

			Preliminary expenses	20,000	15,000
	12,20,000	**13,35,000**		**12,20,000**	**13,35,000**

Solution: Schedule of Changes in Working Capital

	2005	2006	Increase in Working Capital	Decrease in Working Capital
Current Assets:				
Stock	2,40,000	3,70,000	1,30,000	–
Book debts	2,50,000	2,30,000	–	20,000
Cash in hand	80,000	60,000	–	20,000
	5,70,000	6,60,000	1,30,000	40,000
Current Liabilities:				
Creditors for goods	1,70,000	1,60,000	10,000	–
Working capital	4,00,000	5,00,000	1,40,000	40,000
Increase in working capital	1,00,000	–	–	1,00,000
	5,00,000	5,00,000	1,40,000	1,40,000

Self Assessment

State whether the following statements are true or false:

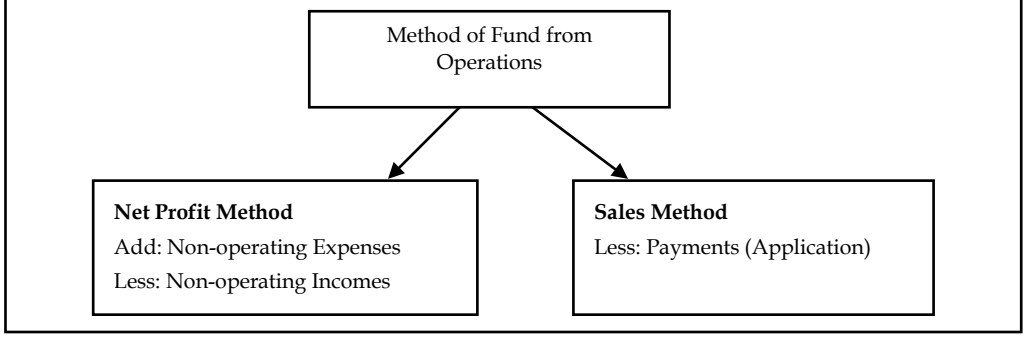
3. Normally, working capital means current assets.
4. Increase in current assets means increase in working capital.
5. Purchase of plant and machinery ₹ 10 lakh through the issue of 1 Lakh shares at ₹ 10 per share; affect the non-current asset and current liabilities accounts.
6. XYZ Ltd. has made a credit purchase of ₹ 1 lakh worth of goods led to ₹ 1 lakh worth of additional stock of tradable goods for the enterprise, leads to increase in the working capital.

5.3 Preparing Funds from Operations

The following are the key methods of preparing fund from operations:

- Net Profit Method
- Sales Method

Figure 5.1 Methods of Funds from Operations



Notes

Caution The first method is widely used method by all in determining the volume of Fund from Operations (FFO).

5.3.1 Net Profit Method

Under the Net Profit Method, fund flow from operations can be computed. Under this method, fund from operations can be determined in two different ways The first method is through the statement format

Net Profit from the Profit & Loss A/c		xxxxx
Add:		
1.	***Non-funding Expenses:***	
	Loss on Sale of Fixed Assets	xxxx
	Loss on Sale of Long-term Investments	xxxx
	Loss on Redemption Debentures/Preference Shares	xxxx
	Discount on Debentures/Share	xxxx
2.	***Non-operating Expenses:***	
	Depreciation of Fixed Assets	xxxx
3.	***Intangible Assets:***	
	Amortization of Goodwill	xxxx
	Amortization of Patent	xxxx
	Amortization of Trade Mark	xxxx
4.	***Fictitious Assets:***	
	Writing off Preliminary Expense	xxxx
	Writing off Discount on Shares/Debentures	xxxx
5.	***Profit Appropriation***	
	Transfer to General Reserve	xxxx
	Less:	
6.	***Non-funding Profits:***	
	Profit on Sale of Fixed Assets	xxxx
	Profit on Sale of Long-term Investments	xxxx
	Profit on Redemption Debentures/Preference Shares	xxxx
7.	***Non-operating Incomes:***	
	Dividend Received	xxxx
	Interest Received	xxxx
	Rent Received	xxxx
	Fund From Operations/Fund Lost in Operations	xxxxx

Notes

The second method of determining the fund from operations under the first classification is the Accounting Statement Format

Adjusted Profit & Loss A/c

Dr			Cr
To Depreciation	xxxx	By Opening Balance Profit	Xxxx
To Goodwill Written off	xxxx	By Profit on Sale of Fixed Assets	Xxxx
To Patent Written off	xxxx	By Profit on Sale of Investments	Xxxx
To Loss on Sale of Fixed Asset	xxxx	By Profit on Redemption of Liability	Xxxx
To Loss on Sale of Investment	xxxx	By Transfer from General Reserve	Xxxx
To Loss on Redemption of Liability	xxxx	By Balancing Figure fund from Operations (FFO)	Xxxx
To Preliminary Expenses off	xxxx		
To Proposed Dividend	xxxx		
To Transfer to General Reserve	xxxx		
To Current Year Provision for Taxation	xxxx		
To Current Year Provision for Depreciation	xxxx		
To Balancing Figure (Fund Lost in Operations)	xxxx		

5.3.2 Sales Method

Under this method, the following is the statement format is used to arrive fund flow from operations.

Sources:

Sales	xxxxx
Stock at the end	xxxxx
Less:	

Application:

Stock at Opening	xxxx
Net Purchases(Purchase-Returns)	xxxx
Wages	xxxx
Salaries	xxxx
Telephone expenses	xxxx
Electricity charges	xxxx
Office stationery expenses	xxxx
Other operating cash expenses	xxxx
Fund from Operations	xxxx

Notes

Example: From the following details calculate funds from operations:

	₹
Salaries	10,000
Rent	6,000
Refund of Tax	6,000
Profit on Sale of Building	10,000
Depreciation on Plant	10,000
Provision for Taxation	8,000
Loss on Sale of Plant	4,000
Closing Balance of Profit & Loss A/c	1,20,000
Opening Balance on Profit & Loss A/c	50,000
Discount on Issue of Debentures	4,000
Provision for Bad Debts	2,000
Transfer to General Reserve	2,000
Preliminary Expenses written off	6,000
Goodwill written off	4,000
Dividend Received	10,000
Proposed Dividend	12,000

Solution:

Calculation of fund from operation

First Method

Closing Balance of Profit & Loss A/c	1,20,000
Less: Opening Balance	50,000
Balance Forward	70,000
Add: Non-fund/Non-operating Charges	
Depreciation on Plant	10,000
Provision for Taxation	8,000
Loss on Sale of Plant	4,000
Discount on Issue of Debentures	4,000
Provision for Bad Debts	2,000
Transfer to General Reserve	2,000
Preliminary Expenses off	6,000
Goodwill Written off	4,000
Proposed Dividend	12,000
	1,22,000

Notes

Less: Refund of Tax	6,000
Profit on Sale of Building	10,000
Dividend Received	10,000
Fund from Operations	96,000

Second Method:

Adjusted Profit & Loss A/c

To Depreciation on Plant	10,000	By Opening Balance b/d	50,000
To Provision for Taxation	8,000	By Profit on Sale of Building	10,000
To Loss on Sale of Plant	4,000	By Dividend Received	10,000
To Discount on issue of debentures	4,000	By Refund of Tax	6,000
To Provision for bad debts	2,000	By Balancing Figure	96,000
To Transfer to general reserve	2,000	Fund from Operations	
To Preliminary expenses off	6,000		
To Goodwill written off	4,000		
To Proposed Dividend	12,000		
To Closing Profit c/d	1,20,000		
	1,72,000		**1,72,000**

Task Discuss any non-current account transactions affecting the fund position of a firm of your choice..

Self Assessment

Choose the appropriate answer

7. Adjusted profit and loss account is prepared for
   (a) Determining the fund from operations
   (b) Determining the fund lost in operations
   (c) Either (a) or (b)
   (d) None of the above
8. Fund flow statement is categorized into two parts
   (a) Fund inflow and Fund outflow
   (b) Cash inflow and Cash outflow
   (c) Sources and Applications
   (d) None of the above
9. Fund from operations is
   (a) Sources of the firm
   (b) Applications of the firm

Notes

(c) Neither sources nor applications

(d) None of the above

5.4 Preparing Fund Flow Statement

The next step is to prepare the fund flow statement. The proforma of the fund flow statement:

Sources of Funds	Uses of Funds
• Funds from Business Operation	• Funds Lost in Operations
• Non-trading Incomes	• Redemption of Preference Share Capital
• Sale of Non-current Assets	• Repayment of Loans
• Sale of Long-term Investments	• Purchase of Long-term Investments
• Issue of Shares	• Purchase of Fixed Assets
• Acceptance of Deposits	• Payment of Taxes
• Long-term Borrowings	• Payment of Dividends
• Decrease in Working Capital	• Drawings
	• Loss of Cash
	• Increase in Working Capital

Important Adjustments

1. ***Provision for Tax:*** At the time of preparation of fund flow statement, there are two approaches to treat this item. These are:

   (i) Treat it as a current liability

   (ii) Treat it as an appropriation of profit

   As per first approach, the provision for taxation is assumed as a current liability. Therefore, it must be shown in the schedule of working capital changes. All the information relating taxation should be ignored as in the case of other current liabilities. In this approach, the provision, for taxation is neither used in the fund from operation nor in the uses of fund in the Fund Flow Statement as payment of tax liability.

   Under second approach, the provision for taxation is treated as an appropriation of profit. Provision for taxation is not shown in the Schedule of Working Capital Changes. As other appropriations it is added back in the net profits to calculate the Fund from Operation. To find the payment of tax of the year provision for taxation account is prepared. Payment of the tax of the year is disclosed in the Uses of Fund in the Fund Flow Statement. Provision for taxation a/c is prepared as hereunder:

Provision for Taxation

	₹		₹
To Cash (Payment of tax)	-	By balance b/d	-
(Balancing figure)		By P & L a/c (current year's provision)	-
To balance c/d	-		
	–		–

   However, it is advised to the students to adopt the first approach. This approach is more convenient for the students. Provision for taxation is also disclosed under the heading of current liabilities and provisions in the Balance Sheet of the Company as per the Indian Companies Act. This approach is adopted in the book also.

Notes

2. ***Proposed Dividend and Dividend Paid:*** Dividend paid during the year should be treated as an application of fund, therefore, it must be shown in the fund flow statement. Proposed dividend is not accumulated therefore, it should not be treated as a current liability. It is assumed that the proposed dividend of the previous year is paid during the year whether it is said or not. Therefore, it will be a use of fund. Proposed dividend and interim dividend are the appropriations against profit. So to calculate the fund from operation it must be added back to net profits like other appropriations. It must be noted that the closing balance of the P & L account of a year should be equal to the opening balance of P & L A/c in the next year. If there is any difference between these two figures, difference should be treated as payment of dividend during the year.

3. ***Depreciation of the Assets:*** It is an item considered to be non-recurring expenditure. It was considered at par with the other expenditures/expenses which do not reduce the volume of working capital. The charge of depreciation never indulges in the payment of cash resources from the firm.

   Writing off Fictitious and Intangible Assets:

Fictitious Assets	Intangible Assets
Preliminary expenses	Goodwill
Discount on issue of shares/ debentures	Patents
	Trade Mark

The writing off of the above enlisted item of fictitious and intangible assets do not involve any payments.

Example: From the following relating to Panasonic Ltd., prepare funds flow statement.

Balance Sheet of Panasonic Ltd.
as on 31st December

Liabilities	2005 (₹)	2006 (₹)	Assets	2005 (₹)	2006 (₹)
Share capital	6,00,000	8,00,000	Fixed assets	3,80,000	4,20,000
Reserves	2,00,000	1,00,000	Accounts receivable	2,10,000	3,00,000
Retained earnings	60,000	1,20,000	Stock	3,00,000	3,90,000
Accounts payable	90,000	2,70,000	Cash	60,000	1,80,000
	9,50,000	**12,90,000**		**9,50,000**	**12,90,000**

Additional Information:

1. The company issued bonus shares for ₹ 1,00,000 and for cash ₹ 1,00,000.
2. Depreciation written off during the year ₹ 30,000.

Solution:

The first step is prepare the statement of changes in working capital.

Schedule of Changes in Working Capital

	2005	2006	Increase in Working Capital	Decrease in Working Capital
Total Current Assets (A): (TCA)				
Cash	60,000	1,80,000	1,20,000	–
Stock in trade	3,00,000	3,90,000	90,000	–
Accounts receivable	2,10,000	3,00,000	90,000	–
	5,70,000	8,70,000		

Contd…

Notes

Total Current Liabilities (B): (TCL)				
Accounts payable	90,000	2,70,000		1,80,000
Working capital (A-B)	4,80,000	6,00,000	3,00,000	1,80,000
Increase in working capital	1,20,000			1,20,000
	6,00,000	6,00,000	3,00,000	3,00,000

The next step is to prepare the non-current account.

First non-current asset account should have to be prepared.

Dr **Fixed Assets A/c** Cr

Particulars	₹	Particulars	₹
To Balance b/d	3,80,000	By Depreciation (Adjusted Profit &Loss A/c)	30,000
To Cash (Purchase) Balancing fig.	70,000	By Balance c/d	4,20,000
	4,50,000		**4,50,000**

The next non-current account is that non-current liability which is nothing but Share capital

Dr **Share Capital A/c** Cr

Particulars	₹	Particulars	₹
To Balance c/d	8,00,000	By Cash (Issue of shares)	1,00,000
		By General reserve	1,00,000
		By Balance b/d	6,00,000
	8,00,000		**8,00,000**

And another non-current account is to be prepared that general reserve account.

Dr **General Reserve A/c** Cr

Particulars	₹	Particulars	₹
To Share capital	1,00,000	By Balance b/d	2,00,000
To Balance c/d	1,00,000		
	2,00,000		**2,00,000**

The next step is to prepare the Adjusted Profit & Loss A/c.

Dr **Adjusted Profit & Loss A/c** Cr

Particulars	₹	Particulars	₹
To (Fixed Assets) depreciation	30,000	By Balance b/d (Retained Earnings)	60,000
To Balance c/d	1,20,000	By Fund from operation Balancing fig.	90,000
	1,50,000		**1,50,000**

The next step is to prepare the fund flow statement of the enterprise.

Fund Flow Statement

Sources	₹	Applications	₹
Issue of Shares	1,00,000	Purchase of Land	70,000
Funds from operation	90,000	Increase in working capital	1,20,000
	1,90,000		**1,90,000**

Notes

Solved Problems for Practice

1. Balance sheets of M/s Black and White as on 1-1-2006 and 31-12-2006 were as follows:

Balance Sheet

Liabilities	1-1-06 ₹	31-12-06 ₹	Assets	1-1-06 ₹	31-12-06 ₹
Creditors	40,000	44,000	Cash	10,000	7,000
Mrs.Whites'Loan	25,000	-	Debtors	30,000	50,000
Loan from P.N.Bank	40,000	50,000	Stock	35,000	25,000
Captial	1,25,000	1,53,000	Machinery	80,000	55,000
			Land	40,000	50,000
			Building	35,000	60,000
	2,30,000	**2,47,000**		**2,30,000**	**2,47,000**

Additional Information:

During the year, machine costing ₹10,000 (accumulated depreciation ₹3,000) was sold for ₹5,000. The provision for depreciation against machinery as on 1-1-2006 was ₹25,000 and on 31-12-2006 ₹40,000. Net profit for the year 2006 amounted to ₹45,000. You are required to prepare funds flow statement.

The very first step is to prepare the statement of changes in working capital.

Changes in working capital between the various current assets and current liabilities are as follows:

Current Assets:

- Cash
- Debtors
- Stock

Current Liabilities:

- Sundry creditors

Statement of changes in Working Capital

	1-1-2006 ₹	31-12-2006 ₹	Increase in Working Capital	Decrease in Working Capital
Current Assets:				
Cash	10,000	7,000	----------	3,000
Debtors	30,000	50,000	20,000	----------
Stock	35,000	25,000	---------	10,000
	75,000	82,000		
Current Liability:				
Sundry creditors	40,000	44,000	----------	4,000
Working capital	35,000	38,000	20,000	17,000
Increase in working capital	3,000			3,000
	38,000	38,000	20,000	20,000

The next step is to determine the cost of the machinery before the charge of depreciation i.e. to find out the Gross value of the assets. In other, words, original cost of the assets to be found out at the moment of purchase.

Notes

	1-1-2006	31-12-2006
Written down value of the machinery extracted from the balance sheet as on dated	₹80,000	₹55,000
Add: Accumulated depreciation or Provision for depreciation	25,000	40,000
Original Cost of Machinery	1,05,000	95,000

The ultimate aim is to find out the original cost of the machinery for the preparation of the machinery account.

Before preparing the Machinery account, the worth of the sale transaction of the machinery should be found out.

Original cost of the Machinery	₹10,000
(-) Depreciation	₹3,000
Machinery worth for sale	₹7,000
(-) Machinery sold	₹5,000
Loss on sale of the portion of the machinery sold	₹2,000

The entry for the loss on sale of machinery sold

Loss on sale a/c Dr	₹2,000
To Machinery a/c	₹2,000

The next entry is for the adjusted profit and loss account.

Adjusted Profit & Loss A/c Dr	₹2,000
To Loss on sale a/c	₹2,000

Dr **Machinery A/c** Cr

Particular	₹	Particulars	₹
To Balance B/d	1,05,000	By Cash (Sales)	5,000
		By Provision for Depreciation	3,000
		By loss on sale(Adjusted profit and loss account)	2,000
		By Balance c/d	95,000
	1,05,000		**1,05,000**

The next one is the provision for depreciation account or accumulated depreciation account.

Dr **Provision for Depreciation A/c** Cr

Particulars	₹	Particulars	₹
To Machinery A/c	3,000	By Balance B/d	25,000
To Balance c/d	40,000	By depreciation provided during the current year	18,000
	43,000		**43,000**

The next non-current liability account to be prepared is that capital account.

In the additional information net profit for the year 2006 ₹ 45,000 is given.

Net profit is transferred to capital account.

Why the net profit is transferred to capital account?

Notes

Income earned in the form of net profit should be added to the capital account.

Net profit A/c Dr ₹ 45,000

To Capital A/c ₹ 45,000

Dr **Capital A/c** Cr

Particulars	₹	Particulars	₹
To Drawings (Balancing fig.)	17,000	By Balance B/d	1,25,000
To Balance c/d	1,53,000	By Net profit	45,000
	1,70,000		**1,70,000**

At the end of the year, the total volume of the capital should be equivalent to ₹1,70,000 but it amounts ₹ 1,53,000. It is only due to the personal drawings of the owner of the enterprise.

The next non-current liability account is loan from P.N. Bank.

The closing volume of the loan is more than the opening balance of loan; it means that the firm has recently borrowed an amount of ₹10,000 in addition to opening balance of the loan borrowings.

While borrowing, what happens in the firm?

Debit what comes in - Cash resources are coming inside the business.

Credit the giver/liabilities - Register the name of the banker who is nothing but the giver of the loan.

Dr **Loan P.N. Bank A/c** Cr

Particulars	₹	Particulars	₹
		By Balance B/d	40,000
To Balance c/d	50,000	By Cash (Balancing fig)	10,000
	50,000		50,000

The next non-current liability is Mr. White's loan amount of ₹25,000.

The opening balance of the loan amount is greater than the closing balance which amounted to ₹25,000; it means that the initial loan amount was paid during the year.

Dr **Mr. White's A/c** Cr

Particulars	₹	Particulars	₹
To Cash (Loan paid)	25,000	By Balance B/d	25,000
To Balance c/d	----------		
	25,000		25,000

While repaying the loan amount, what happens in the firm?

The name of the party that receives the amount of loan repayment should be mentioned.

Debit the receiver - Cash resources are going out of the firm during the moment of making the repayment of the loan. Credit what goes out of the firm.

The closing balances of the land and building are greater than the opening balances: this means that additional land and building was procured by the firm for its future prospects.

The purchase of the land & building leads to applications -outflow of fund

The next step is to prepare the Adjusted Profit & Loss Account. **Notes**

Adjusted Profit & Loss Account

Particulars	₹	Particulars	₹
To Machinery (Loss on sale)	2,000	By Balance B/d	----------
To Provision for Depreciation	18,000	By fund from operations	65,000
To Balance c/d (Net profit)	45,000		
	65,000		65,000

The next step is to prepare the fund flow statement.

Fund Flow Statement

Sources	₹	Applications	₹
Sale of machinery	5,000	Purchase of land	10,000
Loan from P.N.Bank	10,000	Purchase of Building	25,000
Fund from operation	65,000	Drawings	17,000
		Repayment of Mr. White Loan	25,000
		Increase in working capital	3,000
	80,000		**80,000**

2. From the following balance sheets of A Ltd. on 31st Dec, 2008 and 2009, you are required to prepare fund flow statement.

The following additional information has also been given:

- Depreciation charged on plant was ₹4,000 and on building ₹4,000.
- Provision for taxation of ₹19,000 was made during the year 2009.
- Interim Dividend of ₹8,000 was paid during the year 2009.

Balance Sheet

Liabilities	2008 ₹	2009 ₹	Assets	2008 ₹	2009 ₹
Share capital	1,00,000	1,00,000	Goodwill	12,000	12,000
General Reserve	14,000	18,000	Building	40,000	36,000
Profit & Loss A/c	16,000	13,000	Plant	37,000	36,000
Sundry creditors	8,000	5,400	Investments	10,000	11,000
Bills payable	1,200	800	Stock	30,000	23,400
Provision for taxation	16,000	18,000	Bill receivable	2,000	3,200
Provision for doubtful debts	400	600	Debtors	18,000	19,000
			Cash	6,600	15,200
	1,55,600	**1,55,800**		**1,55,600**	**1,55,800**

The following items are considered for the statement of changes in the working capital:

Current Assets:

- Stock
- Bills receivable
- Debtors
- Cash

Notes

Current liabilities:

- Sundry creditors
- Bills payable
- Provision for doubtful debts

Provision for Taxation: It is nothing but non-current liability account which extends more than a year in duration.

The first step is to prepare the statement of changes in the working capital.

Statement of changes in Working Capital

	2008 ₹	2009 ₹	Increase in Working Capital	Decrease in Working Capital
Current Assets:				
Stock	30,000	23,400		6,600
Bill receivable	2,000	3,200	1,200	
Debtors	18,000	19,000	1,000	
Cash	6,600	15,200	8,600	
	56,600	60,800		
Current Liability:				
Sundry creditors	8,000	5,400	2,600	
Bills payable	1,200	800	400	
Provision for doubtful debts	400	600		200
	9,600	6,800		
Working capital	47,000	54,000	13,800	6,800
Increase in working capital	7,000			7,000
	54,000	54,000	13,800	13,800

The next step is to prepare the non-current accounts.

First, non-current asset account is to be prepared.

The first non-current asset account is the Building account.

Dr **Building Account** Cr

Particulars	₹	Particulars	₹
To Balance B/d	40,000	By (Depreciation)Adjusted profit & Loss A/c	4,000
		By Balance c/d	36,000
	40,000		**40,000**

The next non- current asset account is the Plant account

Dr **Plant Account** Cr

Particulars	₹	Particulars	₹
To Balance B/d	37,000	By (Depreciation) Adjusted profit & Loss A/c	4,000
To Cash (Purchase) balancing fig.	3,000	By Balance c/d	36,000
	40,000		**40,000**

To cash balancing figure means that the firm has undergone a purchase of new plant which amounted ₹ 3,000.

Notes

During the purchase, what happens in the firm?

The cash resources are going out of the firm and plant is coming into the business enterprise.

Debit what comes in - Plant

Credit what goes out - Cash

Plant A/c ₹3,000

To Cash A/c ₹3,000

The next non-current asset account is Investment account.

The opening balance is less than that of the closing balance; which means that the firm has made a purchase of investments worth of ₹1,000. The following is the journal entry:

Investments A/c Dr ₹1,000

To cash A/c ₹1,000

Dr **Investments account** Cr

Particulars	₹	Particulars	₹
To Balance B/d	10,000		
To Cash(purchase) Balancing fig	1,000	By Balance c/d	11,000
	11,000		**11,000**

The next one is the non-current liability account. The first non-current liability account is General reserve. The opening balance is less than the closing balance of the general reserve account, which means that some portion of the current year profit is transferred to General reserve. The actual entry is as follows:

Net profit A/c Dr ₹4,000

To General reserve A/c ₹4,000

For finding out the fund from operations, the amount which was transferred from the net profit to general reserve should be added back in order to identify the original volume.

Adjusted Profit & Loss A/c ₹4,000

To General Reserve A/c ₹4,000

Dr **General Reserve Account** Cr

Particulars	₹	Particulars	₹
		By Balance B/d	14,000
To Balance B/d	18,000	By (Adjusted profit and loss A/c) Profit transferred during the current year	4,000
	18,000		**18,000**

The next non-current liability account is Provision for taxation account.

Dr **Provision for Taxation Account** Cr

Particulars	₹	Particulars	₹
To Cash (Tax paid previous year taxation) Balancing fig.	17,000	By Balance B/d	16,000
To Balance B/d	18,000	By (Adjusted profit & Loss A/c) provision for taxation made during the year	19,000
	35,000		**35,000**

Notes

The next step is to prepare the Adjusted profit and loss account.

Adjusted Profit & Loss Account

Particulars	₹	Particulars	₹
To Depreciation Building	4,000	By Balance B/d	16,000
To Depreciation Plant	4,000	By Fund from operations	36,000
To Transfer to General Reserve	4,000		
To Provision for taxation	19,000		
To Interim dividend	8,000		
To Balance c/d	13,000		
	52,000		**52,000**

The next step is to prepare the fund flow statement.

Fund Flow Statement

Sources	₹	Applications	₹
Fund from operations	36,000	Purchase of the plant	3,000
		Purchase of the Investment	1,000
		Increase in working capital	7,000
		Tax paid	17,000
		Interim dividend	8,000
	36,000		**36,000**

3. The following are the summarized balance sheets of PTC Ltd., as on 31st March 2009 and 2010:

Balance Sheet 2009

Liabilities	₹	Assets	₹
Share capital	9,00,000	Fixed Assets	8,00,000
General Reserve	6,00,000	Investments	1,00,000
Profit & Loss A/c	1,12,000	Stock	4,80,000
Sundry creditors	3,36,000	Sundry Debtors	4,20,000
Provision for taxation	1,50,000	Bank	2,98,000
	20,98,000		**20,98,000**

Balance Sheet 2010

Liabilities	₹	Assets	₹
Share capital	9,00,000	Fixed Assets	6,40,000
General Reserve	6,20,000	Investments	1,20,000
Profit & Loss A/c	1,36,000	Stock	4,20,000
Mortgage Loan	5,40,000	Sundry Debtors	9,10,000
Sundry creditors	2,68,000	Bank	3,94,000
Provision for taxation	20,000		
	24,84,000		**24,84,000**

Additional Information:

(i) Investments costing ₹16,000 were sold during the year for ₹17,000 and further investments purchased during the year for ₹36,000.

(ii) The net profit for the year was ₹1,24,000 after charging depreciation on fixed assets of ₹1,40,000 for the year and provision for taxation ₹20,000.

Notes

(iii) During the year, part of fixed assets costing ₹20,000 was disposed for ₹24,000 and the profit is included in the profit and loss account.

(iv) Dividend paid during the year amounted to ₹ 80,000.

The following are the components to be considered for preparation of the statement of changes working capital:

Current Assets:

- Stock
- Debtors
- Bank

Current Liability:

- Sundry creditors

The first step is to prepare the schedule of changes in the working capital.

Statement of changes in Working Capital

	2009 ₹	2010 ₹	Increase in Working Capital	Decrease in Working Capital
Current Assets:				
Stock	4,80,000	4,20,000		60,000
Debtors	4,20,000	9,10,000	4,90,000	
Bank	2,98,000	3,94,000	96,000	
	11,98,000	17,24,000		
Current Liability:				
Sundry creditors	3,36,000	2,68,000	68,000	
Working capital	8,62,000	14,56,000	6,54,000	60,000
Increase in working capital	5,94,000			5,94,000
	14,56,000	14,56,000	6,54,000	6,54,000

The next step is to prepare the non-current accounts.

At first, the non-current asset account is to be prepared.

The first non-current asset account is fixed assets account.

In the additional information, the firm has sold the fixed assets worth ₹10,000 at ₹12,000.

The next step is to determine the worth of the sale transaction of the fixed assets.

Sale value of the fixed assets	₹24,000
Cost of the fixed assets sold	₹20,000
Profit on the sale of fixed assets	₹4,000

The following is the journal entries

Entry for sale of the asset

During the sale, what happens in the firm

Debit - What comes in? Cash resources are coming inside.

Notes

Credit-What goes out? Sold fixed asset is going out of the firm.

Cash A/c Dr ₹24,000

To Fixed Assets A/c ₹24,000

Entry for Profit on the sale of the transaction:

Fixed Assets A/c Dr ₹ 4,000

To Profit on sale A/c ₹ 4,000

In the next step, the earned profit during the sale of the fixed asset should be transferred to the Profit & Loss a/c

Profit on sale of the Fixed Assets A/c ₹ 4,000

To Profit & Loss A/c ₹ 4,000

Dr **Fixed assets account** Cr

Particulars	₹	Particulars	₹
To Balance B/d	8,00,000	By Cash (Sale)	24,000
To Profit on sale	4,000	By Adjusted Profit & Loss A/c(Depreciation)	1,40,000
		By Balance c/d	6,40,000
	8,04,000		**8,04,000**

The next non-current asset account is Investment account.

The purchase of the investment has taken place in the firm.

Investment A/c Dr ₹20,000

To Cash A/c ₹20,000

The worth of the sale of the transaction of the investment:

Sale value of the investment ₹,17,000

Cost of the investment ₹16,000

Profit of the sale of the investment ₹1,000

The profit on sale of the investment should be transferred to Profit & Loss account.

Profit on sale of the investment A/c ₹1,000

To Profit & Loss A/c ₹1,000

Then, the transferred profit on sale of investment should be deducted for the computation of fund from the operations, for which it should be appropriately effected in the Adjusted Profit & Loss Account.

Dr **Investment Account** Cr

Particulars	₹	Particulars	₹
To Balance B/d	1,00,000	By cash (sale)	17,000
To (profit on sale)Adjusted Profit &Loss A/c	1,000	By Balance c/d	1,20,000
To Cash(Purchase) Balancing fig.	36,000		
	1,37,000		**1,37,000**

Notes

The next non-current liability account is General Reserve account.

The opening balance is less than the closing balance of the general reserve account, which means that some portion of the current year profit is transferred to General Reserve. The actual entry is as follows:

Net profit A/c Dr ₹20,000

To General Reserve A/c ₹20,000

For finding out the fund from operations, the amount that was transferred from the net profit to general reserve should be added back in order to identify the original volume.

Adjusted Profit & Loss A/c ₹20,000

To General Reserve A/c ₹20,000

Dr **General Reserve A/c** Cr

Particulars	₹	Particulars	₹
		By Balance B/d	6,00,000
To Balance C/d	6,20,000	By (Adjusted profit &Loss A/c)Profit transferred to general reserve	20,000
	6,20,000		**6,20,000**

The next non-current liability is the Mortgage A/c.

The raising of mortgage loan leads to incoming of cash resources as well as further building up of the liabilities.

Debit what comes in - Cash resources are coming in.

Credit all liabilities - Mortgage loan is a liability/responsibility of the firm to repay it to the lender.

Cash A/c Dr ₹5,40,000

To Mortgage loan A/c ₹5,40,000

Dr **Mortgage A/c** Cr

Particulars	₹	Particulars	₹
To Balance C/d		By Balance B/d	----------
	5,40,000	By Cash(New Mortgage Loan) Balancing fig.	5,40,000
	5,40,000		**5,40,000**

The next important non-current liability is provision for taxation.

Dr **Provision for Taxation** Cr

Particulars	₹	Particulars	₹
To Cash (Tax paid previous year taxation)	1,50,000	By Balance B/d	1,50,000
To Balance C/d	20,000	By (Adjusted Profit & Loss A/c) Provision made during the current year	20,000
	1,70,000		**1,70,000**

Notes

The next step is to prepare the Adjusted Profit & Loss account.

Adjusted Profit & Loss Account

Particulars	₹	Particulars	₹
To Fixed Assets Depreciation	1,40,000	By Balance B/d	1,12,000
To Transfer of profit to general reserve	20,000	By Profit on sale of fixed assets	4,000
To Provision for taxation made during the current year	20,000	By Profit on sale of Investments	1,000
To Dividend paid	80,000		
To Balance c/d	1,36,000	By Fund from operations	2,79,000
	3,96,000		**3,96,000**

The next step is to prepare the fund flow statement.

Fund Flow Statement

Sources	₹	Applications	₹
Sale of fixed assets	24,000	Purchase of Investments	36,000
Sale of investments	17,000	Payment of previous year taxation	1,50,000
Mortgage loan raised	5,40,000	Payment of dividend	80,000
Fund from operations	2,79,000	Increase in working capital	5,94,000
	8,60,000		**8,60,000**

Self Assessment

Choose the appropriate answer

10. The meaning of the "To cash (Tax paid)" entry posted in the Provision for taxation account is
    (a) Last year taxation is paid through the current year provision
    (b) Current year taxation is paid through the current year provision
    (c) Last year tax is paid through the last year taxation
    (d) Current year taxation is paid through the last year provision
11. Profit on sale of the fixed assets are considered to be
    (a) Resource to the enterprise
    (b) Non-operating income
    (c) Application of the enterprise
    (d) None of the above
12. The treatment of current year depreciation with the closing balance of profit in determining the fund from operations
    (a) To be added
    (b) To be multiplied
    (c) To be deducted
    (d) To be divided

Notes

13. The redemption bank term loan leads to change in the
    (a) Non-current liability account and current asset account
    (b) Current asset account and current liabilities account
    (c) Non-current asset account and current liabilities account
    (d) Non-current asset account and current liabilities account
14. Flow of funds means the change in
    (a) funds (b) working capital
    (c) either (d) both
15. Which of the following is not an objectives fund-flow analysis?
    (a) It pinpoints the mobilization of resources and the further utilization of resources
    (b) It highlights the financing of the general expansion of the business firms
    (c) It exemplifies the utilization of debt finance in the structure of financing
    (d) None of these.
16. Which of the following is not a source of fund?
    (a) Purchase of Long-term Investments
    (b) Acceptance of deposits
    (c) Sale of Non-current Assets
    (d) Decrease in Working Capital

5.5 Summary

- Fund flow statements summarize a firm's inflow and outflow of funds.
- Simply put, it tells investors where funds have come from and where funds have gone.
- The statements are often used to determine whether companies efficiently source and utilize funds available to them.
- Fund flow statements are prepared by taking the balance sheets for two dates representing the coverage period.
- The increases and decreases must then be calculated for each item. Finally, the changes are classified under four categories: (1) Long-term sources, (2) Long-term uses, (3) Short-term sources and (4) Short-term uses.
- It is also important to zero out the non-fund based adjustments in order to capture only the changes that are accompanies by flow of funds.
- However, income accrued but received and expenses incurred but not received reckoned in the profit and loss statement should not be excluded from the profit figure for the fund flow statement.
- Fund flow statements can be used to identify a variety of problems in the way a company operates.
- Meanwhile, a company that is using long-term money to finance short-term investments may not be efficiently utilizing its capital.

Notes

5.6 Keywords

Current Assets: Assets which are in the form of cash, equivalent to cash or easily convertible into cash.

Current Liabilities: Short-term financial resources of the firm.

Decrease in Working Capital: Decrease in Net working capital i.e. Excess of current liabilities over the current assets - Resources side of the fund flow.

Flow: Flow means changes occurred in between two different time periods.

Fund from Operations: Income generated from only operations.

Fund Lost in Operations: Loss incurred in the operations.

Fund: Fund means working capital

Increase in Working Capital: Increase in Net working capital i.e. Excess of current assets over the current liabilities- Applications side of the fund flow.

Non-current Assets: Long-term assets.

Non-current Liabilities: Long-term financial resources.

Statement of changes in Working Capital: Enlisting the changes taken place in between the current assets and current liabilities of two different time horizons.

5.7 Review Questions

1. From the following two balance sheet as at December 31, 2004 and 2005. Prepare the statement of sources and uses of funds.

	2004 (₹)	2005 (₹)	2004 (₹)	2005 (₹)
Liabilities				
Share capital	80,000	90,000		
Trade creditors	20,000	46,000		
Profit & Loss a/c	4,60,000	5,00,000		
Assets				
Cash			60,000	94,000
Debtors			2,40,000	2,30,000
Stock in trade			1,60,000	1,80,000
Land			1,00,000	1,32,000
	5,60,000	**6,36,000**	**5,60,000**	**6,36,000**

2. From the following balance sheets of XYZ Co. Ltd. Prepare Funds Flow Statement.

(₹ '000)

Liabilities	2006	2007	Assets	2006	2007
Equity share capital	600	800	Goodwill	230	180
Preference capital	300	200	Land and buildings	400	340
General reserve	80	140	Plant and machinery	160	400
Profit & Loss account	60	96	Debtors	320	400
Proposed dividend	84	10	Stock	154	218
Creditors	110	166	Bills receivable	40	60

Contd…

Notes

Bills payable	40	62	Cash	30	20
Tax provision	80	100	Bank	20	16
	1,354	**1,634**		**1,354**	**1,634**

Additional Information:

(a) Proposed dividend made during 2006 has been paid during 2007.

(b) Depreciation: (i) ₹ 20,000 on plant and machinery, and (ii) ₹ 40,000 on land and buildings.

(c) Interim dividend has been paid ₹ 40,000 in 2007.

(d) Income-tax ₹ 70,000 has been paid during 2007.

3. Discuss the various methods of determining the fund from/lost (in) operations.

4. Explain the process of preparing the statement of changes in working capital.

5. Draft the pro forma of the Fund Flow Statement.

6. The summarised balance sheets of KSBS Products for the years ended 31-03-2006 and 31-03-2007 are given below:

(₹ '000)

Capital and Liabilities	31.3.2006	31.3.2007	Assets	31.3.2006	31.3.2007
Share capital	500	500	Land and buildings	180	200
General reserve	200	220	Plant and machinery	210	276
Profit & Loss account	40	32	Other fixed assets	30	45
Bank loan (long-term)	-	100	Investments	50	50
Creditors	158	172	Stock	200	190
Provision for taxation	45	30	Debtors	170	195
			Cash at bank	103	98
	943	**1,054**		**943**	**1,054**

Prepare a statement of sources and application of funds given the following additional information relating to the year ended 31-3-2007.

(a) Dividend amounting to ₹ 30,000 was paid during the year.

(b) Provision for taxation made ₹ 12,000.

(c) Machinery worth ₹ 15,000 (book value) was sold at a loss of ₹ 3,000.

(d) Investment costing ₹ 10,000 was sold for ₹ 12,000.

(e) Depreciation provided on assets: Land and buildings ₹ 5,000, Plant and machinery ₹ 20,00,000.

7. Prepare schedule of changes in Working Capital and Funds Flow Statement from the following Balance Sheets as on December 31, 2008.

Liabilities	2008	2009	Assets	2008	2009
	(₹)	(₹)		(₹)	(₹)
Capital	10,000	10,000	Cash	5,600	5,400
Profit & Loss A/c	5,200	15,400	Debtors	3,400	6,600
Long-term Loan	6,000	8,000	Stock	5,400	9,200
Short-term Loan	2,400	2,400	Long-term Investments	7,000	12,000

Contd…

Notes

Creditors	3,600	3,600	Plant	10,600	9,600
Outstanding Wages	1,400	800	Prepaid Insurance	400	800
Income Tax Provision	3,800	3,400			
	32,400	**43,600**		**32,400**	**43,600**

Plant was sold at its book value, i.e., ₹ 1,000

8. From the following Balance Sheets, prepare a Schedule of changes in Working Capital and Funds Flow Statement:

Liabilities	**31.12.07**	**31.12.08**	**Assets**	**31.1 2.07**	**31.12.08**
	(₹)	**(₹)**		**(₹)**	**(₹)**
Capital	4,80,000	5,10,000	Cash at Bank	24,000	54,000
Profit & Loss a/c	8,50,000	10,50,000	Debtors	9,90,000	11,90,000
Creditors	54,000	30,000	Stock	54,000	42,000
Mortgage Loans	28,000	1,00,000	Land	2,00,000	2,00,000
			Plant	1,44,000	2,04,000
	14,12,000	**16,90,000**		**14,12,000**	**16,90,00**

9. The following is the abstract of balance sheet of Software securities Ltd. for the year 2005 and 2006

	2005	**2006**		**2005**	**2006**
Liabilities	**(₹)**	**(₹)**	**Assets**	**(₹)**	**(₹)**
Provision for depreciation	108000	396000	Land	26000	81000
Retained earning	244800	370800	Building	60000	360000
9% Debenture	270000	198000	Accumulated depreciation on building	19800	37800
Account payable	72000	41400	Equipment	122400	347400
Expense payable	0	18000	Accumulated depreciation on Equipment	18000	50400
			Stock in hand	10800	97200
			Account receivable	36000	122400
			Cash in hand	66600	97200
			Preliminary expenses	10800	7200

The income statement of Software Securities Ltd. is as under

Sales	1602000
less cost of sale	837000
less operating exp.	397800
less interest exp.	21600
loss on sale of equipments	3600
	126000
Net income before tax	342000
Provision of tax	117000
Net Income after tax	225000

Notes

Additional Information:

(a) Operating expenses include depreciation of ₹ 59400 and charges from preliminary expenses of ₹ 3600.

(b) Land was sold at its book value.

(c) Cash dividend paid for the year 2006 amounted to ₹ 27000 and fully paid bonus shares were given in the ratio of 2 shares for every 3 shares hel(d).

(d) Interest expenses was paid in cash.

(e) Equipment with a cost of ₹ 298800 was purchased for cash. Equipment with a cost of ₹ 73800 (book value ₹ 64800) was sold for ₹ 61200.

(f) Debenture for ₹ 18000 were redeemed for cash and for ₹ 54000 were redeemed by converting into equity shares at par value.

(g) Equity shares of ₹ 162000 were issued for cash at par.

(h) Income tax paid during the year amounted to ₹ 117000.

Prepare the fund flow statement with both the methods.

10. "Fund flow statements can be used to identify a variety of problems in the way a company operates." Illustrate the statement by the help of suitable examples.

Answers: Self Assessment

1.	cash	2.	Working capital change
3.	False	4.	True
5.	False	6.	False
7.	(c)	8.	(a)
9.	(a)	10.	(a)
11.	(b)	12.	(a)
13.	(a)	14.	(d)
15.	(d)	16.	(a)

5.8 Further Readings

Books

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M.P. Pandikumar, *Management Accounting,* Excel Books.

Online links

www.authorstream.com

www.allinterview.com

Notes

Unit 6: Cash Flow Statement

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Objectives

After studying this unit, you will be able to:

- Explain the meaning of cash flow statement
- Compute cash flow from operating, investing and financing activity
- Prepare cash flow statement as per AS-3

Introduction

Cash is considered one of the vital sources of the firm to meet day to day financial commitments. The cash is considered to be as most important source of life blood of the business. The day to day financial commitments are met out only out of the available resources. The cash resources are availed through two different types of receipts viz. sales, dividends, interests known as regular receipts and sale of assets, investments known as irregular receipts of the business enterprise. To have smooth flow of business enterprise, it should have ample cash resources for its operations. The availability of cash resources is mainly depending on the cash inflows of the enterprises. The smoothness in operations of the enterprise is obtained through an appropriate matching of cash inflows and cash outflows.

To have smoothness in the operations of the enterprise, the firm should have an appropriate volume of cash resources at speedier rate as well as more than the financial commitments of the firm. This smoothness could be attained by way of an appropriate planning analysis on the

cash resources of the firm. The meaningful analysis is only possible through cash flow statement analysis which facilitates the firm to identify the possible sources of cash as well as the expenses and expenditures of the firm.

6.1 Meaning of Cash Flow Statement

The cash flow statement is being prepared on the basis of extracted information of historical records of the enterprise. Cash flow statements can be prepared for a year, for six months, for quarterly and even for monthly. The cash includes not only means that cash in hand but also cash at bank.

Objectives of Cash Flow Statements

The following are the main motives of preparing the cash flow statement:

1. To identify the causes for the cash balance changes in between two different time periods, with the help of corresponding two different balance sheets.
2. To enlist the factors of influence on the reduction of cash balance as well as to indicate the reasons though the profit is earned during the year and vice versa.

Utility of Cash Flow Statement

1. To identify the reasons for the reduction or increase in the cash balances irrespective level of the profits earned by the firm.
2. It facilitates the management to maintain an appropriate level of cash resources.
3. It guides the management to take futuristic decisions on the prospective demands and supply of cash resources through projected cash flows.
   (a) How much cash resources are required?
   (b) How much cash requirements could be internally settled?
   (c) How much cash resources are to be raised through external sources?
   (d) Which types of instruments are going to be floated for raising the required resources?
4. It helps the management to understand its capacity at the moment of borrowing for any further capital budgeting decisions.
5. It paves way for scientific cash management for the firm through maintenance of appropriate cash levels i.e. optimum level cash of resources.
6. It avoids in holding excessive or inadequate cash resources through proper planning of cash resources.
7. It moots control through identification of variations occurred in the cash expenses and expenditures.

Notes

Table 6.1: Cash Flow Statement vs Fund Flow Statement

Cash Flow Statement	Fund Flow Statement
Cash inflow and outflow are only considered	Increase or decrease in the working capital is registered
Causes & changes of cash position	Causes & changes of working capital position
Considers only most liquid assets pertaining to cash resource; which fosters only for very short span of planning	Considers in general i.e. current assets; the duration of the liquidity of the current assets are longer in gestation than the liquid assets; which paves way for long span of planning
Opening and closing balances of cash resources are considered for the preparation	Increase or decrease of working capital is considered but not the opening and closing balance for preparation
The flow in the statement means real cash flow	The flow in the statement need not be real cash flow

Self Assessment

Fill in the blanks:

1. The cash flow statement is being prepared on the basis of extracted information of …… of the enterprise.
2. The …… are availed through two different types of receipts viz. sales, dividends, interests known as regular receipts and sale of assets, investments known as irregular receipts of the business enterprise.
3. The cash includes not only means that cash in hand but also ……

6.2 Classification of Cash Flow

As per AS-3 (revised) the cash flow statement is prepared in a manner reporting the cash flows into following categories:

6.2.1 Cash Flow from Operating Activities

Cash flows from operating activities are earned from the principal revenue - producing activities of an enterprise. Through these activities the net profit or loss of the business is also determined. Examples of such a flow from operating activities are given in AS-3 (revised) as follows:

(a) Cash receipts from the sale of goods and rendering of services;

(b) Cash receipts from royalties, fees, commissions and other revenue;

(c) Cash payments to suppliers for goods and services;

(d) Cash payments to and on behalf of employees;

(e) Cash receipts and cash payments of an insurance enterprise for premiums and claims, annuities and other policy benefits;

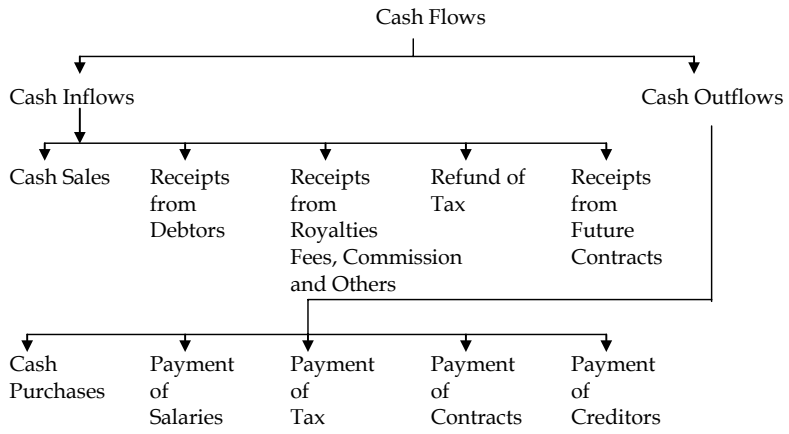
(f) Cash payments or refunds of income taxes unless they can be specifically identified with financing and investing activities, and

(g) Cash receipts and payments relating to future contracts, forward contracts, option contracts and swap contracts when the contracts are held for dealing or trading purposes.

Notes

Caution Some transactions, such as the sale of an item of plant, may give rise to a gain or loss which is included in the determination of net profit or loss. However, the cash flows relating to such transactions are cash flows from investing activities.

Figure 6.1: Diagrammatic Presentation of Cash Flows from Operating Activities



6.2.2 Cash Flow from Investing Activities

Investing activities of an enterprise include the purchase of fixed assets (as plant and machinery, land and buildings, furniture and fixtures) with an intention to generate the future incomes. On account of being an important activity, a separate disclosure of the cash flows from these activities is made. Examples of cash flows arising from investing activities are in AS-3 (revised) as follows:

(a) cash payments of acquired fixed assets (including intangibles). These payments include those relating to capitalized research and development costs and self-constructed fixed assets;

(b) cash receipts from disposal of fixed assets (including intangibles);

(c) cash payments to acquired shares, warrants or debt instruments of other enterprises and interests in joint ventures (other than payments for those instruments considered to be cash equivalents and those held for dealing or trading purposes);

(d) cash receipts from disposal of shares, warrants or debt instruments of other enterprises and interests in joint ventures (other than receipts from those instruments considered to be cash equivalents and those held for dealing or trading purposes);

(e) cash advances and loans made to third parties (other than advances and loans made by a financial enterprise);

(f) cash receipts from the repayment of advances and loans made to third parties (other than advances and loans of a financial enterprise);

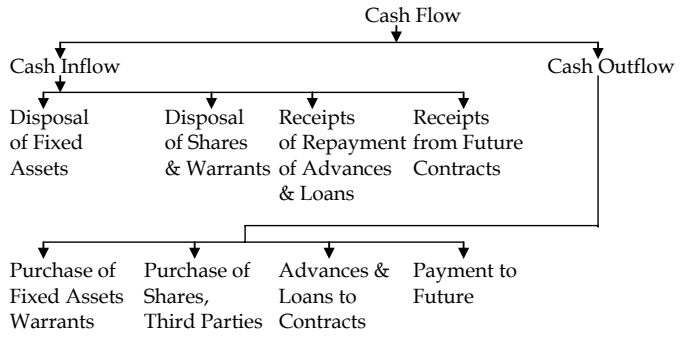
(g) cash payments for future contracts, forward contracts, option contracts and swap contracts except when the contracts are held for dealing or trading purposes, or the payments are classified as financing activities; and

Notes

(h) cash receipts from future contracts, forward contracts, option contracts and swap contracts except when the contracts are held for dealing or trading purposes, or the receipts are classified as financing activities.

Did u know? When a contract is accounted for as a hedge of an identifiable position, the cash flows of the contract are classified in the same manner as the cash flows of the position being hedged.

Figure 6.2: Diagrammatic Presentation of Cash Flow from Investing Activities



6.2.3 Cash Flow from Financing Activities

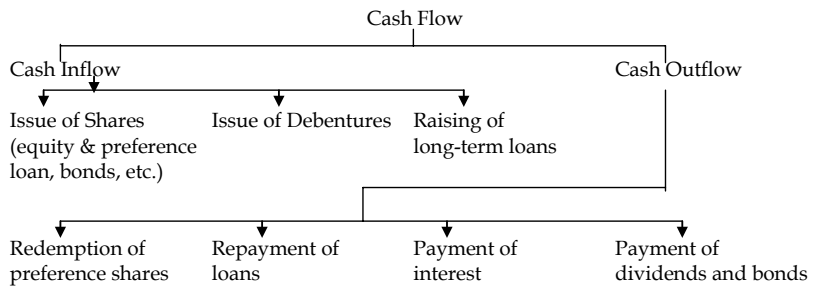
Under financial activities those activities are included which are relating to the size and composition of capital (equity and preferences) and borrowing or loans. As per AS-3 (revised), the separate disclosure of cash flows arising from financing activities is important because it is useful in predicting claims on future cash flows by providers of funds (both capital and borrowings) to the enterprise. Examples of cash flows arising from financing activities are:

(a) cash proceeds from issuing shares or other similar instruments;

(b) cash proceeds from issuing debentures, loans, notes, bonds and other short or long-term borrowings; and

(c) cash repayments of amounts borrowed.

Figure 6.3: Diagrammatic Presentation of Cash Flow from Financing Activities



Notes

Notes Treatment of Other Items

Besides the above cash flow activities AS-3 (revised) also give the dealing of the some other items. These other items are as follows:

1. ***Foreign Currency Cash Flow:*** Unrealized gain or loss on account of change in the foreign exchange rate is not treated as cash flow. But the effect of change of foreign exchange on the cash and cash equivalents held in a foreign currency is recorded in the cash flow statement to reconcile the cash and cash equivalents at the beginning and at the end of the period. This amount is not adjusted with operating, investing and financing activities but it is shown separately.
2. ***Extra-ordinary Items:*** Cash flow arising from the extra-ordinary item is shown in the cash flow statement after classifying it into operating, investing and financing activities. This is done so that ordinary users may understand them easily. For example, loss by fire in store is compensated by insurance company. It will be treated as cash flow from operating activities.
3. ***Interest and Dividends:*** If a financial enterprise is receiving interest and dividend then such a cash flow arising from interest and dividend will be considered into operating activities. If interest and dividend are received by other enterprise, such a cash flow arising from interest and dividend will be considered into investing activities and if interest and dividend is paid, such a cash flow arising from interest and dividend is considered into financing activities. This cash flow arising from interest and dividend paid or received is disclosed separately.
4. ***Taxes on Income:*** If no adverse information is given relating to taxes paid on incomes, cash flow arising from the taxes paid as income is classified in operating activities. If taxes are paid on such income which is relating to finance, such a cash flow will be classified into financial activities.
5. ***Non-cash Transactions:*** The non-cash transactions are not recorded in cash flow statement because they do not have a direct impact on the current cash flow while they affect the capital and assets as purchase of fixed assets by the issue of shares or debentures. In AS-3 (revised) examples of non-cash transactions are mentioned as below:
   (a) the acquisition of assets by assuming directly related liabilities,
   (b) the acquisition of an enterprise by means of issue of shares, and
   (c) the conversion of debt to equity.
6. ***Balances of Foreign Branches:*** In some situations, the balance of cash and cash equivalent held with foreign branches are not available due to foreign exchange control or other legal restrictions. So the management should use that amount which can be measured in cash and cash equivalent.

Self Assessment

Fill in the blanks:

4. Cash flows from …… activities are earned from the principal revenue - producing activities of an enterprise.
5. …… activities of an enterprise include the purchase of fixed assets.

Notes

6. Cash proceeds from issuing shares or other similar instruments are the examples of cash flow from …… activities.
7. The …… are not recorded in cash flow statement because they do not have a direct impact on the current cash flow while they affect the capital and assets as purchase of fixed assets by the issue of shares or debentures.
8. Cash flow arising from the …… is shown in the cash flow statement after classifying it into operating, investing and financing activities.

6.3 Preparation of Cash Flow Statement

Cash flow statement provides information about the cash receipts and payments of an enterprises for a given period. It provides important information that supplements the profit and loss account and balance sheet.

The statement of cash flows is required to be reported by Accounting Standard-3 (Revised) issued by the Institute of Chartered Accountants of India in March 1997 Which replaces the 'Changes in Financial Position' as per AS-3.

There are certain changes in the preparation of cash flow statement from the previous methods as a result of the introduction of AS-3 (Revised).

AS-3 (Revised) is mandatory in nature in respect of accounting periods commencing on or after 1-4-2001 for the following:

1. Enterprises whose equity or debt securities are listed on a recognised stock exchange in India, and enterprises that are in the process of issuing equity or debt securities that will be listed on a recognised stock exchange in India as evidenced by the board of directors' resolution in this regard.
2. All other commercial, industrial and business reporting enterprises, whose turnover for the accounting period exceeds ₹ 50 crores.

There are two methods of converting net profit into net cash flows from operating activities:

(i) Direct method, and

(ii) Indirect method.

Direct Method

Under direct method, cash receipts from operating revenues and cash payments for operating expenses are arranged and presented in the cash flow statement. The difference between cash receipts and cash payments is the net cash flow from operating activities. It is in effect a cash basis profit & loss account. In this case, each cash transaction is analysed separately and the total cash receipts and payments for the period are determined. The summarised data for revenue and expenses can be obtained from the financial statements and additional information. We may convert accrual basis of revenue and expenses to equivalent cash receipts and payments. Make sure that a uniform procedure is adopted for converting accrual base items to cash base items.

The following are some examples of usual cash receipts and cash payments resulting from operating activities:

1. Cash sales of goods and services;
2. Cash collected from debtors (customers);
3. Cash receipts of interest or dividends;
4. Cash receipts of royalties, fees, commission and other revenues;

Notes

5. Cash payments to suppliers (creditors);
6. Cash payments for various operating expenses, i.e., rent, rates, power, etc.
7. Cash payments for wages and salaries to employees;
8. Cash payments for income tax, etc.

Indirect Method

In this method, the net profit (loss) is used as the base and converted to net cash provided by (used in) operating activities. The indirect method adjusts net profit for items that affected net profit but did not affect cash. Non-cash and non-operating charges in the profit & loss account are added back to the net profit, while non-cash and non-operating credits are deducted to calculate operating profit before working capital changes. It is a partial conversion of accrual basis profit to cash basis profit. Necessary adjustment are made for increase/decrease in current assets and current liabilities to obtain net cash from operating activities.

Format of Cash Flow Statement

1. Cash Flow Statement (Direct Method)

Cash Flow Statement (Direct Method)

(₹)

Cash Flows from Operating Activities		
Cash receipts from customers		(xxx)
Cash paid to suppliers and employees		xxx
Cash generated from operations		(xxx)
Income-tax paid		xxx
Cash flow before extraordinary items		xxx
Proceeds from earthquake disaster settlement, etc.		xxx
Net cash flow from operating activities	(a)	xxx
Cash flows from Investing Activities		
Purchase of fixed assets		(xxx)
Proceeds from sale of equipment		xxx
Interest received		xxx
Dividend received		xxx
Net cash flow from investing activities		xxx
Cash flows from Financing Activities		
Proceeds from issuance of share capital		xxx
Proceeds from long-term borrowings		xxx
Repayments of long-term borrowings		(xxx)
Interest paid		(xxx)
Dividend paid		(xxx)
Net Cash flow from financing activities	(b)	xxx
Net increase (decrease) in cash and cash equivalents during the period	(a-b+c)	xxx
Cash and cash equivalents at beginning of period		xxx
Cash and cash equivalents at end of period		xxx

Notes

2. Cash flow statement (Indirect method)

Cash Flow Statement (Indirect Method) (Accounting Standard-3 (Revised)

		(₹)
Cash flow from Operating activities		
Net profit before tax and extraordinary items		xxx
Adjustments for:		
-Depreciation		xxx
-Foreign exchange		xxx
-Investments		xxx
-Gain or loss on sale of fixed assets		(xxx)
-Interest/dividend		xxx
Operating Profit Before Working Capital Changes		xxx
Adjustment for:		
-Trade and other receivables		xxx
-Inventories		(xxx)
-Trade payables		xxx
Cash Generated from Operations		xxx
-Interest paid		(xxx)
-Direct taxes		(xxx)
Cash before Extraordinary Items		xxx
Deferred revenue		xxx
Net cashflow from operating activities	(a)	xxx
Cashflow from Investing activities		
Purchase of fixed assets		(xxx)
Sale of fixed assets		xxx
Sale of investments		xxx
Purchase of investments		(xxx)
Interest received		xxx
Dividend received		xxx
Loans to subsidiaries		xxx
Net cashflow from investing activities	(b)	xxx
Cashflow from Financing Activities		
Proceeds from issue of share capital		xxx
Proceeds from long term borrowings		xxx
Repayment to finance/lease liabilities		(xxx)
Dividend paid		(xxx)
Net cashflow from financing activities	(c)	xxx
Net Increase (decrease) in cash and cash equivalents during the period	(a+b+c)	xxx
Cash and cash equivalents at the beginning of the year		xxx
Cash and cash equivalents at the end of the year		xxx

Notes

Notes As per the amendment of Clause 32 of the Listing Agreement of SEBI, 1995, all the listed companies have to prepare and publish their Cash Flow Statement as per the above formats with their annual financial statements in the reports. SEBI recommends the indirect method to prepare the cash flow statement.

Example: From the information as contained in the income statement and the balance sheet of SLV Ltd., you are required to prepare a cash flow statement using (i) Direct Method and (ii) Indirect Method.

(a) Income Statement and Reconciliation of Earnings for the year ended 31.3.2007

		₹
Net Sales		25,20,000
Less: Cost of sales	19,80,000	
Depreciation	60,000	
Salaries and wages	2,40,000	
Operating expenses	80,000	
Provision for taxation	88.000	24,48,000
Net operating profit		72,000
Non-recurring income:		
Profit on sale of equipment		12,000
		84,000
Retained earnings (balance in profit & loss account brought forward)		1,51,800
		2,35,800
Dividend declared and paid during the year		72,000
Profit & Loss account balance as on 31.3.2007		1,63,800

(b) Comparative Balance Sheets

	31.3.2006	31.3.2007
	₹	₹
Fixed assets		
Land	48,000	96,000
Building and equipments	3,60,000	5,76,000
Current assets		
Cash	60,000	72,000
Debtors	1,68,000	1,86,000
Stock	2,64,000	96,000
Advances	7,800	9,000
	9,07,800	10,35,000
Capital	3,60,000	4,44,000
Surplus in profit & loss A/c	1,51,800	1,63,800
Sundry creditors	2,40,000	2.34,000
Outstanding expenses	24,000	48,000
Income tax payable	12,000	13,200

Contd…

Notes

Accumulated depreciation on building and equipments	1,20,000	1,32,000
	9,07,800	10,35,000

Cost of equipment sold was ₹ 72,000.

Solution:

Direct Method
SLV Limited
Cash Flow Statement for the year ended 31.3.2007

	₹	₹
Cash Flows from Operating Activities:		
Cash receipts from customers	25,02,000	
Cash paid to suppliers and employees	21,15,200	
Cash generated from operations	3,86,800	
Income tax paid	(86,800)	
Net Cash from Operating Activities		3,00,000
Cash Flows from Investing Activities:		
Purchase of land	(48,000)	
Purchase of building and equipment	(2,88,000)	
Sale of equipment	36,000	
Net Cash used in Investing Activities		(3,00,000)
Cash Flows from Financing Activities:		
Issue of share capital	84,000	
Dividend paid	(72,000)	
Net Cash from Financing Activities		12,000
Net Increase in Cash and Cash Equivalents		12,000
Cash and Cash Equivalents at the beginning		60,000
Cash and Cash Equivalents at the end		72,000

Working Notes

(i) Cash receipts from customers:		
Sales revenue		25,20,000
Add: Debtors at the beginning		1,68,000
		26,88,000
Less: Debtors at the end		1,86,000
		25,02,000
(ii) Cash paid to suppliers and employees:		
Cost of goods sold		19,80,000
Add: Operating expenses		80,000
Salaries and wages		2,40,000
		23,00,000
Add: Creditors at the beginning	2,40,000	
Stock at the end	96,000	
Advances at the end	9,000	
Outstanding expenses at the beginning	24,000	3,69,000
		26,69,000

Contd…

Notes

Less: Creditors at the end	2,34,000	
Stock at the beginning	2,64,000	
Advances at the beginning	7,800	
Outstanding expenses at the end	48,000	5,53,800
		21,15,200
(iii) Income tax paid		
Tax payable at the beginning		12,000
Add: Provision for taxation		88,000
		1,00,000
Less: Tax payable at the end		13,200
Tax paid during the year		86,800
(iv) Accumulated depreciation written off on equipments (sold)		
Accumulated depreciation at the beginning		1,20,000
Add: Depreciation for the year		60,000
		1,80,000
Less: Accumulated depreciation at the end		1,32,000
		48.000
(v) Sale price of equipment		
Cost price		72,000
Less: Accumulated depreciation		48,000
		24,000
Add: Profit on sale		12,000
		36,000
(vi) Purchase of building and equipments		
Balance at the beginning		3,60,000
Less: Cost of equipment sold		72,000
Balance		2,88,000
Balance at the end		5,76,000
Purchased during the year		2,88.000

Indirect Method
SLV Limited
Cash flow statement for the year ended 31.3.2007

	Dr.	Cr.
Cash Flows from Operating Activities:	₹	₹
Net profit before taxation and extra-ordinary item	1,60,000	
Adjustments for:		
Depreciation	60,000	
Operating profit before working capital changes	2,20,000	
Increase in debtors	(18,000)	
Decrease in stock	1,68,000	
increase in advances	(1,200)	
Decrease in creditors	(6,000)	
Increase in outstanding expenses	24,000	
Cash generated from operation	3,86,800	

Contd…

Notes

Income tax paid	(86,800)	
Net Cash from Operating Activities		3,00,000
Cash Flows from Investing Activities:		
Purchase of land	(48,000)	
Purchase of building and equipments	(2,88,000)	
Sale of equipment	36,000	
Net Cash Used in Investing Activities		(3,00,000)
Cash Flows from Financing Activities:		
Issue of share capital	84,000	
Dividend paid	(72,000)	
Net Cash from Financing Activities		12,000
Net Increase in Cash and Cash Equivalents		12,000
Cash and Cash Equivalents at the beginning		60,000
Cash and Cash Equivalents at the end		72,000

Solved Problems for Practice

1. From the following profit and loss account, you are required to compute cash from operations.

Profit and Loss Account for the year ending 31st Dec, 2008

	₹		₹
To Salaries	10,000	By Gross profit	50,000
To Rent	2,000	By Profit on sale of land	10,000
To Depreciation	4,000	By Income tax refund	6,000
To Loss on sale of plant	2,000		
To Goodwill written off	8,000		
To Proposed dividend	10,000		
To Provision for taxation	10,000		
To Net profit	20,000		
	66,000		66,000

If profit & loss account is given, the net profit should be adjusted to derive the cash from either operations or lost in operations.

To adjust the net profit, the non-operating expenses and non-cash expenses are to be added and the non-operating income and non-cash incomes are to deducted.

The purpose of adding non-cash expenses and non-operating expenses is to nullify the process of deduction which already took place during the moment of finding out the profits.

Cash from operations	₹	₹
Net profit made during the year		20,000
Add:		
Non-cash expenses		
Depreciation	4,000	
Loss on sale of plant	2,000	
Goodwill written off	8,000	

Contd…

Notes

Non-operating expenses		
Proposed dividend	10,000	
Provision for taxation	10,000	34,000
Less		
Non-Operating/cash income		
Profit on sale of land	10,000	
Income tax refund	6,000	16,000
		38,000

2. From the following balance sheets of Sudhir Ltd., for the year ended 31st March, 2006 and 2007, prepare a cash flow statement.

		31.3.2006		31.3.2007
		₹		₹
Assets				
Property		2,00,000		2,50,000
Plant and machinery	4,00,000		4,50,000	
Less: Depreciation	1,40,000	2,60,000	1,50,000	3,00,000
Loans to subsidiary Co.		–		15,000
Share in subsidiary Co.		20,000		20,000
Stock in trade		1,40,000		1,50,000
Debtors		1,00,000		1,50,000
Bank		35,000		1,57,000
		7,55,000		10,42,000
Liabilities				
Equity Share of ₹ 20 each		3,00,000		4,00,000
Share premium		–		10,000
Profit & Loss appropriation A/c		1,00,000		1,00,000
Profit for the year		–		2,00,000
6% Debentures		1,50,000		1,00,000
Profit on Redemption of Debentures		–		2,000
Sundry creditors		1,40,000		1,10,000
Provision for taxation		50,000		1,00,000
Proposed dividend		15,000		20,000
		7,55,000		10,42,000

Additional Information:

During the year, plant costing ₹ 50,000 was sold for ₹ 10,000. Accumulated depreciation on this plant was ₹ 30,000. Loss on sale of plant was charged to profit & Loss account. Income-tax paid during the year was ₹ 60,000.

Notes

Solution:

Sudhir Limited
Cash Flow Statement for the year ended 31.3.2007
Cash Flows from Operating Activities

	₹
Net profit before tax and extraordinary items	2,00,000
Adjustments for:	
Depreciation	40,000
Provision for taxation	1,10,000
Proposed dividend	20,000
Loss on sale of machinery	10,000
Operating profit before working capital changes	3,80,000
Adjustments for:	
Increase in debtors	(50,000)
Increase in stock-in-trade	(10,000)
Decrease in creditors	(30,000)
Cash generated from operations	2,90,000
Tax paid	(60,000)
Net cash from operating activities	2,30,000
Cash flows from investing activities	
Purchase of property	(50,000)
Sale of plant	10,000
Purchase of machinery	(1,00,000)
Loans to subsidiaries	(15,000)
Net cash used in Investing activities	(1,55,000)
Cash flows from financing activities	
Issue of equity share capital at premium	1,10,000
Redemption of debentures	(48,000)
Dividends paid	115,000)
Net cash from financing activities	47,000
Net increase in cash and cash equivalents	
(₹ 2,30,000 - ₹ 1,55,000 + 47,000)	1,22,000
Cash and cash equivalents at the beginning of the year	35,000
Cash and cash equivalents at the end of the year	1,57,000

Working Notes:

Dr. **Property Account** Cr.

Particulars	₹	Particulars	₹
To Balance b/d	2,00,000	By Balance c/d	2,50,000
To Bank (purchases)			
(balancing figure)	50,000		
	2,50,000		**2,50,000**

Notes

Plant & Machinery Account

Particulars	₹	Particulars	₹
To Balance b/d	4,00,000	By Bank (plant sold)	10,000
To Bank (purchases)	1,00,000	By Accumulated depreciation	30,000
(balancing figure)		(on plant sold)	
		By Loss on plant sold	10,000
		By Balance c/d	4,50,000
	5,00,000		**5,00,000**

Accumulated Depreciation Account

Particulars	₹	Particulars	₹
To Plant & machinery A/c	30,000	By Balance b/d	1,40,000
(on plant sold)		By Dep. for the year	40,000
To Balance c/d	1,50,000	(balancing figure)	
	1,80,000		**1,80,000**

Loans to Subsidiary Account

Particulars	₹	Particulars	₹
To Bank (balancing figure)	15,000	By Balance c/d (closing)	15,000
	15,000		**15,000**

Equity Share Capital Account

Particulars	₹	Particulars	₹
To Balance c/d	4,00,000	By Balance b/d	3,00,000
		By Bank (balancing figure)	1,00,000
	4,00,000		**4,00,000**

Share Premium Account

Particulars	₹	Particulars	₹
To Balance c/d	10,000	By Bank (balancing figure)	10,000
	10,000		**10,000**

Debentures Account

Particulars	₹	Particulars	₹
To Bank (balancing figure)	48,000	By Balance b/d	1,50,000
To Profit on redemption A/c	2,000		
To Balance c/d	1,00,000		
	1,50,000		**1,50,000**

Profit on Redemption Account

Particulars	₹	Particulars	₹
To Balance c/d	2,000	By 6% Debentures A/c	2,000
	2,000		**2,000**

Notes

Provision for Taxation

Particulars	₹	Particulars	₹
To Bank (tax paid)	60,000	By Balance b/d	50,000
To Balance c/d	1.00,000	By Transfer from P & L A/c	1,10,000
	1,60,000		**1,60,000**

Proposed Dividend

Particulars	₹	Particulars	₹
To Bank (dividends paid)	15,000	By Balance b/d	15,000
To Balance c/d	20.000	By Transfer from P & L A/c	20,000
	35,000		**35,000**

3. The comparative balance sheets of M/s Ram Brothers for the two years were as follows:

Liabilities	March 31st		Assets	March 31st	
	2008	2009		2008	2009
Capital	3,00,000	3,50,000	Land &Building	2,20,000	3,00,000
Loan from Bank	3,20,000	2,00,000	Machinery	4,00,000	2,80,000
Creditors	1,80,000	2,00,000	Stock	1,00,000	90.000
Bills payable	1,00,000	80,000	Debtors	1,40,000	1,60,000
Loan from SBI		50,000	Cash	40,000	50,000
	9,00,000	8,80,000		9,00,000	8,80,000

Additional Information:

(i) Net profit for the year 2009 amounted ₹ 1,20,000.

(ii) During the year a machine costing ₹ 50,000 (accumulated depreciation ₹ 20,000) was sold for ₹ 26,000. The provision for depreciation against machinery as on 31st March, 2008 was ₹ 1,00,000 and on 31st March, 2009 ₹ 1,70,000.

You are required to prepare a cash flow statement.

The first step is to prepare non-current accounts.

Non-current account includes both non-current liability and asset.

First, start with non-current liability.

The net profit is normally added with the capital of the owners contribution. As a whole it is known as shareholders' fund or net worth of the firm. Whenever the firm earns profit, the net profit should be added with the initial capital contributed by the owner.

The entry is as follows:		₹	₹
P& L Appropriation A/c	Dr	1,20,000	
To Mr X Capital Ac			1,20,000

Dr **Capital A/c** Cr

Particulars	₹	Particulars	₹
To Drawings. Balancing Fig.	70,000	By Balance B/d (Opening)	3,00,000
To Balance c/d (Closing)	3,50,000	By Net profit	1,20,000
	4,20,000		**4,20,000**

Notes

Total capital should be shown at the end of the year 2009 as ₹ 4,20,000, but it was amounting to ₹ 3,50,000 shown as a closing balance. It clearly understood that ₹ 70,000 worth of profit was taken away by the owner for his personal needs; known as drawings.

The next step is to find out the depreciation provided during the year, which affects non-current asset account of the firm i.e. Machinery account.

Before discussing the accounting transactions, the journal entry for provision for depreciation should be known.

		₹	₹
Provision for depreciation A/c	Dr	20,000	
To sold Machinery Depreciation A/c			20,000

Dr. **Provision for Depreciation Account** Cr.

	₹		₹
To sold Machinery Depreciation	20,000	By Balance B/d	1,00,000
To Balance C/d	1,70,000	By (Adjusted profit and loss account) Depreciation provided during the year	90,000
	1,90,000		**1,90,000**

Cash sale of the machinery amounted to ₹ 26,000.

What happens during the cash sale of a machinery?

Debit what comes in - Cash resources are coming in.

Credit what goes out- Machinery is going out of the firm.

		₹	₹
Cash A/c	Dr	26,000	
To Machinery A/c			26,000

While selling the machinery, it is most important to identify the worth of the sale transaction of the machinery.

	₹
Original cost of the asset	50,000
Accumulated Depreciation	20,000
	30,000
Sale price	26,000
Loss on sale of the assets	4,000

Once the loss of the transaction is found out, the amount of the loss should be appropriately recorded.

Debit all losses.

Credit the asset account.

		₹	₹
Loss of Machinery sale A/c	Dr.	4,000	
To Machinery A/c			4,000

Notes

Dr. **Machinery Account** Cr.

Particulars	₹	Particulars	₹
To Balance B/d (Opening)	5,00,000	By cash sale	26,000
		By Profit and loss a/c Loss Balancing Fig.	4,000
		By Depreciation Provision	20,000
		By Balance c/d(Closing) 2,80,000+1,70,000	4,50,000
	5,00,000		**5,00,000**

During the purchase of land and building, what happens?

Debit what comes in - land and building are coming in.

Credit what goes out - cash resources are going out.

		₹	₹
Land & Building A/c	Dr	80,000	
To Cash A/c			80,000

Dr. **Land and Building** Cr.

Particulars	₹	Particulars	₹
To Balance B/d (Opening)	2,20,000		
To Cash (Purchase)	80,000	By Balance c/d (Closing)	3,00,000
	3,00,000		**3,00,000**

The next step is to prepare adjusted profit and loss account.

Dr. **Adjusted Profit and Loss Account** Cr.

Particulars	₹	Particulars	₹
To Machinery A/c (Loss on sale)	4,000	By Balance B/d	----------
To Depreciation provided during the year	90,000	By Cash from operations	2,14,000
To Balance c/d	1,20,000		
	2,14,000		**2,14,000**

The next most important step is to compare the current assets.

Increase in creditors	₹ 20,000	- cash inflow
Loan from SBI	₹ 50,000	- cash inflow
Decrease in stock	₹ 10,000	- cash inflow
Loan repaid	₹ 1,20,000	- cash outflow
Decrease in bills payable	₹ 20,000	- cash outflow
Increase in Debtors	₹ 20,000	- cash outflow

Cash Flow Statement

Inflow	₹	Outflow	₹
Opening cash balance	40,000	Loan repaid	1,20,000
Creditors	20,000	Bills payable	20,000

Contd…

Notes

Loan from SBI	50,000	Debtors	20,000
Stock	10,000	Land and buildings purchased	80,000
Machinery cash sale	26,000	Drawings	70,000
Cash from operations	2,14,000	Closing cash balance	50,000
	3,60,000		**3,60,000**

4. Data Ltd. supplies you the following balance on 31 st Mar. 2005 and 2006.

Liabilities	2005	2006	Assets	2005	2006
Share capital	1,40,000	1,48,000	Bank balance	18,000	15,600
Bonds	24,000	12,000	Accounts Receivable	29,800	35,400
Accounts payable	20,720	23,680	Inventories	98,400	85,400
Provision for debts	1,400	1,600	Land	40,000	60,000
Reserves and Surpluses	20,080	21,120	Goodwill	20,000	10,000
	2,06,200	**2,06,400**		**2,06,200**	**2,06,400**

Additional Information:

(i) Dividends amounting to ₹ 7,000 were paid during the year 2006.

(ii) Land was purchased for ₹ 20,000.

(iii) ₹ 10,000 were written off on goodwill during the year.

(iv) Bonds of ₹ 12,000 were paid during the course of the year.

(v) You are required to prepare a cash flow statement.

The first step is to prepare non-current accounts.

The first step is to prepare non-current assets and liabilities account.

As far as non-current asset account is concerned, Land account has to be prepared.

The opening balance is lesser than the closing balance of the Land account of the firm.

It is only due to purchase of land only inflated the value of the land at the end of the time horizon.

Debit what comes in - Land has come in.

Credit what goes out- cash resources have gone out of the firm at the moment of purchase.

		₹	₹
Land A/c	Dr	20,000	
To cash A/c			20,000

Dr. **Land A/C** Cr.

Particulars	₹	Particulars	₹
To Balance B/d (Opening)	40,000		
To Cash (Purchase)	20,000	By Balance c/d (Closing)	60,000
	60,000		**60,000**

The non-current liability account is to be prepared.

The first non-current liability account that is affected is the share capital account.

Notes

The opening balance of share capital is less than the closing balance of the share capital account. It means that the firm has undergone for further issue of share capital. The further issue of share capital brings forth cash inflows to the firm.

		₹	₹
Cash A/c	Dr	8,000	
To share capital A/c			8,000

Dr. **Share Capital Account** Cr.

Particulars	₹	Particulars	₹
		By Balance B/d (Opening)	1,40,000
To Balance c/d (Closing)	1,48,000	By Cash Balancing figure	8,000
	1,48,000		**1,48,000**

The next non-current liability account is the Bonds account.

During the repayment of bonds or redemption of bonds, the cash resources are going out of the firm.

		₹	₹
Bond A/c	Dr	12,000	
To Cash (redemption)			12,000

Dr. **Bond Account** Cr.

Particulars	₹	Particulars	₹
To cash (redemption)	12,000	By Balance B/d (Opening)	24,000
To Balance c/d (Closing)	12,000		
	24,000		**24,000**

The next step is to prepare the Adjusted Profit & Loss account

Dr. **Adjusted Profit & Loss Account** Cr.

To Provision for doubtful debts	200	By Balance B/d	20,080
To Goodwill written off	10,000	By Cash from operations	18,240
To Dividends paid	7000		
To Balance c/d	21,120		
	38,320		**38,320**

The next most important step is to compare the current assets during the two years.

Increase in Accounts payable	₹2,960	- Cash inflow
Decrease in Inventories	₹13,000	- Cash inflow
Increase in accounts receivable	₹5,600	- Cash outflow

The next step is to draft the Cash flow statement.

Cash Flow Statement

Inflow	₹	Outflow	₹
Opening cash balance	18,000	Increase in bills receivable	5,600
Issue of shares	8,000	Purchases of land	20,000
Increase in Bills payable	2,960	Dividends paid	7,000

Contd…

Notes

Decrease in stock	13,000	Bonds repaid	12,000
Cash from operations	18,240	Closing cash balance	15,600
	60,200		**60,200**

Task Illustrate the impact of the changes taken place on the current assets and current liabilities to the tune of cash flows determination of the firm.

Self Assessment

Choose the appropriate answer

9. Cash position at the opening and closing comprises of
   (a) Cash in hand
   (b) Cash at bank
   (c) Both cash in hand and at bank
   (d) None of the above.
10. Cash flow analysis superior than the fund flow analysis due to
   (a) Shorter span of cash resources are considered
   (b) Real cash flows only taken into consideration
   (c) Opening and closing cash balances are only considered
   (d) (a), (b) & (c).
11. Sale of the plant and machinery falls under the category of
   (a) Non-current asset sale – cash in flow
   (b) Current asset sale – cash out flow
   (c) Non-current asset sale – cash out flow
   (d) None of the above.
12. Which of the following cannot be included in financing cash flows?
   (a) Payments of dividends
   (b) Repayment of debt principal
   (c) Sale or repurchase of the company's stock
   (d) Proceeds from issuing shares.
13. Which of the following cannot be included in cash outflows?
   (a) Operating and capital outlays
   (b) Family living expenses
   (c) Loan payments
   (d) None of these.

Notes

14. Which of the following is not a part to the Statement of Cash Flows (or Cash Flow Statement)?
    (a) Operating Activities
    (b) Investors' Activities
    (c) Financing Activities
    (d) Supplemental Activities.
15. Which of the following is not included under operating activities?
    (a) Receipts from income
    (b) Payment for a new investment
    (c) Payment for expenses and employees
    (d) Funding of debtors.
16. Which of the following is included under cash outflows?
    (a) Buying new assets
    (b) Money the business borrows
    (c) Proceeds from selling an investment
    (d) None of these.
17. Which of the following is not judged about by the cash flow statements?
    (a) Profitability
    (b) Financial condition
    (c) Financial management
    (d) Movement of fund

6.4 Summary

- Cash flow statement indicates sources of cash inflows and transactions of cash outflows prepared for a period.
- It is an important tool of financial analysis and is mandatory for all the listed companies.
- The cash flow statement indicates inflow and outflow in terms of three components: (1) Operating, (2) Financing, and (3) Investment activities.
- Cash inflows include sale of assets or investments, and raising of financial resources.
- Cash outflows include purchase lo assets or investments and redemption of financial resources.
- There are two methods of converting net profit into net cash flows from operating activities:
    - Direct method, and
    - Indirect method.

Notes

6.5 Keywords

Cash: It includes cash in hand and demand deposits with bank.

Cash Equivalents: refer short-term risk free highly liquid investment.

Cash Flow Statement: The statement which indicates the flow (movement) of cash during a period.

Flow of Cash: It means the change in cash. It also includes the inflow and outflow of cash.

6.6 Review Questions

1. The comparative balance sheets of RKV Ltd., for the last two years were as follows:

Liabilities	2006	2007	Assets	2006	2007
	₹	₹		₹	₹
Loan from wife		20,000	Cash	11,000	15,000
Bills payable	12,000	8,000	Debtors	40,000	35,000
Creditors	25,000	52,000	Stock	25,000	30,000
Loan from Bank	43,000	60,000	Machinery	20,000	14,000
Capital	66,000	34,000	Land & Buildings	50,000	80,000
	1,46,000	**1,74,000**		**1,46,000**	**1,74,000**

Additional Information:

(i) Net loss for the year 2007 amounted to ₹ 13,000.

(ii) During the year a machine costing ₹ 5,000 (accumulated depreciation ₹ 2,000) was sold for ₹ 2,500. The provision for depreciation against machinery as on 31-12-2006 was ₹ 6,000 and on 31-12-2007 ₹ 7,000.

From the above information, prepare a cash flow statement.

2. Draw the proforma of the Adjusted profit and loss account.

3. The financial position of RKV Ltd. on 1st January, 2006 and December 31, 2006 was as follows:

Liabilities	1-1-2006	31-12-06	Assets	1-1-06	31-12-06
	₹	₹		₹	₹
Current liabilities	36,000	41,000	Cash	4,000	3,600
Mrs. Tall's loan	-	20,000	Debtors	35,000	38,400
Loan from bank	30,000	25,000	Stock	25,000	22,000
Capital	1,48,000	1,49,000	Land	20,000	30,000
			Building	50,000	55,000
			Machinery	80,000	86,000
	2,14,000	**2,35,000**		**2,14,000**	**2,35,000**

During the year the RKV withdrew ₹ 26,000 for domestic expenses. The provision for depreciation against machinery as on 1.1.2006 was ₹ 27,000 and 31.12.2006 ₹ 36,000.

Prepare the cash flow statement for the year ended 31st December, 2006.

Notes

4. Since everything has some utility, analyse the cash flow statement analysis and explain its various utilities.

5. Discuss the procedure of determining cash provided by operating activities. Give suitable example to illustrate your answer.

6. The following is the abstract of balance sheet of Software securities ltd for the year 2005 and 2006.

	2005	2006		2005	2006
Liabilities	(₹)	(₹)	**Assets**	(₹)	(₹)
Provision for depreciation	1,08,000	3,96,000	Land	26,000	81,000
Retained earning	2,44,800	3,70,800	Building	60,000	3,60,000
9% Debenture	2,70,000	1,98,000	Accumulated depreciation on building	19,800	37,800
Account payable	72,000	41,400	Equipment	1,22,400	3,47,400
Expense payable	0	18,000	Accumulated depreciation on Equipment	18,000	50,400
			Stock in hand	10,800	97,200
			Account receivable	36,000	1,22,400
			Cash in hand	66,600	97,200
			Preliminary expenses	10,800	7,200

The income statement of Software Securities Ltd. is as under

Sales	16,02,000
less cost of sale	8,37,000
less operating exp.	3,97,800
less interest exp.	21,600
loss on sale of equipments	3,600
	1,26,000
Net income before tax	3,42,000
Provision of tax	1,17,000
Net Income after tax	2,25,000

Additional Information:

(a) Operating expenses include depreciation of ₹ 59400 and charges from preliminary expenses of ₹ 3600.

(b) Land was sold at its book value.

(c) Cash dividend paid for the year 2006 amounted to ₹ 27000 and fully paid bonus shares were given in the ratio of 2 shares for every 3 shares held.

(d) Interest expenses were paid in cash.

(e) Equipment with a cost of ₹ 298800 was purchased for cash .Equipment with a cost of ₹ 73800 (book value ₹ 64800) was sold for ₹ 61200.

(f) Debenture for ₹ 18000 were redeemed for cash and for ₹ 54000 were redeemed by converting into equity shares at par value.

Notes

(g) Equity shares of ₹ 162000 were issued for cash at par.

(h) Income tax paid during the year amounted to ₹ 117000.

Prepare the cash flow statement with both the methods.

7. Determine which of the following are added back to [or subtracted from, as appropriate] the net income figure (which is found on the Income Statement) to arrive at cash flows from operations.

   (a) Depreciation

   (b) Deferred tax

   (c) Amortization

   (d) Any gains or losses associated with the sale of a non-current asset.

   Support your answers with elaborative reasoning.

8. Assume that you are thinking of purchasing a new machine that will allow you to offer a new product to your customers. The machine will cost ₹ 100,000 to purchase and install, and after five years (when you plan to sell it) the machine will be worth about ₹ 10,000. Your facility has plenty of room, so you won't have any additional rental costs for space, and you can piggyback advertising for the new product on to your existing advertising budget. You will, however, have to pay for insurance, personal property taxes, and a part-time employee to operate the machinery (these items are included in your fixed costs which will total ₹ 12,000 in the first year). Also, there will be costs for materials, supplies, and electricity that will vary depending on the volume of production. These variable costs will amount to about 60 percent of the sales revenues. Develop a projected cash flow statement for the project.

9. Think of the possible errors that might be committed while developing the cash flow statements and suggest ways to prevent such mistakes beforehand.

10. Show by example how to prepare a cash flow statement using a balance sheet.

11. Unlike the balance sheet and the income statement, the cash flow statement is not based on accruals accounting, why?

12. For each of the following items, indicate which part (out of Operating, Investing, Financing and Supplemental) will be affected and why.

    (a) Depreciation Expense

    (b) Proceeds from the sale of equipment used in the business.

    (c) The Loss on the Sale of Equipment

    (d) Declaration and payment of dividends on company's stock

    (e) Gain on the Sale of Automobile formerly used in the business

Answers: Self Assessment

1.	historical records	2.	cash resources
3.	cash at bank	4.	operating
5.	Investing	6.	financing
7.	non-cash transactions	8.	extra-ordinary item
9.	(c)	10.	(b)

Notes

11. (a)
12. (c)
13. (d)
14. (b)
15. (b)
16. (a)
17. (d)

6.7 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

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Online links

www.authorstream.com

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Unit 7: Budgeting

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Objectives

After studying this unit, you will be able to:

- Explain the meaning and features of budgeting
- Describe the types of budgets
- Prepare budgets and budgetary control
- Describe the features and objectives of budgetary control
- Illustrate Zero-base budgeting

Notes

Introduction

Budget is an estimate prepared for definite future period either in terms of financial or non-financial terms. Budget is prepared for any course of action or business or state or Nation, as a whole. The budget is usually expressed in terms of total volume.

According to ICMA, England, a budget is as follows "a financial and or quantitative statement prepared and approved prior to a defined period of time, of the policy to be pursed during the period for the purpose of attaining a given objective."

It is in other words as "detailed plan of action of the business for a definite period of time." It is a statement of financial affairs/quantitative terms of an activity for a defined period, to achieve the enlisted objectives.

Did u know? ***What is budgeting?***

Budgeting is the course involved in the preparation of budget of an activity.

7.1 Meaning and Features of Budgeting

Budgeting means the process of preparing budgets. In other words, budgeting refers to the management action of formulating budgets. Preparation of budgets involves study of business situations and understanding of management goals as also the capacity of the organisation.

According to **Welsch,** "budgeting is the principal tool of planning and control offered to management by accounting functions."

In the words of **J. Batty,** "the entire process of preparing the budgets is known as budgeting."

Rowland and Harr has defined budgeting as, "budgeting may be said to be the act of building budgets."

According to the definition, the essential features of a budget are as follows:

1. It is prepared for a definite period well in advance.
2. It may be stated in terms of money or quantity or both.
3. It is a statement defining the objectives to be attained and the policy to be followed to achieve them in a future period.
4. It is a statement expressed in monetary and/or physical units prepared for the implementation of policy formulated by the management.
5. It is laid down prior to the budget period during which it is followed.
6. The policy to be followed to attain the given objective must be laid before the budget is prepared.

Notes

Table 7.1: Forecast vs. Budget

	Forecast	Budget
(i)	Forecasts, being statements of future events, do not connote any sense of control.	A budget is a tool of control, since it represents actions that can be shaped according to will so that it can be suited to the conditions which may or may not happen.
(ii)	Forecast is a mere estimate of what is likely to happen. It is a statement of probable events that are likely to happen under anticipated conditions during a specified period of time.	Budget shows that policy and programme to be followed in a future period under planned conditions.
(iii)	Forecasts have wider scope, since they can be made in those spheres also where budgets cannot interfere.	Budgets have limited scope. They can be made of phenomenon not capable of being expressed quantitatively.
(iv)	Forecasting is a preliminary step for budgeting. It ends with the forecast of likely events.	It begins when forecasting ends. Forecasts are converted into budgets.

Self Assessment

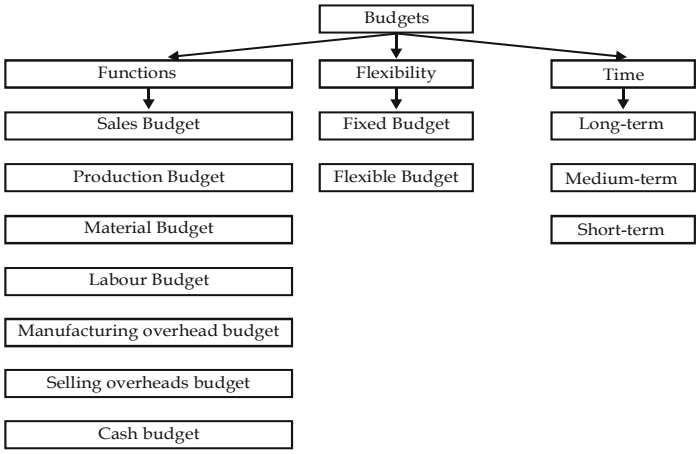
Fill in the blanks:

1. …… means the process of preparing budgets.
2. Preparation of budgets involves study of business situations and understanding of …… as also the capacity of the organisation.

7.2 Types and Preparation of Budgets

The following figure explains the classification of budgets:

Figure 7.1: Classification of Budgets



Notes

7.2.1 Production Budget

The preparation of the production budget is mainly dependent on the sales budget. The production budget is a statement of goods, how much should be produced. It may be in terms of quantities, Kilograms in monetary terms and so on.

Did u know? ***What is the purpose of the production budget?***

The ultimate aim of the production budget is to find out the volume of production to be made during the year based on the sale volume.

The production and sales volume should go hand-in-hand with each other; otherwise the firm would require to face the acute problem on holding unnecessary excessive stock or inadequate stock to meet the needs of the buyers in time; which will disrepute in the supply of goods in time to them as already agreed upon.

Units to be produced = Budgeted Sales + Closing Stock – Opening Stock

The methodology of production budget includes three different components, viz. sales, closing stock and opening stock. Sales have to be added with the stock of the year at the end and to be deducted the opening stock.

Why sales have to be given paramount importance in the preparation of production budget?

The major sales of the business enterprise is being regularly made out of only through the current year production.

Why the closing stock has to be added?

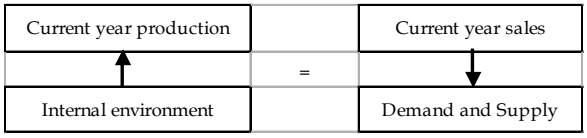
The purpose of the closing stock to be added is that it is a stock at end of the year-end out of the current year production.

Why the opening stock has to be deducted?

The aim of deducting the opening stock is that the stock at the beginning is the stock out of the yester or previous year production.

If sales is normally equivalent to the entire year of production, the firm need not to concentrate on the volume of opening stock and closing stock. It means that, what ever produced during the year is equivalent to current year sales. If the entire production is sold out, there won't be closing stock at the end of the year and opening stock i.e. subsequent years.

If Current year production is equivalent to current year sales



Resultant: No closing stock and opening stock for the subsequent years. This situation may not be possible at always

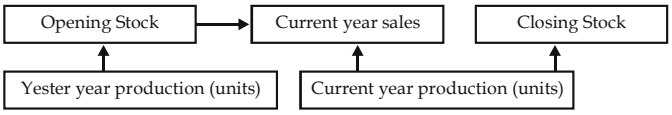
Why it is not possible at always?

The production volume is connected to the internal environment of the firm, which can be maintained through a systematic approach, but the sales cannot be easily administered by the firm which is being highly influenced by the demand and supply factors of the goods.

If the current year production is not equivalent to the current year sales

Notes

Figure 7.2: Flow of goods from Production of One Period to Another



Did u know? ***Why the closing stock arises in the business?***

The closing stock is stock due to the excessive production over the sales volume. The reasons for excessive production are as follows:

1. Ineffective study of market potential through market research leads to the expression of excessive demand from the market, which signals the production department to produce to the tune of MR conducted.
2. Due to price fluctuations in the market may affect the volume of sales.
3. Due to meet the future demand.
4. The excessive production due to the cheaper availability of raw materials, which leads to greater amount of closing stock. If the storage cost is more than the hike takes place on the cost of raw materials leads to abnormal storage of the stock.

The above diagram clearly illustrates that the emergence of the opening stock and closing stock during the year out of sales and production volume of the enterprise.

Example: Prepare a production budget for three months ending March 31, 2006 for a factory manufacturing four different articles on the basis of the following information:

Type of the Product	Estimated Stock on Jan 1, 2006 Units	Estimated sales during Jan-Mar, 2006 Units	Desired Closing Stock on Mar 31, 2006 Units
AA	2000	10,000	5,000
BB	3000	15,000	4,000
CC	4000	13,000	3,000
DD	5000	12,000	2,000

Solution:

Production Budget for three months ending March 31, 2006

Particulars	AA Units	BB Units	CC Units	DD Units
Estimated Sales	10,000	15,000	13,000	12,000
Add: Desired closing stock	5,000	4,000	3,000	2,000
	15,000	19,000	16,000	14,000
Less: Opening Stock	2,000	3,000	4,000	5,000
Estimated Production	**13,000**	**16,000**	**12,000**	**9,000**

Notes

Task Mr. X Co. Ltd. manufactures two different products X and Y. X forecast of the number of units to be sold in first seven months of the year is given below:

Months	Product X	Product Y
Jan.	1,000	2,800
Feb.	1,200	2,800
Mar.	1,600	2,400
Apr.	2,000	2,000
May	2,400	1,600
June	2,400	1,600
July	2,000	1,800

It is expected that (a) there will be no work in progress at the end of every month, (b) finished units equal to half the sales for the next month will be in stock at the end of each month (including the previous December).

Budgeted production and production costs for the whole year are as follows:

Production in Units		Product X	Product Y
		22,000	24,000
Per unit (₹)	Direct Material	10.00	15.00
	Direct Labour	5.00	10.00
Total factory overhead apportioned		88,000	72,000

7.2.2 Materials/Purchase Budget

This budget takes place only after identifying the number of finished products expected to produce to the tune of production budget, in meeting the needs and demands of the customers and consumers during the season.

In order to produce to the tune of production budget to meet the market demands, the raw materials for the production should be maintained sufficient to supply them without any interruption. To have uninterrupted flow of production, the firm should go for the immediate procurement of raw materials through the multiplication of raw material required to produce for a single product with number of units expected to produce.

Caution Why the stock of raw materials is deducted from the expected volume of materials procured for production to the tune of production budget?

If there is any existing stock of raw materials, i.e. opening stock of raw materials available from the yester seasons or years should be deducted from the volume of materials required for production to be ordered and placed. The remaining volume should be the volume to be ordered for production.

Example: The sales manager of the MR Ltd. reports that next year he anticipates to sell 50,000 units of a particular product.

Notes

The production manager consults the storekeeper and casts his figures as follows:

Two kinds of raw materials A and B are required for manufacturing the product. Each unit of the product requires 2 units of A and 3 units of B. The estimated opening balances at the commencement of the next year are:

Finished product : 10,000 units

Raw Materials A : 12,000 units Raw Materials B : 15,000 units

The desirable closing balances at the end of the next year are:

Finished products : 14,000 units

Raw materials A : 13,000 units Raw materials B : 1,000 units

Prepare production budget and materials purchase budget for the next year.

Solution:

The first step is to prepare the production budget. To identify the volume of materials required for production by considering the production budget and the closing stock of materials of A and B respectively.

Why the closing stock of raw materials has to be added with estimated consumption? The purpose of adding the closing stock of raw materials is to anticipate the future demand of them, due to market influence; which warrants the firm to go for placement of order not only taking into consideration of expected consumption of raw materials but also the closing stock of raw materials to be maintained at the end of the season, in order to facilitate to have uninterrupted flow of production.

Why the opening stock of raw materials has to be deducted?

The opening stock of raw materials, which is available in the firm, should be considered for the placement of order of raw materials. The materials to be ordered should be other than that of the materials available in the firm.

Production Budget (Units)

Estimated sales	50,000
Add: Desired Closing stock	14,000
	64,000
Less: Opening Stock	10,000
Estimated Production	54,000

Materials Procurement or Purchase Budget (Units)

	Material A	Material B
Estimated Consumption For A 2 units × 54, 000 For B 3 units × 54,000	1,08,000	1,62,000
Add: Closing Stock	13,000	16,000
	1,21,000	1,78,000
Less: Opening Stock	12,000	15,000
Estimated Purchases	1,09,000	1,63,000

Notes

7.2.3 Sales Budget

Sales Budget is an estimate of anticipation of sales in the near future prepared by the responsible person for the sale of a product by considering the various factors of influence. Sales budget is usually prepared in terms of quantity and value. The following factors are normally considered for the preparation of sales budget of a firm:

1. Last sales figures
2. Estimates of the salesmen who is frequently operating in the market, known much greater than any body in the market
3. Capacity of the plant and machinery to produce
4. Funds availability
5. Availability of raw materials to the tune of demand in the respective time period
6. Changes in the taste and preferences of the customer or consumer
7. Changers in the competition structure - Monopoly to Perfect competition — Previously BSNL was known as DOT as a monopoly in the market in affording the services till early 2000. Then later, the changes taken place in the market environment i.e. competition due to invasion of new entrants like Reliance, Hutch, Bharti tele ventures and so on; warrants careful preparation of sales budget of number of telephone connection expected to sell.

Example: Reynolds Pvt. Ltd. manufactures two brands of pen Light & Elite. The sales department of the company has three departments in different regions of the country.

The sales budgets for the year ending 31st Dec, 2006 Light department I=3,00,000; department II=5,62,500; department III=1,80,000: Elite-department I=4,00,000; department II=6,00,000; department III=20,000.

Sales prices are ₹ 3 and ₹ 1.20 in all departments. It is estimated that by forced sales promotion the sales of Elite in department I will increase by 1,75,000. It is also expected that by increasing production and arranging extensive advertisement, department III will be enabled to increase the sale of Elite by 50,000.

It is recognized that the estimated sales by department II represent and unsatisfactory target. It is agreed to increase both estimates by 20%.

Prepare a sales budget for the year 2006.

Solution:

Sales budget should be prepared to the tune of various influences of forthcoming seasons' sales. The expected increase or decrease in the sales volume should be incorporated at the time of preparing the sales budget from the yester periods sale figures.

1. There is no change in the volume of existing sales of the department of I Light; the existing sales of the department I of the Light should be retained as it is for the computation of the budgeted figures, but there is a change expected to occur in the existing volume of sales of the department I of the Elite. The change expected amounted to increase 1,75,000 units in addition to the volume of existing sales, i.e. the total volume of sales is equivalent to 4,00,000 units of existing volume of sales + 1,75,000 units expectation of increase= 5,75,000 units for Elite Department I.
2. In the II department of both Light & Elite expected to have an increase on the volume of existing sales amounted is 20% i.e. 20% increase on the Department II of Light 5,62,500 units amounted 6,75,000 units and similarly in the case of Department II of Elite 6,00,000 units amounted 7,20,000 units.

Notes

3. In the III department of Light does not have any change in the volume of existing sales, it means that 1,80,000 units has to be retained as it is in the computation of the budgeted figure but in the case of Elite, department III expected to have an increase in the volume of sales which amounted 20,000 units i.e. 70,000 units.

Sales Budget for the Year 2006

Selling Price	Light ₹3		Elite ₹1.20		Total
	Quantity	₹	Quantity	₹	₹
Department I	3,00,000	9,00,000	5,75,000	6,90,000	15,90,000
Department II	6,75,000	20,25,000	7,20,000	8,64,000	28,89,000
Department III	1,80,000	5,40,000	70,000	84,000	6,24,000
	11,55,000	4,65,000	13,65,000	16,38,000	51,03,000

7.2.4 Sales Overhead Budget

It is one of the important sub functional budgets, prepared by the sales manager who is responsible for the sales volume of the enterprise to increase through various devices/tools of sales promotion.

The sales overhead can be classified into two categories viz fixed sales overhead and variable sales overhead.

What is meant by the Fixed Sales Overhead?

Fixed sales overhead is the expenses incurred for promoting the sales, which remains the same or fixed irrespective of the volume of the sales.

Example: 1. Salaries to Sales Department

2. Salaries to the Administrative Staff

3. Salary to Salesmen

Variable sales overhead is the expenses incurred for the promotion of the sales, which is varying along with the volume of sales of the firm.

Example: 1. Sales commission

2. Agents commission

3. Carriage outward expenses.

The sales overhead budget is the statement of estimates of the various sales promotional expenses not only based on the early/yester period sales promotional expenses but also on the sales of previous years.

Example: The following expenses were extracted from the books of M/s Sudhir & Sons, to prepare the sales overhead budget for the year 2006.

	₹
Advertisement on	
Radio	2,000
Television	12,000

Notes

Salary to	
Sales Administrative Staff	20,000
Sales force	15,000
Expenses of the sales department	
Rent of the building	5,000
Carriage outward	5% on sales
Commission at sales	2%
Agents' commission	6.5%

The sales during the period were estimated as follows:

₹ 80,000 including Agents Sales ₹ 8,000

₹ 1,00,000 including Agents Sales ₹ 10,500

Solution:

The most important step is to find out the variable portion of the sales overhead of M/s Sudhir & Sons.

1. The calculation of salesmen's commission is on the basis of the sales volume generated by the salesmen force. The total sales volume consists of two different parts viz. Sales contributed by the sales force and another one is contribution of the agents. To find out the sales volume of the sales man, the portion of the agents' sales volume should be deducted from the total sales volume.

   Sales Force's/Men's Volume = Total Sales Volume – Agent's Sales Volume

   Similarly, the agents' sales volume can be computed.

2. From the early step, the amount of commission is to be computed from the volume of sales.

3. Carriage outward should be computed on the volume of sales.

Sales Overhead Budget for the Year 2006

Estimated Sales	₹ 80,000 Level	₹ 1,00,000 Level
Fixed Overhead		
Advertisement on Radio	2,000	2,000
Advertisement on TV	12,000	12,000
Salary to Sales Admin. Staff	20,000	20,000
Salary to Sales force	15,000	15,000
Expenses of the sales dept – Rent	5,000	5,000
Total Sales Fixed Overhead (A)	54,000	54,000
Variable Overhead		
Salesmen's Commission 2%	1,440	10,290
Agents' Commission 6.5%	520	682.5
Carriage outward 5%	4,000	5,000
Total Variable Overhead (B)	5,960	5682.5
Total Sales overhead(A+B)	**59,960**	**59682.5**

Notes

7.2.5 Cash Budget

Cash budget is nothing but an estimation of cash receipts and cash payments for specified period. It is prepared by the head of the accounts department i.e. chief accounts officer.

The utility of the cash budget is as follows:

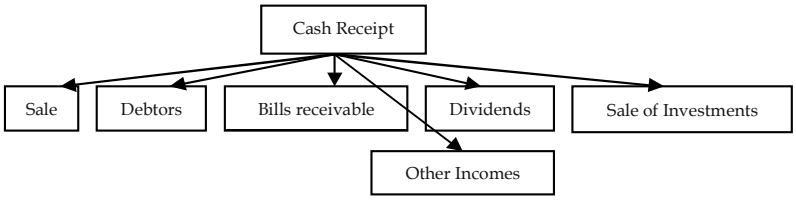
1. To meet the revenue and capital expenditures with adequate funds.
2. It should highlight the additional requirement cash whenever the need arises.
3. Keeping of excessive funds available in the business firm would not fetch any return to the enterprise but this estimate of future cash needs and resources will guide the firm to plan for an effective investment out of the surplus funds estimated; enhances the wealth of the investors through proper investment planning out of the future funds available

Cash budget can be prepared in three different ways:

1. Receipts and payments method
2. Adjusted profit and loss account
3. Balance Sheet Method

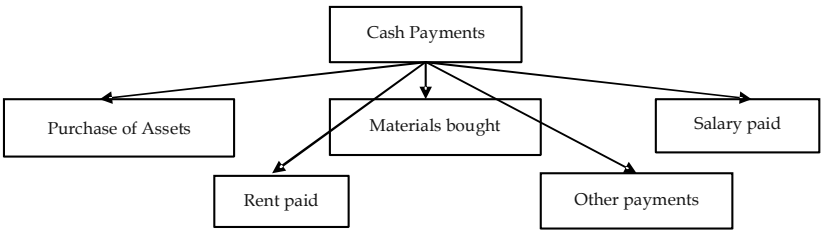
Cash receipts can be classified into various categories:

Figure 7.3: Classification of Cash Receipts



Cash payments are as follows:

Figure 7.4: Classification of Cash Payments



Example: From the estimates of income and expenditure, prepare cash budget for the months from April to June.

Month	Sales (₹)	Purchases (₹)	Wages (₹)	Office Exp. (₹)	Selling Exp. (₹)
Feb.	1,20,000	80,000	8,000	5,000	3,600
Mar.	1,24,000	76,000	8,400	5,600	4,000
Apr.	1,30,000	78,000	8,800	5,400	4,400
May	1,22,000	72,000	9,000	5,600	4,200
June	1,20,000	76,000	9,000	5,200	3,800

Notes

1. Plant worth ₹ 20,000 purchase in June 25% payable immediately and the remaining in two equal instalments in the subsequent months.
2. Advance payment of tax payable in Jan. and April ₹ 6,000.
3. Period of credit allowed:
   (a) By suppliers 2 months
   (b) To customers 1 month
4. Dividend payable ₹ 10,000 in the month of June.
5. Delay in payment of wages and office expenses 1 month and selling expenses ½ month. Expected cash balance on 1st April is ₹ 40,000.

Solution:

1. Plant worth ₹ 20,000 purchased, payable immediately is 25% i.e. ₹ 5,000 should be paid in the month of June. The remaining cost of the machine has to be paid in the subsequent months, after June. The payments whatever are expected to make after June is not relevant as far as the budget preparation concerned.
2. Delay in the payment of wages and office expenses is only one month. It means wages and office expenses of Feb. month are paid in the next month, March.

   Selling expenses from the above coloured boxes, it is obviously understood that during the months of April, May and June; the following will be stream of payment of selling expenses.

   April = ₹ 2,000 of Mar. (Previous Month) and ₹ 2,200 of April (Current month) = ₹ 4,200

   May = ₹ 2,200 of April (Previous Month) and ₹ 2,100 of May (Current month) = ₹ 4,300

   June = ₹ 2,100 of May (Previous Month) and ₹ 1,900 of June (Current month) = ₹ 4,000
3. Selling expenses is having the delay of ½ month, which means 50% of the selling expenses is paid only in the current month and the remaining 50% is paid in the next

Particulars	Feb.	Mar.	April	May	June
Selling Expenses	3,600	4,000	4,400	4,200	3,800
Payment 50% in the current month	1,800	2,000	2,200	2,100	1,900
Delay 50% will be paid in the subsequent month	1,800	2,000	2,200	2,100	1,900

Every month 50% of the selling expenses of the current month and 50% of the previous month selling expenses are paid together; the above coloured boxes depict the payment of 50% of the current selling expenses along with 50% expenses of previous month.

Cash Budget for the Periods (April and June)

Particulars	April (₹)	May (₹)	June (₹)
Opening Cash Balance	40,000	59,800	95,300
Cash Receipts			
Sales	1,24,000	1,30,000	1,22,000
Total Receipts (A)	1,64,000	1,89,800	2,17,300

Contd…

Notes

Payments			
Plant Purchased	----------	---------	5,000
Tax payable	6,000	---------	--------
Purchases	80,000	76,000	78,000
Dividend payable	---------	---------	10,000
Wages	8,400	8,800	9,000
Office expenses	5,600	5,400	5,600
Selling expenses	4,200	4,300	4,000
Total Payments(B)	1,04,200	94,500	1,11,600
Balance (A-B)	59,800	95,300	1,05,700

Self Assessment

Fill in the blanks:

3. The preparation of the production budget is mainly dependent on the ..... budget.
4. The production volume is connected to the ..... environment of the firm.
5. ..... budget takes place only after identifying the number of finished products expected to produce to the tune of production budget.
6. .....budget is one of the important sub functional budgets, prepared by the sales manager.
7. Cost control contains two different processes one is the ..... of the budget and another one is the ..... of the prepared budget.
8. ..... overhead is the expense incurred for the promotion of the sales.

7.3 Classification of the Budget in Accordance with the Flexibility

7.3.1 Fixed Budget

It is a budget known as constant budget, never registers the changes in the preparation of a budget, being prepared for irrespective level of output or production. This budget is mainly meant for the fixed overheads of the firm which are constant in volume irrespective level of production. The ultimate utility of the budget is to control the cost as a cost controlling measure, but the fixed budget is meaningless in having comparison with the actual performance.

7.3.2 Flexible Budget

Flexible budget is prepared for any level of production as an estimate of statement of all expenses i.e. the expenses are classified into three categories viz. variable, semi-variable and fixed expenses. The structure of the budget for any output is only to the tune of the actual performance achieved. This is the budget facilitates not only to have comparison in between various levels of production but also to identify the level of lowest production cost.

Notes

Notes Utilities of the flexible budget:

1. This budget is most useful tool of analysis in studying the sales at when the circumstances are not warranting to predict.
2. It is mostly suited to the seasonal business, where the sales volume is getting differed from one period to another due to changes taken place in the taste and preferences of the buyers.
3. The production is being done on the basis of demand of the products in the market. The demand of the products is studied only through demand forecasting. The flexible budget is more applicable in the case of products, which are greatly finding difficult to forecast the demand.
4. The budget is prepared only during the time of acute shortage of resources of production viz. Men, Material and so on.

Example: Draft a flexible budget for overhead expenses on the basis of following information and determine the overhead rates at 70%, 80% and 90% plant capacity.

Particulars	70% capacity	80% capacity (₹)	90% capacity
Variable Overheads			
Indirect Labour	----------	24,000	----------
Stores including spares	----------	8,000	----------
Semi-variable overheads	----------		----------
Power 30% fixed ,70% variable		40,000	
Repairs and maintenance	----------	4,000	----------
80% fixed and 20% variable			
Fixed Overheads	----------		----------
Depreciation		22,000	
Insurance	----------	6,000	----------
Salaries	----------	20,000	----------
Total overheads	----------	1,24,000	----------

Flexible Budget for the Period

Particulars	70% capacity	80% capacity	90% capacity
Variable overheads			
Indirect labour	21,000	24,000	27,000
Stores including spares	7,000	8,000	9,000
Semi-variable Expenses - Power* Fixed 30%			
**Variable 70%	8,000	8,000	8,000
	28,000	32,000	36,000
Repairs and maintenance			
***Fixed 80%	3,200	3,200	3,200
****Variable 20%	700	800	900

Contd…

Notes

Fixed Overheads			
Depreciation	22,000	22,000	22,000
Insurance	6,000	6,000	6,000
Salaries	20,000	20,000	20,000
Total Overheads	1,15,900	1,24,000	1,32,100

Master Budget

Immediately after the completion of functional or departmental level budgets, the major responsibility of the budget officer is to consolidate the various budgets together, which is detailed report of all operations of the firm for a definite period.

Self Assessment

State whether the following statements are true or false:

9. Fixed budget is a budget known as constant budget.
10. Fixed budget is most useful tool of analysis in studying the sales at when the circumstances are not warranting to predict.
11. Flexible budget is prepared for any level of production as an estimate of statement of all expenses

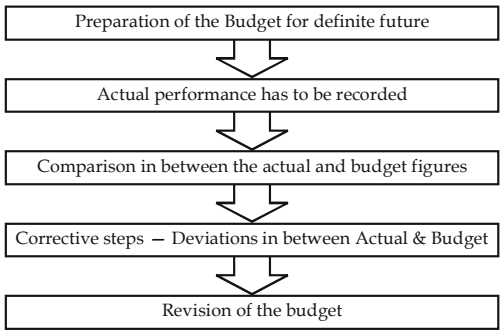
7.4 Budgetary Control System

Budgetary control contains two different processes one is the preparation of the budget and another one is the control of the prepared budget.

According to J. Batty, "Budgetary control is a system which uses budgets as a means of planning and controlling all aspects of producing and/or selling commodities and services."

According to ICMA, England, a budgetary control is, "the establishment of budgets relating to the responsibilities of executives to the requirements of a policy and the continuous comparison of actual with budgeted results, either to secure by individual action the objectives of that policy or to provide a basis for its revision".

Figure 7.5: Steps Involved in Budgetary Control



Notes

Self Assessment

Fill in the blanks:

12. Budgetary control contains two different processes one is the preparation of the budget and another one is the …… of the prepared budget.

13. …… is a system which uses budgets as a means of planning and controlling all aspects of producing and/or selling commodities and services.

7.5 Features of Budgetary Control System

The following are the essentials or pre-requisites for the successful implementation of a sound system of budgetary control:

(i) The business objectives, plans and policies should be clearly defined.

(ii) The organisational chart should be clear with responsibility and authority.

(iii) The budgeted output should be stated in clear terms.

(iv) Budget committee should be setup for the establishment and efficient execution of the plan.

(v) Budget centres should be established for cost control and all budgets should be related to cost centres.

(vi) The budgetary control system should have full support of top management of the organisation.

(vii) The accounting system should provide accurate and timely information.

(viii) Staff of the organisation should be strongly and properly motivated towards the system.

(ix) The budget should lay down the targets which are realistic and attainable, and

(x) The budgets should be flexible nature for permit the adjustments in the light of changed operational circumstances.

7.6 Objectives of Budgetary Control

The following are the key objectives of budgetary control:

1. To use different levels of management in a co-operative endeavour for achievement of the objectives of the firm.

2. To facilitate centralised control with delegated authority and responsibility.

3. To achieve maximum profitability by planning income and expenditure through optimum use of the available resources.

4. To ensure adequate working capital in other resources for efficient operation of business.

5. To reduce losses and wastes to the minimum.

6. To bring out clearly where effort is needed to remedy the situation.

7. To see that the firm is not deflected from marching towards its long-term objectives without being overwhelmed by emergencies.

8. Various activities like production, sales, purchase of materials, etc., are coordinated with the help of budgetary control.

9. To define the goal of the enterprise.

Self Assessment

Notes

Fill in the blanks:

14. Budget is a statement of ……

15. …… contains two different processes one is the preparation of the budget and another one is the control of the prepared budget.

16. Budget is an estimate prepared for definite ..... period.

17. Budgetary control facilitates centralised control with …… authority and responsibility.

18. The budget is usually expressed in terms of ……

7.7 Zero-base Budgeting (ZBB)

Zero-base budgeting is one of the renowned managerial tools, developed in the year 1962 in America by the Former President Jimmy Carter. The name suggests, it is commencing from the scratch, which never incorporates the methodology of the other types of budgeting in determining the estimates. The Zero base budgeting considers the current year as a new year for the preparation of the budget but the yester period is not considered for consideration. The future activities are forecasted through the zero base budgeting in accordance with the future activities.

Peter A Pyher "A planning and budgeting process which requires each manager to justify his entire budget request in detail from scratch (Hence zero base) and shifts the burden of proof to each manger to justify why he should spend money at all. The approach requires that all activities be analysed in "decision packages" which are evaluated by systematic analysis and ranked in order of importance."

This type of budgeting requires the manager to reason out the aim of spending, but in the case of traditional budgeting is unlike, which are never emphasize the reasons of spending in terms of expenses.

Table 7.2: Traditional Budgeting vs. Zero Base Budgeting

Basis of Difference	Traditional Budgeting	Zero-base Budgeting
Emphasis	It is accounting oriented; emphasis on "How Much"	It is more decision oriented; emphasis on "Why"
Approach	It is monitoring towards the expenditures	It is towards the achievement of objectives
Focus	To study the changes in the expenditures	To study the cost benefit analysis
Communication	It operates only Vertical communication	It operates in both directions horizontally and vertically
Method	It is based on the extrapolation i.e from the yester figures future projections are carried out	Its decision package is totally based on the cost benefit analysis.

7.7.1 Steps involved Zero-base Budgeting

1. The very first step is to prepare the Zero-base Budgeting is to enlist the objectives.

2. The extent of application should be decided in the next phase of the ZBB.

Notes

3. The next important stage is to prioritize the activities.
4. The Most important step involved in the process of ABB is cost benefit analysis.
5. The final step is to select, approve the decision packages and finalise the budget.

7.7.2 Benefits of Zero-base Budgeting

1. It acts as guide for the management to allocate the resources more accurately depends upon the priority for an effective implementation.
2. It enhances capability of the managers who prepares the budget for future action.
3. It paves way for optimum utilization of resources available.
4. It is a technique of utilitarian of the resources with reference to the activity involved.
5. It is dome shaped only towards the achievement of organizational goals.

7.7.3 Criticism of Zero-based Budgeting

1. Non-financial matters cannot be considered for the cost and benefit analysis.
2. Difficulties involved in the process of ranking of the decision packages.
3. It needs more time span for preparation and cost of operations is more and more.

Self Assessment

Fill in the blanks:

19. The …… considers the current year as a new year for the preparation of the budget.
20. The very first step is to prepare the Zero-base Budgeting is to enlist the ……

7.8 Summary

- Budget is an estimate prepared for definite future period either in terms of financial or non-financial terms.
- Budgeting means the process of preparing budgets. In other words, budgeting refers to the management action of formulating budgets.
- Cost control contains two different processes one is the preparation of the budget and another one is the control of the prepared budget.
- The production budget is a statement of goods, how much should be produced.
- The ultimate aim of the production budget is to find out the volume of production to be made during the year based on the sale volume.
- Sales Budget is an estimate of anticipation of sales in the near future prepared by the responsible person for the sale of a product by considering the various factors of influence.
- The expected increase or decrease in the sales volume should be incorporated at the time of preparing the sales budget from the yester periods sale figures.
- Cash budget is nothing but an estimation of cash receipts and cash payments for specified period. It is prepared by the head of the accounts department, i.e. Chief Accounts Officer.

Notes

- Constant budget is mainly meant for the fixed overheads of the firm, which are constant in volume irrespective level of production.
- Zero-base budgeting is one of the renowned managerial tools, developed in the year 1962 in America by the Former President Jimmy Carter.
- The Zero-base budgeting considers the current year as a new year for the preparation of the budget but the yester period is not considered for consideration.

7.9 Keywords

Budget: A financial statement prepared for specified activity for future periods.

Budgeting: Activity of preparing the budget is known as budgeting.

Budget Control: Quantitative controlling technique to assess the performance of the organization.

Cash Budget: It is a statement prepared by the organization to identify the future needs and receipts of cash from the yester activities.

Flexible Budget: It is a financial statement prepared on the basis of principle of flexibility to identify the cost of the unknown level of production from the existing level of operational capacity.

7.10 Review Questions

1. From the following figures extracted from the books of KPZ Ltd., Prepare raw materials procurement budget on cost:

Particulars	A	B	C	D	E	F
Estimated stock on Jan. 1	16,000	6,000	24,000	2,000	14,000	28,000
Estimated stock on Jan. 31	20,000	8,000	28,000	4,000	16,000	32,000
Estimated consumption	1,20,000	44,000	1,32,000	36,000	88,000	1,72,000
Standard price per unit	25 p	.10p	.50p	.30p	.40p	.50p

2. Sankaran Bros sell two products A and B, which are manufactured in one plant. During the year 2006, the firm plans to sell the following quantities of each product.

Product	April-June	July-September	October- December	January-March
Product A	90,000	2,50,000	3,00,000	80,000
Product B	80,000	75,000	60,000	90,000

Each of these two products is sold on a seasonal basis Sankaran Bros, plan to sell product A through out the year at price of ₹ 10 a unit and product B at a price of ₹ 20 per unit.

A study of the past experiences reveals that Sankaran bros has lost about 3% of its billed revenue each year because of returns (constituting 2% of loss if revenue allowances and bad debts 1% loss).

Prepare a sales budget incorporating the above information.

3. Gopi & Co. Ltd. produces two products, Alpha and Beta. There are two sales divisions viz. North and South. Budgeted sales of the year ended 31st December 2009 were as follows.

Division	Products	Units	Price per unit (₹)
North	Alpha	25,000	10
	Beta	15,000	5

Contd…

Notes

South	Alpha	24,000	10
	Beta	30,000	5

Actual sales for the period were

Product	North	South
Alpha	28,000 units @₹10 each	25,000 units @ ₹ 10 each
Beta	18,000 units @ ₹5 each	33,000 units @ ₹ 5 each

On the basis of assessments of the salesmen the following are the observations of sales division for the year ending 31st December 2010:

North Alpha budgeted increase of 40% on 2009 budget

Beta budgeted increase of 10% on 2009 budget

South Alpha budgeted increase of 12% on 2009 budget

Beta budgeted increase of 15% on 2009 budget

It was further decided that because of the increased sales campaign in North an additional sales of 5,000 units of product will result.

Prepare the sales budget for 2010 (a) zonewise (b) productwise.

4. From the following information prepare a cash budget for the months of June and July.

Month	Credit sales (₹)	Credit purchase (₹)	Manufacturing overheads (₹)	Selling overheads (₹)
April	80,000	60,000	2,000	3,000
May	84,000	64,000	2,400	2,800
June	90,000	66,000	2,600	2,800
July	84,000	64,000	2,000	2,600

Additional Information:

(a) Advance tax of ₹ 4,000 payable in June and in December 2008.

(b) Credit period allowed to debtors is two months.

(c) Credit period allowed by the vendors or suppliers.

(d) Delay in the payment of other expenses one month.

(e) Opening balance of cash on 1st June is estimated as ₹ 20,000.

5. The expenses for budgeted production of 10,000 units in a factory are furnished below:

Particulars	Per unit
Material	70
Labour	25
Variable overheads	20
Fixed overheads (1,00,000)	10
Variable expenses (Direct)	5
Selling expenses (10% fixed)	13
Distribution expenses (20% fixed)	7
Administration expenses (₹50,000)	5
Total cost per unit	155

Notes

Prepare a budget for production of:

(a) 8,000 units

(b) 6,000 units

(c) Calculate the cost per unit at both levels.

Assume that administration expenses are fixed for all level of production.

6. From the following information relating to 2008 and conditions expected to prevail in 2009, prepare a budget for 2009.

State the assumption you have made, 2008 actuals

Sales	1,00,000 (40,000 units)
Raw materials	53,000
Wages	11,000
Variable overheads	16,000
Fixed overheads	10,000
2009 prospects	
Sales	1,50,000 (60,000 units)
Raw Materials	5 per cent price increase
Wages	10 per cent increase in wage rates
	5 per cent increase in productivity
Additional plant	One lathe ₹25,000
	One drill ₹,12,000

7. "Budgetary control is a system which uses budgets as a means of planning and controlling all aspects of producing and/or selling commodities and services." Comment.

8. If the current year production is not equivalent to the current year sales, why does the closing stock arise in the business?

9. What do you think are the causes behind an unfavorable fixed overhead budget variance?

10. "Zero-base budgeting is a planning, resource allocation and control tool." Explain and what are its advantages?

Answers: Self Assessment

1.	Budgeting	2.	management goals
3.	sales	4.	internal
5.	Materials/Purchase	6.	Sales Overhead
7.	preparation, control	8.	Variable sales
9.	True	10.	False
11.	True	12.	control
13.	Budgetary control	14.	quantitative
15.	Budgetary control	16.	Future

Notes

17. delegated
18. total volume
19. Zero-base budgeting
20. objectives

7.11 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.

Online links

www.authorstream.com

www.allinterview.com

Notes

Unit 8: Standard Costing

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Introduction

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Objectives

After studying this unit, you will be able to:

- Define Standard costing
- Distinguish between budgetary control and standard costing
- Describe Estimated costing
- Discuss Standard costing as a management tool and limitations of standard costing
- Illustrate the determination of standard cost and cost sheet

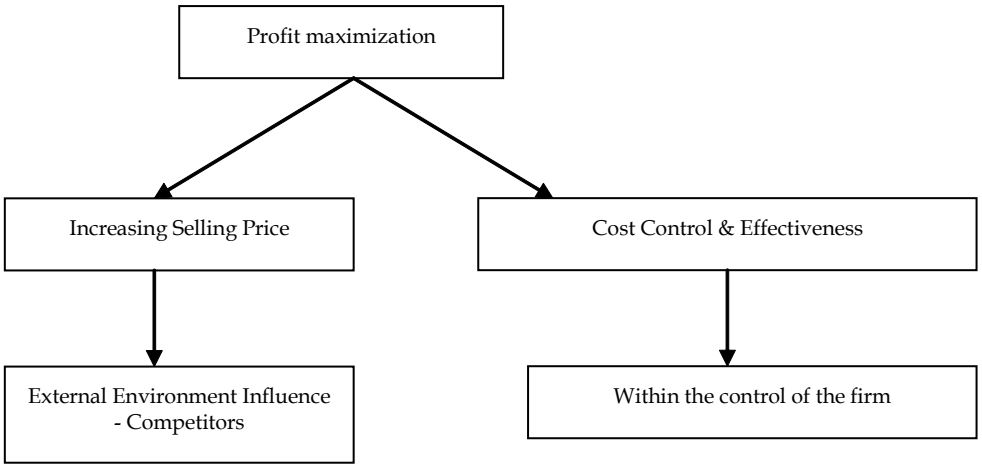
Introduction

Standard costing is a tool, which replaces the bottleneck of the historical costing. Historical costing is one of the tools, which fulfills the one of the objectives of costing i.e. ascertainment of costs. The cost of a product can be ascertained only after the production of a product; which is meant as "Historical costing". Historical costing facilitates to ascertain the cost of a product which is connected with yester operations or with past. The ultimate aim of studying this unit is to control the cost of a product as one among the objectives of cost effectiveness strategy of the business enterprise.

The profit maximization can be had by way of implementing the following two different strategies:

Notes

Figure 8.1: Profit Maximisation Strategies



From the following equation, the profit can be maximized

Selling Price – Cost = Profit

Caution There are two possible ways to maximize the profit:

1. Increasing the selling price and keeping the cost remains the same.
2. Reducing the cost and retaining the selling price as it is.

8.1 Meaning and Definition of Standard Costing

Standard is nothing but an expected or anticipated performance in normal situations. The standards are quantitative in phenomenon which are in connection with one activity and differs from the another.

Example: 1. Kg of raw materials expected to produce one unit of product.

2. Hours are expected/anticipated to consume for production of a single unit of product.

Standards are classified into two categories, viz. Revenue standards and Cost standards.

Standard cost is a predetermined cost, which is estimated from management's standard of efficient operation and the relevant necessary expenditure, according to ICWA (London).

Caution The standard cost is related to variable portion of the cost of a product. The variable portion of cost of product depends on the following:

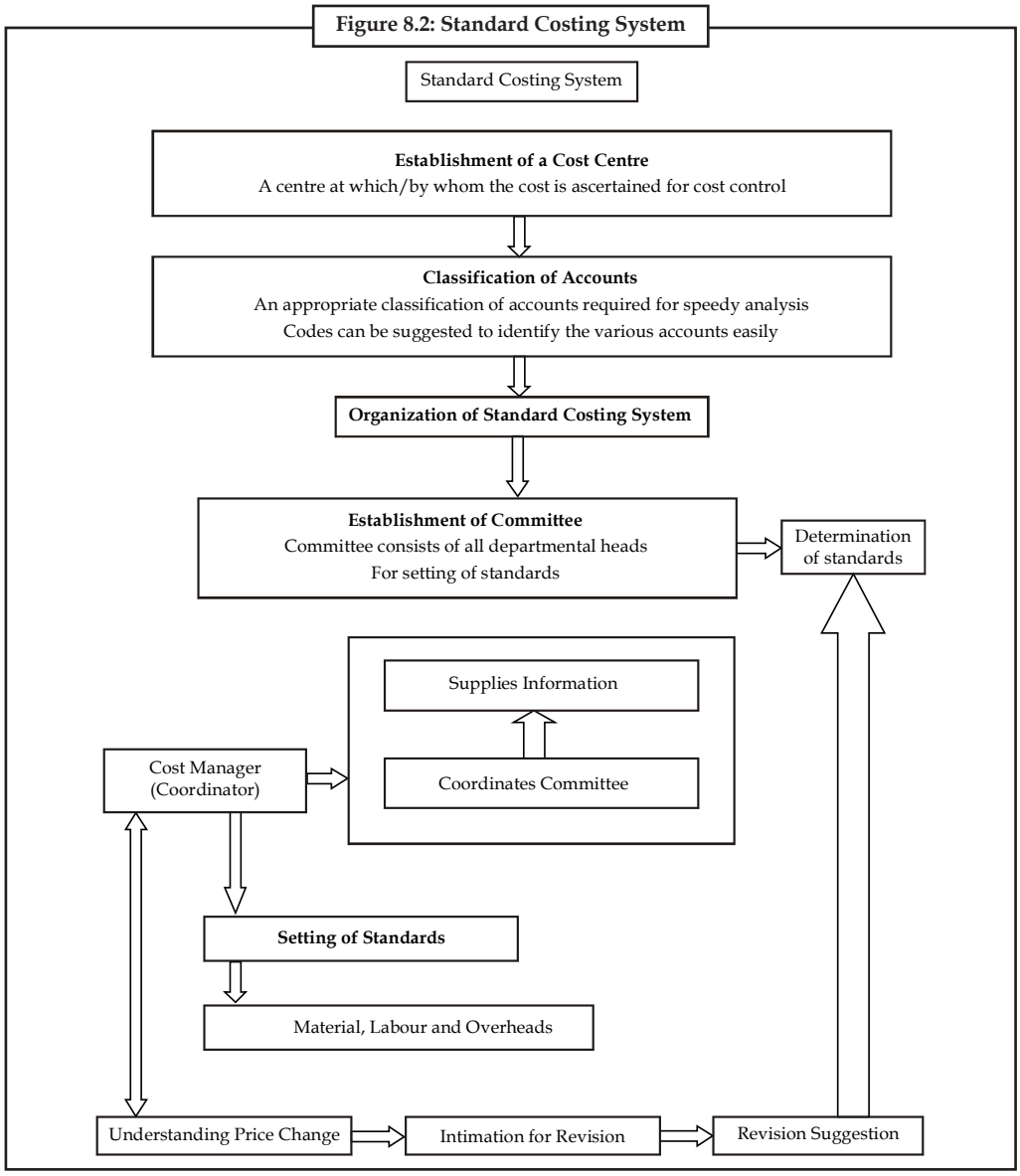
1. Material consumption
2. Hours taken/consumed
3. Incurring of miscellaneous expenditures - Overheads.

Notes

Standard costing is a system, which involves the various steps:

1. The first step in implementing the standard costing system is to develop the pre-determined standards, i.e., standard costs.
2. The second step is to record the actual costs through the ascertainment.
3. The third step involves with the comparison between the standards and actual costs; which is the origin of the variance analysis. Standard costing starts with the preparation of standards and ends with the comparison in between them. The preparation of standard costs is meaningful only through the completion of variance analysis.
4. The fourth step is the stage at which the reasons for variances are probed and analysed to incorporate the cost effectiveness not only to reduce cost but also to enhance the levels of profit.
5. The final step is the most important in the organization to take managerial decisions through an appropriate reporting. The figure 8.2 explains the standard costing system:

Figure 8.2: Standard Costing System



Notes

Caselet

Standard Costing in Jute Industry

Jute industry offers scope for implementing standard costing, says Dhruba Kumar Dutt in Industrial Management in India from Purple Peacock (www.bharatbooks.com). The author divides jute costing into three: Spun jute yarn, woven jute cloth, and finished jute cloth/ bag. "To arrive at the cost of jute yarn, one has to start from the stage of batching," explains Dutt. Jute mills use a ready-reckoner type of table to blend jute of various kinds in fixed proportions; this is softened and converted into `jute yarn of the required count.' Costing department receives daily reports that show `the quantity of each kind of jute consumed in the batching process.' Standardised numbers are available of raw jute consumption for producing one tonne of spun yarn; also known are percentages of waste in each process stage from batching to spinning.

"Direct and indirect labour costs are carefully split up and charged to the processed material of each kind," be it hessian/sacking warp/weft. Winding section has piece-rate workers winding both cops and beams. "In the weaving stage, costs of warp and weft yarns (in beams and cops) for producing jute cloth of any particular kind is calculated by ascertaining the consumption of beams and cops." Move on then to the sewing department, where you can compute the cost of jute cloth and jute yarns required to manufacture a bag. Sack sewers work on piece rate. Successful standardisation hinges on minute observations and experiments, notes Dutt. "Thus standard costing should be viewed as part of industrial management," he argues.

Source: http://www.thehindubusinessline.in

Self Assessment

Fill in the blanks:

1. …… facilitates to ascertain the cost of a product which is connected with yester operations or with past.
2. Standards are classified into two categories, viz. …… and Cost standards.
3. Selling Price – Cost = ……
4. The preparation of standard costs is meaningful only through the completion of ……
5. The standard cost is related to …… portion of the cost of a product.

8.2 Budgetary Control and Standard Costing

The systems of standard costing and budgetary control have the common objectives of controlling business operations by establishment of pre-determined targets, measuring the actual performances and comparing it with the targets, for the purpose of having better efficiency and of reducing costs. The two systems are said to be inter-related but they are not inter-dependent. Standard costing is introduced primarily to ascertain efficiency and effectiveness of cost performance. Budgetary control is introduced to state in figures an approved plan of action relating to a particular period. Both standard costing and budgetary control have the following common features:

(i) Both have a common objective of improving managerial control.

(ii) Both techniques are based on the presumption that cost is controllable. **Notes**

(iii) In both the techniques, results of comparison are analysed and reported to management.

Table 8.1: Difference between Standard Costing and Budgetary Control

	Standard Costing	Budgetary Control
(i)	It is revealed with the control of expenses and hence it is more intensive.	It is concerned with the operation of the business as a whole and hence it is more extensive.
(ii)	Standard costs are based on technical assessments.	Budgets are based on past actuals, adjusted to future trends.
(iii)	To establish standard costs, some form of budgeting is essential as there is the need to forecast the level of output and prescribed set of working conditions in the periods in which the standard costs are to be used.	Budgetary control can be applied even without the help of standard costing.
(iv)	Standards are set mainly for production and production expenses.	Budgets are compiled for all items of income and expenditure.
(v)	Standard cost is the projection of cost accounts.	Budget is a projection of financial accounts.
(vi)	Standards set up targets that are to be attained by actual performance.	Budgets set up maximum limits of expenses above which the actual expenditure should not normally exceed.
(vii)	In standard costing, variances are analysed in detail according to their originating causes. It reveals variances through different accounts, such as, material price variance, usage variance, etc.	In budgetary control, variances are not related through the related accounts but are revealed in total.
(viii)	Standard costs do not tell what the costs are expected to be, but rather what the costs should be under specific conditions of production performance and as such cannot be used for the purpose of forecasting.	Budgets are anticipated or expected costs meant to be used for forecasting requirements of material, labour, cash, etc.
(ix)	Standard costs are used in various management decisions, price fixing, value analysis, valuation of closing stock, etc.	It aims in policy determination, co-ordination of activities in different divisions and delegation of authority.

Self Assessment

Choose the appropriate answer:

6. Standard is ideally prepared for

   (a) Fixed cost (b) Variable cost

   (c) Sales (d) Variable cost and sales

7. If standard cost of the product is more than the actual cost

   (a) Favourable (b) Neither favourable nor unfavourable

   (c) Unfavourable (d) Both (a) & (c)

8. Standard is calculated for

   (a) Volume (b) Per batch

   (c) Per unit (d) Per batch or unit

Notes

9. Why the given standards are tuned to actual?
   (a) To equate both of them
   (b) To convert the standards at par with the actual performance
   (c) To know the difference
   (d) None of the above

8.3 Estimated Costing

Standard costs and estimated costs are predetermined costs, but their objectives are different. Important points of difference between the two are as follows:

Table 8.2: Difference between Standard Cost and Estimated Cost

	Standard Cost	Estimated Cost
(i)	Standard cost can be applied in a business operating under standard costing system.	Estimated costs can be used in any business which is running under historical costing system.
(ii)	Standards are meant for controlling future performances.	Estimates are prepared mainly for price fixing purposes.
(iii)	Standard costs are determined on a scientific basis keeping in view certain factors and conditions of efficiency.	Estimated costs are calculated on the basis of past performance adjusted in the light of anticipated changes in the future.
(iv)	Standard costs are used as a regular system of accounts from which variances are found out.	The use of estimated cost is as statistical data only.
(v)	Standard costs are to be fixed in respect of every element of cost and therefore, they incorporate whole of the manufacturing process.	Estimated costs can be ascertained for a part of the business and also for a particular purpose.

Self Assessment

Fill in the blanks:

10. Estimated costs are calculated on the basis of ..... adjusted in the light of anticipated changes in the future.
11. Standard costs are used as a regular system of accounts from which ..... are found out.

8.4 Standard Costing as a Management Tool

Standard costing is a very useful managerial tool for cost control and cost reduction. The following are the main advantages of standard costing:

1. Standard costing is a valuable aid to management in formulating price and production policies and in performing managerial functions.
2. Human beings often work hard to achieve standards that are within their reach; therefore, setting up of such standards will almost automatically mean greater efficiency in operations. Further, almost everyone will think in terms of setting the targets and of achieving them. This will be specially so if the system of rewards and punishment is also geared to the results.

Notes

3. Even for valuation of inventory, standard cost should be the proper basis. If actual costs are high only because there has been a wastage of resources, it is not proper to capitalise those losses by including them in the value of inventory. Nothing becomes more valuable simply because of wastage and, therefore, inventory values should better be determined on the basis of standard costs.
4. In short, one can say that if a firm practices standard costing on proper lines, i.e., standards are themselves determined in a way that will not impose too great a burden on the worker or other employees or the firm, it may infuse in the minds of the staff a desire to achieve the standards and thus show greater efficiency.
5. At every stage of setting the standards, simplification and standardisation of productions, methods and operations are effected and waste of time and material is eliminated. This assists in managerial planning for efficient operation and benefits all the divisions of the concern.
6. Costing procedure is simplified. There is a reduction in paperwork in accounting and less number of forms and records are required. There is considerable saving in clerical time and expenditure, leading to reduction in the cost of the costing system.
7. This system facilitates delegation of authority and fixation of responsibility for each department or individual.
8. Where constantly reviewed, the standards provides means for achieving cost reduction. This is attained through improved quality of products, better materials and men, effective selection and use of capital resources, etc.
9. Standard costs assist in performance analysis by providing ready means for preparation and interpretation of information.
10. This facilitates the integration of accounts so that reconciliation between cost accounts and financial accounts may be eliminated.
11. Standards serve as yardsticks against which actual costs are compared. Whenever variances occur, reasons are studied and immediate corrective measures are undertaken. Thus, it facilitates effective cost control and provides necessary information for cost reduction.
12. It creates an atmosphere of cost consciousness among executives, foremen and workers. It also provides incentives to employees for efficient work.
13. Standard costing facilitates management by exception. It helps the management in concentrating its attention on cases which are below the standards set.
14. Standard costing helps in effective delegation of authority and responsibility. As a result, the management can control the affairs of various departments effectively.
15. Setting of standard involves effective utilisation of men, material and machines. It leads to economy and increased productivity in all business activities.
16. It simplifies costing procedures and reporting. It reduces clerical work since standard rates are fixed for material pricing, overhead allocation apportionment, etc.
17. It makes the work of valuation of inventory easier. This is because inventory is valued at predetermined costs.

Self Assessment

State whether the following statements are true or false

12. Standard costing helps in effective delegation of authority and responsibility.

Notes

13. Standard costing increases clerical work since standard rates are fixed for material pricing, overhead allocation apportionment, etc.

8.5 Limitations of Standard Costing

Standard costing has certain limitations. These are the following:

1. Establishment of standard costs is difficult in practice. Even if the particular type of standard to be used has been properly defined, there is no guarantee that the standard established will have the same tightness or looseness as envisaged throughout the organisation.
2. In course of time, the standards become rigid, it is not always possible to change standards to keep pace with frequent changes in the manufacturing conditions. Frequent revision of standards is costly and creates problems.
3. Standard costing is an expensive technique for a small concern.
4. It is difficult to set accurate standard costs. Improperly set standards may do more harm than good.
5. It is not easy to distinguish variances as controllable or uncontrollable.
6. Since business conditions are changing, the standards are to be revised frequently. Revision of standards is a tedious and costly process.
7. Standard costing cannot be applied fully to job order industries dealing in non-standardised products. It may be applied partially but it would not be effective.
8. If standards are too high or rigid, they will be unattainable. It will adversely affect the morale and motivation of employees and lead to resistance.
9. Inaccurate, unreliable and out-of-date standards do more harm than any good.

Self Assessment

State whether the following statements are true or false

14. Standard costing is an effective technique for a small concern.
15. It is easy to distinguish variances as controllable or uncontrollable.

8.6 Determination of Standard Cost

As 'standard' is a relative expression; one has to determine for oneself what one deems appropriate as a 'standard'. However, one should not lose sight of the objective, which normally should be avoidance of all losses and wastages as far as possible. The management may certainly fix standards on the basis of maximum possible efficiency, possibly with an assumption of no wastage, no idle time, etc. However, this is not realistic; the standard will be the 'Ideal Standard' but impracticable-no one will even make an attempt to achieve it.

Alternatively, an average of past few years' costs could be taken as basis but this will mean perpetuating past inefficiencies, by making them the target. This will defeat the very purpose of standard costing.

A target should be such that it will induce the worker to give out his best. In order to make people believe in standards and to induce them towards achieving them, standards should better be such as can be achieved but with an effort; in other words, they should be somewhat idealistic.

Notes

1. ***Basic Standard:*** This is a 'standard' which is established for use, unaltered over a long period of time. Standards are fixed scientifically and hence it is more of a technical job. These standards are supposed to remain unchanged so long as quality requirements are constant. Moreover, if forward contracts are entered into regarding materials and labour pact signed for a certain period, the costs can be planned accordingly. Such costs, i.e., basic standards may, however, have to be adjusted for changes in circumstances in a period.

2. ***Current Standard:*** In practice, standards are fixed on the basis of scientific studies but adjusted for current subjective factors. A standard, therefore, is made realistic to reflect the anticipated conditions affecting operations; it is not too idealistic. Such a standard would bring to sharp focus the avoidable causes for variances, leading to control action. A current standard is a standard for a certain period, for certain conditions and for certain circumstances. Basic standards are more idealistic whereas current standards are more realistic. Most companies use current and not basic standards.

3. ***Expected or Attainable Standard:*** A standard though idealistic, should also be realistic. If targets are fixed for a certain budgeted period, taking into account the expected conditions, it can be known as "expected standard" or "attainable standard". It is defined by CIMA, London as, "A standard which can be attained if a standard unit of work is carried out efficiently, a machine properly operated or a material properly used. Allowances are made for normal losses, waste and machine downtime."

4. ***Normal Standard:*** Yet another target is one that is intended to cover a longer period of time— a period long enough to cover one trade cycle, i.e., roughly 7 to 10 years. This is defined as "the average standard which it is anticipated can be attained over a future period of time, preferably, long enough to cover one trade cycle".

5. ***Ideal Standard:*** This standard refers to the target that can be attained under most ideal conditions. Hence, it is more idealistic and less realistic. It is defined by the terminology as: "The standard which can be attained under the most favourable conditions, with no allowance for normal losses waste and machine down time".

Did u know? ***How to Prepare Standard Cost Sheet?***

When all the standard costs have been determined, a Standard Cost Sheet is prepared for each product or service. The process of setting standards for materials, labour and overheads results in the establishment of the standard cost for the product. Such a cost sheet shows for a specified unit of production, quantity, quality and price of each type of materials to be used, the time and the rate of pay of each type of labour, the various operations the product would pass through, the recovery of overhead and the total cost. The build-up of the standard cost of each item is recorded in standard cost sheet. These details serve as a basis to measure the efficiency against which actual quantities and costs are compared. The type of standard cost sheet varies with the requirements of individual firm hence no uniform format can be prescribed.

Self Assessment

Fill in the blanks:

16. Basic standards are more idealistic whereas current standards are more ……

17. The build-up of the standard cost of each item is recorded in ……

18. A …… is a standard for a certain period, for certain conditions and for certain circumstances.

Notes

Task Prepare the proforma of standard cost sheet.

8.7 Summary

- Standard costing is a tool, which replaces the bottleneck of the historical costing.
- Historical costing facilitates to ascertain the cost of a product which is connected with yester operations or with past.
- Standards are classified into two categories, viz. Revenue standards and Cost standards.
- The systems of standard costing and budgetary control have the common objectives of controlling business operations by establishment of pre-determined targets, measuring the actual performances and comparing it with the targets, for the purpose of having better efficiency and of reducing costs.
- Standard costing is a very useful managerial tool for cost control and cost reduction.
- When all the standard costs have been determined, a Standard Cost Sheet is prepared for each product or service.
- The process of setting standards for materials, labour and overheads results in the establishment of the standard cost for the product.

8.8 Keywords

Basic Standard: This is a 'standard' which is established for use, unaltered over a long period of time.

Budget: Budget is a projection of financial accounts.

Ideal Standard: This standard refers to the target that can be attained under most ideal conditions.

Standard Cost: Standard cost is a predetermined cost, which is estimated from management's standard of efficient operation and the relevant necessary expenditure.

8.9 Review Questions

1. Standard costing is a tool, which replaces the bottleneck of the historical costing. Give some suggestions to support the above statement.
2. The organisations can increase their profit either by increasing the selling price of their products or by reducing the cost of the product. Which strategy is more beneficial for the organisation?
3. Standard is nothing but an expected or anticipated performance in normal situations. Do you think the process of setting the revenue standards is same as the cost standards?
4. The budgetary control and standard costing systems are said to be inter-related but they are not inter-dependent. Discuss.
5. How standard costing is a useful managerial tool for cost control and cost reduction?
6. Prepare a standard cost sheet for any product or service and discuss the key elements.

Notes

7. The management may certainly fix standards on the basis of maximum possible efficiency, possibly with an assumption of no wastage, no idle time, etc. Do you think this is realistic?
8. As 'standard' is a relative expression; one has to determine for oneself what one deems appropriate as a 'standard'. Discuss.
9. Suggest some drawbacks of standard costing.
10. Standard costs and estimated costs are predetermined costs, but their objectives are different. What are the key points of differences between standard cost and estimated cost?

Answers: Self Assessment

1.	Historical costing	2.	Revenue standards
3.	Profit	4.	Variance analysis
5.	variable	6.	(d)
7.	(a)	8.	(d)
9.	(b)	10.	past performance
11.	variances	12.	true
13.	false	14.	false
15.	false	16.	realistic
17.	standard cost sheet	18.	current standard

8.10 Further Readings

Books

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Unit 9: Variance Analysis

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9.5 Review Questions

9.6 Further Readings

Objectives

After studying this unit, you will be able to:

- Explain the meaning and importance of variance analysis
- Compute the different kinds of variances

Introduction

In standard costing, variance means the difference between the standard cost and the actual cost. Variances of different cost items provide the key to cost control. They indicate whether and to what extent standards set have been achieved. This enables management to correct adverse tendencies.

The terminology of ICMA London, defines variance as, "Difference between a standard cost and the comparable actual cost incurred during a period." Variance for each element of cost should be ascertained regularly. If the actual cost is less than the standard cost, it is termed as 'favourable variance. On the other hand, if the actual cost is more than the standard cost, it is known as 'adverse' or 'unfavourable variance.'

(a) Computation of individual variances, and

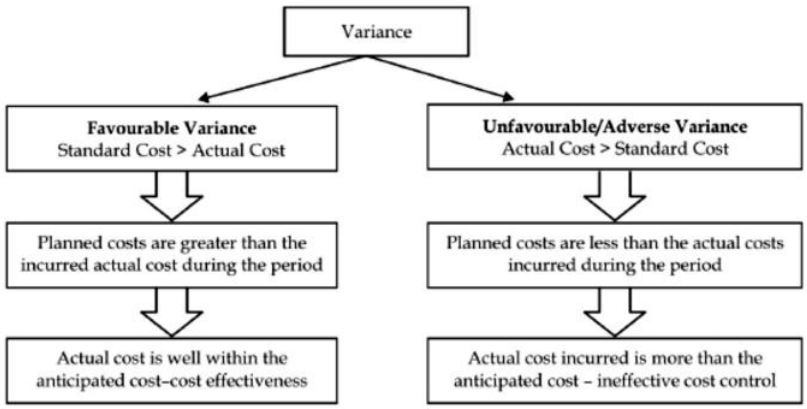
(b) Determination of the cause(s) of each variance.

9.1 Meaning and Importance of Variance Analysis

The term "Variance" means deviation, difference and so on. The variance in accordance with standard costing is meant as the difference/deviation in between two different costs viz standard cost and actual cost. According to ICWA, London defines the variance as "deviation in between the standard cost and comparable actual cost incurred during the period." The variance of the specific element of cost should be periodically checked. The variance is classified into two categories.

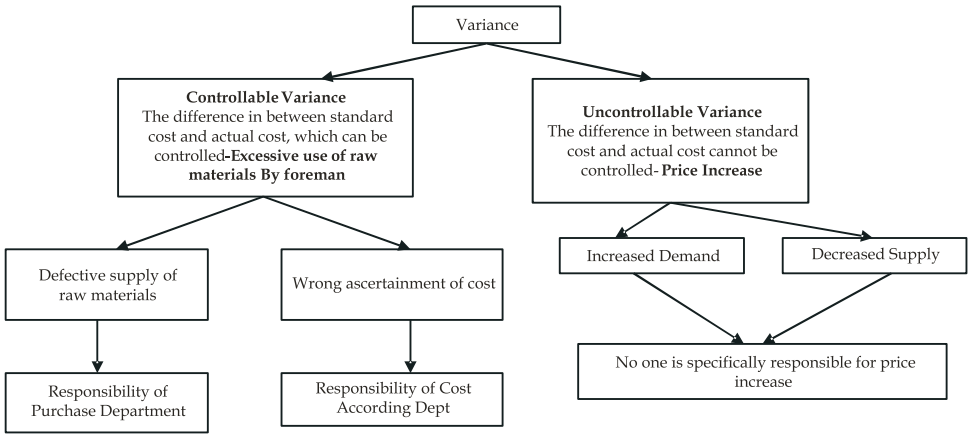
Notes

Figure 9.1: Classification of Variance



The variance can be classified into two categories, based on controllability *viz.* controllable and uncontrollable variance.

Figure 9.2: Classifications of Variances on the Bases of Controllability



The purpose of standard costing is to correct the variance, which is in between standard cost and actual cost.

Self Assessment

Fill in the blanks:

1. If the actual cost is more than the standard cost, it is known as …… variance.
2. If the actual cost is less than the standard cost, it is termed as ……
3. The purpose of …… is to correct the variance, which is in between standard cost and actual cost.
4. Variance means the difference between the …… and the actual cost.
5. Variances of different cost items provide the key to ……

Notes

9.2 Kinds of Variances

There are two types of variances *viz.* cost variance and revenue variance.

Cost Variance: Cost variance can be further classified into three categories:

1. Material Cost Variance
2. Labour Cost Variance
3. Overhead Variance

Revenue Variance:

1. Sales Variance

Apart from the above classified types, there is a general way of studying variances. Let us discuss every variance in detail in the remaining unit.

9.2.1 Material Variances

Material Cost Variance (MCV)

The name of the variance is self-explanatory, means that the difference in between the standard cost of materials and Actual cost of materials. The material cost variance is in between the standard material cost for actual production in units and actual cost.

Material cost variance can be computed into two different ways:

1. ***Direct Method:*** It is a method simply studies the deviation in between the two different cost of materials without giving any emphasis for other factors of influence *viz.* the quantity of materials and price of a material. Under the direct method, the comparison is in between the standard cost of materials which is the planned cost of materials before commencement, scientifically developed by considering the all other factors of influence and the actual cost of materials, which is actually incurred during the production.

   Did u know? ***Why standard cost is to be tuned to the level of actual cost?***

   The main aim of computing the standard cost for actual output is that the standard cost developed is not to the tune of actual production in units, instead it is available in terms of per unit of a product/for overall production, e.g. for a year. To have leveled comparison in between the standard cost has to be designed to the tune of Actual cost.

   Material cost variance = Standard cost of materials for actual output — Actual cost of raw materials

   = (SQAO × SP) – (AQ×AP)

2. ***Indirect Method:*** It is a method which computes the material cost variance by considering two important variances *viz.* material price variance and material usage variance. Under this method material cost variance is calculated through the summation of the variances *viz.* price and usage of materials.

   Material Cost Variance = Material Price Variance (MPV) + Material Usage Variance

Example: To manufacture one unit of product, the requirement is 2 Kgs of material @₹ 2 per Kg. Actual output is 400 units Actual quantity of materials used is 850 kgs ₹ 1.80 find out the material cost variance.

Notes

Solution:

First step is to find out the standard quantity for actual output

Standard quantity of raw materials = 2Kg

Actual Production = 400 units

To have leveled comparison, the Standard quantity of materials for actual output to computed; then only the variance intend to encircle will be meaningful or vice versa.

The computation of SQAO should be computed at first:

For the production of one unit of product 2 Kg of raw material was planned and finalized prior to the commencement of production process. The actual production of the firm during the cycle is 400 units. What would be the requirement of the firm in manufacturing 400 units to the tune of planned quantity of materials per unit 2 Kg? This is the standard quantity of materials for actual output computed for an effective comparison with the actual quantity of materials consumed by the firm in manufacturing the 400 units.

SQAO = 400 × 2Kg = 800 Kg

SP = Standard Price = ₹ 2 per Kg

AQ = Actual Quantity = 850 Kgs

AP = Actual Price = ₹ 1.80

Material cost variance = (SQAO × SP) – (AQ × AP)

= (800 Kg × ₹ 2) – (850 Kg × ₹ 1.8)

= ₹ 1600 – ₹ 1530

= ₹ 70 (F)

The material cost variance of the above problem is favourable due to lesser actual cost over the standard cost of materials.

Material Price Variance

It is very simple to understand that the name of the variance is self-explanatory in explaining the meaning of the variance. It is a variance in between two different prices *viz.* the standard price and actual price of raw materials. The difference should be expressed only in terms of the actual usage of materials. The ultimate of aim of expressing this variance in the lights of actual usage of materials is to identify the deviation of the price changes in line with the purchase of raw materials.

Material Price Variance = (SP – AP) AQ

From the earlier illustration, the material price variance is as follows

Standard price = ₹ 2 per unit

Actual price = ₹ 1.80 per unit

Actual quantity of materials consumed = 850 Kg

Material price variance = 850 Kg (2.00 – 1.80)

= ₹ 170 (F)

Decision Criterion: If the resultant is positive, it means that the planned price which was scientifically developed is more than the actual price. In precise terms, the price fluctuations in the market are well with in the planned price. If it is within the standard, quantified as favourable

Notes

for a firm. If not, otherwise, the excessive/exorbitant cost of purchase of raw material more than the standard is unfavourable/adverse for the firm, the reason is the firm has paid more on the cost towards the purchase of materials than the planned one.

Material Usage or Quantity Variance

The variance/deviation is in between the standard quantity of materials and the actual quantity of materials consumed. The found variance in Kg of raw materials should be expressed in monetary values i.e in terms of Rupees, through the multiplication with the standard price. The ultimate aim of expressing the variance in terms of standard price is the price, which is totally free from market fluctuations, i.e. supply and demand factors of the market.

Materials Usage Variance = Standard Price × (Standard quantity of materials for actual output – Actual quantity of materials used)

Example: (Output more than one unit)

Standard quantity of raw materials required to produce one unit of X was 10 kgs @ ₹ 6 per Kg.

Actual units produced during that period were 500 units. Actual quantity of materials was 5500 Kgs @ ₹ 5.5 Kg.

Calculate the material cost, price and usage variance.

Solution:

From the above problem, it came to understand that the actual production of a firm is more than a unit, i.e. 500 units.

Standard quantity of raw materials for actual output has to be computed to the tune of actual production 500 units.

Standard quantity of raw materials foe actual output = Standard Quantity of Materials × Acutal Production

For One unit of out put the standard quantity of raw material is 10 Kg

For 500 units of actual production, how much would be the standard quantity of raw materials?

SQAO = 10 Kg × 500 Units = 5000 Kg,

Standard Price = ₹ 6 Kg

AQ = 5500 Kgs,

Actual Price = ₹ 5.5 Kg

Material Cost Variance = SQAO × SP – AQ × AP

= (5000 Kg × ₹ 6) – (5500 Kg × ₹ 5.5)

= (₹ 30000) – (₹ 30250) = (₹ 250))(A)

Material Price Variance = (SP – AP) × AQ

= (₹ 6 – ₹ 5.5) × 5500 = ₹ 2750(F)

Material Usage Variance = (SQAO – AQ) × SP

= (5000 – 5500) × ₹ 6= ₹ 3000 (A)

Verification: The indirect method of computing the material cost variance facilitates to verify the answer computed under the material variances.

Notes

MCV = MPV + MUV

₹ 250 (A) = ₹ 2750 (F) + ₹ 3000 (A)

L.H.S = R.H.S

Task If the closing stock of raw materials is given, how the material variance can be computed?

Standard quantity of materials = 5000 Kgs @ ₹ 5 per Kg

Actual quantity of materials purchased = 5500 Kgs @ ₹ 6 per Kg

Closing stock of raw materials = 300 Kgs

Material Mix Variance

This kind of variance arises only due to the mixture of various raw materials to produce and to get an output. Normally the process of production involves more than two materials to get the output. For example the firm mixes the raw materials of A& B at the ratio of 3:2. The mixture is called Material Mix.

The above mentioned ratio is being changed by the firm for actual production in producing a unit of product as 4:1.

The change in the material mix due to various reasons, those are following:

1. In adequate supply of raw materials
2. Price factor of a material
3. Introduction of a new system of production due to expansion
4. Substitution of a material due better quality and cheaper price than the existing material in current system of procurement.

This material mix variance is highly applicable in the following industries that chemicals, fertilizers, pharmaceuticals, consumables, etc.

The variance should be computed in between two different materials *viz.* Standard quantity of materials and Actual quantity of materials.

Actual quantity of materials is the volume of materials registered the change in the usage of raw materials mixture but the standard quantity of raw materials is totally free from the change of mixture in the raw materials.

While studying the variance, the factors of comparison should be weighed equally with each other. For instance, the standard quantity of material should not be a rational factor of comparison with actual.

Caution ***Why must the standard quantity of raw material be revised?***

In order to have an appropriate comparison, the standard has to be revised. The early estimated standard is the measure not considered the reality during the production process due to changes occurred in the procurement of raw materials. While comparing the standard with actual, the earlier is not at par with later in terms of realities. To incorporate the realities, the standards are tuned towards the actual; makes the comparison meaningful in studying the variance among the both.

Notes

When the total standard quantity of materials is equivalent to Actual quantity of materials: From the below example, the ultimate aim of revising the standard is explained as follows:

Example: Before the commencement of production process, the standard mix of materials for the production of one unit of output included two different mixture of quantities of material *viz.* A&B amounted 70 tons and 30 tons respectively; which formed the 70% and 30% in the production of a unit of out put with the current system of material procurement.

Due to shortage of material A, the firm is required to redesign the material procurement system to have an uninterrupted flow of production of one unit of product. In order to meet out the shortage of raw material A, the firm should replace the shortage only against the adequate supply of material B from the market. The firm should restructure the procurement system of material as follows i.e. 60% of material A and 40% material B. The restructurisation is done only on the actual but not on the standard. While studying the variance analysis in between the quantity of materials, standard of 70% of A and 30% of B should be tuned towards the actual 60% of A and 40% of B procured during the process.

Standard Quantity of Materials		Actual Quantity of Materials	
Material A	70 tons	Material A	60 tons
Material B	30 tons	Material B	40 tons

Revised standard quantity of material

Actual Material = Standard quantity of Material A/B × Total Quantity

Total Quantity of Standard Material

For A = 70/100 × 100 = 70 tons

For B = 30/100 × 100 = 30 tons

Revised Quantity of Material
Revised quantity of Material A = 70 Tons
Revised quantity of Material B = 30 Tons

From the above, if the total quantity of standard materials is equivalent to actual quantity of materials, the revised quantity of materials will be as same as the standard quantity of materials.

When the total standard quantity of materials is not equivalent to total actual quantity of materials consumed: If the Standard quantity of materials of X and Y are 60 tons and 40 tons respectively. The actual quantity of materials 90 tons and 60 tons. The total standard quantity of materials and actual quantity of materials amounted 100 tons and 150 tons respectively.

The revised standard mix of materials of X and Y are as follows:

$$X = \frac{60}{100} \times 150 = 90 \text{ tons}$$

$$Y = \frac{40}{100} \times 150 = 60 \text{ tons}$$

Material Mix Variance = Standard Price (Revised Standard Quantity – Actual Quantity)

From the early discussions, it is clearly understood that the revised standard mix of materials will be the same only during the moment at which the total actual and standard quantity of materials are equivalent to each other and vice versa.

Notes

Example: From the following information, calculate the materials mix variance.

Materials	Standard	Actuals
A	200 Units @ ₹ 12	160 Units @ ₹ 13
B	100 Units @ ₹ 10	140 Units @ ₹ 10

Due to shortage of material, it was decided to reduce the consumption of A by 15% and increase that of material B by 30%.

The above problem does not have any difference in between the total actual quantity and standard quantity of materials. In both the cases the total quantity of materials are equivalent to 300 units. If both are equivalent to each other, the standard mix would be the revised standard mix of the materials.

Solution:

Revised Standard Mix:

$$\text{Material A} = \frac{200}{300} \times 300 \text{ Units} = 200 \text{ units}$$

$$\text{Material B} = \frac{100}{300} \times 300 \text{ Units} = 100 \text{ units}$$

After finding out the revised standard mix of the materials, the changes on the consumption should be incorporated due to the shortage of materials to the tune of actual quantity of materials.

For material A, there is reduction in the actual consumption in the quantity of materials amounted 15%.

For material B, there is spurt increase in the consumption of material B due to fill up the shortage of material A i.e 30% increase on material B.

Final Revised standard Mix of Material A: 200 units – 15% of 200 units = 170 units

B: 100 units + 30% of 100 units = 130 units

Material Mix Variance:

Material Mix Variance = Standard Price (Revised Standard Quantity – Actual Quantity)

MMV Material A = ₹ 12 (170 units – 160 units) = ₹ 120 Favourable

MMV Material B = ₹ 10 (130 units – 140 units) = ₹ 100 Adverse

Total Material Mix Variance = ₹ 20 Favourable.

Note The material mix variance is one of the components of material usage variance.

Material Sub-usage Variance

This is the variance in between standard quantity and revised standard quantity of materials denominated in terms of standard price. The purpose of studying the difference in between these two is to analyse the amount of deviation of the standard against the revised standard in line with the actual fluctuation in the quantity of materials consumption during the production

Notes

process. It is the only variance highlights the difference in between the early set standard and the redesigned standard in terms of actual quantity of materials for meaningful comparison.

Material Sub-usage Variance = Standard Cost per unit (Standard Quantity – Revised Standard Quantity).

If the total actual quantity of materials consumption in units is equivalent to the total standard quantity of materials, nullifies the material sub-usage variance in between the standard quantity of materials and revised standard quantity of materials. It means that the standard quantity of materials of the mix will be the revised standard quantity of materials. If both are equivalent to each other, the variance is equivalent to zero in terms of standard price/cost per unit.

Example: Find out the material sub-usage variance from the following:

Materials	Standard	Materials	Actuals
A	60 Kgs @ ₹ 10	A	70Kgs @ ₹ 10
B	40 Kgs @ ₹ 12	B	50Kgs @ ₹ 14
	100		120

Solution:

Revised Standard quantity of Materials:

$$A: \frac{60\,kgs}{100\,kgs} \times 120 \text{ Kgs} = 72 \text{ Kgs}$$

$$B: \frac{40\,kgs}{100\,kgs} \times 120 \text{ Kgs} = 48 \text{ Kgs}$$

Material Sub-usage Variance = Standard Price/Cost per unit (Standard Production for Actual Output – Revised Standard Quantity)

Material A= ₹ 10 (60 Kgs – 72 Kgs) = ₹ 120 (Adverse)

Material B = ₹ 12 (40 Kgs – 48 Kgs) = ₹ 96 (Adverse)

Material Sub-usage Variance = ₹ 216 (Adverse)

From the above example, it is obviously understood that the early set standard is less than the revised standard quantity of materials due to change in the materials mix consumption, i.e unexpectedly to replace one material with the another due to shortage any one of the materials in the mix. The greater the revised standard quantity of materials means that greater the volatility in the actual consumption of materials. If the variance is adverse, means that the standard which was initially set for comparison has not incorporated the fluctuations in the actual; being less than the revised standard which is an index of actual.

This material sub-usage variance is one of the components of the materials usage variance.

Material Usage Variance = Material Sub-usage Variance + Material Mix Variance

Material Yield Variance

It is one of the components of the material usage variance which arises only due to the deviation in between the standard yield determined and the actual yield accrued. This variance highlights either the abnormal loss of materials or saving of materials. This variance plays most important role in the process industries, to assess the loss/wastage of materials. If the actual loss of materials is different from the standard loss of materials will result the variance in two different situations.

When the standard and actual do not differ from each other: **Notes**

In this case, the yield variance is calculated as follows:

Yield Variance = Standard Rate/Cost per unit (Actual Yield – Standard Yield)

Standard Rate has to be calculated from the following:

$$\text{Standard Rate} = \frac{\text{Standard cost of Standard Mix}}{\text{Net Standard Output (Gross Standard Output} - \text{Standard Loss)}}$$

When the actual mix differs from the standard mix: In the second case, standard mix has to be tuned to the requirement of actual mix, which is revised standard mix, realistic in sense for meaningful comparison, to highlight the deviation in between two different yields *viz.* actual yield and revised standard yield. The standard rate has to be calculated only for the revised standard mix of materials.

$$\text{Standard Rate} = \frac{\text{Standard Cost of Revised Standard Mix}}{\text{Net Standard Mix/Output (Gross Standard Output} - \text{Standard Loss)}}$$

Calculate Material Yield Variance

Example: The total standard mix is equivalent to total actual mix

Particulars	Standard		Actual	
	Qty in Kg	Price	Qty in Kg	Price
Material A	90	6	60	5
Material B	60	8	90	9
	150		150	

Normal loss is allowed 10% Actual output 130 units

Revised standard output has to be computed. In this problem, the total mixes are equivalent to each other, but, the normal loss is a loss 10% expected on the normal output. Though, this problem does not have the difference between the mixes, the revised standard mix should have to be computed to register the expected loss (normal loss) on the standard output.

Revised standard mix = Standard Mix – Normal Loss (Expected Loss)

= 150 Kgs – 10% on 150 Kgs = 135 Kgs

The next step is to find out the standard rate/price

$$\text{Standard price per unit} = \frac{\text{Standard Cost/Price of Standard Mix}}{\text{Net Standard Mix/Output (Gross Standard Output} - \text{Standard Loss)}}$$

$$\frac{(90\text{ kgs} \times ₹6) + (60\text{ kgs} \times ₹8)}{135} = \frac{₹540 + ₹480}{135} = \frac{1020}{135} = ₹\ 7.55/-$$

Material Yield Variance = Standard Price (Actual Yield – Revised Standard Yield)

= ₹ 7.55 (130 Units – 135 Units) = ₹ 7.55 (– 5 Units)

= ₹ 37.55 (Adverse)

Solved Problems for Practice

1. Product X requires 20 kgs of material at ₹ 4 per kg. The actual consumption of material for the manufacturing of product X came to 24 kgs of material at ₹ 4-50 per kg. Calculate:

Notes

(i) Material Cost Variance

(ii) Material Price Variance and

(iii) Material Usage Variance.

Solution:

(i) Material Cost Variance = Standard Cost – Actual Cost

= (SQ × SP) – (AQ × AP)

= (20 × 4) – (24 × 4.50)

= 80 – 108 = ₹ 28 Adverse

(ii) Material Price Variance = (SP – AP) AQ

= (4 – 4.50) 24 = ₹ 12 Adverse

(iii) Material Usage Variance = (SQ – AQ) SP

= (20 – 24) 4 = ₹ 16 Adverse

Check:

Material Cost Variance =Material Price Variance + Material Usage Variance

28 =12 + 16

2. The standard material and standard cost per kg. of material required for the production of one unit of product A is as follows:

Material – 5 kgs.

Standard Price – ₹ 5 per kg.

The actual production and related material data are as follows:

400 units of Product A

Material used 2,200 kgs.

Price of Material ₹ 4.50 per kg.

Calculate: (i) Material Cost Variance

(ii) Material Usage Variance

(iii) Material Price Variance

Solution:

(i) Material Cost Variance = (SQ × SF) – (AQ × AP)

SQ refers to standard quantity for actual production

Standard quantity for 1 unit = 5 kgs.

Standard quantity for actual production of 400 units

= 400 × 5 = 2,000 kgs.

Material Cost Variance = (2000 × 5) – (2200 × 4.50)

= 10,000 – 9,900 = ₹ 100 Favourable

(ii) Material Price Variance = (SP – AP) AQ

= (5 – 4.50) 2,200 = ₹ 1,100 Favourable

Notes

(iii) Material Usage Variance = (SQ – AQ) SP

= (2,000 – 2,200) 5 = ₹ 1,000 Adverse

3. The standard quantity and standard price of raw material required for one unit of product A are given below:

	Quantity	Standard Price
Material X	2 kgs.	₹ 3 per kg.
Material Y	4 kgs.	₹ 2 per kg.

The actual production and relevant data are as follows:

Output 500 units of product A

Material	Total Quantity for 500 units	Total Cost (₹)
X	1,200 kg.	3,900
Y	1,800 kg.	4,500

Calculate Cost, Price and Usage Variances.

Solution:

1. Material Cost Variance = (SQ × SP) - (AQ × AP)

SQ refers to standard quantity for actual production

For one unit of product A, Material X = 2 kgs.

For 500 units of product A, Material X = 500 × 2 = 1000 kgs

For one unit of product A, Material Y = 4 kgs.

For 500 units of product A, Material Y = 500 × 4 = 2000 kgs.

Material Cost Variance:

Material X: (1,000 × 3) - 3,900 = ₹ 900 Adverse

Material Y: (2,000 × 2) - 4,500 = ₹ 500 Adverse

2. Material Price Variance = (SP - AP) AQ

Material X: (3 - 3.25) 1,200 = ₹ 300 Adverse

Material Y: (2 - 2.50) 1,800 = ₹ 900 Adverse

3. Material Usage Variance = (SQ - AQ) AP

Material X: (1,000 - 1,200) 3 = ₹ 600 Adverse

Material Y: (2,000 - 1,800) 2 = ₹ 400 Favorable

Note AP = X = 3900 + 1200 = 3.25; Y = 4500 + 1800 = 2.50

9.2.2 Labour Variances

Labour Variance is known in other words as Labour Cost Variance. The cost of the labour is usually denominated by the wages paid/incurred during the production. Labour Variance Analysis, is studying the deviation in between the actual cost of the labour incurred and standard/budgeted cost of the labour. This is another most important cost variance, next to material cost variance,

Notes

which considers the rate of the wage per hour for the computation of the total standard cost of labour and actual cost of labour like price of the materials per kg.

Labour Cost Variance

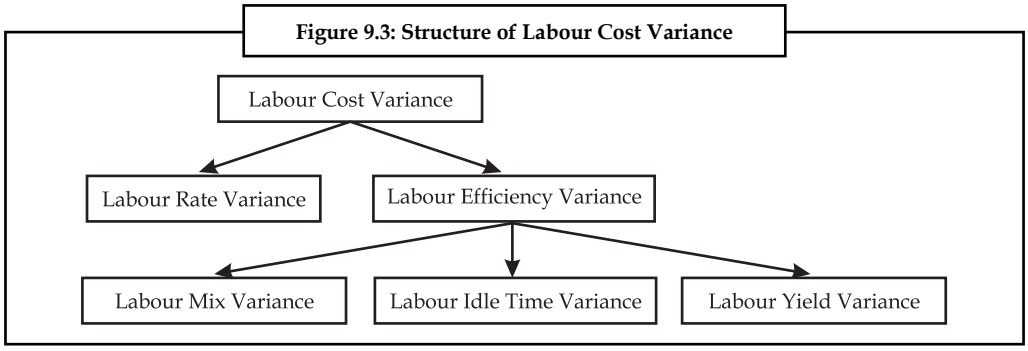
Labour cost variance is the tool studies the deviation in between the total standard cost of the labour and actual cost of labour. The actual labour cost may vary due to many reasons from the planned, i.e standard.

Causes for the variance:

1. The hourly rate of the labour may vary due to demand and supply of the labour force.
2. The hourly rate of the labour may vary due to nature of the labour required, i.e. Skilled/ Semi-Skilled/Unskilled. The rate differs from one category to another due to efficiency of the labours.
3. The Labour cost variance is in relevance with the time component of the job. The time required to complete the job may vary due to too many reasons; more specifically time wastage results in the production.

The following is the structure of the labour cost variance, which will illustrate the various components of the labour variance.

Figure 9.3: Structure of Labour Cost Variance



Labour Cost Variance = Standard Cost of the Labour* – Actual Cost of Labour**

* Standard Cost of the Labour = Standard Hours for Actual Output × Standard Hour Wage Rate

** Actual Cost of the Labour = Actual Hours taken for production × Actual Hour Wage Rate

Example: The standard time and rate for unit component are given below:

Standard hours 20

Standard rate ₹ 5 per hour

Actual data and related information are as under:

Actual production 1000 units: Actual hours 20,500 hours

Actual rate per hour = ₹ 4.80

Calculate Labour cost variance.

Solution:

Labour Cost Variance = Standard Cost of the Labour – Actual Cost of Labour

= (SH × SR) – (A.H × AR)

Notes

Standard hours for actual production = 20 × 1000 u = 20,000

Labour Cost Variance = (20,000 × 5) – (20,500 × 4.80)

= 1,00,000 – 98,400 = ₹ 1,600 (F)

Labour Rate or Wage Pay Variance

This is the variance, resultant, due to the change in the wage rate. The Labour rate variance is the difference between standard wage rate, which already determined and the actual wage rate incurred during the production. The variance should be denominated in terms of the actual hours of production.

Did u know? ***Why is the expression in terms of the actual hours?***

The actual hours taken is into consideration only for reality, that is the time moments consumed by the production process. This expression facilitates to understand the excessive/lesser amount spent on the labour, which depicts, how much was over/under spent by the firm for the payment of wages than the planned during the production.

The causes of labour wage rate or pay variance:

1. It is due to changes occurred in the structure of basic wages.
2. The ratio of the labour mix is varied due to the nature of the order. Undertaken by the firm to meet the needs of the consumers. The special order from the buyer may require the goldsmith to take more special care in the design of an ornament than the regular or routine design. This leads to involvement of more amount of skilled labour, which finally escalates/increases the cost of the labour.
3. To fulfill the immediate and excessive orders of the consumers which are to be supplied to their requirements leads to greater payment of wages through over time charges; which is normally greater than the regular wage rate.
4. This variance mainly occurs in the industry, which is connected with seasonal business. This variance mainly plays pivotal role in the industries of soft drinks, fans, refrigerator, fertilizer, crackers and so on.

The Labour Rate Variance (LRV) = Actual hours taken (Standard Rate – Actual Rate)

Example: The standard time and rate for unit component are given below:

Standard hours 20

Standard rate ₹ 5 per hour

Actual data and related information are as under:

Actual production 1000 units: Actual hours 20,500 hours

Actual rate per hour = ₹ 4.80

Calculate Labour rate variance.

Solution:

Labour Rate Variance = Actual hours taken (Standard Rate – Actual Rate)

= (SR – AR) AH

= (5 – 4.80) 20,500

= ₹ 4,100 (F)

Notes

Labour Efficiency Variance

The efficiency of the labour is denominated only in actual hours for actual output, which should be less than the standard hours expected to perform during the job. The labour efficiency variance is the deviation in between two standard hours for actual output and actual hours taken for actual output. The expression of variance in terms of hours should be expressed in terms of wage rate, i.e. standard wage rate.

Why the expression should be in the standard wage rate?

The aim of expressing Efficiency variance in terms of standard wage is to express them in monetary units and should be free from the demand and supply forces of the labour force which directly has an impact on the basic labour wage rate.

Labour Efficiency Variance = Standard Rate (Standard Hours for Actual Output — Actual Hours for Actual Output)

What are causes of this variance?

1. Due to poor working conditions, the efficiency of the working force to complete the job is coming down.
2. Quality of maintenance of the machinery is facilitating the working force to maintain the efficiency.
3. Frequent change in the quality of materials may lead change in the hours required to complete the work.
4. Poor personnel relations of the workers.

Example: The standard time and rate for unit component are given below:

Standard hours 20

Standard rate ₹ 5 per hour

Actual data and related information are as under:

Actual production 1000 units: Actual hours 20,500 hours

Actual rate per hour = ₹ 4.80

Calculate Labour efficiency variance.

Solution:

Labour Efficiency Variance = Standard Rate (Standard Hours for Actual Output – Actual Hours for Actual Output)

= (SH – AH) SR

= (20,000 – 20,500) 5 = 2,500 (A)

Idle Time Variance

The wages which are paid for unproductive hours to the labourers are known as idle time.

The idle time may be classified into two categories:

1. Normal idle time
2. Abnormal idle time

Notes

What is normal idle time?

This idle time is known as authorised idle time, which can be understood in other words as unavoidable idle time. Normally, the worker is paid for that time during which he does not produce anything.

Time taken by the employees to change the dress.

Time take by the employees to ease themselves during the hours of production i.e going to the toilet for easing and for refreshment going to the canteen.

The employees are paid during the above-enlisted occasions at when they do not produce anything

In between two different shifts, the production of finished goods do not normally take place due to change over the control from one employee to another.

What is meant by abnormal idle time?

This is known as avoidable idle time; during which the workers are paid for nil production. This type of idle time could be slashed down or downsized through an effective planning. This idle time is the resultant of too many ineffective schedules, e.g. inadequate supply of raw materials, power shortage/failure, breakdown of machinery and so on. The aforementioned could be easily sorted out through proper planning and scheduling; which will automatically reduce the unproductive time of labour force. Whatever the payment of wages to the working force during the idle time are to be considered as adverse. It means that the firm makes the payment of wages to the labourers/working force without any production/productivity.

Idle Time Variance = Idle hours × Standard Rate (Always "A")

Example: A group of workers normally consists of 30 men, 15 women and 10 boys. They are paid at standard hourly rates as under:

Men	₹ .80
Women	₹ .60
Boys	₹ .40

In a normal working week of 40 hours, the group is expected to produce 2,000 units of output. During the week ended 31st December 2007, the group consisted of 40 men, 10 women and 5 boys. The actual wages paid were @₹ 70, ₹ 65 and ₹ 30 respectively. 4 hours were lost due to abnormal idle time and 1,600 units were produced.

Calculate labour idle time variance.

Solution:

Idle time variance = Idle Hours × Standard Rate

First total idle hours of each category should be separately found out, then the obtained idle hours should be multiplied with the standard rate of labour.

Men	= 40 Men × 4 Hours	= 160 Man Hours × .80	= ₹ 128 (Adverse)
Women	= 10 Women × 4 Hours	= 40Man Hours × .60	= ₹ 24(Adverse)
Boys	= 5 Boys × 4 Hours	= 20 Man Hours × .40	= ₹ 8(Adverse)
Total idle time variance		= ₹ 160(Adverse)	

Total idle time variance = 160(Adverse)

Notes

Labour Mix Variance

This variance arises due to deviations in between the actual mixture of labour force for the job and standard mixture of labour force planned to complete the job. The mixture of work force is considered to be most important for completion. Normally, the mixture is in tri colours *viz.* Skilled, Semi-Skilled and Unskilled. The standards are prepared by considering the requirements of the job to be completed. For completing the job, 5 skilled, 3 semi-skilled and 2 unskilled employees are required. Due to non-availability of skilled labour force, the firm is required to carry out the operations without any lacuna through the induction of more semi-skilled labour force. The actual composition of the labour force is 2 skilled, 6 semi-skilled and 2 unskilled which finally led to labour mix variance.

Reasons for the labour mix variance:

1. Absenteeism
2. Labour turnover
3. Non-availability of required labour force from the business environment.

The above critical factors directly influence the efficiency of the labour force.

Labour Mix Variance = Standard Rate (Revised Standard Hours – Actual Hours)

Standard hours for the job were determined for the Standard mixture of labour force but these hours are not denominated to the tune of actual hours taken by the actual mixture of labours force. To study the variance in between them, the standard hours should be in line with the actual. The standard hours which are converted to the tune of actual hours is known as Revised standard hours considered to be level platform for an effective comparison.

Labour Mix Variance = Standard Rate (Revised Standard Hours – Actual Hours)

Example: From the following data, calculate labour mix variance:

	Standard		Actual	
	Hours	**Rate**	**Hours**	**Rate**
Skilled labour	10	3.00	9,000	4.00
Semi-skilled	8	1.50	8,400	1.50
Unskilled	16	1.00	20,000	0.90

The actual production was 1000 articles.

Solution:

Labour Mix Variance = Standard Rate (Revised Standard Hours – Actual Hours)

$$\text{Revised Standard Hours (RSH)} = \frac{\text{Standard Hours}}{\text{Total Standard Hours}} \times \text{Total Actual Hours}$$

Total standard hours = 10,000 + 8000 + 16,000 = 34,000

Total actual hours= 9000 + 8,400 + 20,000 = 37,400

$$\text{RSH: Skilled} = \frac{10,000}{34,000} \times 37,400 = 11,000 \text{ hrs}$$

$$\text{Semi-Skilled} = \frac{8,000}{34,000} \times 37,400 = 8,800 \text{ hrs}$$

Notes

$$\text{Unskilled} = \frac{16,000}{34,000} \times 37,400 = 17,600 \text{ hrs}$$

Labour Mix Variance =

Skilled = (11,000 – 9,000) 3 = 6000 (F)

Semi-skilled = (8,800 – 8,400) 1.50 = 600 (F)

Unskilled = (17,600 – 20,000) 1 = 2,400 (F)

Total Labour Mix Variance 4,200 (F)

Labour Sub-efficiency Variance

It is one of the components of the labour efficiency variance.

Labour Sub-efficiency Variance = Standard Rate (Standard Hours for Actual Output – Revised Standard Hours)

Example: Using the data of above example, calculate the labour sub-efficiency variance:

Solution:

Labour Sub-efficiency Variance = Standard Rate (Standard Hours for Actual Output – Revised Standard Hours)

= (SH - RSH) SR

Skilled	=	(10,000 - 11,000) 3	=	3,000 (A)
Semi-skilled	=	(8,000 - 8,800) 1.50	=	1,200 (A)
Unskilled	=	(16,000 - 17,600) 1	=	1,600 (A)

Total Labour Sub-Efficiency Variance 5,800 (A)

Labour Yield Variance

It is considered to be as one of the components of labour efficiency variance. This is a variance in between two different outputs of the enterprise *viz.* standard output for actual hours and actual output.

This is a variance facilitates to study the deviation in between two different levels i.e. how many number of outputs would be produced during the actual hours and how many number of actual outputs were produced during the actual hours.

Labour Yield Variance = Standard Cost per unit (Actual Output – Standard Output in Actual Hours)

OR

= Standard Cost per unit (Actual Yield in Units – Standard Yield in Actual Hours)

If Actual output or Actual yield in units is greater than the standard yield in actual hours, it means that the firm's actual production in units is greater than the standard estimates nothing but favourable to the business enterprise.

Example: A group of workers normally consists of 30 men, 15 women and 10 boys. They are paid at standard hourly rates as under:

Notes

Men	₹ .80
Women	₹ .60
Boys	₹ .40

In a normal working week of 40 hours, the group is expected to produce 2,000 units of output. During the week ended 31st December 2007, the group consisted of 40 men, 10 women and 5 boys. The actual wages paid were @₹ 70, ₹ 65 and ₹ 30 respectively. 4 hours were lost due to abnormal idle time and 1,600 units were produced.

Calculate labour yield variance.

Solution:

Labour yield variance = Standard cost per unit (Actual output – Standard output for Actual Hours)

Standard cost per unit should be found out initially, which is as follows:

$$= \frac{\text{Standard cost of the units}}{\text{Standard output}} = \frac{₹1,480}{2,000 \text{ units}} = .74$$

$$\text{Standard output for actual hours} = \frac{\text{Standard output}}{\text{Standard Hours}} \times \text{Actual Effective hours}$$

$$= \frac{2,000 \text{ Units}}{2,200 \text{ Hrs}} \times 1,980\text{Hrs} = 1,800 \text{ units}$$

= .74 (1,600 units – 1,800 units) = 148 (Adverse)

The actual yield in units is less than the standard means that it is not favourable for the firm.

Example: The standard and actual data of a manufacturing concern are given:

Standard time	2,000 Hrs
Standard rate per hour	₹ 2
Actual time taken	1,900 Hrs
Actual wages paid per hour	₹ 2.50

Calculate labour variances.

Solution:

First step is to compute the labour cost variance

= (Standard Hrs for Actual Output × Standard Rate) – (Actual Hours × Actual Rate)

= (2,000 Hrs × ₹ 2) – (1,900 Hrs × ₹ 2.50)

= ₹ 4,000 – ₹ 4,750

= ₹ 750 (Adverse)

The next step is to find out the labour rate variance

= Actual Hours (Standard Rate – Actual Rate)

= 1,900 Hours (2 – 2.50) = ₹ 950 (Adverse)

The next variance is to be found out the labour efficiency variance

= Standard Rate (Standard Hours for Actual Output – Acutal Hours)

= ₹ 2.00 (2,000 – 1,900) = ₹ 200 (Favourable)

Verification **Notes**

Labour Cost Variance = Labour Rate Variance + Labour Efficiency Variance

750 (Adverse) = ₹ 950 (Adverse) + ₹ 200 (Favourable)

750 (Adverse) = ₹ 750 (Adverse)

Solved Problems for Practice

1. You are required to find out the various labour variances from the following data:

Standard hours per unit	= 20 Hours
Standard rate per unit	= ₹ 5
Actual production	= 1000 units
Actual time taken	= 20,400 Hours
Actual rate paid	= ₹ 4. 80

The first step is to find out labour cost variance

= (Standard Hrs for Actual output × Standard Rate) – (Actual Hours × Actual Rate)

To find out the standard hours for actual output, standard hours per unit should be multiplied with the actual production.

Standard Hrs for actual output = 20 Hrs × 1,000 units= 20,000 Hours

Labour cost variance (LCV)

= (20,000 Hrs × ₹ 5 per unit) – (20,400 Hrs × ₹ 4.80)

= ₹ 1,00,000- ₹ 97,920

= ₹ 2,080 (Favourable)

The next step is to determine that labour rate variance

= Actual Hours (Standard Rate – Actual Rate)

= 20,400 Hours (₹ 5 – ₹ 4.80) = ₹ 4,080 (Favourable)

The next stage is to find out the Labour efficiency variance

= Standard Rate (Standard Hours for Actual Output – Actual Hours)

= ₹ 5 (20,000 Hours – 20,400 Hours) = ₹ 2,000 (Adverse)

Verification

Labour cost variance =Labour rate variance + Labour efficiency variance

₹ 2,080 (Favourable) = ₹ 4,080 (Favourable) + ₹ 2,000 (Adverse)

₹ 2,080 (Favourable) = ₹ 2,080 (Favourable)

2. Using the following information, calculate the labour variances:

Gross direct wages = ₹ 6,000

Standard hours produced = 1,600

Standard rate per hour = ₹ 3.00

Actual hours paid 1,500 hours, out of which hours not worked (abnormal idle time) are 50.

Notes

The first step is to find out the labour cost variance

= (Standard Hrs for Actual output × Standard Rate) – (Actual Hours × Actual Rate)

To find out the actual rate per hour, the above given information gross direct wages paid and actual hours paid are to be jointly considered

$$\text{Actual rate per hour} = \frac{\text{Gross Direct Wages Paid}}{\text{Actual Hours Paid}} = \frac{₹\ 6{,}000}{1{,}500\ \text{Hours}}$$

= ₹ 4 per hour

= (1,600 Hours × ₹ 3.00 per hour) – (1,500 Hours × ₹ 4 per hour)

= ₹ 4,800 – ₹ 6,000 = ₹ 1,200 (Adverse)

The next step is to determine the labour rate variance

= Actual Hours (Standard Rate – Actual Rate)

= 1,500 Hours (₹ 3 – ₹ 4)

= ₹ 1,500 (Adverse)

The next step is to determine the labour efficiency variance.

= Standard Rate (Standard Time – Actual Time)

Actual hours paid are the total amount of wages paid, which inclusive of the wage payment given to the employees even for idle time.

Actual time is nothing but the real production time other than the idle time. To study the efficiency of the labour, only the actual time should be taken into consideration.

= ₹ 3 (1,600 Hours – 1,450 Hours)

= ₹ 450 (Favourable)

The next step is to calculate idle time variance

Abnormal idle time x Standard Rate = 50 Hours × ₹ 3.00

= 150 (Adverse)

Verification

Labour cost variance = Labour Rate Variance + Labour Efficiency Variance + Idle Time Variance

₹ 1,200 (Adverse) = ₹ 1,500 (Adverse) + ₹ 450 (Favourable) + 150 (Adverse)

₹ 1,200 (Adverse) = ₹ 1,200 (Adverse)

3. From the following information, calculate the labour variances:

	Standard	**Actual**
Number of men employed	100	90
Output in units	2,500	2,400
Number of working days in a month	20	18
Average wages per man per month	₹ 200	₹ 198

The first step is to determine the standard rate, actual rate, standard time and actual time. The information given above are not directly connected with required covenants for the computation of labour variances.

The very first step is to calculate the standard rate per day.

Notes

Standard wages per man per month = ₹ 200

Standard number of working days in a month = ₹ 20

$$\text{Standard wage rate per day} = \frac{₹200}{20}$$

= ₹ 10

The next step is to find out the actual wage rate per day.

Standard wages per man per month = ₹ 200

Actual wages per man per month= ₹ 198

Actual number of working days in a month = ₹ 18

$$\text{Actual wage rate per day} = \frac{₹198}{18}$$

= ₹ 11

Standard man days in a month = Standard Number of men employed × standard number of working days in a month

= 100 × 20 days in a month = 2000 mandays in a month

The standard man days in a month are calculated only for the standard output in units, which amounted ₹ 2,500. The calculated figure should be converted into actual units of production i.e. 2400, in order to have meaningful comparison, between standard and actual.

In a nutshell, standard man days in a month for actual output should be computed.

$$= \frac{2000}{2,500} \times 2,400 = 1,920$$

Actual man days in a month = Actual number of men employed × actual number of working days in a month

= 90 × 18 days in a month = 1,620 mandays in a month

First Variance to be Computed is Labour Cost Variance

= (Standard Days for Actual output × Standard Rate) – (Actual Days × Actual Rate)

= (1,920 days × ₹ 10 per day) – (1,620 days × ₹ 11 per day)

= ₹ 19,200 – ₹ 17,820 = ₹ 1,380 (Favourable)

The next step is to find out the labour rate variance

= Actual Days (Standard Rate – Actual Rate)

= 1,620 days (₹ 10 – ₹ 11) = ₹ 1,620 (Adverse)

The next step is to determine the labour efficiency variance

= Standard Rate (Standard days for actual output – Actual days)

= ₹ 10(1,920 – 1,620) = ₹ 3,000(Favourable)

Verification

Labour cost variance = Labour rate variance +Labour efficiency variance

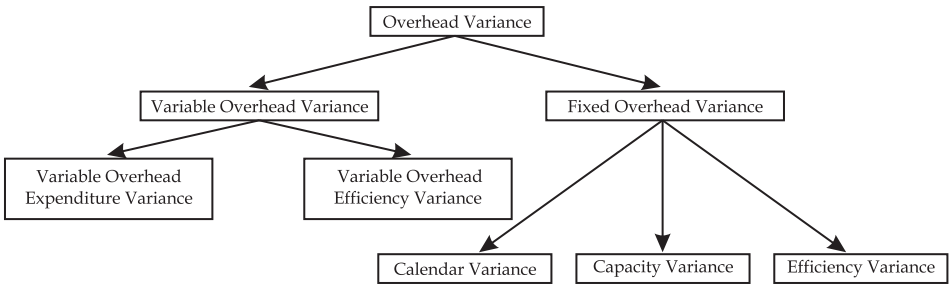
₹ 1,380 (Favourable) = ₹ 1,620 (Adverse) + ₹ 3,000(Favourable)

Notes

9.2.3 Overhead Variances

The following figure explains the classification of overhead variance:

Figure 9.4: Classification of Overhead Variance



In general, the overhead variance is defined is as the variance in between standard cost of overhead estimated for the actual output and actual cost of overhead really incurred.

With reference to absorption overheads, the variance occurs only during either over or under absorption of overheads.

Under absorption of overheads means that the standard cost of the overhead is more than that of the incurred actual overhead. In brief, it is a favourable situation as far as the firm concerned and vice versa in the case of over absorption of overheads.

1. ***Variable overhead cost variance:*** It is the variance or deviation in between the standard variable overhead for actual production of units and Actual overhead incurred

   = Standard variable overhead rate per unit × Actual output – Actual variable overheads incurred

2. ***Variable overhead expenditure variance:*** This is the variance in between the two different rates of variable overheads *viz.* standard rate and actual rate; denominated in terms of Actual hours taken consumed by the firm.

   = Actual Hours (Standard Rate – Actual Rate)

3. ***Variable overhead efficiency variance:*** It is another variance which is in between the standard hours for actual output and actual hours consumed during the production; denominated in terms of standard rate.

   = Standard Rate (Standard Hours for Actual Output – Actual Hours)

4. ***Fixed overhead cost variance:*** The most important variance is overhead cost variance

   = Standard Overhead Cost for Actual Output – Actual Overheads

   The second important variance is Budgeted or Expenditure variance

   = Budgeted Overheads – Actual Overheads

   What is the difference in between the budgeted figures and standards?

   Budgeted figures are not adjusted to the actual but the standards could be adjusted or tuned towards the actual.

   The next important variance is overhead volume variance

   (a) If the standard overhead rate per unit is given

   = Standard Rate per Unit (Actual Production – Budgeted Production)

Notes

(b) If the standard overhead rate per hour is given

= Standard Rate per Hour (Standard Hours for Actual Production – Budgeted Production)

The next important variance is overhead efficiency variance

(a) If the standard rate per unit is given

= Standard Overhead Rate per Unit (Actual Production – Standard Production in Actual Hours)

(b) If the standard rate per hour is given

= Standard Overhead Rate per Hour (Actual Hours – Standard Hours for Actual Production)

The last as well as most important variance

(a) If the standard rate per unit is given

= Standard Rate per Unit (Standard Production – Actual Production)

(b) When standard rate per hour is given

= Standard Rate per Unit (Actual Hours – Budgeted Hours of Production)

Example:

Standard hours = 6 per unit

Standard cost = ₹ 4 per hour

Actual hours taken = 640 hours

Actual production = 100 units

Actual overheads = ₹ 2,500

The first step is to determine the variable overhead cost variance

= Standard Variable Overhead Cost – Actual Variable Overhead Incurred

The next step is to find out the standard variable overhead cost for actual production

= Standard Hours per Unit × Standard Cost × Actual Production

= 6 per unit × ₹ 4 per hour × 100 units= ₹ 2,400

The next step is to determine the variance

= ₹ 2,400 – ₹ 2,500 = ₹ 100 (Adverse)

The next one is Expenditure variance

= Actual Hours (Standard Rate – Actual Rate)

The first step is to determine the actual hourly rate of the variable overheads

$$= \text{Actual Hourly Rate of Variable Overheads} = \frac{\text{Total Actual Overheads}}{\text{Actual Hours Taken}}$$

$$= \frac{₹\,2,500}{640 \text{ Hours}} = ₹\,3.91$$

= 640 Hours (₹ 4 per unit – ₹ 3.9 per unit) = ₹ 64 (Favourable)

The next variance is to find out that variable overhead efficiency variance

= Standard Rate (Standard Hours for Actual Output – Actual Hours)

Notes

The next step is to find out the standard hours for actual output

= Standard Hours × Actual Output = 6 hours per unit × 100 Units

= 600 Hours

= ₹ 4 (600 Hours – 640 Hours)

= ₹ 160 (Adverse)

Solved Problems for Practice

1. Budgeted hours for month of Mar. 2004, 180 units

Standard rate of article produced per hour 50 units

Budgeted fixed overheads ₹ 2,700

Actual production March 2004; 9,200 units

Actual hours for production 175 hours

Actual fixed overheads ₹ 2,800

Calculate overhead cost variance, overhead budget variance, overhead volume variance, overhead efficiency variance and overhead capacity variance.

Solution:

The first one to determine the overhead cost variance

= Standard Overhead Cost – Actual Overhead Cost

The standard overhead cost is to be found out

Standard overhead cost for actual production has to be computed from the below given formula

= Standard Rate per Unit × Actual Production in Units

First step is to determine the standard rate per unit

$$= \frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Hours} \times \text{Standard Rate of Article Produced per hour}}$$

$$= \frac{₹\ 2{,}700}{180 \times 50} = .3 \text{ paise}$$

The next one is to find out the overhead cost

= 9,200 units ×.30 paise = ₹ 2,760

Overhead Cost Variance = ₹ 2,760 – ₹ 2,800 = ₹ 40 (Adverse)

Overhead Budget Variance = Budgeted Overhead – Actual Overhead

= ₹ 2,700 – ₹ 2,800 = ₹ 100 (Adverse)

Overhead Volume Variance = Standard Overhead – Budgeted Overhead

= ₹ 2,760 – ₹ 2,700 = ₹ 60 (Favourable)

The overhead efficiency variance could be calculated in two different ways.

The efficiency is expressed in terms of hours and units. If the firm is able to produce the goods or articles in lesser hours of duration, known as more efficient in time management than the standard.

Notes

Likewise, the efficiency could be denominated in terms of units of production. If the actual production is more than that of the standard production in units, the firm is favourable in position in producing the articles than the standard.

Overhead Efficiency Variance = (Actual Production in Units – Standard Production in Units) × Standard Rate

= (9,200 units – 8,750 units) .30

= 450 units .30

= 135 (Favourable)

2.

Items	Budget	Actual
No. of working days	20	22
Man hours per day	8,000	8,400
Output per man hour in units	1	.9
Overhead cost	₹ 1,60,000	₹ 1,68,000

(I. C. W. A. Final)

The very first overhead variance is overhead cost variance.

Overhead cost variance = Standard Overhead cost for actual output – Actual Overhead

To find out the standard overhead, the standard overhead rate per unit must be available

$$\text{Standard rate per unit} = \frac{\text{Budgeted Overheads}}{\text{Budgeted Output}}$$

$$= \frac{₹\ 1,60,000}{8,000 \times 1 \times 20} = ₹\ 1$$

Standard overhead cost for actual output = Standard rate per unit × Actual production

Actual production = 22 days 8,400 × 9 = 1,66,320 units

Standard overhead cost for actual production = 1,66,320 × ₹ 1 = ₹ 1,66,320

Overhead cost variance = ₹ 1,66,320 – ₹ 1,68,000 = ₹ 1,680 (Adverse)

The next variance is overhead volume variance.

Overhead volume variance = Standard overhead – Budgeted overhead

= ₹ 1,66,320 – ₹ 1,60,000 = 6,320 (Favourable)

The next one is overhead efficiency variance.

= (Actual Production in units – Standard production in actual hours) Standard rate

Standard production in actual hours = Standard production of units in one hour Actual hours

$$\text{Production of units in one hour} = \frac{\text{Budgeted production}}{\text{Budgeted Hours}} = \frac{1,60,000}{8000 \times 20} = 1 \text{ unit}$$

Standard production in actual hours = 1 unit 8,400 Man hours day 22 days in a month

= 1,84,800 units

Notes

= (1,66,320 units – 184,800 units) × 1

= ₹ 18,480 (Adverse)

Overhead Capacity Variance

The overhead capacity variance mainly depends upon the differences prevailing in between the number of days of actual and budgeted.

If there is any difference in between the number of days of actual and budgeted, the calendar variance will arise.

Calendar variance = (Revised budgeted production – Budgeted production) × Standard rate

Capacity variance = (Standard production – Revised budgeted production) × Standard rate

If there is no difference between the actual and standard calendar variance will not arise; but the capacity variance will prevail.

Capacity variance = (Standard production – Budgeted production) × Standard rate

According to this problem, calendar variance is prevailing.

Capacity variance = (Standard production – Revised budgeted production) × Standard rate

What is revised budgeted production?

Revised budgeted production is nothing but the budgeted production tuned to the actual production.

For 1 day = 1 × 8000 mandays = 8,000 units

For 20 working days = 8,000 units × 20 days = 1,60,000 units

Revised budgeted production changes the budgeted production in terms of actual production.

For 20 days = 1,60,000 units

For 22 actual days = $\frac{1,60,000}{20 \text{ days}} \times 22 \text{ days}$ = 1,76,000 units

Capacity variance = (1,84,800 units – 1,76,000 units) × 1 = ₹ 8,800(Favourable)

Calendar variance = (Revised budgeted production – Budgeted production) × Standard rate

= (1,76,000 units – 1,60,000 units) × 1 = ₹ 16,000 (Favourable)

Verification

Volume variance = Efficiency variance + Capacity variance + Calendar variance

₹ 6,320 = ₹ 18,480 (Adverse) + 8,800 (Favourable) + ₹ 16,000 (Favourable)

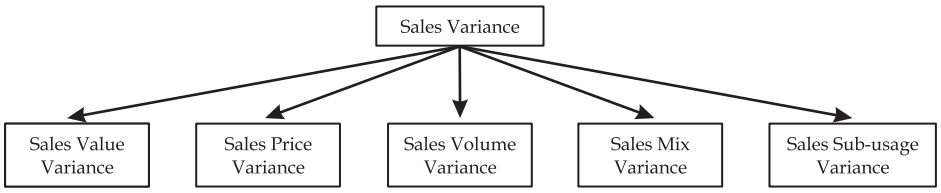
9.2.4 Sales Variances

Sales variance is the only component accompanied the profit volume variance of the business transaction. The sales variances are computed and analysed in order to study the effect of sales value and facilitates the sales manager to easily understand the various sales efforts taken by the team.

Notes

The sales variance can be classified into various categories. They are as follows:

Figure 9.5: Classification of Sales Variance



Sales Values Variance

The name of the variance is self explanatory in explaining the meaning of the variance, that is difference in between the actual value of sales and standard value of sales.

The causes/influences of sales value variance are many more and some of them highlighted for easy understanding about overall picture.

1. The fluctuation in the selling price may lead to variance with the standard selling price—Selling Price Variance.
2. The fluctuation in the actual volume of sales may be due to various factors, mainly the preference of the buyers over the standard/budgeted volume of sales—Sales Volume Variance.
3. Actual mix of various varieties may differ from the standard mix, which leads—Sales mix variance.
4. Revised standard sales quantity may be varied from the budgeted sales quantity—Sales quantity/Sub-usage variance

Sales Value Variance = Actual Value of Sales – Standard Value of Sales

The decision criterion is that more the actual sales volume leads to greater and better the position of the firm than the budgeted sales volume, which leads to favourable position for the firm and vice versa.

Sales Price Variance

It is one of the components as well as influences of the sales variances. It is the variance in between two different prices *viz.* actual price and standard price of the products.

The variance can be computed as follows:

Sales Price Variance = Actual Quantity sold (Actual Price – Standard Price)

The price variance should be finally expressed in terms of the actual number of goods sold. The main aim of expressing them in actual quantity of goods sold is to express the variance in terms of actual performance in units.

The price variation may be due to many reasons

1. The price variance may be due to changes taken place in the structure of competition. The nature of competition changes due to market potential for example monopoly to duopoly; duopoly to perfect competition and so on; leads to change in the structure of pricing in order to retain the consumer base in line with the business.

Notes

2. The price variance may be due to two courses of action, which are as follows:
   (a) Cost effectiveness strategy and
   (b) Distinctiveness Strategy.

Sales Volume Variance

It is one of the elements of sales variance, which is in between the actual sales quantity and budgeted sales quantity. The variance is normally expressed in terms of price, i.e. standard price. The purpose of expressing the variance in terms of standard price is that price which is free from market forces.

Sales Volume Variance = Standard Price (Actual Quantity of Sale – Standard Quantity of Sales)

The sales volume variance can be divided into two different streams that sales mix variance and sales quantity variance/sub-usage variance.

1. ***Sales Mix Variance:*** It is the difference in between the actual sales and standard sales mix. This variance will arise only due to change in the proportion of goods sold. This is a most important variance usually computed/calculated, at the moment, the firm which deals more than one commodity.

   If both, the standard and actual mixes are equivalent to each other, there will not be any mix variance in between the above mentioned.

   If the mixes are totally different from each other, the sales mix variance is to be computed, through the development of revised standard mix of quantities with reference to actual quantities sold, then only the comparison will be meaningful to study the variances occurred in between above mentioned. The sales mix variance is expressed in between two different quantities and finally should be denominated in terms of standard price. The reason for the expression in terms of standard price is the price which is totally free from the demand and supply forces of the market.

   Sales Mix Variance = Standard Price (Actual Quantity – Revised Standard Quantity)

2. ***Sale Sub-usage Variance:*** It is another component of usage variance, which expresses the deviation in between the revised standard quantity to the tune of actual quantities sold and the early set standard quantities expected to sell.

   This variance also elucidates the differences of the above mentioned only in terms of standard price, which is the ideal indicator free from the market forces i.e free from fluctuation.

Sales Sub-usage Variance = Standard Price (Revised Standard Quantity – Standard Quantity).

Example:

Product	Budgeted		Actual	
	Qty	Price (₹)	Qty	Price (₹)
A	400	30	500	31
B	200	25	100	24

Calculate the various types of sales variances.

Solution: **Notes**

Sales value variance = Actual Sales – Standard Sales

First step is to find out the Actual Sales

Actual Sales = Actual Quantity × Actual Price

Actual Sales (A) = 500 × ₹ 31= ₹ 15,500

Actual Sales (B) = 100 × ₹ 24 = ₹ 2,400

Next step is to find out the standard quantity of sales

Standard Quantity of Sales = Standard Quantity × Standard Sales

Standard Sales (A) = 400 × ₹ 30 = ₹ 12,000

Standard Sales (B) = 200 × ₹ 25 = ₹ 5,000

Sales Value Variance (A) = ₹ 15,500 – ₹ 12,000	= ₹ 3,500 (Favourable)
Sales Value Variance (B) = ₹ 2,400 – ₹ 5,000	= ₹ 2,600 (Adverse)
Total Sales Value Variance	= ₹ 900 (Favourable)

Sales Price Variance:

Sales Price Variance = (Actual Price – Standard Price) Actual Quantity

Sales Price Variance (A) = 500 (₹ 31 – ₹ 30)	= ₹ 500 (Favourable)
(B) = 100 (₹ 24 – ₹ 25)	= ₹ 100 (Adverse)
	₹ 400 (Favourable)

Sales Volume Variance:

Sales Volume Variance = Standard Price (Actual Quantity – Standard Quantity)

Sales Volume Variance (A) = ₹ 30 (500 – 400)	= ₹ 3,000 (Favorable)
(B) = ₹ 25 (100 – 200)	= ₹ 2,500 (Adverse)
	₹ 500 (Favourable)

Sales Mix Variance:

Sales Mix Variance = Standard Price (Actual Quantity – Revised Standard Quantity)

First step in the process of computing the sales mix variance is the revised standard quantity. As far as this problem concerned, sales mix variance would not arise due to equivalent mixes dealt in the problem *viz.* standard (budgeted) mix and actual mix amounted 600 each.

Though it is having equal volumes, revised standard quantity can be computed.

$$\text{Revised Standard Quantity} = \frac{\text{Standard Quantity}}{\text{Total Standard Quantity}} \times \text{Total Actual Quantity}$$

$$\text{RSQ for A} = \frac{400}{600} \times 600 = 400$$

$$\text{RSQ for B} = \frac{200}{600} \times 600 = 200$$

Notes

Sales Mix Variance (A) = ₹ 30 (500 – 400) = ₹ 3,000 (Favourable)

(B) = ₹ 25 (100 – 200) = ₹ 2,500 (Adverse)

= ₹ 500 (Favourable)

From the above calculations, what is obviously understood?

If the mixes are equivalent to each other, the sales volume variance is equivalent to the sales mix variance. It means that, there would not be a sales mix variance.

Sales Sub-usage Variance:

Sales Sub-usage Variance = Standard Price (Revised Standard Quantity – Actual Quantity)

Sales Sub Usage Variance (A) =₹ 30 (400 – 400) = 0

(B) = ₹ 25 (200 – 200) = 0

0

There is no sub-usage variance.

Verification:

1. Sales Value Variance = Sales Price Variance + Sales Volume Variance

   900(F) = 400(F) + 500(F)

2. Sales Volume Variance = Sales Mix Variance + Sales Sub-usage Variance

   500(F) = 500(F) + 0

Solved Problems for Practice

1. Vision Ltd. furnishes the following information related to budgeted sales and actual sales for June 1988:

Product	Budgeted		Actual	
	Qty.	Price ₹	Qty.	Price ₹
A	1200	15	880	18
B	800	20	880	20
C	2000	40	2640	38

Calculate the sales variance.

Note This problem shows a difference between the budgeted sales volume and actual sales volume; which will help to understand the computation of sales mix variance and sales sub-usage variance; through the computation of revised standard quantity.

Sales Value Variance = Actual Sales – Standard Sales

= Actual Quantity × Actual Price – Standard Quantity × Standard Price

SVV(A) = 880 × ₹ 18 – 1200 × ₹ 15 = ₹ 2,160 (Adverse)

SVV(B) = 880 × ₹ 20 – 800 × ₹ 20 = ₹ 1,600 (Favourable)

SVV(c) =2640 × ₹ 38 – 2000 × ₹ 40 = ₹ 20,320 (Favourable)

Total Sales Value Variance = ₹ 19,760 (Favourable)

Notes

Sales Price Variance = Actual Quantity (Actual Price – Standard Price)

SPV(A) =	(₹ 18 – ₹ 15) 880	= ₹ 2,640 (Favourable)
SPV(B) =	(₹ 20 – ₹ 20)880	= 0
SPV(C) =	(₹ 38 – ₹ 40) 2640	= ₹ 5280 (Adverse)
Total SPV		= ₹ 2,640 (Adverse)

Sales Volume Variance= Standard Price (Actual Quantity – Standard Quantity)

SVoV(A) =	₹ 15 (880 – 1200)	= ₹ 4800 (Adverse)
SVoV(B) =	₹ 20(880 – 800)	= ₹ 1,600 (Favourable)
SVoV(C) =	₹ 40(2640 – 2000)	= ₹ 25,600 (Favourable)
Total Sales Volume Variance		= ₹ 22,400(Favourable)

Sales Mix Variance = Standard Price (Actual Quantity – Revised Standard Quantity)

Revised Standard Quantity computation

$$RSQ = \frac{\text{Standard Quantity}}{\text{Total Standard Quantity}} \times \text{Total Actual Quantity}$$

The first step is to find out the total standard quantities and actual quantities.

Total Actual Quantities = 880 + 880 + 2640 = 4400 units

Total Standard Quantities = 1200 + 800 + 2000 = 4000 units

$$RSQ(A) = \frac{1200}{4000} \times 4400 = 1320 \text{ units}$$

$$RSQ\ (B) = \frac{800}{4000} \times 4400 = 880 \text{ units}$$

$$RSQ\ (C) = \frac{2000}{4000} \times 4400 = 220 \text{ units}$$

SVoV(A) =	₹ 15 (880 – 1200)	= ₹ 4800 (Adverse)
S M V (A) =	₹ 15(880 – 1320)	= 6600(Adverse)
S M V(B) =	₹ 20(880 – 880)	= 0
S M V(C) =	₹ 40(2640 – 2200)	= 17,600 (Favourable)
		11,000 (Favourable)

Sales Sub-usage Variance

= Standard Price (Revised Standard Quantity – Standard Quantity)

SSV(A) =	₹ 15(1320 – 1200)	= ₹ 1,800 (Favourable)
SSV(B) =	₹ 20(880 – 800)	= ₹ 1600 (Favourable)
SSV(C) =	₹ 40(2200 – 2000)	= ₹ 8,000 (Favourable)
Total SSV		₹ 11,400 (Favourable)

Notes

Verification

Sales Value Variance = Sales Price Variance + Sales Volume Variance

19760(F) = 2640(A) + 22,400(F)

Sales Volume Variance = Sales Mix Variance + Sales Sub-usage Variance

22400(F) = 11000(F) + 11,400(F)

2. For producing one unit of a product, the materials standard is:

Material X: 6 kg. @ ₹ 8 per kg., and Material Y: 4 kg. @ ₹ 10 per kg.

In a week, 1,000 units were produced the actual consumption of materials was:

Material X: 5,900 kg. @ ₹ 9 kg., and Material Y: 4,800 kg. @ ₹ 9.50 per kg.

Compute the various variances.

Solution:

Standard cost of materials of 1,000 units:

	₹
Material X: 6,000 kg. @ ₹ 8	48,000
Material Y: 4,000 kg. @ ₹ 10	40,000
Total	88,000

Actual cost:	Material X 5,900 kg. @ ₹ 9	53,100
	Material Y 4,800 kg. @ ₹ 9.50	45,600
	Total	98,700
Total materials cost variance		10,700 (A)

Analysis

Material Price Variance: Actual Quantity (Standard Price – Actual Price)

X = 5900 (₹ 8 – ₹ 9)		₹ 5,900 (A)
Y = 4800 (₹ 10 – ₹ 9.50)	=	₹ 2,400 (F)
		₹ 3,500 (A)

Material Usage Variance: Standard Price (Standard Quantity – Actual Quantity)

X = ₹ 8 (6,000 – 5,900)	=	₹ 800 (F)
Y = ₹ 10 (4,000 – 4,800)	=	₹ 8,000 (A)
		₹ 7,200 (A)

Material Cost Variance = Materials price variance [₹ 3,500 (A)]

[₹ 10,700 (A)] plus Materials usage variance [₹ 7,200 (A)]

Materials Mix Variance:

Revised Standard Mix (total actual quantity 10,700 kg.)

Material X—10,700 × 6/10 = 6,420

Y—10,700 × 4/10 = 4,280 kg

Notes

Standard cost of revised standard mix:

	₹	₹
X 6,420 kg. @ ₹ 8	51,360	
Y 4,280 kg. @ ₹ 10	42,800	94,160
Standard cost of actual mix:		
X 5,900 kg. @ ₹ 8	47,200	
Y 4,800 kg. @ ₹ 10	48,000	95,200
Material mix variance (Difference)		1,040 (A)

The net usage variance will be ₹ 7,200 less ₹ 1,040 or ₹ 6,160 as proved below:

	₹
X (6,420 – 6,000) x ₹ 8	3,360 (A)
Y (4,280 – 4,000) x ₹ 10	2,800 (A)
	6,160 (A)

Self Assessment

Choose the correct answer:

6. Variance is identified in between
   (a) Standard and budgeted figures
   (b) Standard and actual figures
   (c) Budgeted figures and actual
   (d) None of the above
7. Variance is/are
   (a) Cost variance
   (b) Revenue variance
   (c) Expense variance
   (d) Both (a) & (b)
8. Cost variance is classified into
   (a) Material variance
   (b) Labour variance
   (c) Expense variance
   (d) (a), (b) & (c)
9. Variance analysis is for
   (a) Cost planning
   (b) Cost control
   (c) Identification of variance and control deviations
   (d) None of the above

Notes

10. When the revised standard mix of the materials will not vary with the standard mix of the materials?
    (a) Both standard and actual mix of materials are different
    (b) Standard mix of materials are greater than the actual mix of materials
    (c) Both are equivalent to each other
    (d) None of the above
11. Why labour efficiency variance is denominated in terms of standard rate?
    (a) Actual rate is not a measure
    (b) Standard rate is free from the demand and supply of labour force
    (c) Actual measure is a measure of demand and supply of labour force
    (d) None of the above
12. Sales value variance is mainly due to
    (a) Price variance (b) Quantity variance
    (c) Mix variance (d) (a) (b) & (c)
13. Variance is tool of standard costing in determining the deviations of the enterprise from the early
    (a) Estimates (b) Budgets
    (c) Costs (d) Prices
14. The direct labour total variance is the difference between what the output should have cost and what it did cost, in terms of
    (a) Cash (b) Labour
    (c) Material (d) None of these
15. The selling price variance is a measure of the effect on expected
    (a) Price (b) Profit
    (c) Labour (d) None of these

9.3 Summary

- There are two type of variances viz. cost variance and revenue variance.
- Cost variance can be further classified into three categories: (a) Material Cost Variance (b) Labour Cost Variance and (c) Overhead Variance
- Revenue Variance includes Sales Variance.
- The material cost variance is in between the standard material cost for actual production in units and actual cost.
- Material price variance is a variance in between two different prices *viz.* the standard price and actual price of raw materials.
- Materials Usage Variance = Standard Price × (Standard quantity of materials for actual output – Actual quantity of materials used)
- Material Sub-usage Variance = Standard Cost per unit (Standard Quantity – Revised Standard Quantity).

Notes

- Material yield variance is one of the components of the material usage variance which arises only due to the deviation in between the standard yield determined and the actual yield accrued.
- Labour Variance Analysis, is studying the deviation in between the actual cost of the labour incurred and standard/budgeted cost of the labour.
- The overhead variance is defined is as the variance in between standard cost of overhead estimated for the actual output and actual cost of overhead really incurred.
- Sales variances is the only component accompanied the profit volume variance of the business transaction. The sales variances are computed and analysed in order to study the effect of sales value and facilitates the sales manager to easily understand the various sales efforts taken by the team.

9.4 Keywords

Cost Variance: Identifying the deviations in between the actual cost and standard cost which was already determined.

Favourable Cost Variance: It is due to greater standard cost over the actual cost.

Favourable Revenue Variance: It is due to greater actual revenue than the standards.

Revenue Variance: Identifying the deviations in between the actual revenue and early determined standard revenue.

Standard: It is a predetermined or estimate figure calculated by considering the ideal conditions of the work environment.

Unfavourable Cost Variance: It is due to greater actual cost than the determined standard cost.

Unfavourable Revenue Variance: It is an outcome due to greater standard sales than the actual sales.

Variance: It is tool of standard costing in determining the deviations of the enterprise from the early estimates.

9.5 Review Questions

1. Elucidate the various kinds of variances.
2. Write elaborately on the cost variance and their causes.
3. From the data given below, find out the material mix variance.

Consumption of 100 units of product

Raw Material	Standard	Actual
A	40 units @ ₹ 50 per unit	50 units @ ₹ 50 per unit
B	60 units @ ₹ 40 per unit	60 units @ ₹ 45 per unit

4. From the following data, calculate materials yield variance.

Particulars	Standard		Actual	
	Qty in Kg	Price	Qty in Kg	Price
Material A	200 units	₹ 12	160 units	₹ 13
Material B	100 units	₹ 10	140 units	₹ 10
	300 units		**300 units**	

Standard loss allowed is 10% of input. Actual output is 275 units.

Notes

5. From the following, find out the material yield variance.

Particulars	Standard		Actual	
	Qty in Kg	Price	Qty in Kg	Price
Material A	60 units	₹ 3,000	300 units	₹ 15,300
Material B	40 units	₹ 1,200	200 units	₹ 5,600

Standard loss allowed is 10% of input and standard rate of scrap realization is ₹ 6 per unit. Actual output is 440 units.

6. For producing one unit of a product, the materials standard is:

Material X: 6 kg. @ ₹ 8 per kg., and Material Y: 4 kg. @ ₹ 10 per kg.

In a week, 1,000 units were produced the actual consumption of materials was:

Material X: 5,900 kg. @ ₹ 9 kg., and Material Y: 4,800 kg. @ ₹ 9.50 per kg.

Compute the various variances.

7. From the data given below, calculate labour variances for the two departments:

	Dept. A	Dept. B
Actual gross wages (Direct)	₹ 2,000	₹ 1,800
Standard hours produced	8,000	6,000
Standard rate per hour	30 paise	35 paise
Actual hours worked	8,200	5,800

8. A gang of workers normally consists of 30 men, 15 women and 10 boys. They are paid at standard hourly rates as under:

Men	₹ .80
Women	₹ .60
Boys	₹ .40

In a normal working week of 40 hours, the gang is expected to produce 2,000 units of output.

During the week ended 31st Dec. 2007, the gang consisted of 40 men 10 women and 5 boys. The actual wages paid were @ Re. 70, Re. 65 and Re. 30 respectively 4 hours were lost due to abnormal idle time and 1,600 were produced.

Calculate (a) Labour cost variance (b) Wage variance (c) Labour efficiency variance (d) Gang composition variance (e) Labour idle time variance.

9. In a manufacturing process, the following standards apply:

Standard Price: Raw material A Re. 1 per kg

Raw materials B ₹ 5 per kg

Standard Mix 75% A; 25% B (by weight) Standard Yield: 90%

In a period the actual costs, usage and output were as follows:

Used: 4,400 kgs of A costing ₹ 4,650

1,600 kgs of B costing ₹ 7,850

Output: 5,670 kgs of products

The budgeted output for the period was 7,200 kgs.

Notes

10. For producing one unit of a product, the materials standard is:

    Material X: 6 kg. @ ₹ 8 per kg., and Material Y: 4 kg. @ ₹ 10 per kg.

    In a week, 1,000 units were produced the actual consumption of materials was:

    Material X: 5,900 kg. @ ₹ 9 kg., and Material Y: 4,800 kg. @ ₹ 9.50 per kg.

    Compute the various variances.

Answers: Self Assessment

1.	adverse or unfavourable	2.	favourable variance
3.	standard costing	4.	standard cost
5.	cost control	6.	(b)
7.	(d)	8.	(d)
9.	(c)	10.	(c)
11.	(c)	12.	(d)
13.	(a)	14.	(b)
15.	(b)		

9.6 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.

Online links

www.allinterview.com

www.authorstream.com

Notes

Unit 10: Responsibility Accounting and Transfer Pricing

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Objectives

After studying this unit, you will be able to:

- Define responsibility centres
- Describe controllability and accounting concept
- Discuss the advantages and disadvantages of responsibility accounting
- Explain transfer pricing

Introduction

Responsibility accounting is an underlying concept of accounting performance measurement systems. The basic idea is that large diversified organizations are difficult, if not impossible to manage as a single segment, thus they must be decentralized or separated into manageable parts. These parts, or segments are referred to as responsibility centers that include:

1. Revenue centers,
2. Cost centers,
3. Profit centers, and
4. Investment centers

Responsibility accounting is appropriate where top management has delegated authority to make decisions. The idea behind responsibility accounting is that each manager's performance should be judged by how well he or she manages those items under his or her control. This approach allows responsibility to be assigned to the segment managers that have the greatest amount of influence over the key elements to be managed. These elements include revenue for a revenue center (a segment that mainly generates revenue with relatively little costs), costs for a cost center (a segment that generates costs, but no revenue), a measure of profitability for a profit center (a segment that generates both revenue and costs) and return on investment (ROI) for an investment center (a segment such as a division of a company where the manager controls the acquisition and utilization of assets, as well as revenue and costs).

10.1 Responsibility Centers

The concept of responsibility accounting has emerged to accommodate the need for management information at a more specific level of detail than can be provided by financial accounting procedures. Responsibility accounting attempts to report results (actual performance) in such a way that:

1. significant variances from planned performance can be identified,
2. reasons for variances can be determined,
3. responsibility can be fixed, and
4. timely action can be taken to correct problems.

Under this approach, pertinent costs and revenues are assigned to various organizational units – departments, bureaus, and programs – designated as responsibility centers. A decentralized environment results in highly dispersed decision making. As a result, it is imperative to monitor and judge the effectiveness of each manager. This is easier said than done. Not all units are capable of being evaluated on the same basis. Some units do not generate any revenue; they only incur costs in support of some necessary function. Other units that deliver goods and services have the potential to be assessed on the basis of profit generation.

As a generalization, the part of an organization under the control of a manager is termed a "responsibility center." To aid performance evaluation it is first necessary to consider the specific character of each responsibility center. Some responsibility centers are cost centers and others are profit centers. On a broader scale, some are considered to be investment centers. The logical method of assessment will differ based on the core nature of the responsibility center.

10.1.1 Cost Center

A cost center is the smallest segment of activity or area of responsibility for which costs are accumulated. Obviously most business units incur costs, so this alone does not define a cost center. A cost center is perhaps better defined by what is lacking; the absence of revenue, or at least the absence of control over revenue generation.

Human resources, accounting, legal, and other administrative departments are expensive to support and do not directly contribute to revenue generation. Cost centers are also present on the factory floor. Maintenance and engineering fall into this category. Many businesses also consider the actual manufacturing process to be a cost center even though a saleable product is produced (the sales "responsibility" is shouldered by other units).

It stands to reason that assessments of cost control are key in evaluating the performance of cost centers. This unit will show how standard costs and variance analysis can be used to pinpoint areas where performance is above or below expectation. Cost control should not be confused with cost minimization. It is easy to reduce costs to the point of destroying enterprise effectiveness.

Notes

The goal is to control costs while maintaining enterprise effectiveness.

Non-financial metrics are also useful in monitoring cost centers: documents processed, error rates, customer satisfaction surveys, and other similar measures can be used.

Example: 1. The manager for purchasing department.

2. The manager for maintenance department.

10.1.2 Revenue Center

Revenue center can be defined as a distinctly identifiable department, division, or unit of a firm that generates revenue through sale of goods and/or services.

Example: Rooms department and food and beverages department of a hotel.

10.1.3 Profit Center

Some business units have control over both costs and revenues and are therefore evaluated on their profit outcomes. For such profit centers, "cost overruns" are expected if they are coupled with commensurate gains in revenue and profitability.

Example: A restaurant chain may evaluate each store as a separate profit center. The store manager is responsible for the store's revenues and expenses. A store with more revenue would obviously generate more food costs; an assessment of food cost alone would be foolhardy without giving consideration to the store's revenues.

Thus profit center is a segment of a business, often called a division that is responsible for both revenue and expenses. The reason been Revenue minus Cost is the Profit.

The manager is therefore overall responsible or accountable for making profit for the company.

Example: A company has many restaurants which are all profit centre. A manager is assigned to each restaurant to make sure it is a profit centre.

10.1.4 Investment Center

At higher levels within an organization, unit managers will be held accountable not only for cost control and profit outcomes, but also for the amount of investment capital that is deployed to achieve those outcomes. In other words, the manager is responsible for adopting strategies that generate solid returns on the capital they are entrusted to deploy. Evaluation models for investment centers become more complex and diverse. They usually revolve around various calculated rates of returns.

Thus an investment center, like a profit center, is responsible for both revenue and expenses, but also for related investments of capital.

Example: An example of an investment centre is a Corporate division responsible for project investments.

Here, the manager is responsible for the investments which includes all the revenue, costs and investments (invested capital or assets).

Outside of relatively large corporations, the cost center is the most common building block for responsibility accounting. In fact, the terms cost center and responsibility center are often used interchangeably.

Notes

Task Analyse different centers of a food chain of your choice and categorise them into various types of responsibility centers.

Self Assessment

Fill in the blanks:

1. The concept of responsibility accounting has emerged to accommodate the need for management information at a more specific level of detail than can be provided by ..... procedures.
2. A ..... is a unit within an organization that is responsible for generating revenues.
3. A ..... is part of an organization that does not produce direct profit and adds to the cost of running a company.
4. ..... is a unit within an organisation whose manager not only has profit responsibility but also some influence on capital expenditures.
5. The basic idea under responsibility accounting is that large ..... organizations are difficult, if not impossible to manage as a single segment.
6. Responsibility accounting is appropriate where top management has ..... authority to make decisions.

10.2 Controllability Concept

An underlying concept of responsibility accounting is referred to as controllability. Conceptually, a manager should only be held responsible for those aspects of performance that he or she can control. In my view, this concept is rarely, if ever, applied successfully in practice because of the system variation present in all systems. Attempts to apply the controllability concept produce responsibility reports where each layer of management is held responsible for all subordinate management layers. The managers thus, should take care of certain essential elements to ensure adequate responsibility accounting.

Relevance

The convention of relevance emphasizes the fact that only such information should be made available by accounting as is relevant and useful for achieving its objectives.

Example: Business is interested in knowing as to what has been total labor cost? It is not interested in knowing how much employees spend and what they save.

Objectivity

The convention of objectivity emphasizes that accounting information should be measured and expressed by the standards which are commonly acceptable.

Example: Stock of goods lying unsold at the end of the year should be valued as its cost price not at a higher price even if it is likely to be sold at higher price in future. Reason is that no one can be sure about the price which will prevail in future.

Notes

Feasibility

The convention of feasibility emphasizes that the time, labour and cost of analyzing accounting information should be compared vis-à-vis benefit arising out of it.

Example: The cost of 'oiling and greasing' the machinery is so small that its break-up per unit produced will be meaningless and will amount to wastage of labor and time of the accounting staff.

Self Assessment

Fill in the blanks:

7. The convention of feasibility emphasizes that the ..... , ... and ..... of analyzing accounting information should be compared vis-à-vis benefit arising out of it.
8. Coventionally, a manager should only be held responsible for those aspects of performance that he or she can .....

10.3 Accounting Concepts

Responsibility accounting is based on certain concepts. They are utmost important to be followed while accounting the responsibility. A detailed discussion on each of them follows.

Materiality

It refers to the relative importance of an item or event. Those who make accounting decisions continually confront the need to make judgments regarding materiality. Is this item large enough for users of the information to be influenced by it?

The essence of the materiality concept is the omission or misstatement of an item is material if, in the light of surrounding circumstances, the magnitude of the item is such that it is probable that the judgment of a reasonable person relying on the report would have been changed or influenced by the inclusion or correction of the item.

Accounting Period

Though accounting practice believes in continuing entity concept i.e. life of the business is perpetual but still it has to report the 'results of the activity undertaken in specific period (normally one year). Thus, accounting attempts to present the gains earned or losses suffered by the business during the period under review. Normally, it is the calendar year (1st January to 31st December) but in other cases it may be financial year (1st April to 31st March) or any other period depending upon the convenience of the business or as per the business practices in country concerned.

Due to this concept it is necessary to take into account during the accounting period, all items of revenue and expenses accruing on the date of the accounting year. The problem confronting this concept is that proper allocation should be made between capital and revenue expenditure. Otherwise the results disclosed by the financial statements will be affected.

Realization

This concept emphasizes that profit should be considered only when realized. The question is at what stage profit should be deemed to have accrued? Whether at the time of receiving the order

or at the time of execution of the order or at the time of receiving the cash. For answering this question the accounting is in conformity with the law and recognizes the principle of law, i.e. the revenue is earned only when the goods are transferred. It means that profit is deemed to have accrued when 'property in goods passes to the buyer' viz. when sales are affected.

Matching

Though the business is a continuous affair yet its continuity is artificially split into several accounting years for determining its periodic results. This profit is the measure of the economic performance of a concern and as such it increases proprietor's equity. Since profit is an excess of revenue over expenditure it becomes necessary to bring together all revenues and expenses relating to the period under review. The realization and accrual concepts are essentially derived from the need of matching expenses with revenues earned during the accounting period. The earnings and expenses shown in an income statement must both refer to the same goods transferred or services rendered during the accounting period. The matching concept requires that expenses should be matched to the revenues of the appropriate accounting period. So we must determine the revenue earned during a particular accounting period and the expenses incurred to earn these revenues.

Entity

According to this concept, the task of measuring income and wealth is undertaken by accounting, for an identifiable Unit or Entity. The unit or entity so identified is treated different and distinct from its owners or contributors. In law the distinction between owners and the business is drawn only in the case of joint stock companies but in accounting this distinction is made in the case of sole proprietor and partnership firm as well.

Example: Goods used from the stock of the business for business purposes are treated as a business expenditure but similar goods used by the proprietor, i.e. owner for his personal use are treated as his drawings.

Such distinction between the owner and the business unit has helped accounting in reporting profitability more objectively and fairly. It has also led to the development of "responsibility accounting" which enables us to find out the profitability of even the different sub-units of the main business.

Stable Monetary Unit

Accounting presumes that the purchasing power of monetary unit, say Rupee, remains the same throughout.

For example, the intrinsic worth of one Rupee is same and equal in the year 1900 and 2000 thus ignoring the effect of rising or falling purchasing power of monetary unit due to deflation or inflation. In spite of the fact that the assumption is unreal and the practice of ignoring changes in the value of money is now being extensively questioned, still the alternatives suggested incorporating the changing value of money in accounting statements viz., Current Purchasing Power method (CPP) and Current Cost Accounting method (CCA) are in evolutionary stage. Therefore, for the time-being we have to be content with the 'stable monetary unit' concept.

Cost

This concept is closely related to the going concern concept. According to this, an asset is ordinarily recorded in the books at the price at which it was acquired, i.e. at its cost price. This 'cost' serves the basis for the accounting of this asset during the subsequent period. This 'cost' should not be confused with 'value'.

Notes

It must be remembered that as the real worth of the assets changes from time to time, it does not mean that the value of such an asset is wrongly recorded in the books. The book value of the assets as recorded does not reflect their real value. It does not signify that the values noted therein are the values for which they can be sold. Though the assets are recorded in the books at cost, in course of time, they become reduced in value on account of depreciation charges. In certain cases, only the assets like 'goodwill' when paid for will appear in the books at cost and when nothing is paid for, it will not appear even though this asset exists on name and fame created by a concern.

Therefore, the values attached to the assets in the balance sheet and the net income as shown in the Profit and Loss account cannot be said to reflect the correct measurement of the financial position of an undertaking, as they do not have any relation to the market value of the assets or their replacement values. This idea that the transactions should be recorded at cost rather than at a subjective or arbitrary value is known as Cost Concept. With the passage of time, the market value of fixed assets like land and buildings vary greatly from their cost.

These changes or variations in the value are generally ignored by the accountants and they continue to value them in the balance sheet at historical cost. The principle of valuing the fixed assets at their cost and not at market value is the underlying principle in cost concept. According to them, the current values alone will fairly represent the cost to the entity.

The cost principle is based on the principle of objectivity. The supporters of this method argue so long as the users of the financial statements have confidence in the statements, there is no necessity to change this method.

Conservatism

This concept emphasizes that profit should never be overstated or anticipated. Traditionally, accounting follows the rule "anticipate no profit and provide for all possible losses.

Example: The closing stock is valued at cost price or market price, whichever is lower.

The effect of the above is that in case market price has come down then provide for the 'anticipated loss' but if the market price has gone up then ignore the 'anticipated profits'.

Critics point out that conservation to an excess degree will result in the creation of secret reserve. This will be quite contrary to the doctrine of disclosure. However, conservatism to a reasonable degree may not come in for criticism.

Self Assessment

Fill in the blanks:

9. Though the assets are recorded in the books at cost, in course of time, they become reduced in value on account of ..... charges.
10. Conservation to an excess degree will result in the creation of .....
11. Responsibility accounting provides a way to ..... lower level managers and workers.

10.4 Advantages and Disadvantages of Responsibility Accounting

Responsibility accounting has been an accepted part of traditional accounting control systems for many years because it provides an organization with a number of advantages. Perhaps the most compelling argument for the responsibility accounting approach is that it provides a way to manage an organization that would otherwise be unmanageable.

Notes

1. In addition, assigning responsibility to lower level managers allows higher level managers to pursue other activities such as long term planning and policy making.
2. It also provides a way to motivate lower level managers and workers.
3. Managers and workers in an individualistic system tend to be motivated by measurements that emphasize their individual performances.

However, this emphasis on the performance of individuals and individual segments creates what some critics refer to as the "stovepipe organization." Others have used the term "functional silos" to describe the same idea.

1. Information flows vertically, rather than horizontally.
2. Individuals in the various segments and functional areas are separated and tend to ignore the interdependencies within the organization.
3. Segment managers and individual workers within segments tend to compete to optimize their own performance measurements rather than working together to optimize the performance of the system.

Thus it can be said that an implicit assumption of responsibility accounting is that separating a company into responsibility centers that are controlled in a top down manner is the way to optimize the system. However, this separation inevitably fails to consider many of the interdependencies within the organization. Ignoring the interdependencies prevents teamwork and creates the need for buffers such as additional inventory, workers, managers and capacity. Of course, a system that prevents teamwork and creates excess is inconsistent with the lean enterprise concepts of just-in-time and the theory of constraints. For this reason, critics of traditional accounting control systems advocate managing the system as a whole to eliminate the need for buffers and excess. They also argue that companies need to develop process oriented learning support systems, not financial results, fear oriented control systems. The information system needs to reveal the company's problems and constraints in a timely manner and at a disaggregated level so that empowered users can identify how to correct problems, remove constraints and improve the process. According to these critics, accounting control information does not qualify in any of these categories because it is not timely, disaggregated, or user friendly.

This harsh criticism of accounting control information leads us to a very important controversial question. Can a company successfully implement just-in-time and other continuous improvement concepts while retaining a traditional responsibility accounting control system? Although the jury is still out on this question, a number of field research studies indicate that accounting based controls are playing a decreasing role in companies that adopt the lean enterprise concepts. In a recent study involving nine companies, each company answered this controversial question in a different way by using a different mix of process oriented versus results oriented learning and control information. Since each company is different, a generalized answer to this question for all firms in all situations cannot be provided.

Case Study

Out to Lunch Cuisine Inc.

Out to Lunch was established in Vancouver, Canada, in 1985. It is a rapidly growing fast-food restaurant chain.

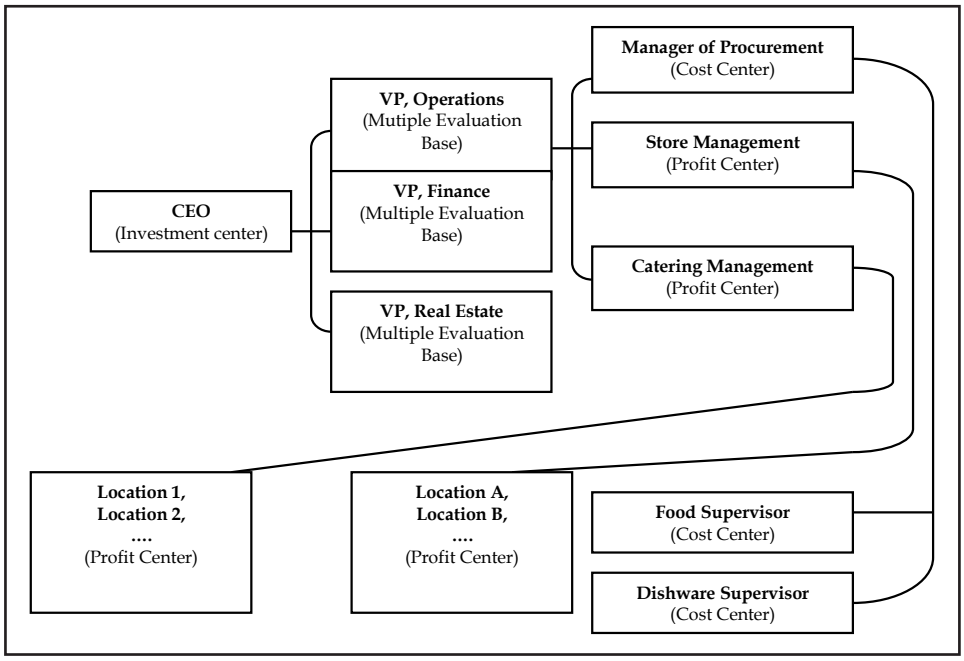
Their business model revolves around a uniquely flavored hamburger, and a very simple menu consisting of a hamburger, fries, and drinks. They provide simple "round number" pricing, few products, and rapid service. Out to Lunch also has a catering service for sporting events, corporate outings, and similar occasions.

Contd…

Notes

Refer to the chart below to understand the working of OTL Cuisine Inc. The blocks in the organization chart indicate the character of performance/responsibility evaluation that is germane to each position. The Chief Executive Officer reports to the owners, and the owners are primarily interested in their return on investment. Three vice presidents report to the CEO:

1. The VP of operations is responsible for the overall investment in operations, which is driven heavily by the combined profits of each store. The VP of Operations oversees procurement, store management, and catering management.
   (a) The Procurement Manager oversees purchasing of food and dishware.
      (i) The Procurement activities are evaluated as cost centers, relying on budgets and standard costs to control activities.
   (b) The Store and Catering managers oversee supervisors from each location.
      (i) The Store and Catering Managers are responsible for producing profits, and are evaluated accordingly.
2. The VP of Finance is viewed and evaluated as a cost center.
3. The VP of Real Estate is responsible for site acquisition and construction. Although the activities are largely viewed in the context of a cost center, there is an expected rate of return for each new real estate investment. Therefore, the VP of Real Estate is evaluated for cost control and return on investments.



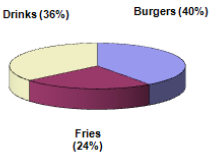
The accounting system of the company supports preparation of an accounting report for each responsibility center. This information is essential to monitor, control, and direct each business unit. Each individual store has a customized performance report. Often, the reports provide a comparison between budgeted and actual data, with the difference being reported as a variance from budget. These performance reports are consistent with the organizational structure of the firm. At successively higher levels within the organization, the reports tend to include less transaction specific detail and more combinations of business units.

Contd…

Notes

PERFORMANCE REPORT
STORE LOCATION A
FOR THE YEAR ENDING DECEMBER 31, 20X5

	ACTUAL RESULTS		BUDGETED RESULTS		VARIANCE
	PERCENT OF SALES	Totals	PERCENT OF SALES	Totals	
Sales:					
Burgers	40%	$ 1,000,000	43%	$ 1,100,000	$ (100,000)
Fries	24%	600,000	22%	550,000	50,000
Drinks	36%	900,000	35%	875,000	25,000
Total Sales	100%	$ 2,500,000	100%	$ 2,525,000	$ (25,000)
Less: Variable Expenses					
Food cost	19%	$ 475,000	20%	$ 505,000	$ (30,000)
Other variable expenses	7%	175,000	8%	200,000	(25,000)
Total Variable Expenses	26%	$ 650,000	28%	$ 705,000	$ (55,000)
Contribution Margin		$ 1,850,000		$ 1,820,000	$ 30,000
Less: Traceable Fixed Costs		1,100,000		1,100,000	-
Location A Margin		$ 750,000		$ 720,000	$ 30,000



Notice that Location A's performance report is very detailed, and provides a basis for analysis of numerous facets of the business. Graphics are frequently used to facilitate understanding by those not accustomed to accounting reports. For example, each store supervisor knows that fries and drinks have the highest profit margins and they are encouraged to train employees to soft-sell these items by asking customers "what type of drink did you prefer?" rather than "did you want a drink with this order?" As a result, the report is "specialized" to show the product mix proportions. In addition, each manager gets a bonus if food costs are below 20% of sales; this incentive is designed to reduce food waste and encourage sales of high margin products. The report provides sufficient detail to show if the objectives are being met. Notice that unfavorable variances are highlighted in red. Summarizing the results for Location A, note that the budgeted goal for hamburger sales was not met. But, the profit objectives were nevertheless exceeded because the product mix of fries and drinks produced offsetting higher margins. In addition Location A managed to contain other variable costs.

The next step up in the organizational chart is the Senior Manager of Store Operations. This person is concerned with making sure that each unit is profitable. Underperforming stores are identified, problems are studied, and corrective measures are taken. Very little time is spent on locations that are meeting or exceeding corporate profit goals. Although this manager has access to the detailed reports for each store, the performance report of interest is a compilation of summary data for each location that quickly highlights the areas of needed improvement. Review the following performance report, noting the carry forward of Location A's data into the report. Obviously, some stores are performing much better than others; the senior manager will certainly want to focus on store E immediately! Also notice that there is $1,500,000 of fixed costs associated with store operations that are not traceable to any specific location; nevertheless, the senior manager of store operations must control this cost and it is subtracted in calculating the overall margin. Thus, the total fixed cost for all store operations is $9,500,000 ($8,000,000 + $1,500,000).

PERFORMANCE REPORT
ALL STORES
FOR THE YEAR ENDING DECEMBER 31, 20X5

	Combined	Location A	Location B	Location C	Location D	Location E	Location F	Location G
Sales:								
Burgers	$ 7,050,000	$ 1,000,000	$ 875,000	$ 1,200,000	$ 1,400,000	$ 600,000	$ 875,000	$ 1,100,000
Fries	3,675,000	600,000	400,000	750,000	800,000	200,000	300,000	625,000
Drinks	5,685,000	900,000	910,000	975,000	1,000,000	450,000	550,000	900,000
Total Sales	$ 16,410,000	$ 2,500,000	$ 2,185,000	$ 2,925,000	$ 3,200,000	$ 1,250,000	$ 1,725,000	$ 2,625,000
Less: Variable Expenses								
Food cost	$ 3,334,850	$ 475,000	$ 458,850	$ 526,500	$ 640,000	$ 337,500	$ 293,250	$ 603,750
Other variable expenses	1,241,100	175,000	131,100	234,000	224,000	112,500	207,000	157,500
Total Variable Expenses	$ 4,575,950	$ 650,000	$ 589,950	$ 760,500	$ 864,000	$ 450,000	$ 500,250	$ 761,250
Contribution Margin	$ 11,834,050	$ 1,850,000	$ 1,595,050	$ 2,164,500	$ 2,336,000	$ 800,000	$ 1,224,750	$ 1,863,750
Traceable Fixed Costs	8,000,000	1,100,000	1,000,000	900,000	1,200,000	1,300,000	1,100,000	1,400,000
Location Margin	$ 3,834,050	$ 750,000	$ 595,050	$ 1,264,500	$ 1,136,000	$ (500,000)	$ 124,750	$ 463,750
Common Fixed Costs	1,500,000							
Stores Margin	$ 2,334,050							

Contd…

Notes

Continuing up the organizational chart, the VP of Operations will focus on summary data from store management, catering management, and procurement. Notice that the "stores" column (below) is derived from information found in the "combined" column (above). Again, note the presence of fixed costs that are not traceable to any specific operating segment ($1,300,000). Even though this cost is not assigned to a specific segment, it remains a cost for which the VP of Operations is responsible.

PERFORMANCE REPORT
OPERATIONS
FOR THE YEAR ENDING DECEMBER 31, 20X5

	Combined	Stores	Catering	Procurement
Total Sales	$ 28,866,000	$ 16,410,000	$12,456,000	$ -
Total Variable Expenses	$ 6,942,590	$ 4,575,950	$ 2,366,640	$ -
Contribution Margin	$ 21,923,410	$ 11,834,050	$ 10,089,360	$ -
Less: Traceable Fixed Costs	17,700,000	9,500,000	7,000,000	$1,200,000
Unit Margin	$ 4,223,410	$ 2,334,050	$ 3,089,360	$ (1,200,000)
Less: Common Fixed Costs	1,300,000			
Operations Margin	$ 2,923,410			

The next step in the corporate ladder is the CEO. This individual is evaluated on the overall financial statement outcomes. Although the CEO would have access to any and all of the reports from within the organization, they would mostly focus on the reports emanating from each vice president's unit.

Questions

1. After analysing the case above, do you think all the organizations, especially those in catering/hoteliering business, should run on the same model of responsibility accounting? Support your argument with reasons.
2. What problems do you see in responsibility accounting at OTL Cuisines Inc.?

Source: www.otlcatering.com

Self Assessment

Fill in the blanks:

12. Assigning ..... to lower level managers allows higher level managers to pursue other activities.
13. Segment managers and individual workers within segments tend to ..... to optimize their ..... performance measurements.
14. The accounting system of the company supports preparation of an ..... for each responsibility center.
15. An implicit assumption of responsibility accounting is that separating a company into responsibility centers that are controlled in a ..... manner is the way to optimize the system.

10.5 Transfer Pricing

Large business units are usually organised into different divisions for better control. In such a situation, if one division supplies its finished output as input to other division, there arises a very important issue. The issue being at which price should be transferring unit transfer its product or service. Such price is known as transfer price.

Transfer prices are the amounts charged by one segment of an organization for a product or service that it supplies to another segment of the same organization.

Notes

Transfer price in simple words is the price that one sub-unit (segment, department, division and so on) of an organization charges for a product or service supplied to another subunit of the same organization. It is different from the normal price in that both divisions are a part of the same organisation and therefore it is only an internal transfer and not sale. The pricing of these flows is likely to have an impact on the performance evaluation of the divisions. Setting of transfer pricing policies within the company is of great significance. The important issue now is at what price should such transfers be made.

Did u know? ***Why do transfer-pricing systems exist?***

1. To communicate data that will lead to goal-congruent decisions.
2. To evaluate segment performance and thus motivate managers toward goal-congruent decisions.
3. Multinational companies use transfer pricing to minimize their worldwide taxes, duties, and tariffs. Ideally, the chosen transfer-pricing method should lead each subunit manager to make optimal decisions for the organization as a whole. The three specific criteria that can help in choosing a transfer-pricing method are:

   (a) *Promotion of Goal Congruence:* Goal congruence exists when each divisional or sub-unit manager acting in his or her own best interest takes actions that automatically result in achieving the organisation goals established by top management.

   (b) *Promotion of a Sustained High Level of Management Effort:* Effort is defined as exertion towards a goal, for example, sellers are motivated to hold down costs of supplying product or service, and buyers are motivated to acquire and use inputs efficiently. The environment in the organisation should be such that a sustained high level of management effort is promised.

   (c) *Promotion of a High Level of Subunit Autonomy in Decision-making:* Autonomy is the degree of freedom a division manager can exercise in decisions making. If top management favours a high degree of decentralization, this criterion is of particular importance.

   Transfer pricing is a critical issue in the organisation. This is because the transfer price decides:

4. The revenue of the supplying division thus influences divisional profit; and
5. The cost of the receiving division thus influences divisional profit.

10.5.1 Objectives of Transfer Pricing

Some of the more important objectives of transfer pricing are as follows:

1. ***Evaluating Divisional Performance:*** Prices can be set in order to arrive at a valid measure of divisional profit for performance evaluation purposes. This should be of value to central management in allocating resources between divisions.
2. ***Improving the Quality of Decisions:*** Transfer pricing may help divisional managers to take better decisions. Prices can be used to determine how much of a product or service a particular division is prepared to sell and how much a division is prepared to buy. This can help in the efficient use of resources within a division.
3. ***Promoting Autonomy:*** Transfer pricing can help in promoting the autonomy of division. Divisional managers can make independent decisions concerning whether or not they wish

Notes

to trade with other divisions based on the transfer prices which are quoted. This should help in supporting the policy of divisionalisation of the business.

4. ***Allocation of Profit:*** Transfer pricing can be used to allocate the profits of a multinational business to division operating in particular countries. The allocation process may be designed to minimise the liability of the business as a whole or to minimise taxation and duties. In addition, it is sometimes also used to avoid restrictions on the transfer of profit within a division that is situated in a country where taxes and duties are low and to report low levels of profit within a division where taxation and duties are high. This policy will enable the business, as a whole, to reduce its total liability to taxation (it should be noted that some taxation authorities will object to this practice if they believe this is simply a tax avoidance measure).

10.5.2 Transfer Pricing Methods

There are three general methods for determining transfer prices:

1. ***Market-based Transfer Prices:*** One of the most rational and practical basis of determining transfer price is the market price. A company may choose to use the price of a similar product or service publicity listed in, say a trade journal. Also, a company may select for its internal price the external price that a division charges to outside customers.

   Under certain circumstances deviation from market oriented transfer price may be justified. Some instances are:

   - Where the products involved are highly specialised and a ready market does not exist, market-price determination will be more difficult.
   - Where it is necessary to take advantage of economies of scale in the production of some goods or services.
   - When it is necessary to shift resources from low priority to high priority divisions.
   - Where considerations of taxation are applicable.

2. ***Cost-based Transfer Prices:*** The basis for transfer price can even be any price that is cost based. Examples of cost-based transfer prices include variable manufacturing costs, full manufacturing (absorption) costs, and full product costs. Full product costs include all production costs as well as costs from other business functions (R&D, design, marketing, distribution and customer service). This method of transfer pricing is normally used when a perfect market does not exist for the product. The division cost in this could be actual cost, standard cost, budgeted cost or marginal cost. The company has to decide which type of the above stated cost is to be taken into account for transfer pricing.

3. ***Negotiated Transfer Prices:*** In some cases, the divisions of a company are free to negotiate the transfer price between themselves. In the process of negotiation, divisions may use information about costs and market prices. However, there is no requirement that the chosen transfer price to have any specific relationship to either cost or market price data. Negotiated transfer prices are often employed when market prices are volatile. The negotiated transfer price is the outcome of a bargaining process between the selling and the buying divisions. This price normally is based on manufacturing costs plus an extra percentage added to approximate it to market price.

4. ***Variable-Cost Pricing***

   - When market prices cannot be used, versions of "cost-plus-a-profit" are often used as a fair substitute.

- In situations where idle capacity exists, variable cost would generally be the better basis for transfer pricing and would lead to the optimum decision for the firm as a whole.

There is a large amount of documented sources on the transfer pricing policies used by companies all over the world. These studies have documented various aspects of transfer pricing policies such as:

- Its role as an overall component of reporting and control system in companies.
- The effect of transfer pricing on intra-corporate conflicts.
- Variations in transfer pricing policies across the world, and environmental constraints on use of transfer prices.

Self Assessment

Fill in the blanks:

16. …… are the amounts charged by one segment of an organization for a product or service that it supplies to another segment of the same organization.
17. The …… is the outcome of a bargaining process between the selling and the buying divisions.

10.6 Summary

- Responsibility accounting is a concept of accounting performance measurement systems.
- The basic idea under responsibility accounting is that large diversified organizations are difficult, if not impossible to manage as a single segment.
- Thus, they must be decentralized or separated into manageable parts.
- These parts or segments are referred to as responsibility centers that include: cost centers, profit centers and investment centers.
- This approach allows responsibility to be assigned to the segment managers that have the greatest amount of influence over the key elements to be managed.
- There are many advantages and disadvantages of responsibility accounting.
- The benefits exceed the limitations, thus rendering responsibility accounting a big space to settle in.
- Transfer prices are the amounts charged by one segment of an organization for a product or service that it supplies to another segment of the same organization.

10.7 Keywords

Cost Center: A cost center is part of an organization that does not produce direct profit and adds to the cost of running a company.

Investment Center: A unit within an organisation whose manager not only has profit responsibility but also some influence on capital expenditures.

Profit Center: A segment of a business for which costs, revenues, and profits are separately calculated.

Revenue Center: Unit within an organization that is responsible for generating revenues.

Transfer Prices: Transfer prices are the amounts charged by one segment of an organization for a product or service that it supplies to another segment of the same organization.

Notes

10.8 Review Questions

1. Can responsibility be delegated? Why?
2. Analyse the concept of revenue centers. How are they evaluated in traditional responsibility accounting?
3. How would you evaluate cost centers in traditional responsibility accounting?
4. How does an investment center differ from a profit center?
5. How are investment centers evaluated in traditional responsibility accounting?
6. Examine the key elements of the responsibility accounting controversy.
7. Put arguments to support traditional responsibility accounting.
8. Present arguments against traditional responsibility accounting.
9. Examine the controllability concept related to responsibility accounting.
10. An issue closely related to responsibility accounting is the controversy over budgeting and how budgets are used. For example, Jensen describes a problem with typical executive compensation plans where bonuses are based on budget targets. He argues that corporate budgeting is a joke because it encourages managers to lie, cheat, lowball targets and inflate results. Explain Jensen's argument and proposed solution.
11. Identify the relative advantages and disadvantages of basing transfer prices on total costs, variable costs, and market prices.

Answers: Self Assessment

1.	financial accounting	2.	revenue center
3.	cost center	4.	Investment center
5.	diversified	6.	delegated
7.	time, labour, cost	8.	control
9.	depreciation	10.	secret reserve
11.	motivate	12.	responsibility
13.	compete, own	14.	accounting report
15.	top down	16.	Transfer prices
17.	negotiated transfer price		

10.9 Further Readings

Books

David W. Young, *Techniques of Management Accounting,* McGraw Hill.

McNair, C. J. and L. P. Carr, *Responsibility Redefined: Changing Concepts of Accounting-based Control.*

Online links

www.allbusiness.com

www.internalaccounting.com

Unit 11: Marginal Costing and Profit Planning

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Objectives

After studying this unit, you will be able to:

- Define absorption costing
- Compute marginal costing and CVP analysis
- Illustrate break-even analysis
- Know the use of cost data in decision making

Introduction

It is one of the premier tools of management not only to take decisions but also to fix an appropriate price and to assess the level of profitability of the products/services. This is a only costing tool demarcates the fixed cost from the variable cost of the product/service in order to guide the firm to know the minimal point of sales to equate the cost of production. It is a tool of analysis highlighting the relationship in between the cost, volume of sales and profitability of the firm.

Notes

11.1 Absorption Costing

Absorption costing technique is also known by other names as "Full costing" or "Traditional costing". According to this technique, all costs are recognised or identified with the products manufactured. Both fixed and variable costs of each product manufactured are taken into account to ascertain the total cost.

According to author, the absorption costing tells as to how much fixed cost is absorbed besides the variable cost by each product manufactured. According to this technique, while the variable costs are directly charged to each unit of the goods produced, the fixed costs are distributed to each category of product manufactured by the same firm. In absorption costing, "Fixed cost" will also be taken into account in ascertaining the profit on sale.

This technique is called traditional costing, as this system of costing emerged from the beginning of the factory stage. In this technique, "fixed cost" refers to the closing stock of material held by the firm. These are charged against the sales later, as a part of the goods sold.

The traditional technique popularly known as total cost or absorption costing technique does not make any difference between fixed and variable cost in the calculation of profit.

Note Absorption costing can be calculated by the following ways:

	₹	₹
Sales Revenue		xxxxx
Less: Absorption Cost of Sales		
Opening Stock (Valued @ absorption cost)	xxxx	
Add: Production Cost (Valued @ absorption cost)	xxxx	
Total Production Cost	xxxx	
Less: Closing Stock (Valued @ absorption cost)	(xxx)	
Absorption Cost of Production	xxxx	
Add: Selling, Admin & Distribution Cost	xxxx	
Absorption Cost of Sales		(xxxx)
Un-Adjusted Profit		xxxxx
Fixed Production O/H absorbed	xxxx	
Fixed Production O/H incurred	(xxxx)	
(Under)/Over Absorption		xxxxx
Adjusted Profit		xxxxx

Limitations of Absorption Costing

The following are the limitations of absorption costing:

1. In absorption costing, a portion of fixed cost is carried over to the subsequent accounting period as part of closing stock which is an unsound practice because costs pertaining to a period should not be allowed to be vitiated by the inclusion of costs pertaining to the previous period and vice-versa.

Notes

2. Absorption costing is dependent on the levels of output which may vary from period to period, and consequently cost per unit changes due to the existence of fixed overhead. Unless fixed overhead rate is based on normal capacity, such changed costs are not helpful for the purposes of comparison and control.
3. The cost to produce an extra unit is variable production cost. It is realistic to the value of closing stock items as this is a directly attributable cost. The size of total contribution varies directly with sales volume at a constant rate per unit. For the decision-making purpose of management, better information about expected profit is obtained from the use of variable costs and contribution approach in the accounting system.

Self Assessment

Fill in the blanks:

1. Absorption costing technique is also known by other names as "Full costing" or …….
2. According to author, the absorption costing tells as to how much …… is absorbed besides the variable cost by each product manufactured.

11.2 Marginal Costing

According to ICMA, London, "Marginal cost is the amount at any given volume of output, by which aggregate costs are charged, if the volume of output is increased or decreased by one unit."

Marginal cost is the cost nothing but a change occurred in the total cost due to changes taken place on the level of production i.e either an increase/decrease by one unit of product.

Example: The firm XYZ Ltd. incurs ₹ 1000 for the production of 100 units at one level of operation. By increasing only one unit of product i.e. 101 units, the firm's total cost of production amounted ₹ 1010.

Total cost of production at first instance (C') = ₹1000

Total cost of production at second instance (C") = ₹1010

Total number of units during the first instance (U') = 100

Total number of units during the second instance (U") = 101

Increase in the level of production and Cost of production:

Change in the level of production in units = U"-U'= ΔU

Change in the total cost of production = C" – C'= ΔC

$$\text{Marginal Cost} = \frac{\text{Change (Increase) in the Total Cost of Production}}{\text{Change (Increase) in the Level of Production}} = \frac{\Delta C}{\Delta U} = \frac{₹\ 10}{1} = ₹\ 10$$

If the same firm reduces the total volume from 100 units to 99 units, the total cost of production ₹ 990/-

Decrease in the level of production and cost of production:

$$\text{Marginal Cost} = \frac{\text{Change (Increase) in the Total Cost of Production}}{\text{Change (Increase) in the Level of Production}} = \frac{\Delta C}{\Delta U} = \frac{₹\ 10}{1} = ₹\ 10$$

Notes

Did u know? ***Why marginal cost is called as incremental cost?***

From the above example, it is obviously understood that marginal cost is nothing but a cost which incorporates the incremental changes in the cost of production due to either an increase or decrease in the level of production by one unit, meant as incremental cost.

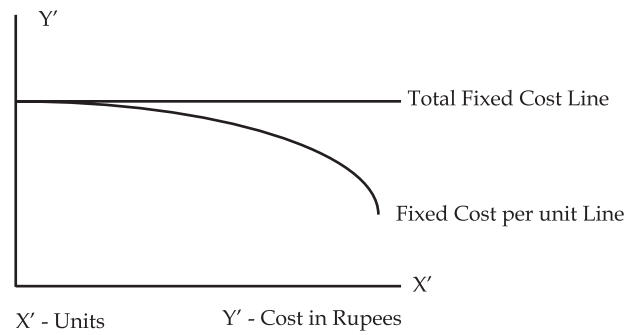
From the following classifications of cost, the inter twined relationship in between the variable cost and marginal cost is explained as below:

Table 11.1: Statement of Fixed, Variable and Total Costs per Unit

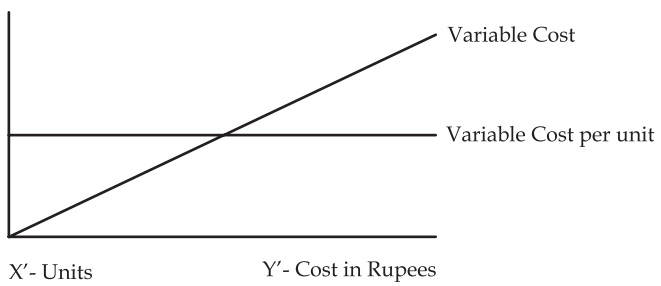
S. No.	Units	Fixed Cost (₹)	Fixed Cost per unit (₹)	Variable Cost (₹)	Variable Cost per unit (₹)	Marginal Cost (₹) ΔC/ΔU	Total Cost (₹)
1.	1	500	500	10	10	10	510
2.	50	500	100	500	10	10	1000
3.	100	500	5	1000	10	10	1500
4.	150	500	3.333	1500	10	10	2000

Fixed Cost: It is a cost remains constant or fixed irrespective level of production.

Example: Rent ₹ 500 is to be paid irrespective level of production. It remains constant/ fixed irrespective of changes taken place on the level of production.



Variable cost: It is a cost, which varies with level of production.



Notes

The following are the various components of variable cost:

1. ***Direct Materials:*** Materials cost consumed for the production of goods.
2. ***Direct Labour:*** Wages paid to the labourers who directly involved in the production of goods.
3. ***Direct Expenses:*** Other expenses directly involved in the production stream.
4. ***Variable portion of Overheads:*** Generally the overheads can be classified into two categories, *viz.* Variable overheads and Fixed overheads.

The variable overhead is the cost involved in the procurement of indirect materials, indirect labour and indirect expenses.

Indirect Material – Cost of fuel, oil and so on

Indirect Labour – Wages paid to workers for maintenance of the firm.

From the Table 11.1 the marginal cost is equivalent to the variable cost per unit of the various levels of production. The fixed cost of ₹ 500 is the cost remains the same at not only irrespective levels of production but also already absorbed at the initial level of production. The initial absorption of fixed overhead led the marginal cost to become as variable cost.

Semi-variable cost: Another major classification is semi variable/fixed cost which is a cost partly fixed/variable to the certain level of production or consumption, e.g. Electricity charges, telephone charges and so on.

It jointly discards the importance of the fixed cost and the semi- variable cost for analysis while ascertaining the marginal cost.

Marginal Costing is defined as "the ascertainment of marginal cost and of the effect on profit of changes in volume or type of output by differentiating between fixed and variable costs."

Caution In marginal costing, the change in the level of cost of operation is equivalent to variable cost due to fixed cost component which is fixed irrespective level of outputs.

Example: The following figures are extracted from the books of KSBS Ltd. Find out profit by using marginal costing and absorption costing. Is there any variations in the results obtained under the two methods is given below?

The basic production data are:

Normal volume of production = 19,500 units per period

Sale price – ₹ 4 per unit

Variable cost – ₹ 2 per unit

Fixed cost – ₹ 1 per unit

Total fixed cost = ₹ 19,500 (₹ 1 × 19,500 units, normal)

Selling and distribution costs have been omitted. The opening and closing stocks consist of both finished gods and equivalent units of work-in-progress.

Notes

Other Informations:

	Period I	Period II	Period III	Period IV	Total
Opening stock units	–	–	4,500	1,500	–
Production units	19,500	22,500	18,000	22,500	82,500
Sales units	19,500	18,000	21,000	24,000	82,500
Closing stock units	–	4,500	1,500	–	–

Solution:

Marginal Costing Method

	Period I	Period II	Period III	Period IV	Total
	₹	₹	₹	₹	₹
Sales	78,000	72,000	84,000	96,000	3,30,000
Direct cost:					
Opening stock @ ₹ 2 per unit	–	–	9,000	3,000	–
Variable cost:					
@ ₹ 2 per unit	39,000	45,000	36,000	45,000	1,65,000
Closing stock:					
@ ₹ 2 per unit	–	9,000	3,000	–	–
Cost of goods sold	39,000	36,000	42,000	48,000	1,65,000
Contribution	39,000	36,000	42,000	48,000	1,65,000
Fixed cost	19,500	19,500	19,500	19,500	78,000
Profit	19,500	16,500	22,500	28,500	87,000

Absorption Costing Method

Sales	78,000	72,000	84,000	96,000	3,30,000
Opening stock @ ₹ 3 per unit	–	–-	13,500	4,500	–
Cost of production @ ₹ 3 per unit	58,500	67,500	54,000	67,500	2,47,500
Less: Cost of closing stock @ ₹ 3 per unit	–	13,500	4,500	–	–
Cost of sales (actual)	58,500	54,000	63,000	72,000	2,47,500
Less: Over-absorbed fixed cost		3,000		3,000	6,000
Add: Under-absorbed fixed cost		–	1,500	–	1,500
Profit	19,500	21,000	19,500	27,000	87,000

The relationship shown above may be summarized as follows:

1. When output is equal to sales i.e., with no opening or closing stock, the profit under absorption costing and marginal costing is equal.
2. When output is less than sales i.e., closing stock is less than opening stock, the profit under marginal costing is greater than the profit under absorption costing.
3. When output is greater than sales i.e., closing stock is more than the opening stock, the profit under the marginal costing is less than the profit under absorption costing.

Self Assessment

Fill in the blanks:

3. …… is the cost nothing but a change occurred in the total cost due to changes taken place on the level of production.

Notes

4. The …… is the cost involved in the procurement of indirect materials, indirect labour and indirect expenses.
5. The initial absorption of …… led the marginal cost to become as variable cost.

11.3 Costs-Volume Profit Analysis

The Cost-Volume-Profit (CVP) analysis helps management in finding out the relationship of costs and revenues to profit. The aim of an undertaking is to earn profit. Profit depends upon a large number of factors, the most important of which are the costs of the manufacturer and the volume of sales effected. Both these factors are interdependent – volume of sales depends upon the volume of production, which in turn is related to costs. Cost again is the result of the operation of a number of varying factors such as:

1. Volume of production,
2. Product mix,
3. Internal efficiency,
4. Methods of production,
5. Size of plant, etc.

Of all these, volume is perhaps the largest single factor which influences costs which can basically be divided into fixed costs and variable costs. Volume changes in a business are a frequent occurrence, often necessitated by outside factors over which management has no control and as costs do not always vary in proportion to changes in levels of output, management control of the factors of volume presents a peculiar problem.

As profits are affected by the interplay of costs and volume, the management must have, at its disposal, an analysis that can allow for a reasonably accurate presentation of the effect of a change in any of these factors which would have no profit performance. Cost-volume-profit analysis furnishes a picture of the profit at various levels of activity. This enables management to distinguish between the effect of sales volume fluctuations and the results of price or cost changes upon profits. This analysis helps in understanding the behaviour of profits in relation to output and sales.

Fixed costs would be the same for any designated period regardless of the volume of output accomplished during the period (provided the output is within the present limits of capacity). These costs are prescribed by contract or are incurred in order to ensure the existence of an operating organisation. Their inflexibility is maintained within the framework of a given combination of resources and within each capacity stage such costs remain fixed regardless of the changes in the volume of actual production. As fixed costs do not change with production, the amount per unit declines as output rises.

Absorption or full costing system seeks to allocate fixed costs to products. It creates the problem of apportionment and allocation of such costs to various products. By their very nature, fixed costs have little relation to the volume of production.

Variable costs are related to the activity itself. The amount per unit remains the same. These costs expand or contract as the activity rises or falls. Within a given time span, distinction has to be drawn between costs that are free of ups and downs of production and those that vary directly with these changes.

Study of behaviour of costs and CVP relationship needs proper definition of volume or activity. Volume is usually expressed in terms of sales capacity expressed as a percentage of maximum sales, volume of sales, unit of sales, etc. Production capacity is expressed as a percentage of maximum production, production in revenue of physical terms, direct labour hours or machine hours.

Notes

Analysis of cost-volume-profit involves consideration of the interplay of the following factors:

1. Volume of sales
2. Selling price
3. Product mix of sales
4. Variable cost per unit
5. Total fixed costs

The relationship between two or more of these factors may be (a) presented in the form of reports and statements, (b) shown in charts or graphs, or (c) established in the form of mathematical deduction.

11.3.1 Objectives of Cost-Volume-Profit Analysis

The objectives of cost-volume-profit analysis are given below:

1. In order to forecast profit accurately, it is essential to know the relationship between profits and costs on the one hand and volume on the other.
2. Cost-volume-profit analysis is useful in setting up flexible budgets which indicate costs at various levels of activity.
3. Cost-volume-profit analysis is of assistance in performance evaluation for the purpose of control. For reviewing profits achieved and costs incurred, the effects on cost of changes in volume are required to be evaluated.
4. Pricing plays an important part in stabilising and fixing up volume. Analysis of cost-volume-profit relationship may assist in formulating price policies to suit particular circumstances by projecting the effect which different price structures have on costs and profits.
5. As predetermined overhead rates are related to a selected volume of production, study of cost-volume relationship is necessary in order to know the amount of overhead costs which could be charged to product costs at various levels of operation.

11.3.2 Profit-Volume (P/V) Ratio

The ratio or percentage of contribution margin to sales is known as P/V ratio. This ratio is known as marginal income ratio, contribution to sales ratio or variable profit ratio. P/V ratio, usually expressed as a percentage, is the rate at which profits increase with the increase in volume. The formulae for P/V ratio are:

P/V ratio = Marginal contribution/Sales

Or

Sales value – Variable cost/Sales value

Or

1 – Variable cost/Sales value

Or

Fixed cost + Profit/Sales value

Or

Change in Profits/Contributions/Changes

Notes

A comparison for P/V ratios of different products can be made to find out which product is more profitable. Higher the P/V ratio more will be the profit and lower the P/V ratio, lesser will be the profit. P/V ratio can be improved by:

1. Increasing the selling price per unit.
2. Reducing direct and variable costs by effectively utilising men, machines and materials.
3. Switching the product to more profitable terms by showing a higher P/V ratio.

Caselet

Cost-Volume-Profit Analysis

N. R. Parasuraman

ONE issue of paramount interest to management is the impact of costs and volume on profits. If a linear relationship could be established among costs, volume and profits, it would help decision-makers to figure out the right volume, the right cost and consequently the right profit.

That profit is the difference between sales turnover (in value) and cost is common knowledge. Sales turnover equals sale price per unit multiplied by the number of units. This means that sales turnover goes up with higher volume and comes down with lower volume. One also knows intuitively that total cost rises with higher volume and falls with lower volume, but the extent of this movement is not known. Under the cost-volume-profit analysis (CVP analysis), given the cost pattern, the impact of costs on profits for various volumes, as also of volumes on profits, is studied.

The analysis would be easier if the cost can be segregated into fixed and variable. In fact, the basic tenet of CVP analysis is to split the cost into variable, which varies with volume, and fixed, which remains constant regardless of the volume. Let us assume that such a division of costs is easily possible. And it may be noted that even when such an absolute segregation is not possible, there are statistical tools which enable the analyst to do so with a fairly high degree of accuracy.

Consider the following example:

A firm sells its products at ₹ 10 per unit. The variable cost per unit is ₹ 6. And regardless of the volume, the firm has to spend ₹ 50,000 on other expenses (fixed expenses). In this case, the profit chart of the firm for various volumes can be analysed as follows:

Sale price per unit - ₹ 10

Variable cost per unit - ₹ 6

Contribution per unit - ₹ 4 (₹ 10 - ₹ 6)

No. of units required to meet fixed costs - ₹ 50,000/₹ 4 = 12,500 units

Here, the difference between the sales price per unit and the variable cost per unit is called the contribution per unit. This means that for every unit sold, ₹ 4 comes in as a contribution to meet fixed expenses. How many such units will be needed to m eet the fixed expenses completely? This can easily be computed as 12,500. So, in terms of units, 12,500 units are required to meet both the variable and the fixed costs. This is called the break-even point (BEP) in units.

The relationship between contribution and sales can also be expressed as a ratio, which is called contribution margin. In the example, the contribution margin is 4/10 or 0.4. The BEP

Contd...

Notes

in rupees can be found by dividing the fixed cost with the contribution margin. This will be ₹ 50,000/0.4 = ₹ 1,25,000.

Understanding the BEP concept enables one to take a number of strategic decisions.

The following is an illustrative list of the uses of CVP and BEP analyses:

- ***Deciding on a level of sales to achieve a targeted profit:*** At the BEP of sales, there is neither profit nor loss. It means that the contribution (sales minus variable expenses) has just about covered the fixed expenses. This suggests that for sales beyond this point, the entire contribution will be profits because there is no more fixed expenses to meet. So, if a profit of, say, ₹ 1,00,000 is targeted in the illustration, all that is to be done is to sell additional un its that will make the incremental contribution beyond meeting the fixed expenses as ₹ 1,00,000.

  In other words, the new volume is targeted to cover not only the fixed expenses of ₹ 50,000, but also the profit of ₹ 1,00,000. So, dividing ₹ 1,50,000 by the contribution per unit of ₹ 4 gives us 37,500 units. Thus, 37,500 units will have to be manufactured to achieve a profit of ₹ 1,00,000.

  The number of units to be manufactured to achieve target profit = target profit plus fixed expenses divided by contribution per unit.

- ***Determining the profit at a targeted level of sales:*** Similarly, if the management has targeted a level of sales on the basis of its market survey or otherwise, the profits that will emerge from that level of sales can be determined using CVP analysis. The contribution margin per unit multiplied by the number of units produced over and above the BEP gives us this figure. Of course, profits can always be computed as the difference between sales and total cost. But what CVP analysis achieves is that incremental profits from selling additional units can be easily calculated on the basis of the established relationship between cost and volume.

- ***Determining the impact of additional fixed costs:*** If the fixed costs go up, the revised BEP can be computed. A no-profit, no-loss situation comes up only at the increased point now, consequent to the increased fixed costs. The entire structure of relationship between cost and volume will undergo a change consequent to this increase in fixed cost.

  In real life, it may be difficult to segregate cost strictly into its fixed and variable elements. What can be attempted is to bring about as close a split as possible. The advantages of CVP analysis would far outweigh whatever difficulties one might face in segregation.

Source: thehindubusinessline.com

Self Assessment

Fill in the blanks:

6. Profit depends upon a large number of factors, the most important of which are the costs of the manufacturer and the …… effected.
7. The Cost-Volume-Profit (CVP) analysis helps management in finding out the relationship of …… to profit.
8. Cost-volume-profit analysis furnishes a picture of the …… at various levels of activity.
9. The ratio or percentage of contribution margin to sales is known as ……

Notes

11.4 Break-even Point

Break-even analysis examines the relationship between the total revenue, total costs and total profits of the firm at various levels of output. It is used to determine the sales volume required for the firm to break-even and the total profits and losses at other sales level. Break-even analysis is a method, as said by Dominick Salnatore, of revenue and total cost functions of the firm. According to Martz, Curry and Frank, a break-even analysis indicates at what level cost and revenue are in equilibrium.

In case of break-even analysis, the break-even point is of particular importance. Break-even point is that volume of sales where the firm breaks even i.e., the total costs equal total revenue. It is, therefore, a point where losses cease to occur while profits have not yet begun. That is, it is the point of zero profit.

The following are the key methods of computing BEP:

Break-even Point in Units

$$\text{BEP} = \frac{\text{Fixed Costs}}{\text{Selling price} - \text{Variable costs per unit}}$$

For Example,

$$= \frac{\text{Fixed Costs ₹ } 10,000}{\text{Selling price ₹ } 5 \text{ per unit} - \text{Variable costs ₹ } 3 \text{ per unit}}$$

Therefore,

$$\text{BEP} = \frac{₹\ 10,000}{5-3} = 5,000 \text{ units.}$$

The conclusion that can be drawn from the above example is that sales volume of 5000 units will be the accurate point at which the manufacturing unit would not make any loss or profit.

Break-even Point (Sales Volume ₹)

Break-even point in sales can be found out by two methods.

1. Selling Price Method
2. PV Ratio Method

1. ***Selling Price Method:*** Under this method Break-even sales volume in rupees is found out through the product of Break-even Point in units and selling price per unit.

   BEP (₹) = Break-even Point (units) Selling price per unit

2. ***PV Ratio Method:*** Under this method, break-even sales volume in rupees can be determined through the following ratio

$$\text{BEP (₹)} = \frac{\text{Fixed Cost}}{\text{PV ratio}}$$

where

$$\text{PV Ratio} = \frac{\text{Sales} - \text{Variable cost}}{\text{Sales}} = \frac{\text{Contribution}}{\text{Sales}}$$

Example: Calculate Break-even point₹

Sales	6,00,000
Fixed Cost	1,50,000

Notes

Variable Expenses

Direct Material	2,00,000
Direct Labour	1,20,000
Overhead Expenses	80,000

The first step is to find out the total volume of variable expenses.

Variable Expenses = Direct Material + Direct Labour + Overhead Expenses

= ₹ 2,00,000 + 1,20,000 + 80,000 = ₹ 4,00,000

The second step is to find out the contribution.

Contribution = Sales – Variable Expenses

= ₹ 6,00,000 – 4,00,000 = ₹ 2,00,000

The third step is to find out PV ratio.

PV ratio = Contribution/Sales

= ₹ 2,00,000/₹ 6,00,00 = 1/3

The final Step is to find out Break-even sales

$$\text{Break-Even Point (Rupees)} = \frac{\text{Fixed Cost}}{\text{PV ratio}} = \frac{₹\ 1,50,000}{1/3} = ₹\ 4,50,000$$

Note It is not possible to find out the break-even points in units due to non-availability of selling price and variable cost per unit; this constrains the computation of contribution margin per unit.

11.4.1 Uses of Break-even Analysis

Break-even analysis is a very generalised approach for dealing with a wide variety of questions associated with profit planning and forecasting. Some of the important practical applications of break-even analysis are:

1. What happens to overall profitability when a new product is introduced?
2. What level of sales is needed to cover all costs and earn, say, ₹ 1,00,000 profit or a 12% rate of return?
3. What happens to revenues and costs if the price of one of a company's product is hanged?
4. What happens to overall profitability if a company purchases new capital equipment or incurs higher or lower fixed or variable costs?
5. Between two alternative investments, which one offers the greater margin of profit (safety)?
6. What are the revenue and cost implications of changing the process of production?
7. Should one make, buy or lease capital equipment?

Notes

11.4.2 Assumptions of Break-even Analysis

The break-even analysis is based on certain assumptions, namely:

1. All costs are either perfectly variable or absolutely fixed over the entire period of production but this assumption does not hold good in practice.
2. The volume of production and the volume of sales are equal; but in reality they differ.
3. All revenue is perfectly variable with the physical volume of production and this assumption is not valid.
4. The assumption of stable product mix is unrealistic.

11.4.3 Advantages of Break-even Analysis

The main advantages of using break-even analysis in managerial decision making can be the following:

1. It helps in determining the optimum level of output below which it would not be profitable for a firm to produce.
2. It helps in determining the target capacity for a firm to get the benefit of minimum unit cost of production.
3. With the help of the break-even analysis, the firm can determine minimum cost for a given level of output.
4. It helps the firms in deciding which products are to be produced and which are to be bought by the firm.
5. Plant expansion or contraction decisions are often based on the break-even analysis of the perceived situation.
6. Impact of changes in prices and costs on profits of the firm can also be analysed with the help of break-even technique.
7. Sometimes a management has to take decisions regarding dropping or adding a product to the product line. The break-even analysis comes very handy in such situations.
8. It evaluates the percentage financial yield from a project and thereby helps in the choice between various alternative projects.
9. The break-even analysis can be used in finding the selling price which would prove most profitable for the firm.
10. By finding out the break-even point, the break-even analysis helps in establishing the point wherefrom the firm can start payment of dividend to its shareholders.

11.4.4 Drawbacks of Break-even Analysis (BEA)

This analysis will be useful only in situations relatively stable and slow moving rather than volatile and erratic ones. In conditions when proper managerial accounting techniques and procedures are maintained, the BEA will be useful. In a particular period costs are affected not by the output of that period but due to past output or a preparation for future output. As such the BEA cannot pin down that cost is the result of output of a particular period. It is difficult to deal with selling costs under the framework of BEA because changes in selling costs are a

Notes

cause to bring out changes in output and not the result of output sales. In the real world, perfect competition is very rare and as such it is necessary to make calculations at different time periods. The relationship between cost, revenue and volume (output) is realistic only over narrow ranges of output and for long ranges. If too many products and too many plants are grouped together in a productive process, the BEA cannot identify which is good or which is bad, since all are grouped together. The BEA assumes that profits are the result of output but ignores that other factors like technological changes, improved management and variations in the proportions of fixed factors are also possible for profits. In spite of these, BEA is an important tool in decision making.

Example: From the following information relating to quick standards Ltd., you are required to find out (i) PV ratio (ii) break-even point (iii) calculate the volume of sales to earn profit of ₹ 6,000/-

Total Fixed Costs	₹ 4,500
Total Variable Cost	₹ 7,500
Total Sales	₹ 15,000

Solution:

First step to find out the Contribution volume

Sales	₹ 15,000
Variable Cost	₹ 7,500
Contribution	₹ 7,500
Fixed Cost	₹ 4,500
Profit	₹ 3,000

1. Second step to determine the PV ratio

$$\text{PV ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{7,500}{15,000} \times 100 = 50\%$$

Third step to find out the Break-even sales

2. $$\text{Break-even sales} = \frac{\text{Fixed cost}}{\text{PV ratio}} = \frac{4,500}{50\%} = 9,000$$

3. Margin of safety can be found out in two ways

(a) Margin of Safety = Actual sales – Break-even sales

= ₹ 15,000 – ₹ 9,000 = ₹ 6,000

(b) $$\text{Margin of Safety} = \frac{\text{Profit}}{\text{PVratio}} = \frac{₹3,000}{50\%} = ₹\ 6,000$$

4. Sales required to earn profit = ₹ 6,000/-

To determine the sales volume to earn desired level of profit

$$= \frac{\text{Fixed Cost + Desired Profit}}{\text{PV ratio}}$$

$$= \frac{₹\ 4,500 + ₹\ 6,000}{50\%} = ₹\ 21,000$$

Notes

Did u know? ***What is margin of safety?***

Margin of safety is the difference between the actual sales and sales at break-even point. Sales beyond break-even volume brings in profits. Such sales represent a margin of safety.

Margin of safety = Actual sales – Break-even Sales

$$= \frac{\text{Profit}}{\text{P/V ratio}}$$

or

$$= \frac{\text{Profit} \times \text{Selling Price per Unit}}{\text{Selling Price per Unit} - \text{Variable Cost Per Unit}}$$

Self Assessment

Fill in the blanks:

10. Break-even analysis helps in determining the …… of output below which it would not be profitable for a firm to produce.
11. Break-even point is the point of ……
12. Break-even point is that volume of …… where the firm breaks even.

11.5 Use of Cost Data in Decision Making

The break-even analysis uses the cost data to make decisions. The following are the key methods used for break-even analysis:

1. Break-even Charts
2. Algebraic Method

11.5.1 Break-even Chart

The difference between Price and Average Variable Cost (P – AVC) is defined as 'profit contribution'. That is, revenue on the sale of a unit of output after variable costs are covered represents a contribution toward profit. At low rates of output, the firm may be losing money because fixed costs have not yet been covered by the profit contribution. Thus, at these low rates of output, profit contribution is used to cover fixed costs. After fixed costs are covered, the firm will be earning a profit.

A manager may want to know the output rate necessary to cover all fixed costs and to earn a "required" profit of R. Assume that both price and variable cost per unit of output (AVC) are constant. Profit is equal to total revenue (P.Q.) less the sum of Total Variable Costs (Q.TVC) and fixed costs. Thus,

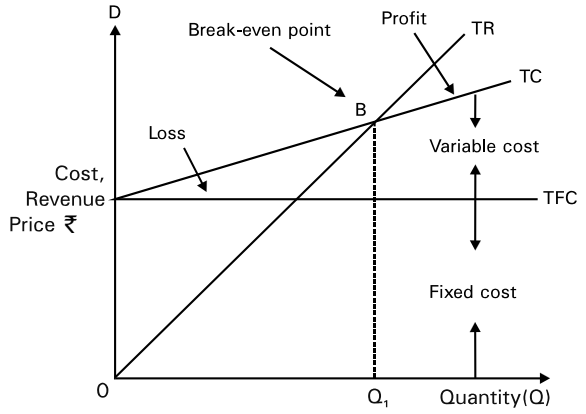
$$\pi_R = PQ - [(Q.\ AVC) + FC]$$

$$\pi_R = TR - TC$$

The break-even chart shows the extent of profit or loss to the firm at different levels of activity. A break-even chart may be defined as an analysis in graphic form of the relationship of production and sales to profit. The Break-even analysis utilises a break-even chart in which the Total Revenue (TR) and the Total Cost (TC) curves are represented by straight lines, as in Figure 11.1.

Notes

Figure 11.1

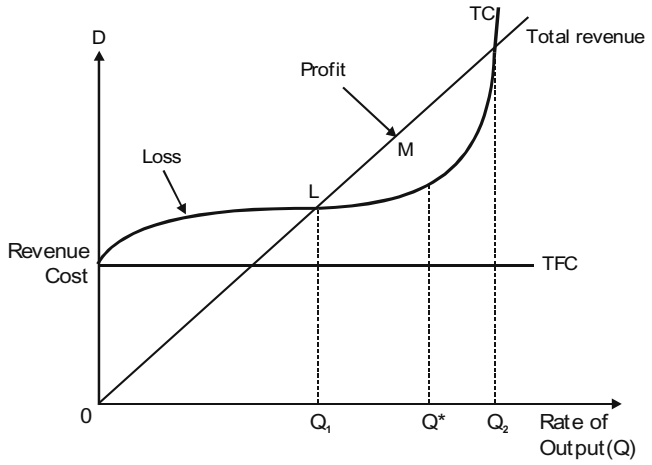


In the figure total revenues and total costs are plotted on the vertical axis whereas output or sales per time period are plotted on the horizontal axis. The slope of the TR curve refers to the constant price at which the firm can sell its output. The TC curve indicates Total Fixed Costs (TFC) (The vertical intercept) and a constant average variable cost (the slope of the TC curve). This is often the case for many firms for small changes in output or sales. The firm breaks even (with TR=TC) at Q_1 (point B in the figure) and incurs losses at smaller outputs while earnings profits at higher levels of output.

Both the Total Cost (TC) and Total Revenue (TR) curves are shown as linear. TR curve is linear as it is assumed that the price is given, irrespective of the output level. Linearity of TC curve results from the assumption of constant variable costs.

If the assumptions of constant price and average variable cost are relaxed, break-even analysis can still be applied, although the key relationship (total revenue and total cost) will not be linear functions of output. Nonlinear total revenue and cost functions are shown in Figure 11.2. The cost function is conventional in the sense that at first costs increase but less than in proportion to output and then increase more than in proportion to output. There are two break-even points – L and M. Note that profit which is the vertical distance between the total revenue and total cost functions, is maximised at output rate Q*.

Figure 11.2



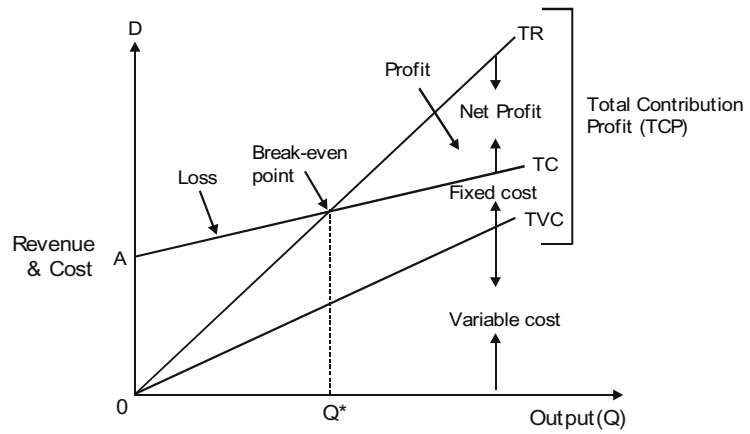
Notes

Of the two break-even points, only the first, corresponding to output rate Q_1 is relevant. When a firm begins production, management usually expects to incur losses. But it is important to know at what output rate the firm will go from a loss to a profit situation. In Figure 11.2 the firm would want to get to the break-even output rate Q_1 as soon as possible and then of course, move to the profit maximising rate Q*. However, the firm would not expand production beyond Q* because this would result in a reduction of profit.

Contribution Margin

In the short run, where many of the firms costs are fixed, businessmen are often interested in determining the contribution additional sales make towards fixed costs and profits. Contribution analysis provides this information. Total contribution profit is defined as the difference between total revenues and total variable costs, which equals price less average variable cost on a per unit basis. Figure 11.3 highlights the meaning of contribution profit. Total contribution profit, it can be seen, is also equal to total net profit plus total fixed costs.

Figure 11.3



Contribution profit analysis provides a useful format for examining a variety of price and output decisions.

As is clear from Figure 11.3 Total Contribution Profit (TCP) = Total Revenue (TR) – Total Variable Cost (TVC)

= Total Net Profit (TNP) + Total Fixed Cost (TFC)

Therefore, if TNP = 0 then, TCP = TFC. This occurs at break-even point. From the above equation it is also clear that

TR = TCP + TVC

= (TNP + TFC) + TVC

Total Contribution Profit (TCP)

= TR – TVC

= Net Profit + Fixed Cost

Example: From the following figures, ascertain the break-even sales and also show the computation by means of a graph.

Notes

	(₹)
Sales	20,00,000
Fixed Costs	5,00,000
Variable costs	12,00,000

Solution:

Total Contribution:	(₹)
Sales	20,00,000
Variable Cost	12,00,000
Contribution	8,00,000

As percentage of sales or P/V ratio = ₹ 8,00,000/₹ 20,00,000 × 100 = 40%

Alternatively: (Fixed Cost + Profit)/Sales × 100

(₹ 5,00,000 + ₹ 3,00,000/₹ 20,00,000) × 100 = 40%

Break-even sales:

Fixed Costs/P/V Ratio i.e., ₹ 5,00,000 × 100/40 = ₹ 12,50,000

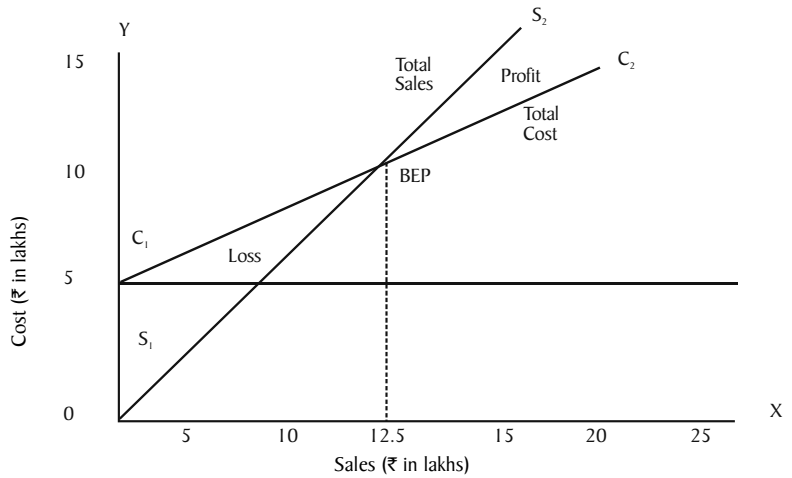
Proof: Variable Costs:	(₹)
60% of ₹ 12,50,000	7,50,000
Fixed Costs	5,00,000
Total Cost	12,50,000

Total costs equal sales; hence there is neither profit nor loss.

Points plotted:

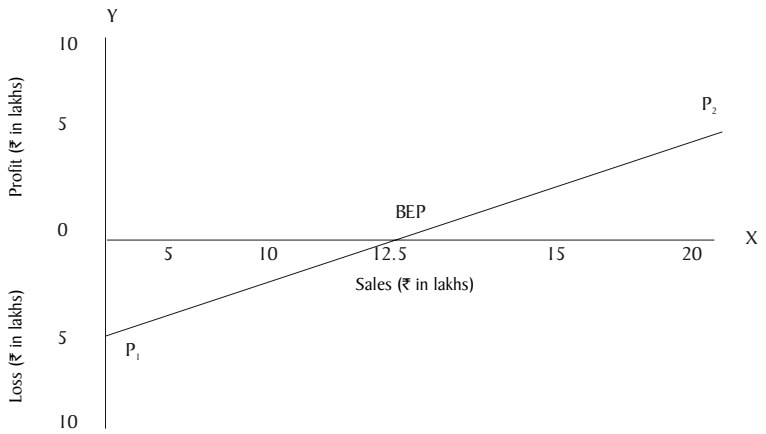
Break-even Chart

Sales (₹)	Variable Costs ₹ (60% of sales)	Fixed Costs (₹)	Total Cost (₹)
0	0	5,00,000	5,00,000 (C_1)
15,00,000	9,00,000	5,00,000	14,00,000 (C_2)



Profit-Volume Chart: (At zero sale loss is ₹ 5 lakh: at ₹ 20,00,000 sales, profits is ₹ 3 lakh (P2). Draw a line to join there two points. The break-even sale is at the point where it meets the X-axis).

Notes



11.5.2 Algebraic Method

Break-even analysis can also be performed algebraically, as follows. Total revenue is equal to the selling price (P) per unit times the quantity of output or sales (Q). That is

$$TR = (P) . (Q)$$

Total costs equal total fixed costs plus Total Variable Costs (TVC). Since TVC is equal to the Average (per unit) Variable Cost (AVC) times the quantity of output or sales, we have

$$TC = TFC + TVC$$

or, $$TC = TFC + (AVC). (Q)$$

Setting total revenue equal to total costs and substituting QB (the break-even output) for Q, we have

$$TR = TC$$

$$(P). (Q_B) = TFC + (AVC). (Q_B)$$

Or, $$TFC = P. (Q_B) - (AVC) (Q_B)$$

$$TFC = Q_B. (P - AVC)$$

OB (the break-even output) $= \dfrac{TFC}{(P - AVC)} = \dfrac{TFC}{ACM}$

The denominator in the above equation (i.e., P – AVC) is called the contribution margin per unit (ACM) because it represents the portion of the selling price that can be applied to cover the fixed costs of the firm and to provide for profits.

Task

Break even sales	₹ 1,60,000
Sales for the year 2007	₹2,00,000
Profit for the year 2007	₹ 12,000

Calculate:

1. Profit or loss on a sale value of ₹ 3,00,000.
2. During 2008, it is expected that selling price will be reduced by 10%. What should be the sale if the company desires to earn the same amount of profit as in 2007?

Notes

Self Assessment

State whether the following statements are true or false

13. The difference between Price and Average Variable Cost is defined as 'break-even point'.
14. The break-even chart shows the extent of profit or loss to the firm at different levels of activity.
15. Contribution profit analysis provides a useful format for examining a variety of price and output decisions.

11.6 Summary

- Marginal costing is one of the important tools of management not only to take decision, but also to fix an appropriate price and to assess the level of profitability.
- Marginal cost is nothing, but a change occurred in the total cost due to small change in the quantity produced.
- Absorption costing technique is also known by other names as "Full costing" or "Traditional costing".
- The cost-volume-profit analysis is a tool to show the relationship between various ingredients of profit planning.
- The ratio or percentage of contribution margin to sales is known as P/V ratio.
- The crucial step in this analysis is the determination of break-even point.
- BEP is defined as the sales level at which the total revenue equals total cost.
- Margin of safety is the difference between the actual sales and sales at break-even point.
- Sales beyond break-even volume brings in profits.

11.7 Keywords

BEP (Units): It is the level of units at which the firm neither incurs a loss nor earns profit.

BEP (Volume): It is the level of sales in Rupees at which the firm neither incurs a loss nor earns profit.

Contribution: It is an amount of balance available after the deduction of variable cost from the sales.

Fixed Cost: It is a cost which is fixed or remains the same for irrespective level of production.

Marginal Cost: Change occurred in the cost of operations due to change in the level of production.

PV Ratio: Profit volume ratio which is nothing but the ratio in between the contribution and sales.

Variable Cost: It varies along with the level of production.

11.8 Review Questions

1. SV Ltd. a multi-product company, furnishes you the following data relating to the year 2009:

Notes

Particulars	First half of the year	Second half of the year
Sales	₹ 45,000	₹ 50,000
Total cost	₹ 40,000	₹ 43,000

Assuming that there is no change in prices and variable costs that the fixed expenses are incurred equally in the two half year periods calculate for the year 2009.

Calculate:

(a) PV ratio

(b) Fixed expenses

(c) Break-even sales

(d) Margin of safety

2. Analyse the important of the following in relation to break-even analysis:

   (a) Break-even point

   (b) Margin of safety

   (c) Profit volume ratio

3. Illustrate the graphic approach of BEP analysis.

4. Examine the concept of the profit volume ratio.

5. A ball pen manufacturer has developed a new ball pen with unique features. His design development executive has suggested three possible retail prices viz ₹ 15 for super star; ₹ 10 for deluxe and ₹ 7.50 for economy model. His marketing manager opines that the wholesalers and retailers have to be given at least 30% discount.

   The estimated fixed cost would be around ₹70,000 and variable cost per unit would be ₹ 3.50.

   Calculate break-even point for each model of the ball pen.

6. The PV ratio of a firm dealing precision instrument is 50% and the margin of safety is 40%. You are required to work out the B.E.P and the net profit if sales volume is ₹ 50,00,000.

7. The annual profit plan of ABC Ltd. is given in the following table. From the data given in the table, calculate the breakeven point in units.

Annual profit plan of ABC Ltd.

Particulars	Fixed Cost (₹)	Variable Cost (₹)	Total (₹)
Budgeted sales (2,00,000, ₹ 21 each)			₹ 42,00,000
Direct labour		8,00,000	
Direct material		9,00,000	
Factory overheads	6,00,000	2,00,000	
Administrative expenses	5,00,000	1,00,000	
Distribution expenses	3,00,000	2,00,000	
Total	14,00,000	22,00,000	36,00,000
Budgeted profit			6,00,000
Capacity of production	2,50,000 units		

8. Explain the relevance of adopting CVP concept in business operations.

9. How do Income statements prepared under marginal and absorption costing differ?

Notes

10. Taking suitable data construct a simple break-even chart and show the break-even point, angle of incidence and margin of safety on the chart.
11. Does the marginal costing concept violate the generally accepted accounting principles? Discuss.

Answers: Self Assessment

1.	Traditional costing	2.	fixed cost
3.	Marginal cost	4.	variable overhead
5.	fixed overhead	6.	volume of sales
7.	costs and revenues	8.	profit
9.	P/V ratio	10.	optimum level
11.	zero profit	12.	sales
13.	False	14.	True
15.	True		

11.9 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.

Online links

www.allbusiness.com

www.internalaccounting.com

Unit 12: Decisions Involving Alternative Choices

Notes

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12.2 Determination of Sales Mix

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Objectives

After studying this unit, you will be able to:

- Explain the concept of decision making
- Illustrate the determination of sales mix
- Discuss make or buy decisions, own or hire and shut down or continue decisions

Introduction

The need for a decision arises in business because a manager is faced with a problem and alternative courses of action are available. A manager have to take different decisions like make or buy, continue or shut down, etc. to make the maximum profit. In deciding which option to choose he will need all the information which is relevant to his decision; and he must have some criterion on the basis of which he can choose the best alternative. Some of the factors affecting the decision may not be expressed in monetary value. Hence, the manager will have to make 'qualitative' judgements, e.g. in deciding which of two personnel should be promoted to a managerial position. A 'quantitative' decision, on the other hand, is possible when the various factors, and relationships between them, are measurable.

12.1 Concept of Decision-making

Marginal cost helps management to make decision involving consideration of cost and revenue. Basically, marginal costing furnishes information regarding additional costs to be incurred if an additional activity is to be taken up or the saving in costs which may be expected if an activity is given up. This can be compared with the benefit expected from the proposed course of action and thus the management will be able to take the appropriate decision.

Decision-making describes the process by which a course of action is selected as the way to deal with a specific problem. A decision involves the act of choice and the alternative chosen out of the available alternatives.

Notes

According to Heinz Weihrich and Horold Koontz, "Decision-making is defined as the selection of a course of action from among alternatives."

George R. Terry says, "Decision-making is the selection based on some criteria from two or more possible alternatives."

According to Haynes and Masie, "Decision-making is a course of action which is consciously chosen for achieving the desired results."

Following are the important areas of decision-making or applications of marginal costing:

1. Fixation of Price,
2. Decision to Make or Buy,
3. Selection of a Profitable Product Mix,
4. Decision to Accept a Bulk Order,
5. Closure of a Department or Discontinuing a Product,
6. Maintaining a Desired Level of Profit, and
7. Evaluation of Performance.

Self Assessment

Fill in the blanks:

1. Marginal cost helps management to make decision involving consideration of …….
2. A decision involves the act of choice and the ……. chosen out of the available alternatives.
3. Marginal costing furnishes information regarding ……. to be incurred if an additional activity is to be taken up or the saving in costs which may be expected if an activity is given up.

12.2 Determination of Sales Mix

In the market, dealership is offered by the various companies to the individual intermediaries in promoting the sale of products. Before reaching an agreement with the company to act as a dealer, normally every individual considers the profitability of the product mix offered by the firm. For example, There are two different companies brought forth their advertisements in offering the dealership to the individual trading firms *viz.* HCL and IBM.

The profitability under the dealership banner should be appropriately considered prior to take decision. To take rational decision, the firm should compare the profitability of both different dealerships of two different giant industrial brands. The greater the share of the profitability in volume will be selected and vice-versa.

Example: From the following information has been extracted of EXCEL Rubber Products Ltd:

Direct materials A	₹ 16
Direct Materials B	₹ 12
Direct wages A	24 Hrs at 50 paise per hour
Direct wages B	16 Hrs at 50 paise per hour
Variable overheads	150% of wages
Fixed overheads	₹ 1,500
Selling price A	₹ 50
Selling price B	₹ 40

Notes

The directors want to be acquainted with the desirability of adopting any one of the following alternative sales mixes in the budget for the next period:

1. 250 units of A and 250 units of B
2. 400 units of B only
3. 400 units of A and 100 units of B
4. 150 units of A and 350 units of B

State which of the alternative sales mixes you would recommend to the management?

Solution:

The first step is to determine the contribution margin per unit of A and B.

The determination of the contribution of product A and B are through the preparation of Marginal costing statement.

Particulars	Product A (₹)		Product B (₹)	
Selling price		50		40
Less: Direct Materials	16		12	
Direct wages	12		8	
Variable overheads	18		12	
Variable cost		46		32
Contribution		4		8

The next step is to determine the profit level of every mix

1. 250 units of A and 250 units of B.

   The first step is to determine the total contribution of the mix. Why the total contribution has to be found out?

   The main reason is to determine the profit level of the mix through the deduction of the fixed overheads

		(₹)
Product of A	250 units × 4	1,000
Product of B	250 units × 8	2,000
Contribution		3,000
Fixed overheads		1,500
Profit		**1,500**

2. 400 units of B only

Product B Contribution 400 units × ₹ 8	3,200
Fixed overheads	1,500
Profit	**1,700**

3. 400 units of A and 100 units of B

Product of A	400 units × ₹4	1,600
Product of B	100 units × ₹8	800
Contribution		**2,400**
Fixed overheads		1,500
Profit		**900**

Notes

4. 150 units of A and 350 units of B

Product A	150units × ₹4	600
Product B	350units × ₹8	2,800
Contribution		3,400
Fixed overheads		1,500
Profit		1,900

Mix	A	B	C	D
Contribution	₹ 1,500	1,700	900	1,900

The profit level among the given various mixes, the mix (d) is able to generate highest volume of profit over the others.

Determining optimum level of operations: Under this method, the level has to be found out which is having lesser selling price, cost of operations and greater profits known as optimum level of operations

12.3 Make or Buy Decisions

The firms, which are routinely in need of spares, accessories are bought from the outsiders instead of any production or manufacturing, though the requirement is at regular intervals. Most of the automobile manufacturers are usually buying the components from outside instead of producing them on their own. The Maruti Udyog Ltd. had given a contract to the Nettur Technical Training Foundation, Bangalore to design the tool for the panel and to manufacture regularly to the tune of the orders.

The leading four wheeler manufacture in India is buying the panel from the NTTF on contract basis in stead of manufacturing.

Did u know? ***Why don't they manufacture in spite of buying them from the NTTF?***

The main reason of buying is cheaper than the production of an article.

Example: The management of a company finds that while the cost of making a component part is ₹ 20, the same is available in the market at ₹ 18 with an assurance of continuous supply.

Give a suggestion whether to make or buy this part. Give also your views in case the supplier reduces the price from ₹ 18 to ₹ 16

The cost information is as follows:

	(₹)
Material	7.00
Direct Labour	8.00
Other variable expenses	2.00
Fixed expenses	3.00
Total	₹ 20.00

The first point to be found out that the contribution of the transaction. The cost of manufacturing should be compared with the price of the product which is available in the market.

To find out the worth of the transactions, first the cost of manufacturing should be found out

	(₹)
Material	7.00
Direct Labour	8.00
Other variable expenses	2.00
Total	17.00

The cost of manufacturing a component is ₹ 17.00. While calculating the cost of manufacturing a component, the fixed expenses was not considered. The fixed expenses were not considered for computation. Why?

The costs will be incurred irrespective of the production status of the firm; for which the expenses should not be added.

If the company manufactures the product/component at ₹ 17 which will facilitate to book profit ₹ 1 from the price of ₹ 18 which is available from the market.

The next stage is decision criteria.

Worth of Production: Cost of the production < Price of the product available in the market.

The firm is better advised to take the course of production rather than purchase of the product.

Worth of Purchase: Cost of the production > Price of the product available in the market

The product available in the market is dame cheaper than the manufacturing of a product. The firm is better advised to buy the product rather than the manufacturing of a product. If the product price comes down to the price of ₹ 16 facilitates the firm to save ₹ 1 from the cost of manufacturing.

Task A refrigerator manufacturer purchases a certain component @ ₹50 per unit. If he manufactures the same product he has to incur a fixed cost of ₹20,000 and variable cost per unit of ₹40. When can the manufacturer make on his own or when he can buy from outside?

Self Assessment

Fill in the blanks:

4. In the market, dealership is offered by the various companies to the individual intermediaries in promoting the …… of products.
5. The firms, which are routinely in need of spares, accessories are bought from the outsiders instead of any ……., though the requirement is at regular intervals.
6. Under sales mix, the level has to be found out which is having lesser selling price, cost of operations and greater profits known as …… of operations.

12.4 Own or Hire

Marginal costing helps in taking the decisions regarding the capital investment. Marginal costing helps to take the decisions for owning the capital asset or hire the asset.

Notes

Example: If company X needs a machinery for a specific project and after that project there is no use of the machinery then company can decide to hire the machinery for that project.

A company has its own trucks for transporting raw materials and finished products from one place to another. It seeks to replace these trucks by keeping public carriers. In making this decision, of course, the depreciation of the trucks is not to be considered but the management should take into account the present expenditure on fuel, salary to drive and maintenance.

Self Assessment

Fill in the blanks:

7. Marginal costing helps in taking the decisions regarding the ……
8. Marginal costing helps to take the decisions for owning the capital asset or …… the asset.

12.5 Shut Down or Continue

As discussed earlier, marginal costing technique helps in deciding the profitability of a product. It provides the information in a manner that tells us how much each product contributes towards fixed cost and profit; the product or department that gives least contribution should be discarded except for a short period. If the management is to choose some product out of the given ones, then the products giving the highest contribution should be chosen and those giving the least should be discontinued.

Example: A company manufactures three products X, Y and Z. It has prepared the following budget for the year 2003:

	Total	Product X	Product Y	Product Z
Sales	4,20,000	80,000	2,50,000	90,000
Factory Cost				
Variable	2,90,500	40,000	1,74,000	76,500
Fixed	29,500	5,000	16,000	8,000
Production Cost	3,20,000	45,000	1,90,000	85,000
Selling and Administration Cost				
Variable	35,000	14,000	14,000	7,000
Fixed	8,000	3,500	3,200	1,300
Total Cost	3,63,000	62,500	2,07,200	93,300
Profit	57,000	17,500	42,800	– 3,300 (loss)

On the basis of above information, we understand that the company management is thinking to discontinue with the production of product Z which has shown loss. The management seeks your expert opinion on the issue before they take a final decision. You are required to comment on the relative profitability of the products.

Notes

Solution:

The information contained in the budget may be rearranged in the form of a marginal cost statement as shown given.

Marginal Cost Statement

Particulars	Total	Product X	Product Y	Product Z
Sales	4,20,000	80,000	2,50,000	90,000
Variable Costs:				
Factory Cost	2,90,500	40,000	1,74,000	76,500
Selling and Admn. Cost	35,000	14,000	14,000	7,000
Total Marginal Cost	3,25,500	54,000	1,88,000	83,500
Contribution	94,500	26,000	62,000	6,500
Fixed Costs	37,500	8,500	19,200	9,800
Profit	57,000	17,500	42,800	–3,300 (loss)
Profit-Volume Ratio	22.5%	32.5%	24.8%	7.2%

Profit-Volume (P/V) ratio is the ratio of contribution to sales. It is expressed in terms of percentage. After preparing the above statement and analysis, we can make the following recommendations:

As discussed in the marginal cost statement, the contribution of product Z is ₹ 6,500 which goes toward the recovery of fixed cost of ₹ 9,800. If the production of product Z is discontinued, the company will lose the marginal contribution of ₹ 6,500 while it will have to incur the fixed cost of ₹ 9,800. The total profit of ₹ 57,000 will be reduced to ₹ 50,500 (57,000 - 6,500). Thus, it is advisable that the production of Z should not be discontinued. As regards the relative profitability, product X is more profitable than Y and Z as the P/V ratio in this case is highest. The production and sales of product X should, therefore, be encouraged.

Self Assessment

Fill in the blanks:

9. Marginal costing technique helps in deciding the …… of a product.
10. If the management is to choose some product out of the given ones, then the products giving the highest …… should be chosen and those giving the least should be discontinued.
11. …… is the ratio of contribution to sales.
12. A …… decision is possible when the various factors, and relationships between them, are measurable.
13. A …… involves the act of choice and the alternative chosen out of the available alternatives.
14. …… describes the process by which a course of action is selected as the way to deal with a specific problem.
15. If a machinery is required for a specific project and after that project there is no use of the machinery then company can decide to …… the machinery for that project.

Notes

12.6 Summary

- Marginal costing technique helps in determining the most profitable relationship between costs, prices and volume of business.
- Following are the important areas of decision-making or applications of marginal costing:
  - Fixation of Price,
  - Decision to Make or Buy,
  - Selection of a Profitable Product Mix,
  - Decision to Accept a Bulk Order,
  - Closure of a Department or Discontinuing a Product,
  - Maintaining a Desired Level of Profit, and
  - Evaluation of Performance

12.7 Keywords

Decision-making: Decision-making describes the process by which a course of action is selected as the way to deal with a specific problem.

Desired Profit: It is a profit level desired by the firm to earn at the given level of sales volume.

Fixed Cost: It is a cost which is fixed or remains the same for irrespective level of production.

Key Factor: Factor of influence on the component of contribution.

Marginal Cost: Change occurred in the cost of operations due to change in the level of production.

12.8 Review Questions

1. A refrigerator manufacturer purchases a certain component @ ₹ 50 per unit. If he manufactures the same product he has to incur a fixed cost of ₹ 20,000 and variable cost per unit is ₹ 40 when can the manufacturer make on his own or when he can buy from outside?

   When the requirements is ₹ 5,000 units, will you advise to make or buy?

2. From the following data, which product would you recommend to be manufactured in a factory, time being the key factor?

Particulars	Per unit of Product A (₹)	Per unit of Product B (₹)
Direct Material	24	14
Direct Labour @ ₹ 1per hr	2	3
Variable overhead ₹ 2 per hr	4	6
Selling price	100	110
Standard time to produce	2 Hours	3 Hours

3. The following particulars are obtained from costing records of a factory:

Particulars	Per unit of Product A (₹)	Per unit of Product B (₹)
Direct Material ₹ 20 per Kg	80	320
Direct Labor @ ₹ 10 per hr	100	200
Variable overhead	40	80
Selling price	400	1,000
Total fixed overheads	₹ 30,000	

Notes

4. A factory engaged in manufacturing plastic buckets is working at 40% capacity and produces 10,000 buckets per annum.

   The present cost break up for bucket is as under

Material	₹ 10
Labour	₹ 3
Overheads	₹ 5(60% fixed)

   The selling price is ₹ 20 per bucket.

   If it is decided to work the factory at 50% capacity, the selling price falls by 3%. At 90% capacity the selling price falls by 5% accompanied by a similar fall in the prices of material.

   You are required to calculate the profit at 50% and 90% capacities and also calculate break even point for the same capacity productions.

5. Examine the various kinds of managerial decisions.

6. The management of a company is very much perturbed by the result of product O which is one of the three products. The cost and other data are given below:

Products →	M (₹)	N (₹)	O (₹)	Total
Sales	1,20,000	60,000	90,000	2,70,000
Materials	15,000	7,500	15,000	37,500
Labour	6,000	7,500	24,000	37,500
Variable overheads	15,000	7,500	30,000	52,500
Fixed overheads	30,000	15,000	30,000	75,000
Total cost	66,000	37,500	99,000	2,02,500
Analysis of Fixed expenses: Identified				
	21,000	12,000	24,000	57,000
General	–	–	–	18,000

   The product O has an assured market and no cost reduction is possible. Present these data in a suitable form and recommend whether or not product O should be discontinued?

   (***Ans.*** Closure of product O will save ₹ 3,000)

7. A confectioner of sweets markets three products, all of which require sugar. His average monthly sales, cost of sales and sugar consumption are as follows:

Products →	X	Y	Z	Total
Sales (₹)	10,000	12,000	8,000	30,000
Variable cost of sales (₹)	6,000	8,000	5,600	19,600
Sugar needed (Kg.)	500	800	240	1,540

   Due to government restrictions his sugar quota has been reduced to 1,405 Kg. per month. Suggest a suitable product mix.

   (***Ans.*** Product X ₹ 10,000, Product Y ₹ 9,975 and Product Z ₹ 8,000)

8. Company manufacturing electric motors at a price of ₹ 6,900 each, made up as under:

	Cost in (₹)
Direct material	3,200
Direct wages	400

Notes

Variable overheads	1,000
Fixed overheads	200
Depreciation	200
Variable selling overheads	100
Royalty	200
Profit	1,000
Central excise duty	600
Total	6,900

(a) A foreign buyer has offered to buy 200 such motors at ₹ 5,000 each. As a cost accountant of the company would you advise acceptance of the offer?

(b) What should the company quote for a motor to be purchased by a company under the same management if it would be at cost.

(***Ans.*** (a) Accept it because incremental profit is ₹ 40,000 and (b) ₹ 5,200)

9. The management of a company finds that while the cost of making a component part is ₹ 10, the same is available in the market at ₹ 9 with an assurance of continuous supply.

Give a suggestion whether to make or buy this part. Also give your views in case the supplier reduces the price from ₹ 9 to ₹ 8.

The cost information is as follows:

	(₹)
Material	3.50
Direct labour	4.00
Other variable expenses	1.00
Fixed expenses	1.50
Total	10.00

10. The following information has been made available from the cost records of United Automobiles Ltd. manufacturing spare parts.

Direct Materials	**Per Unit**
X	₹ 8
Y	₹ 6
Direct wages	
X	24 hours at 25 paise per hour
Y	16 hours at 25 paise per hour
Variable overheads	150% of wages
Fixed overheads	₹ 750
Selling price	
X	₹ 25
Y	₹ 20

Notes

The directors want to be acquainted with the desirability of adopting any one of the following alternative sales mixes in the budget for the next period.

(a) 250 units of X and 250 units of Y

(b) 400 units of Y only

(c) 400 units of X and 100 units of Y

(d) 150 units of X and 350 units of Y.

State which of the alternative sales mixes you would recommend to the management?

Answers: Self Assessment

1.	cost and revenue	2.	alternative
3.	additional costs	4.	sale
5.	production or manufacturing	6.	optimum level
7.	capital investment	8.	hire
9.	profitability	10.	contribution
11.	Profit-Volume (P/V) Ratio	12.	quantitative
13.	decision	14.	Decision-making
15.	hire		

12.9 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.

Online links

www.allbusiness.com

www.internalaccounting.com

Notes

Unit 13: Pricing Decisions

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Objectives

After studying this unit, you will be able to:

- Identify the need of pricing decisions
- Describe the types of pricing decisions
- State the methods of pricing

Introduction

Pricing which is part of the overall marketing strategy plays a very critical role in the success of a company as it is able to increase the profitability and or increase the market share.

Normally, the higher the prices means higher profit being attained but might means lower market share. Pricing ties very closely with the various stages of a product life cycle. Under normal circumstances, selling price is based on total cost, i.e., production, administration and selling overheads – fixed as well as variable plus normal profit. In the long-term planning, selling price must cover all costs plus a desired profit. There are, however, a variety of business situations where fixation of selling price may vary from inclusion of desired profit to selling even below total cost. Marginal costing technique helps in determining the most profitable relationship between costs, prices and volume of business.

13.1 Need of Pricing Decisions

When there is considerable unfilled capacity it may be necessary to accept a lower contribution in order to provide work in the factory. Alternatively, if there is sufficient order, normal price may be quoted and the contribution obtainable may be high. The aim of the fixer of prices is to

sell the present and future capacity for the greatest obtainable contribution. When the capacity remains unused, the potential contribution is being sacrificed and the acceptance of an order with a lower contribution will at least partially meet from fixed costs being incurred. This amount of contribution would otherwise be lost if the order is refused. In fixing the lower price than normal, the price fixed must take into consideration the following:

1. The amount of contributions at the proposed price;
2. The possibility of other more remuneration job;
3. Comparison with normal selling price in order to determine the concession being offered; and
4. The possible adverse effect upon the future sales and customer's confidence in the company's pricing or trading policy.

Example: X Ltd. is found to be working below the normal capacity due to recession. The directors have been approached by another company with an enquiry for a special purpose job. The costing department estimated the following in respect of that job:

Direct materials ₹ 1,00,000

Direct labour 5000 hours @ ₹ 3 = 15,000

Overhead costs: Normal recovery rates:

Variable = Re 1 per hour.

Fixed = ₹ 1.50 per hour.

You are required to advise the company on the minimum prices to be charged.

Solution:

Marginal costs will have to be determined as follows:

		(₹)
1.	Direct materials	1,00,000
2.	Add: Direct Labour	15,000
3.	Add: Variable overhead @ Re 1 per hour for 5000 hours	5,000
4.	Total marginal costs	1,20,000

The floor price, the absolute minimum price should be ₹ 1,20,000. That is, a total of marginal costs. At this level, it will not make any contribution. Hence, a certain portion of fixed costs must be added to the marginal costs to accept the job with profit. In this case, the fixed overhead is found to be ₹ 7,500 (5,000 hours × ₹ 1.5 per hour).

Thus, this technique assists in pricing a product.

Notes **Objectives of Pricing Decisions**

The following are the key objectives of pricing decisions:

1. The important pricing objective is to exploit the firm's competitive position in the market place.
2. The products are priced in such a way that sufficient resources are made available for the firm's expansion, developmental investment, etc.

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Notes

3. Some companies adopt the main pricing objectives so as to maintain or to improve the market share towards the product. A good market share is a better indication of progress.
4. The pricing objectives may be to meet or prevent competition.
5. It also prevents price war amongst the competitors.
6. Product Line pricing to maximise long-term profits is another price objective.

Task Make a strategy for taking pricing decision for a organisation providing financing services.

Self Assessment

Fill in the blanks:

1. Pricing ties very closely with the various stages of a ……
2. The aim of the fixer of prices is to sell the present and future capacity for the greatest ……
3. Marginal costing technique helps in determining the most profitable relationship between costs, prices and …… of business.
4. Normally, the higher the …… means higher profit being attained but might means lower market share.

13.2 Types of Pricing Decisions

The following are the key types of pricing decisions:

1. ***Perceived Value Pricing Method:*** In this method, prices are decided on the basis of customer's perceived value. They see the buyer's perceptions of value, not the seller's cost as the key indicator of pricing. They use various promotional methods like advertising and brand building for creating this perception.
2. ***Value Pricing Method:*** In this method, the marketer charges fairly low price for a high quality offering. This method proposes that price represents a high value offer to consumers.
3. ***Going Rate Pricing:*** In this method, the firm bases its price on the average price of the product in the industry or prices charged by competitors.
4. ***Sealed Bid Pricing:*** In this method, the firms submit bids in sealed covers for the price of the job or the service. This is based on firm's expectation about the level at which the competitor is likely to set up prices rather than on the cost structure of the firm.
5. ***Psychological Pricing:*** In this method, the marketer bases prices on the psychology of consumers. Many consumers perceive price as an indicator of quality. While evaluating products, buyers carry a reference price in their mind and evaluate the alternatives on the basis of this reference price. Sellers often manipulate these reference points and decide their pricing strategy.
6. ***Odd Pricing:*** In this method, the buyer charges an odd price to get noticed by the consumer. A typical example of odd pricing is the pricing strategy followed by Bata. Bata prices are always an odd number like ₹ 899.99 etc.

Notes

7. ***Geographical Pricing:*** This is a method in which the marketer decides pricing strategy depending on location of the customer like domestic pricing, international pricing, third world pricing, etc. Multinational firms follow such a pricing strategy as they operate in different geographic locations.

8. ***Discriminatory Pricing:*** This is a method is which the marketer discriminates his pricing on certain basis like type of customer, location and so on. It occurs when a company sells product or service at two or more prices that do not reflect a proportional difference in the costs. One can sell at different prices in different segments. Different prices for different forms of the same product can sell the same product at two different levels depending on the image differences.

Caution **Factors Affecting Pricing Decisions**

Before a decision on the pricing is made, certain factors need to be consider:

1. What are the objectives of the company—to maximize profit/to gain market share/ to penetrate the new market, etc.?
2. What are the existing economic conditions?
3. Any government regulations;
4. Cost structure of the organization;
5. Demand for the product which should includes a study of the price elasticity of demand;
6. Inflation;
7. Surplus production capacity;
8. Level of competition; and
9. Political scenario.

Self Assessment

Fill in the blanks:

5. Under …… method the marketer charges fairly low price for a high quality offering.
6. Prices like ₹ 899.99 etc. are the example of …… strategies.
7. While evaluating products, buyers carry a reference price in their mind and evaluate the …… on the basis of this reference price.
8. Under going rate pricing the firm bases its price on the …… of the product in the industry or prices charged by competitors.

13.3 Methods of Pricing

The various methods of pricing include the following:

1. Full cost pricing;
2. Variable/Marginal cost plus pricing;
3. Rate of return pricing;

Notes

4. Break-even pricing;
5. Minimum pricing

13.3.1 Full Cost Pricing

Full Cost Pricing is a traditional method of pricing a product. It has following features:

1. Most commonly used method;
2. Prices are set by adding a percentage of profit (either a mark up or a margin) to the total cost of the product;
3. Consistent with the absorption costing technique;
4. Commonly used by wholesalers, retailers, construction contractors, services, government contractors.

Full Cost Pricing is useful in situation where:

1. Products are made based on specification by the customers;
2. Main objective is to make profit after considering fixed costs of the business;
3. The costs are difficult to estimate in advance;
4. Expected demand at different price levels is difficult to estimate.

Example: Let's look at Product A:

Production cost as follows:

Variable cost-material $1.50

Variable cost-labor $1.50

Total variable cost $3.00

Fixed cost $3.00

(excludes administrative and selling overheads)

Required 50% mark up on total production cost.

For Full-Cost Plus Pricing:company wants Product A to at least cover its total production cost.

Full Cost Pricing has many advantages. A few of them are as under:

1. Easy and simple to understand;
2. Pricing decisions become standardized;
3. Adopts a conservative approach that in the long run to at least ensure the recovery of fixed cost of a business;

   Total cost = $ 3.00 + $ 3.00 = $ 6.00

   50% on total/full cost = 50% × $ 6.00 = $ 3.00

   Hence, Selling price = $ 6.00 + $ 3.00 = $ 9.00 per unit.

   By pricing at $ 9.00, the
4. Difficult of estimating demands can be avoided.

Notes

Like everything else, full cost pricing also has certain disadvantages which are as under:

1. Tendency to set prices on inaccurate estimates;
2. Challenges of apportioning the fixed overheads properly into different products;
3. Unsuitable for short term decisions making particularly in situation like surplus production capacity, tendering for contracts price and others;
4. Ignores competition and price elasticity of demand; and
5. Ignores opportunity costs and relevant costs.

13.3.2 Variable/Marginal Cost Pricing

Under marginal Cost pricing, selling price is determined by adding a mark up or margin on the total variable costs (marginal cost). Its salient features are as under:

1. Based on the assumption that any price above variable cost would generate a certain level of contribution towards meeting fixed costs;
2. Consistent with the marginal costing technique;
3. When using this pricing method, need to be careful to ensure that it is sufficient to cover all fixed cost and to generate sufficient margin for profit otherwise the long term survival of the business might be at stake.

Example: Let's look at Product A:

Production cost as follows:

Variable/direct material $1.50

Variable/direct labor $1.50

Variable Production overheads $1.00

Variable Administrative overheads $0.50

Variable Selling overheads $0.10

Total variable costs $4.60

Say required mark up of 65% $3.00

Variable Cost Plus Pricing $7.60

The selling price is determined at $7.60 where the company wants Product A to at least cover its total variable cost and contribute towards recovery fixed costs and profit.

Advantages of Variable/Marginal Cost Pricing are as under:

1. As it adopts the margin cost approach, it provides better information as it segregate the variable and fixed costs;
2. Highlights the importance of contribution;
3. Useful for contract bidding where competition could be quite intense;
4. Eliminates the difficulty of computing fixed costs into the products.

Disadvantages of Variable/Marginal Cost Pricing:

1. For short-term pricing decision, it's alright otherwise needs to be very careful the pricing in the long-term can recover fixed costs and generate sufficient profit for the business;
2. Might be unsuitable for production costs consist a lot of fixed costs.

Notes

13.3.3 Rate of Return Pricing

For this type of pricing, the company needs to specify the rate of return on its capital invested. Similar to Cost pricing, the difference is that the marked up will be based on the target rate of return. The salient features include:

1. The target rate of return varies with market norm or what management considers a fair return.
2. Useful method to use when a business has invested too much on the project or products.
3. However, difficult to use where a company has too many product lines or competes in many markets.

Example: Capital invested/employed $2,000,000

Target return 10%

Estimated costs $500,000

$$\text{Mark up} = \frac{10\% \times \$2{,}000{,}000}{\$500{,}000}$$

$$= 40\%$$

13.3.4 Break-even Pricing

For this type of pricing, the price at which the products will break-even is used. This break-even price will then be added a profit mark up.

Example: If Fixed Cost $25,000, Variable cost $2.00 per unit, Number of Units produced 4,000 and Mark-up is 15% on the break-even price, what will be selling price to the customers?

Solution:

Break-even price = Fixed Cost + Variable Cost/Marginal Cost

Total Number of units produced = $25,000 + $8,000

4,000 = $8.25 + mark up of 15% ($1.24)

= $9.50 which is the selling price to the customer.

13.3.5 Minimum Pricing

For this type of pricing, the selling price is the lowest price that a company may sell its product. Normally, the price will be the Total Relevant Costs of Manufacturing. Its salient features include:

1. Useful method in situations where there is a lot of intense competition, surplus production capacity, clearance of old stocks, getting special orders and or improving market share of the product.
2. Minimum Price is Incremental costs of manufacturing + Opportunity Costs (if any),

Example: Assuming the following details of product X:

Material	$2.50
Labor (2 hrs. @ $3.00)	$6.00
Variable production overhead	$2.50
Fixed production overhead	$1.20

Notes

Total	$9.70

Say that the labor is in short supply and is used for other product Y which generates a contribution of $6 per unit and requires 2 hours of the same labor.

Material	$2.50
Labor	$6.00
Variable production overhead	$2.50

Add:

Opportunity cost from labor scarcity:

$6/2 hours = $3.00 per hr × 2 hr = $6.00

Minimum price = $17.00

Caselet

Product Pricing

One of the tougher decisions that a marketing manager faces is how to price a product in the market. In an existing market (i.e. where a new brand is being introduced in a category that already sees competition) the decision is a little easier than in a new market since the marketer can take some cues from the competition's price ranges.

In this situation, the marketer has to be clear about the segment being addressed by the new product. Once that is clear, he can choose from the following options:

1. Price the product on par with the competing product(s)
2. Price the product very close to the competing product(s)
3. Consciously price it quite a bit lower as an incentive to induce trial.

The third decision could prove counter-productive; a lower price could adversely affect the brand value perception unless the communication strategy establishes a value-for-money platform. The other danger is that it could prevent the brand from increasing the price even later, i.e. consumers who came in at the lower price may migrate away when the price is raised.

When launching a new product that is likely to create a new category altogether - as ready-to-eat chapatti did a few years back - the pricing decision in even tougher. Here, there is often no comparison point at all - the traditional method of making chapattis gives no pointers whatsoever to what consumers may pay for the new product.

Therefore, the marketer has to debate various scenarios. Pricing it low might encourage trials and good volumes, but the price may not prove viable in the long run. If priced too high, it could inhibit trials, so the product could be a non-starter.

Nonetheless, given that there are a large number of affluent consumers who are ready to spend, many marketers are in favour of pricing the product higher. It seems to be a given that a high price does more to create a perception of brand value than almost any other strategy.

As long as the boom in consumption sustains, this method would probably work well; if the economic conditions were to see a downtrend, then, probably, such a strategy would not work.

Unfortunately, market research does not help much in the area of pricing. Various pricing research models have been generated and being from the MR industry I have done my

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Notes

share of testing these models. But in a research situation, consumers become artificially conscious of the price point and, hence, become artificially price sensitive too. Thus, it is not unusual to see research respondents saying that a price increase of ₹ 2 in a pack priced at ₹ 10 would make them switch brands; in actual fact, the consumers probably didn't know whether the price was ₹ 10 or ₹ 11.

Till research methods evolve in this area, pricing decisions will continue to need a lot of gut feel and sagacity from the marketer.

Source: http://www.thehindubusinessline.in

Self Assessment

Fill in the blanks:

9. …… Cost Pricing is a traditional method of pricing a product.
10. For minimum pricing, the selling price is the …… price that a company may sell its product.
11. …… is a useful method in situations where there is a lot of intense competition.
12. The target rate of return varies with …… or what management considers a fair return.
13. …… eliminates the difficulty of computing fixed costs into the products.
14. Multinational companies use …… to minimize their worldwide taxes, duties, and tariffs.
15. Full Cost Pricing is a …… of pricing a product.

13.4 Summary

- Pricing which is part of the overall marketing strategy plays a very critical role in the success of a company as it is able to increase the profitability and or increase the market share.
- When there is considerable unfilled capacity it may be necessary to accept a lower contribution in order to provide work in the factory.
- The important pricing objective is to exploit the firm's competitive position in the market place.
- Before determining prices certain important factors should be taken care of.
- The various methods of pricing include the following: Full cost pricing; Variable/Marginal Cost Plus pricing; Rate of Return Pricing; Break-even Pricing; Minimum Pricing, etc.

13.5 Keywords

Marginal Cost Pricing: Under marginal Cost pricing, selling price is determined by adding a mark up or margin on the total variable costs (marginal cost).

Marginal Costing Technique: Marginal costing technique helps in determining the most profitable relationship between costs, prices and volume of business.

Transfer Prices: Transfer prices are the amounts charged by one segment of an organization for a product or service that it supplies to another segment of the same organization.

13.6 Review Questions

1. "Pricing plays a very important role in the marketing strategy of a firm and a significant one in the overall success." Evaluate the statement.

Notes

2. Before a decision on the pricing is made, certain factors need to be considered. What are those factors?
3. The aim of the fixer of prices is to sell the present and future capacity for the greatest obtainable contribution. Discuss.
4. Illustrate full cost pricing with a suitable example.
5. If Fixed Cost $25,000, Variable cost $2.00 per unit, Number of Units produced 4,000 and Mark-up is 15% on the break-even price, what will be selling price to the customers?
6. Critically evaluate the key methods of pricing.
7. Discuss the concept of Goal congruence.
8. From the details given below calculate minimum price of product X:

Material	$3.50
Labor (2 hrs. @ $3.00)	$5.00
Variable production overhead	$2.50
Fixed production overhead	$1.20
Total	$9.70

9. What is the significance of using odd pricing strategies? Give some suitable examples.
10. Why companies go for discriminatory pricing strategy?

Answers: Self Assessment

1.	Product Life Cycle	2.	obtainable contribution
3.	volume	4.	prices
5.	value pricing	6.	odd pricing
7.	alternatives	8.	average price
9.	Full	10.	lowest
11.	Minimum pricing	12.	market norm
13.	Marginal cost pricing	14.	transfer pricing
15.	traditional method		

13.7 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

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M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.

Online links

www.allbusiness.com

www.internalaccounting.com

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Unit 14: Management Reporting and MIS

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Objectives

After studying this unit, you will be able to:

- Explain the principles of good reporting system
- Discuss the concept of MIS
- Define performance Measures
- Prepare performance reports and format

Introduction

The reporting system involves all levels of management. The reports originate from junior levels of management and go up to top level management, consisting of Board of Directors. The sectional in-charge of every section regularly reports the progress of his section to his superior. Functional managers have Deputy Managers who control departmental sections. The combined reports of different sections reach the departmental manager called functional managers. Different functional managers submit the progress of their departments to the managing director. The brief summaries of departmental reports are submitted to the Board of Directors for reviewing policies and making strategy for the future. Information means data have been shaped into a form that is meaningful and useful to human being. Data are stream of raw facts reporting events occurring in organisation or physical environment before they have been organised and rearranged into a form that people can understand and use.

14.1 Principles of a Good Reporting System

A good reporting system is helpful to the management in planning and controlling. Every level of management needs information relating to its activities centre so that effective planning may

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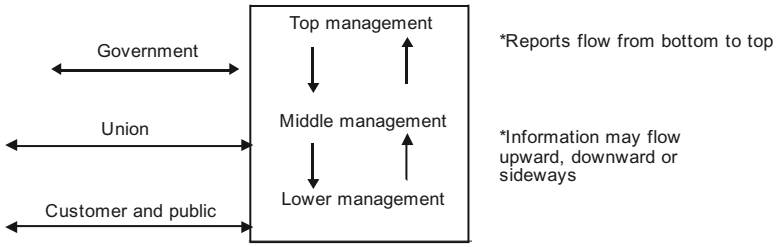
be undertaken and current activities may be controlled and necessary corrective action may also be taken in time, if needed. Some general principles are followed for making the reporting system effective. These principles are discussed below:

1. ***Proper Flow of Information:*** A good reporting system should have a proper flow of information. The information should flow from the proper place to the right levels of management. The information should be sent in the right form and at proper time so that it helps in planning and coordination. The frequency of reports will depend upon the nature of report, the types of data required for preparing the information and cost involved in preparing such reports. The flow of reports should be such that it does not cause delay in taking decisions. The reports should flow at regular intervals so that international needs of different managerial levels are met at a proper time.

   Caution Flow of information is a continuous activity and effects all levels of the organisation information may flow upward, downward or sideways within an organization. Orders, instructions, plans, etc. may flow from top to bottom. Reports grievances, suggestions, etc. may flow from bottom to top. Notifications, letters, settlements, complaints may flow from outside. Information also flows sideways, from one manager to another at the same level through meetings discussions, etc.

2. ***Proper Timing:*** Since reports are used as a controlling device they should be presented at the earliest or immediately after the happenings of an event. The time required for preparation of reports should be reduced to the minimum; for routine reports the period should be known and strictly adhered to. It will be a waste of time and effort to prepare information that is too late to be of any use. The absence of information when needed will either mean wrong decisions or ferment of decisions on matters that may be urgent in nature.

Figure 14.1: Flow of Information and Reports



(Flow of information and reports)

3. ***Accurate Information:*** The information should be as accurate as possible. However, the degree of accuracy may differ in different reports. Sometimes, part information may be supplied as a guide for future policy making, so the degree of accuracy may be less. The supply of exact figures may involve a problem of understanding. Approximate figures are more understandable than accurate figures given up to paisa. Accuracy should also not involve excessive cost of preparation nor it should be achieved at the sacrifice of promptness of presentation. It will be better to have approximate figures at a proper time than delayed information prepared accurately.

Notes

4. ***Basis of Comparison:*** The information supplied through reports will be more useful when it is supplied in comparison with past figures, standards set or objectives laid down. The decision-making authority will be able to make use of comparative figures while making a decision. Corrective measures can also be initiated to improve upon past performance.

5. ***Reports should be Clear and Simple:*** The information should be presented in a clear manner by avoiding extraneous data. Only relevant important information should become the part of a report. If supporting information cannot be avoided, then it should be given in appendix or separate chart should be attached to it.

   The method of presenting information should be such that it attracts the eye and enables the reader to form an opinion about the information. The graphic presentation of information will enable the reader to find out the trends and also to determine deviations more quickly than in other methods. The arrangement of presentation should be brief, clear and complete. Simplicity is a good guide for reports preparation.

6. ***Cost:*** The benefits derived from reporting system must be commensurate with the cost involved in it. Though it is not possible to assess the benefit of this system in monetary terms, there should be an endeavour to make the system as economic as possible.

7. ***Evaluation of Responsibility:*** The reporting system should enable the evaluation of managerial responsibility. The targets are fixed for various functional departmental heads. The record of actual performance is monitored along with the standards so as to enable management to assess the performance of different individuals. So, management reporting should be devised in a way that it helps in evaluating the work assigned to various persons.

Self Assessment

Fill in the blanks:

1. A good reporting system is helpful to the management in planning and ……
2. A good reporting system should have a proper flow of ……
3. The …… of information will enable the reader to find out the trends and also to determine deviations more quickly than in other methods.
4. The decision-making authority will be able to make use of …… figures while making a decision.
5. Accuracy should also not involve …… of preparation nor it should be achieved at the sacrifice of promptness of presentation.

14.2 Introduction to Management Information System (MIS)

Management Information System can be developed as an act of interrelated components that collect (or retrieve), process, store and distribute information to support decision-making, coordinate and control in an organisation.

14.2.1 Attributes of Information

For information to be useful to managers, it must possess certain attributes. Some of the important attributes are accuracy, timeliness, relevance and completeness.

Notes

Notes

Attributes of Information

Accuracy	Must be true and correct and must accurately describe the item or event.
Timeliness	Available when it is needed and without excessive delay.
Relevance	Pertains to the situation at hand. Information relevant at one time may not be relevant at another if it does not add to the knowledge needed by a decision maker.
Completeness	Provides the user with all details needed to understand a solution. Complete information (that is certainty) is rarely available.
Frequency	Prepared or presented to users often enough to be up-to-date.
Time horizon	Oriented toward past, present or future activities and events.
Scope	Broad or narrow in coverage of an area of interest.
Origin	May originate from sources within the organization or from external sources.
Form of presentation	Tables of numbers or graphic displays of information are the most common written or printed forms. May also include verbal presentation.

14.2.2 Information Needs of Managers

All managers require information to perform their managerial functions (mainly, planning and controlling) and make effective decisions. The information that managers require will vary, depending on the nature of the work they do and the tasks they seek to accomplish. Information needs also vary by levels in the organizational hierarchy (Table 14.1). For instance, top level managers need far less detail (as a general rule) than lower level managers. Since top-level managers have to take a broad perspective of the organisation and its mission, they only need information that helps them develop or enhance the perspectives.

Information that originates within an organisation is referred to as internal information. This type of information is essential for managing day-to-day operations. Some examples of internal information are:

1. Daily receipts and expenditures
2. Quantity of an item in hand or in inventory
3. Cost and selling price of the item
4. Salespeople's quotas

Table 14.1: Information needs by Level of Organisation

Characteristic	Top Management	Middle Management	Operating Management
Planning focus	Heavy	Moderate	Minimum
Control focus	Moderate	Heavy	Heavy
Time frame	Long-term	Short-term	Day to Day
Nature of activity	Unstructured	Moderately structured	Highly structured
Level of complexity	Many open variables, complex	Better defined variables	Straightforward
Result of activity	Mission, Goals, Objectives	Action Plans	End products and services

Notes

Information that originates outside the organisation is referred to as external information. Such information is often required by top level managers to plan and guide the organisation successfully.

Some examples of external information are:

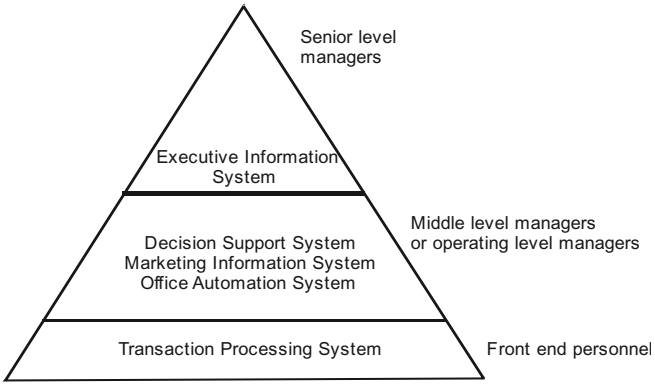
1. Demand for new products or services.
2. Information describes customer satisfaction with products and services. Information describing change in policies of suppliers.
3. Knowledge of promotional campaigns, price changes, or products planned by competing firms.
4. Details of changes in government regulations.

In many instances, firms have to provide information to external users. Some of these are:

1. Prices of items and services offered (to customers)
2. Quantity of items needed for manufacturing (to suppliers)
3. Sales revenues and profit earned (to the government).

Only an effective information system can provide managers with both internal and external information that is timely and accurate.

Figure 14.2: Different Levels of Information Systems



Management information system can be developed as an act of interrelated components that collect (or retrieve), process, store and distribute information to support decision-making, coordinate and control in an organisation. Information means that data have been shaped into a form that is meaningful and useful to human being. Data are a stream of raw facts reporting events occurring in an organization or physical environment before they have been organised and rearranged into a form that people can understand and use.

The importance of Management Information System has increased in recent times because of the following:

1. Emergence of global economy
2. Transformation of industrial economies – knowledge and information intense products have become available
3. Transformation of multinational enterprises
4. Emergence of digital form

Self Assessment

Notes

State whether the following statements are true or false

6. Information that originates within an organisation is referred to as internal information.
7. The internal informations are essential for managing day-to-day operations.
8. External information is often required by top level managers to plan and guide the organisation successfully.
9. Information means that data have been shaped into a form that is meaningful and useful to human being.

14.3 Performance Measures

Performance measures are a central component of management information and reporting system. This section deals with performance measures for different levels of an organization and for managers at these levels – both financial and non-financial performance measures.

Performance measurements of an organisation unit should be a prerequisite for allocating resources within that organisation. When a unit undertakes new activities projections of revenues, costs and investments are made. An ongoing comparison of the actual revenues, costs and investments with the budgeted amounts can help guide top management's decisions about future allocations.

Performance measurement of managers is used in decisions about their salaries, bonus, future assignments and status, which motivate managers to strive for the goals used in their evaluation.

Table 14.2: Five Level Performance Measures

Representative area at which data gathered	Financial Measures	Non-Financial Measures
(A) Customer/Market Level	(i) Prices of company's products compared with competition. (ii) Prices of company's traded securities.	(i) Market share held by company's products. (ii) Third party quality ratings for all products in the industry.
(B) Total organisational Level	(i) Return on investment (ROI) (ii) Residual income (RI)/EVA (iii) Return on sales	(i) Number of new products introduced (ii) Number of new patents filed.
(C) Individual facility level (includes manufacturing plants, distribution sales, Customer Service Centres, R & D centre)	(i) Cost and revenue measurements for each responsibility centre according to measure of performance used (that is cost, revenue, profit, return on investments) this is known as responsibility accounting. Financial measure includes flexible budget variances).	(i) Capacity utilisation (ii) Throughput time for products. (iii) Percentage of times promised delivery dates met (schedule attainment).
(D) Individual activity level (e.g. activities in a warehouse	(i) Direct Material Variance and Direct Labour Variances	(i) Time taken to set up machinery for new production run.

Contd...

Notes

facility include receiving, storing, dispatching etc.	(ii) Manufacturing Overhead Variances (iii) Cost per activity level.	(ii) Number of accounts receivables processed per hour. (iii) Inventory level not to exceed certain amounts. (iv) Abiding by plant maintenance schedules.
(E) By Product / Programme	(i) Cost and revenues and Investments across responsibility centres as far as they pertain to programme or product (compared to budgeted / target amounts). This is sometimes referred to as activity costing.	(i) Time period for completion i.e. break-even time is the time from initial idea date to the time when the cumulative present value of cash inflows of the project equals the present value of total (to market) cash outflows.

Self Assessment

Fill in the blanks:

10. Performance measures are a central component of …… and reporting system.
11. Performance measurements of an organisation unit should be a prerequisite for allocating …… within that organisation.

14.4 Performance Reports: Format and Essential Features

1. ***Tailored to the organisation structure and controllability:*** The performance report system should be structured to the organisation structure of the enterprise in the same way as budgeting and accounting systems. There should be a separate performance report for each responsibility centre, starting with those at the lowest level which in turn feed into summary reports for each higher level.
2. ***Designed to implement the exception principle in management:*** Performance report must clearly distinguish between controllable and non-controllable items. Performance measurement requires that actual results be compared with plans, objectives and standards so that differences (exceptions) call management attention to high, low and satisfactory performance. The variances from plans signal the need for investigation and possible action. The action may be corrective, commendatory or revisory. Both favourable and unfavourable variances justify investigation. Unfavourable variances may signal danger and further investigation generally is necessary to pinpoint the precise cause.
3. ***Repetitive and relate to short-time spans:*** Performance should be repetitive, generally on a monthly basis, although certain problems may suggest the need for weekly or even daily reports that focus on a particular problem.
4. ***Adapted to the requirements of the principal user:*** Performance reports serve the evaluation and decision-making needs of the user.
5. ***Simple, understandable and report only essential information:*** Reports should not be too long; complex tabulations should be avoided. Reports should be carefully screened to eliminate all nonessential information. Many performance reports include too much data rather than too little.

Notes

Caution Performance reports should be standardised. Executive becomes accustomed to certain terminology, forms and methods of presentation and know where to look to find the specific information. Despite the desirability of standardising performance reports, constant attention must be given to improving them. Improvement necessarily involved changes, but desirable changes, if made at an opportune time and adequately presented, can be accomplished usually with a minimum of confusion. Reports must be kept relevant.

6. ***Prepared and presented promptly:*** Consistent with the cost of detailed record-keeping and reporting, performance reports should be available on a timely basis. To achieve a realistic balance between immediate reporting and the costs of detailed reporting, monthly performance reports are widely used by industry. When special problem areas are involved, weekly and even daily reporting may be necessary, at least for a time.

7. ***Effective management follow-up procedures:*** Follow-up procedures constitute a key aspect of effective control. Some companies require written explanations of significant variances. The follow-up procedures preferred by other companies involve constructive conferences where the causes are discussed and corrective action is decided upon. Follow-up procedures should begin at the management level in the executive committee meeting, for example, where both unsatisfactory and satisfactory conditions are discussed and analyzed. Decisions should be made concerning ways and means of correcting unsatisfactory conditions. Favourable variances should be accorded equivalent study, (1) to determine whether the goals were realistic, (2) to give recognition to those responsible for high performances, (3) possibly to transfer some "know-how" to other subdivisions of the company.

   Group and individual conference should be held at the various management levels for effective correction action. Follow-up procedures should embody constructive action to correct unfavourable conditions rather than punitive action for failures, the results of which obviously cannot be erased. Another important aspect of follow-up procedure is that the resulting action is strictly a line responsibility rather than a staff responsibility. The budget director, controller or other staff officer should not undertake, nor be assigned, the responsibility of enforcing the budget.

Example: A comprehensive performance report for Production Department X in S Company is shown below, from which following features are worth noting:

1. Identification of responsibility
2. Distinction between controllable and non-controllable items
3. Specific time dimensions – month and cumulative to date
4. Method of reporting variances
5. Adjustment of the (planned) amounts to actual output (that is flexible/variable budget approach).
6. Detail on each category (including service usage in units) and
7. Explanatory comments and suggestions.

Notes

Departmental Performance Report
S Company Performance Report

Dept. Prod. Dept. X Current Month - January					Responsibility of Year to date	
Actual	**Planned**	**Var. Amt.**	**%**	**Description Controllable**	**Actual Planned**	**Variance Amount %**
87,500	1,00,000	12,500*	13*	Dept. output in units		
				Raw Material A:		
1,76,000	1,75,000	1,000*	1*	Units		
₹32,200	₹35,000	₹200*	1*	Cost		
				Director Labour:		
35,357	35,000	357*	1*	Hours		
₹1.96	₹2.00	₹0.04	2	Avg. wage rate		
₹69,300	₹70,000	₹700	1	Cost		
10,000	10,000	-	-	Salaries		
3,740	3,800	60	2	Indirect materials		
7,550	7,250	300	4*	Indirect labour		
560	1,000	440	44	Miscellaneous		
21,850	**22,050**	**200**	**1**	**Sub-Total**		
				Service Usage:		
530	480	5*	10*	Kilowatt hours (000's)		
72	60	12*	20*	Direct repair hours		
1,26,350	**1,27,050**	**700**	**1**	**Grand Total**		
				Non-Controllable		
2,000	2,000	-	-	Depreciation		
500	500	-	-	Insurance		
200	200	.	.	Taxes		
2,700	**2,700**	**-**	**-**	**Total non-controllable**		

* Unfavourable variances

Comments:

1. Output was 13 percent below the planned level due to production scheduling pull back to accommodate 5000 units unfavourable sales volume variance, the department met its production schedule as adjusted.

2. Unfavourable variances in service usage should be carefully investigated to determine underlying causes.

To have the maximum benefit, the monthly report should be designed to indicate the performance of each individual having supervisory responsibility. A well-designed control report should be completely integrated i.e., each schedule should look on a responsibility basis so that (i) major variation may be traced to the source of the problem and (ii) the various segments comprise within themselves a complete report. Please refer to the illustration on previous page – Performance Reports SP Manufacturing Company.

Notes

Distribution of the monthly performance report (and its segments) should follow essentially the same pattern as the annual profit budget plan. Certain executives need the complete monthly performance report. Other members of the management only need those schedules related to their particular responsibility centres. Lower levels of management may receive only one of the detailed segments. On the other hand, the higher the level of management, the greater the need for summaries, yet these summaries must be supported by adequate detail to identity particular aspects of operations.

Types of reports for different levels of management:

1. ***Top management including Board of Directors and Financial Management:***
   - (a) Balance Sheet
   - (b) Profit and Loss Statement
   - (c) Position of Stock
   - (d) Disposition of funds and working capital
   - (e) Capital expenditure and financial commitments together with the progress of projects in hand.
   - (f) Cash flow statement
   - (g) Sales, production and other appropriate statistics.
2. ***Sales Management:***
   - (a) Actual sales compared with budgeted sales to measure performance by products, territories, individual salesman and customers.
   - (b) Standard profit and loss by product for fixing selling prices and to concentrate on sales of most profitable products.
   - (c) Selling expenses in relation to budget and sales value analysed by products, territories, individual salesman and customers.
   - (d) Bad debts and accounts which are slow and difficult to collect.
   - (e) Status report on new or doubtful customers.
3. ***Production Management:***
   - (a) *To buyer:* Price variations on purchases analysed by commodities
   - (b) *To foremen/shop leader:*
     - (i) Operational efficiency for individual operations duly summarised as departmental average.
     - (ii) Labour utilisation report and causes of lost time and controlled time.
     - (iii) Indirect shop expenses against the standard allowed and
     - (iv) Scrap report.
   - (c) *Works Manager/Departmental Managers:*
     - (i) Departmental operating statement.
     - (ii) General works operating statements – expenses relating to all works expenses not directly allowable or controllable by departments.
     - (iii) Plant utilisation report.
     - (iv) Departmental scrap report and
     - (v) Material usage report.

Notes

4. *Specific Report:* These reports may be prepared at the request of general management or at the initiative of the controller. The necessity for them may, in some cases, arise on account of the need for more detailed information on matters of interest first revealed by the routine reports. These reports may range over a very wide read. Some of the matters in respect of which such reports may be required can be:
   (a) Taxation legislation and its effects on profits
   (b) Estimates of the earning capacity of a new project
   (c) Breakeven analysis
   (d) Replacement of capital equipment
   (e) Special pricing analysis
   (f) Make or buy certain components
   (g) Statement of surplus available for payment of bonus.

Task Prepare the proforma of financial reports prepared by the top management of the an organisation.

Self Assessment

Fill in the blanks:

12. Performance report must clearly distinguish between …… and …… items.
13. …… procedures constitute a key aspect of effective control.
14. Group and individual …… should be held at the various management levels for effective correction action.
15. …… may signal danger and further investigation generally is necessary to pinpoint the precise cause.

14.5 Summary

- The reporting system involves all levels of management.
- The reports originate from junior levels of management and go up to top level management, consisting of Board of Directors.
- A good reporting system is helpful to the management in planning and controlling.
- Management Information System is a very important function of any organization in today's global economy.
- Performance measures are a central component of management information and reporting system.
- There are financial and non-financial performance measures.
- The performance measures at different levels of management have been discussed in this unit.
- The features of performance reports and the formats have been explained with suitable illustrations.
- There are different reports based on different levels of management.

Notes

14.6 Keywords

Information System: It is a set of elements joined together for a common objective. An information system can be defined as the means by which information is generated and communicated to managers at various levels to help them in the decision-making process.

Management Information System (MIS): It refers to the data equipment and computer programmes that are used to develop information for managerial use.

Management Reporting: The process of providing information to the management is known as management reporting. The reports are regularly sent to various levels of management as to enable in judging the effectiveness of their responsibility centres. These reports also become a base for taking corrective measures, if necessary.

Performance Measures: A form of reporting for different levels of an organization and for managers on financial and non-financial performances. It is useful for allocation of resources, costs, revenues.

Report: Report is a form of statement that presents and examines facts relating to an event, problem, progress of action, state of business affairs etc. and for the purpose of conveying information, reporting findings, putting forward ideas and making recommendations as the basis of action.

14.7 Review Questions

1. Why are performance measurements required in Management Information System?
2. What are the financial performance measures?
3. What are the non-financial performance measures?
4. What are the information relationships at various levels of manufacture?
5. Discuss performance reporting at various levels of management. Give examples of some reports.
6. How can accounting based performance measures be designed?
7. All managers require information to perform their managerial functions. What are the key managerial functions and the role of information system in their performance?
8. Suggest some principles for preparing a good reporting system.
9. Only an effective information system can provide managers with both internal and external information that is timely and accurate. Discuss.
10. Different types of reports are prepared at different levels of management. Discuss.

Answers: Self Assessment

1.	controlling	2.	information
3.	graphic presentation	4.	comparative
5.	excessive cost	6.	True
7.	False	8.	False
9.	True	10.	management information
11.	resources	12.	controllable, non-controllable
13.	Follow-up	14.	conference
15.	Unfavourable variances		

Notes

14.8 Further Readings

Books

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.

Online links

www.allbusiness.com

www.internalaccounting.com