



NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF MANAGEMENT SCIENCES

COURSE CODE: ENT 415

**COURSE TITLE: ANALYSIS OF FINANCIAL
STATEMENT**

COURSE MATERIAL DEVELOPMENT

ENT 415

ANALYSIS OF FINANCIAL STATEMENT

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CONTENTS

MODULE 1 INTRODUCTION TO FINANCIAL STATEMENT

- Unit 1 Introduction to Financial Statement
- Unit 2 Balance Sheet
- Unit 3 Income Statement
- Unit 4 Cash Flow Statement

MODULE 2 FINANCIAL RATIOS ANALYSES

- Unit 1 Liquidity Ratios
- Unit 2 Profitability Ratios
- Unit 3 Leverage Ratios
- Unit 4 Activity Ratios
- Unit 5 Investment Ratios

MODULE 3 WORKING CAPITAL

- Unit 1 Cash Management
- Unit 2 Receivables Management
- Unit 3 Inventory Management
- Unit 4 Simulation Approach to Working Capital

MODULE 4 LINEAR PROGRAMMING AND PRODUCTION CONTROL

- Unit 1 Linear Programme for Short-Term Decision
- Unit 2 Pricing, Profit Planning
- Unit 3 Goal Programming
- Unit 4 Opportunity Cost and Control of Production

COURSE OBJECTIVES

By the end of this course, the student should be able to:

- Explain financial statement;
- Identify financial statements as the basis for financial analysis of an enterprise;
- Identify financial ratios as standard tools of financial analyses in businesses;
- Apply simulation to working capital decision making;
- Use linear programming in choice of business and opportunity cost of production;
- Analyse pricing, profit and good programming.

COURSE DESCRIPTION AS IN THE OPP

Financial statement breakdown into short/medium/long-term investment, financing choice problem; sensitivity analysis; use of linear programme for short term decision; opportunity costing and financial control of production; cash management; inventory management; receivable management; simulation approach to working capital decision; pricing and profit planning and goal programming.

ENT 415 ANALYSIS OF FINANCIAL STATEMENT

Unit 1	Introduction to Financial Statement
Unit 2	Balance Sheet
Unit 3	Income Statement
Unit 4	Cash Flow Statement

UNIT 1 INTRODUCTION TO FINANCIAL STATEMENT

CONTENT

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	Financial Statement: An Overview
3.2	Main Components of Financial Statement
3.3	Financial Statement as a Management Tool
4.0	Conclusion
5.0	Summary
6.0	Tutor Marked Assignment
7.0	References/Further Readings

1.0 INTRODUCTION

In this unit, you will be introduced to financial statement and its main components. You will also be led through the discussion on how financial statement aids management in decision-making process.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define and explain financial statement;
- identify the main components of financial statement;
- discuss financial statement as a tool for management decisions.

3.0 MAIN CONTENT

3.1 Financial Statement: An Overview

Financial statement is a statement that records financial activities of a particular business organisation (business enterprise). It is the book keeping and recording of source document from the early stage of business enterprise through journalization to the ledger accounts, trial balance and then the final accounts.

In the early times, keeping financial statement was not a priority because business transactions were undertaken by means of barter system where goods exchanged for goods. With the modern economy, all transactions were monetized and therefore there was the need to keep records using money as a common denominator, hence financial recording known as financial statement. This subject is a subset of account which also emanated from economics as a discipline.

Financial statement is used for two purposes, namely: definitive purpose and information purpose. Where it is used for information purpose, it is for comparative analysis to be made between one organisation and another and within the industry.

Users of financial statement have further insight about financial strengths and weaknesses of the business enterprise if information (data) reported in the statement are properly analysed. It is therefore incumbent on the management to have interest in knowing or developing enough passion for the state of the enterprise at any point in time. This shall be possible if management uses the financial report effectively to evaluate the performance of the business and ensure that the business is suitably organised along corrective measures.

Financial statement is also used for future plans of the enterprise. The present financial data of the business is compared with the past in order to project the likely outcome of activities in the future. It is also worthy of note that financial analysis is based on the data collected from financial statement which itself is the starting point (source) of making the plans before using same for forecasting. It is also good to note that the past financial record is a prerequisite for anticipating the future.

It therefore means that financial statement is the custodian of business activity from the beginning and can be used to measure the business's progress and viability. It contains financial information required to predict, compare and evaluate an enterprise's earning ability. It is the basis for financial analysis, planning and decision-making. The financial statement is used as managerial guide and aid. It is supported on the premise that money values provide a common denominator for the varied activities of an organisation. Financial statement is an accounting report.

Self Assessment Exercise 1

What is financial statement? Briefly explain its role in an enterprise.

Diagram of a Typical Financial Statement

The proforma (typical) financial statement of an enterprise is shown below. It is made up of the following:

- (i) Balance sheet
- (ii) Income statement
- (iii) Cash flow statement.

These are prepared as final accounts for users of financial reports of the business at the end of the year.

ROI Enterprises

Balance Sheet as at 31st December 20XX

N	N	N
	Cost	Accumulated
NBV		
Fixed Assets		
Land and buildings	X	X
X		
Plant and machinery	X	X
X		
Furniture and fittings	X	X
X		
Motor vehicles	<u>X</u>	<u>X</u>
<u>X</u>		
	<u>X</u>	<u>X</u>
<u>X</u>		
Long-term Investments		
X		
Current Assets		
Stock		X
Trade debtors	X	
Less: Provision for bad debt	<u>(X)</u>	
		X
Short-term Investments		X
Prepayments		X
Accrued income		X
Bank		X
Cash		<u>X</u>
		X
Less: Current Liabilities		
Trade creditors	X	
Accrued expenses	X	
Incomes received in advance	X	
Bank overdraft	<u>X</u>	

X

Working capital
X

X

Long-term Liabilities

Bank loans
(X)

Net Assets
X

Financed By:

Owner's Equity

Capitals at 1st January 19X4
X

Additional capitals introduced
X

Net profit
X

Less: Drawings
(X)

ROI Enterprises

Income Statement for the Year Ended 31st December, 20XX

	N		<u>X</u>	
Sales		N		Trading Account
Less: Sales Returns		X		
		(X)		
		X		
<u>Less: Cost of Sales</u>				
Opening stock	X			
Purchases	X			
Purchases returns	(X)			
Carriage inwards	<u>X</u>			
Cost of goods available for sale	X			
Closing stock	(X)			
Cost of goods sold	X			
Wages **	X			
Cost of sales		X		
Gross profit		<u>X</u>		
Add: Other Incomes				Profit and Loss Account
Interest received	X			
Rent received	X			
Commission received	X			

Discount received	X	
Decrease in provision for bad/doubtful debt	<u>X</u>	
		<u>X</u>
		<u>X</u>
Less: Expenses		
Salaries **	X	
Rent and rates	X	
Carriage outwards	X	
Increases in provision for bad/doubtful debt	X	
Depreciation	X	
Printing and stationery	X	
Discount allowed	X	
Repairs	X	
Telephone	X	
Motor expenses	X	
Loan interest	X	
Advertising	<u>X</u>	
		<u>X</u>
Net profit		<u>X</u>

** **Wages** should be charged in the trading account *only* if shown separately on the trial balance from **salaries**. In such circumstances, the assumption, unless you are otherwise told, is that the wage is a direct trading expense to be included in the trading account while the salary is an indirect (i.e. overhead) expense to be included in the profit and loss (P&L) account.

If only wages is shown on the trial balance, it should be charged to the P&L account unless you are otherwise told.

If both *salaries* and *wages* are combined as one item (i.e. *salaries and wages*) on the trial balance, it should be charged to the P&L account.

ROI Enterprises

Statement of cash flows for the Year Ended 31st December, 20XX

	N
Operating Activities:	
Operating profit	X

Adjustments for items not involving flow of cash:

Depreciation charge for the year	X
(Profit)/loss on sale of fixed assets and long-term investments	(X)
Increase/(decrease) in provision of bad debt, etc.	<u>X</u>

X
Net cash flow before changes in working capital
X

Change in working capital

(Increase)/decrease in stock (X)
(Increase)/decrease in debtors and prepayments X
Increase/(decrease) in creditors and accruals
(X)

X
Net cash flow generated from operations
Z

VAT paid to government [excess of output VAT over
input VAT (X)
VAT refund received from government [excess of input
VAT over output VAT] X
Increase taxes paid (X)

X
Net cash flow from operating activities
X

Investing Activities:

Payment for purchase of fixed assets (X)
Proceeds from sale of fixed assets X
Interest received X
Dividend received X
Payment for investments acquired (X)
Proceeds from sale of investments X

Net cash flow from investing activities
X

Financing Activities:

Receipts from issue of shares and debenture X
Interest paid (X)
Dividend paid (X)
Long-term loans obtained X
Repayment of loans (X)
Redemption of debentures and preference shares (X)
Payment of finance lease rentals (X)
Payments relating to acquisition of own shares (X)

Drawdown on loans and overdraft facilities
(X)

Net cash flow from financing activities

(X)

Net increase/(decrease) in cash and cash equivalents

X

Cash and cash equivalents at opening date

X

Cash and cash equivalents at closing date

X

In actual practice, all these statements have notes to explain adjustment and operations where necessary.

Source: Igben, R.O. (2004)

3.2 Main Components of Financial Statement

There are three main components of financial statement. They are as follows:

- (a) Balance Sheet
- (b) Income Statement
- (c) Cash flow Statement

(a) Balance Sheet

Balance sheet shows the present statement of a business. The business as a single entity shows the financial condition of an accounting entity as at a particular point in time.

Balance sheet consists of assets (probable future economic benefits obtained and controlled by an entity as a result of past transactions or events). They may be physical assets such as land, buildings, stocks, or inventory. Assets may also be intangible such as trademarks, goodwill, copyright, or patent. For instance, assets are normally categorized into current and long-term. This will be discussed in detail in subsequent units.

(b) Income Statement

Income statement is otherwise known as profit and loss account. Other scholars refer to it as statement of income, statement of earnings and statement of operations. It is a summary of income and expenses, gains and losses of a business organisation and ends with the determination of net income for a specific period.

Income statement reveals the revenue (income) and expense (disbursements); hence the profit and loss is expressed with the true position of the net income. Management will have the profitability index and decision will be taken based on this.

The management can ask basic questions like “Can the present profit margin sustain the business?” “Should the business go for borrowing?” “Is the leverage position of the business alright?” “Should the company expand its operations?” “Can the business add to its human resource needs?”

The elements of income statement are:

- (i) Net sales (revenue/income)
- (ii) Cost of goods sold or cost of sales
- (iii) Other operating revenue
- (iv) Selling expenses
- (v) Administrative expenses

(c) Cash flow Statement

The analysis of cash flow benefits is for short-term planning with a view to generating enough cash to settle indebtedness maturing in the near future, to pay interest on borrowing and other expenses and to pay dividends to shareholders. The enterprises can make projects of cash inflows and outflows for the near future to determine the availability of cash.

This cash balance can be matched with the needs of the business for the period and appropriate arrangement can be put in place to meet deficit or invest surplus cash temporarily. It should be noted that a historical analysis of cash flow provides an insight for the preparation of reliable cash projection for the immediate future.

On the other hand, the cash statement enables management to explain the changes in cash and cash equivalent production. Management can use cash flow statement for dividend posting, cash generated by operations, investing and financing policy.

Basic elements of cash flow include the following:

- (1) ***Operating Activities:*** consist of all transactions plus other events that are not investing or financing activities. Cash flows from operating activities are generally the cash effects of transactions and other events that are added to determine the net income.

- (2) ***Investing Activities:*** consist of lending money and collection of these loans and acquiring and selling investments and productive long-term assets.
- (3) ***Financing Activities:*** consist of cash flows relating to liability and owners' equity.

The details of these cash flow activities will be expressed in subsequent units with illustration to back them up.

3.3 Financial Statement as a Management Tool

Financial statement helps in presenting the financial to oversee the resources of the information and data of an organisation. The statement will be meaningless if they are not appropriately utilised.

Users of financial statement include managers of business, financial analysts, consultants, researchers, trade creditors, suppliers of long-term debt, bankers, investors, etc. In this course, we will concentrate on its usefulness to management as a tool for decision making.

It is the overall responsibility of management to oversee the resources of the enterprise. Financial statement presents the accounting reports with dependable financial information to guide and aid management in evaluating the performance of the business outfit. This is done through the interpretation and analysis of the financial statement, either directly or through consulting experts, within or outside the management circle.

The financial statement properly prepared forms the basis for financial planning by management. The management will, at the end, take appropriate decision on how to run the business efficiently and effectively.

Financial statement analysis helps management predict, compare and evaluate the enterprise's activities and forecast the earning ability of the enterprise. It is the financial statement analysis that will direct management on the financial condition of the enterprise as well as the statement of affairs of the enterprise at a particular moment in time.

It should be noted that in modern management, the head of financial management belongs to the management team and is always a reference point of the top management on financial issues. His/her expertise is always sort before a financial decision is made. If this is ignored, the management will not have the true and fair picture of financial position and consequence is always a negative one.

With the balance sheet, the financial position of the assets and liabilities is known and management will always be informed. Hence, it is worth of note that financial statement position and its analysis/interpretation would enable management to respond to the challenges posed by this analysis appropriately.

Self Assessment Exercise 2

Discuss financial statement as a tool for management decision making.

4.0 CONCLUSION

We hereby conclude that the financial statement is a record of financial activities of an organisation which, when properly utilised by management, can turn out to be a great blessing to the growth of the enterprise.

5.0 SUMMARY

In this unit, we have taken a brief overview of financial statement alongside the main components like balance sheet, income statement and cash flow statement. The unit concludes with the discussion of financial statement as a tool for management decision making.

In the next unit, you will learn, in detail, about balance sheet, its preparation and use in the context of financial analysis.

6.0 TUTOR MARKED ASSIGNMENT

1. Identify the main components of financial management.
2. Discuss financial statement as a tool for management decision.

7.0 REFERENCE/FURTHER READINGS

Gibson, C.H. (1998). *Financial Statement Analysis using Financial Accounting Information*, 7th Edition, Ohio, USA: South-western College Publishing.

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UNIT 2 BALANCE SHEET

CONTENT

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Balance Sheet
 - 3.2 Basic Elements of Balance Sheet
 - 3.2.1 Assets
 - 3.2.2 Liabilities
 - 3.2.3 Owners Equity
 - 3.3 Usage of Balance Sheet
 - 3.4 Preparing a Balance Sheet
 - 3.5 Limitations of Balance Sheet
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

In the last unit, we explained financial statement, identified the main components and discussed it as a tool for management decision.

This unit continues with discussion on one of the components of financial statement – Balance sheet.

The basic elements of balance will be stated along with its usage and limitations as a financial analysis tool and its preparation.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss balance sheet;
- state the basic elements of balance sheet;
- identify the usage and limitations of balance sheet as a tool for in financial analysis;
- prepare balance sheet.

3.0 MAIN CONTENT

3.1 Balance Sheet

Balance sheet is a statement showing the assets belonging to an organisation offset by its liabilities and shareholders' funds. A balance sheet shows the financial condition of a firm/an entity as at a particular time. Balance sheet indicates the state of affairs of a business at that particular time. Its function is to show the financial status of a business at a point in time. It provides a list of an enterprise assets and liabilities at a particular period.

Self Assessment Exercise

What is a balance sheet?

3.2 Basic Elements of Balance Sheet

The balance sheet consists of assets (i.e. the enterprise resources), liabilities (i.e. the debts of the enterprise) and the owners' equity (i.e. owner's interest in the enterprise).

The records of assets are obtained from two major sources, namely: Owners and creditors. At any given point in time, the assets must be equal to the contribution of the creditors and owners.

The financial/accounting equation is expressed thus:

$$\text{ASSETS} = \text{LIABILITIES} + \text{OWNERS' EQUITY}$$

This is balance sheet using reported form. There is accounting form of balance sheet which is presented side by side each other.

3.2.1 Assets

Assets are valuable economic resources owned by an enterprise. They are probable future economic benefits obtained or controlled by an entity as a result of past transactions. It is defined as rights to advice potentials or rights to future benefits.

Assets are stored as cash for purchasing power (money claims e.g. receivables, dividends, etc). Tangible and intangible items sold or used in business to generate earnings.

Note:

Tangible assets include copyright, patents, goodwill, trademark and other non-physical items.

Assets are usually classified or categorized in **two** namely: current and non-current assets:

- (1) current assets are known as liquid assets;
- (2) non-current assets are known as fixed assets.

Current assets are resources of an enterprise which are in form of:

- (i) cash;
- (ii) will normally be realised in cash, or
- (iii) conserve the use of cash in the operating cycle (one year) of an enterprise or whichever is longer (accounting year).

Current assets include:

- cash, marketable securities;
- debtors (account receivables); and
- stock (inventory) of raw materials, work-in-progress and finished goods.

Non-Current (Fixed) Assets – Long-term Assets

These are long-term in nature and are held for periods longer than accounting period. They take longer than a year or an operating cycle to be converted to cash or to conserve cash.

We have tangible fixed assets like: land, equipment, furniture, etc.

Depreciation on these tangibles occurs yearly thereby reducing its value by cost implication. Depreciating is a process of allocating cost but does not involve cash outlay.

There are also intangible fixed assets which represent the enterprise's rights including patents, copyrights, goodwill, franchise etc.

Current assets are listed on the balance sheet in order of liquidity, which is the ability to be converted to cash.

Cash is the most liquid asset (including negotiable cheques and unrestricted balances in checking accounts and cash in hand, (savings accounts are cash (at bank) even if it may not be released for a specific period of time).

Marketable Securities are short-term investments – embodied with their marketability at a readily determinable market price. They are held

to earn a return on near-cash resources. Management resorts to convert them to cash in the current period when urgent situation arises.

Accounts Receivables are debts that are due on accounts from customers that arise from sales or services provided. They are net of allowances reflecting their realizable value and the amount is expected as collection e.g. bad debts allowance. There may be other allowances accounting for expected sales discounts given for prompt payment or for sales returns. These kinds of allowances recognise expenses in the period of sales returns, at which time the allowance is established. When the losses occur, in future, they are charged to the allowance.

There are other receivables of current assets which may result from tax refund claims, contracts, sales of assets etc.

Stocks (inventories) are the balance of goods in hand example in manufacturing enterprise will include:

- raw materials;
- work-in-progress; and
- finished goods.

These are associated at lower cost or market rule.

Raw materials are goods purchased for direct manufacturing of a product. They end up as part of the product. Example: to manufacture shirts, fabric, design formed pattern and button becomes raw materials.

Work-in-progress represents initial goods but not ready for sales. They consist of cost of materials, labour cost for workers directly involved in the manufacture and factory overheads (which includes cost items as rent, indirect wages and maintenance).

Finished goods and stock (inventory) ready for sales (the market). These include the cost of materials, labour costs for workers directly involved in the manufacture and factory overhead.

Supplies are items indirectly used in the production of goods or services and register tapes, pencils, needles etc for the shirt factory.

Note: The costing of inventory is a difficult process. For instance, an enterprise buys two units of raw materials. The first unit costs N5.00; the second costs N7.00. If by the end of the year, the enterprise utilised only one of them, what is the cost (expense) of the unit utilised? What is the cost assigned to the unit in stock (inventory)?

There are various methods of costing e.g. first in first out (FIFO), last in first out (LIFO), average and lower-of-cost or market rule methods.

These will be elaborated in module three of this course under inventory management.

Prepaid are expenditure made in advance of the use of the services or goods. It represents future benefits out of past transactions. If insurance is paid in advance for some years, e.g. three years, at the end of the first year, two years' worth of the outlay will be prepaid. The entity can retain the right to be covered by two more years of insurance. Examples of other prepaid are: taxes, advertising, promotion cost, insurance an early payment on long-term contracts.

Long Term Assets – They are usually categorized into tangible, intangible investments and other assets.

Tangible Assets – These are physical facilities used in the business like land, building, equipment, machinery (as mentioned earlier). You will learn how to review these facilities.

Land is identified at acquisition cost. Please note that land is not depreciated because land does not get used up. It contains resources that will be used up. For example, mineral deposits, forest, etc. may be depleted.

(Depletion expense at this point attempts to measure the wear and tear of these resources. It seems like depreciation but depreciation handles tangible fixed assets while depletion is concerned with a natural resource).

Buildings – These are structures at cost and the cost of lasting improvements. Building depreciates over time of their estimated usefulness.

Machinery is recorded at cost (historical/basic) plus delivery and installation and improvements material that add to the value of the life or quality of service. Machinery depreciates over its estimated useful life.

Construction in Progress – This represents cost of projects under construction and is transferred to the proper tangible asset account at completion of construction. From experience, there are always distortions when classifying this group of assets and to be on safe side, they are sometime classified as other long-term assets.

Accumulated Depreciation – As you have learnt how to review the above physical facilities, you will also learn the review of accumulated depreciation an issue related to building and machinery.

Depreciation is the process of allocating the cost of building and machinery over the periods of usefulness. The depreciation expense considered each period is accumulated in a separate account known as Accumulated Depreciation Account.

This is a contra asset, subtracted from the cost of plant and equipment. This is the net amount (book value) of the asset and does not represent the current market value of the asset.

Depreciation Methods – There are a number of methods but an enterprise chooses a particular approach (for consistency) for financial statements and another for tax purposes (returns). You should note that for financial statements, an enterprise prefers to depreciate slowly (gradually). This is so because this results in the highest immediate earning with highest asset balance. The same business enterprise will want to depreciate fastly for income tax returns. This is because this results in the lowest immediate earning ensuring lower income taxes.

Over the life of an asset, the total depreciation will be the same regardless of the depreciation method selected.

Three factors are normally used when calculating depreciation. They are:

- (1) the cost of asset;
- (2) the life-span of asset;
- (3) the salvage value at the end of service.

The lifespan and salvage value is estimated as probable in service. For clarity sake, the different methods will be named as: straight-line method and units of production/service/ operation. These are most popular methods asterisks in the table below.

Illustration below shows and confirms these depreciation methods applied for financial reporting purposes by different firms (enterprises) surveyed for the 1995 edition of Accounting Trends and Techniques.

Depreciation Methods – 1991 to 1994

Methods	1994	1993	1992	1991
• Straight line	573	570	564	558
Declining balance	27	26	26	28
Sum of the year's digit	9	9	12	8
• Accelerated method – not specified	49	56	62	70
• Units of production	49	46	47	50
• Others	11	9	5	7

Source: Accounting Trends & Techniques © 1995 by American Institute of Certified Public Accountants, Inc., p. 386. Printed with permission – Reproduced by Gibson, C.H. (1997), p. 105.

The accounting trends and techniques are crystal clear. The one with the highest application is the straight line method which is commonly used even in Nigeria and is acceptable by experts of financial interpretation like the auditors, analysts, consultants and researchers at various levels. You will learn an illustration of this method.

The following assumptions will be made to show depreciation methods:

1. Cost of asset – N10,000,000.00
2. Estimated lifespan of asset – 5 years
3. Estimated salvage (or residual) value – N2,000,000.00
4. Estimated total hours of use – 16,000.

Straight-Line Method:

This method recognises depreciation in equal amounts over the estimated lifespan of the asset. Calculate depreciation using the straight-line method as follows:

$$\begin{aligned}
 \text{Annual depreciation} &= \frac{\text{Cost} - \text{Salvage Value}}{\text{Estimated lifespan}} \\
 &= \frac{10,000,000 - 2,000,000}{5} \\
 &= \mathbf{N1,600,000.00}
 \end{aligned}$$

The N1,600,000 (N1.6 million) depreciation amount recognised yearly for five years lifespan of the asset. The salvage (or residual) value is not depreciated.

The unit-of-production method relates depreciation to the output capacity of the asset estimated for the lifespan of the asset.

Intangible Assets – These are non-physical assets such as: copyrights, trademark, patent, etc. They are recorded at historical cost and amortised over their useful years or legal lifespan, whichever is shorter. Current Generally Acceptable Accounting Principles (GAAP) requires amortisation for intangibles over a period that cannot exceed 40 years. Research and development costs must be expensed as incurred though this differs, according to countries. In Nigeria, Nigeria Accounting Standard Board (NASB) accepts the International Accounting Standard (IAS) which accept this.

Goodwill is from the acquisition of an enterprise for a sum greater than the physical asset value, usually as attribute of the business with unusual earning power which may have a resultant effect in form of good customer relations, a well-respected owner etc. It can be a substantial asset hence the amortisation period can ensure a material influence on income.

Patents – This is an exclusive rights granted to an investor and are valued at acquisition cost, not their future benefits.

Trademarks – This is a situation where the rights of the holder are granted. These are peculiar and distinctive names or symbols associated to the organisation.

Organisational costs are legal cost incurred when an enterprise has an asset and usually written off over a period, say five to ten years. Development costs of starting a new business fall into this category.

Franchises are legal rights of operating under a particular corporate name to provide trade name product or service.

Other Assets – these categories of assets do not fit into one of the previously discussed assets. They fall into the class of exigency and might include non-current receivables and non-current prepaids.

Self Assessment Exercise

State the basic elements of balance sheet.

3.2.2 Liabilities

According to Statement of Financial Accounting Concepts No. 6, Paragraph 35, Gibson noted that liabilities are probable sacrifices of economic benefit arising from present obligations of a particular entity

to transfer assets or provide services to other entities in the future as a result of past transactions or events.

Liabilities are usually classified into current or long-term.

Current liabilities are obligations with short-term liquidation within a year or operating cycle.

Items of current liabilities include:

- (1) Payables which is short term obligations created by the acquisition of goods and services such as accounts payable, wages payable, tax payable and notes payable;
- (2) Income received in advance; and
- (3) Bank overdraft.

3.2.3 Owners' Equity

Trial balance is working paper for the accountant to work out the arithmetical accuracy of entries recorded during an accounting period and makes the first step in the preparation of balance sheet.

When you are to prepare a balance sheet from the inception, you should note the following points:

Kritzinger and Fourie stated that:

- All items that contribute to the economic benefit of the enterprise like assets, loans and cash are shown in the balance sheet;
- Items in the balance sheet have a balance which is carried forward from year to year;
- The balance sheet follows a fixed format;
- The first section is capital employed indicating how much capital available and source of obtaining capital – capital deposit, retained earnings/profit or loans;
- The second section is employment of capital (usage) whether it is fixed assets, debtors or stock as well as debts of short-term, assets and current assets.

The balance of net current assets is the difference between current liabilities and current assets (items convertible to cash within a short period – less than a year).

The balance sheet consists of assets which are regarded as the enterprise resources, and the liabilities which constituted the debts of the firm; and owners' equity (owners' interest in the enterprise).

The assets are from two sources namely: creditors and owners. (At any point in time, the assets must be equal to the contribution of the creditors and owners). This is expressed in accounting/financial equation thus:

$$\text{Assets} = \text{Liabilities} + \text{Owners' Equity}$$

As stated above, when reporting the financial position of a firm in a balance sheet, the assets must of necessity equal the liabilities plus the owners' equity. This may also be presented side by side in account format.

Preparing a balance sheet is a two-stage process plus an informal stage based on a worksheet and a formal stage represented by the balance sheet presented as a financial statement/report.

Limitations of Balance Sheet

- Balance sheet is not an account, but only shows the balances of the accounts following the preparation of the income statement;
- Balance sheet does not set out for things other than state residual balances;
- Residual debit balances are indicated in the Balance sheet as assets.

By accounting measurements to debit and credit balances described as assets and liabilities respective, the balance sheet is often interpreted as showing the net worth of the business. (This is a misconception and in the case of corporate enterprise has given rise to controversy).

Collecting and classifying balances during the preparation of the balance sheet need not await the entry of all adjustments into different individual accounts following income statement preparation. It is usually prepared in draft form from trial balance and the finalized draft of the income statement.

When verifying balances, accounts are usually subjected to yearly audits. The purpose is to check the accuracy of the records. with this

move, evidence of assets is verified alongside the existence of liabilities in various creditors' accounts. In this link, they are required to that balance sheet as well as income statement show a true and fair view of the information they are statutorily expected to portray.

Bank reconciliation statement, while preparing a balance sheet, the balance at the bank as shown in cash book must be supported by bank statement showing the balance on the last day of the accounting period. Reconciliation statement explains the nature of the unadjusted differences between the cashbook and the bank statement in the balance sheet as shown below.

The balance of the bank according to cash book was N6,000 on the 31st of December, 2009. The bank statement balance was N6,500. The difference is explained thus:

- (i) cheques received from debtors on 31st December, 2009 which were not banked until 2nd January, 2010 amounted to N250;
- (ii) cheques sent to creditors on 31st December, 2009 and not presented for payment until after 1st January, 2010 amounted to N750.

Particulars	Amount
Bank Reconciliation Statement as on 31 st December, 2009	
	6,500
Balance at bank as per bank statement	<u>250</u>
Add: Cheques received but not lodged	6,750
	<u>750</u>
Less: Cheques issued but not presented	<u>6,000</u>
Balance at bank as per cash book	

The importance of balance sheet for the purpose of financial reporting and investment decision-making focuses attention on the arrangement of specific groupings to aid the interpretation and the analysis of activities and results. We shall deal with this analysis in module 2, but the relationship between long-term finance and long-term investment requirements.

3.3 Assets

Balance sheet indicates the financial condition of affairs of a business at a particular moment of time. It provides list of the enterprise's assets and liabilities at the moment, benefits obtained or controlled by an entity

as a result of past transactions. It is defined as the rights to service potentials or rights to future benefits.

Assets are stored purchasing power (e.g. cash). They include:

- Money claims (e.g. receivables, stock);
- Tangible (physical) and intangible items that can be sold or used in business to generate earnings.

Note: Tangible assets include: land, buildings, equipment, stock (inventory) and other physical items. Intangible assets include: copyrights, patents, goodwill, trademark and other non-physical existence items.

Assets are usually classified or categorized into two, namely:

- (i) Current assets otherwise called liquid assets;
- (ii) Non-current assets otherwise known as fixed assets.

Current assets are assets (resources) of an enterprise which:

- (a) are in form of cash;
- (b) will normally be realised in cash, or
- (c) conserve the use of cash in the operating cycle (one year) of an enterprise or whichever is longer (accounting year).

Current assets include: cash, marketable securities, debtors (account receivables) and stock (inventory) of raw materials, work-in-progress and finished goods.

Current assets are listed on the balance sheet in order of liquidity – which is the ability to be converted to cash.

Cash is the most liquid asset (including negotiable cheques and unrestricted balances in current accounts and cash in hand

Current assets are listed on the balance sheet in order of liquidity – which is the ability to be converted to cash as and when necessary.

Cash is the most liquid asset (including negotiable cheques and unrestricted balances in current accounts and cash in hand). Savings accounts are cash (at bank) even though it may not be released for a specific period of time.

Marketable securities are short-term investments embodied with their marketability at a readily determinable market price. They are held to

earn a return on near-cash resources. Management resort to convert them to cash in the current period when urgent situation arises.

Account Receivables are debts that are cash due on accounts from customers that arise from sales or services provided. They are net of allowances reflecting their realizable value and the amount is expected as collection e.g. bad debts allowance. They may be other allowances accounting for expected sales discounts given for prompt payment or for sales returns. These kind of allowances recognise expenses in the period of sales returns, at which time the allowance is established. When the losses occur in future, they are charged to the allowance.

There are other receivables of current assets which may result from tax refund claims, contracts, sales of assets, etc.

Stocks (inventories) are the balance of goods in hand. For example, in a manufacturing enterprise, inventories will include:

- raw materials,
- work-in-progress, and
- finished goods.

These are associated at lower cost or market rule.

Raw materials are goods purchased for direct manufacturing of a product. They end-up as part of the product. For instance, in order to manufacture shirts, fabric, design formal pattern and button becomes raw materials.

Work-in-progress represents initial goods which are not ready for sale. They consist of cost of raw materials, labour cost for workers directly involved in the manufacture and factory overheads (which includes cost items as rent, indirect wages and maintenance).

Finished goods and stock (inventory) ready for sales (the market). These include the cost of materials, labour costs for workers directly involved in the manufacture and factory overhead. Supplies are items indirectly used in the production of goods or services and register tapes, pencils, etc. needles for the shirt factory.

Note: The costing of inventory is a difficult process. For instance, an enterprise buys two units of raw materials. The first unit costs N5.00, the second costs N7.00. If by the end of the year, the enterprise utilised only one of them, what is the cost (expense) of the unit utilised? What is the cost assigned to the unit in stock (inventory)?

There are various methods of costing inventories. They include:

- (i) First in first out (FIFO);
- (ii) Last in first out (LIFO);
- (iii) Weighted average;
- (iv) Average and lower of cost, or
- (v) Market rule methods.

These will be elaborated in module 3 of this course under inventory management.

Prepaid expenses are expenditure made in advance of the use of the services or goods. It represents future benefits out of past transactions. If insurance is paid in advance for some years e.g. three years, at the end of the first year, two years worth of the outlay will be prepaid. The enterprise can retain the right to be covered by two more years of insurance. Examples of other prepaid expenses are: taxes, advertising, promotion cost, insurance and early payment on long-term contracts.

Fixed or Non-current Assets: These are long-term in nature and are held for periods longer than the accounting period. They take longer than a year or an operating cycle to be converted to cash or to conserve cash.

We have tangible fixed assets like land, equipment, furniture, etc. Depreciation on these tangibles occurs yearly thereby reducing its value by cost implication. Depreciating is a process of allocating cost but does not involve cash outlay or movement of cash.

There are also intangible fixed assets which represent the enterprise's rights which include patents, copyrights, goodwill, franchise, etc.

Long-term Assets – They are usually categorized into tangible, intangible investments and other assets.

Tangible assets – these are physical facilities used in the business like land, building, equipment, machinery (as mentioned earlier). You will learn how to review these facilities.

Land is identified at acquisition cost. Note that land is not depreciated because land documents not got used up. It contains resources that will be used up. For instance, mineral deposits, forest etc. may be depleted.

Depletion expenses at this point attempts to measure the wear and tear of these resources. It seems like depreciation but depreciation handles tangible fixed assets while depletion is concerned with a natural resource.

Buildings – these are structures at cost and the cost of lasting improvement. Building depreciates over time of their estimated usefulness.

Machinery is recorded at cost (historical/basic) plus delivery, installation and improvements material that add to the value of the life or quality of service. Machinery depreciates over its estimated useful life.

Construction in progress – this represents cost of projects under construction and is transferred to the proper tangible asset account at completion of construction. From experience, there are always distortions when classifying this group of assets and to be on the safe side, they are sometimes classified as other long-term assets.

Accumulated depreciation – as you have learnt how to review the above physical facilities, you will also learn the review of accumulated depreciation – an issue related to building and machinery. Depreciation is the process of allocating the cost of building and machinery over the periods of usefulness. The depreciation expense considered each period is accumulated in a separate account known as Accumulated Depreciation account.

This is a contra asset, subtracted from the cost of plant and equipment. This is the net amount (book value) of the asset and does not represent the current market value of the asset

Depreciation methods – there are a number of methods but an enterprise could choose a particular approach (for consistency) for financial statements and another for tax purposes (returns). You should note that for financial statements, an enterprise prefers to depreciate slowly (gradually). This is because this results in the highest immediate earning with highest asset balance. The same business enterprise will want to depreciate in an increasing rate for income tax returns. This is because this results in the lowest immediate earning ensuring lower income taxes.

Please note that, over the life of an asset, the total depreciation will be the same regardless of the depreciation method selected.

Three factors are normally used when calculating depreciation, they are:

- (1) the cost of asset;
- (2) the lifespan of asset;
- (3) the salvage value at the end of service.

The lifespan and salvage value is estimated as probable in service.

For clarity sake, the different methods as: straight line method, reducing balance and units of production/service/operation. These are most popular methods asterisks in the table below.

Illustration below shows and confirms these depreciation methods applied for financial reporting purposes by different firms (enterprises) surveyed for the 1995 edition of accounting trends and techniques.

Depreciation Methods (1991 – 1994)

Methods	1994	1993	1992	1991
* Straight-line	573	570	564	558
Declining balance	27	26	26	28
Sum-of-the years' digits	9	9	12	8
* Accelerated method – not specified	49	56	62	70
* Units of production	49	46	47	50
Others	11	9	5	1

Source: Accounting Trends & Techniques © 1995 by American Institute of Certificate Public Accountants, Inc, p. 386. Printed with the permission/reproduced by Gibson, C.H. 1997, p. 105

The accounting trends and techniques are crystal clear. The one with the highest application is the straight line method which is commonly used even in Nigeria and is acceptable by experts of financial interpretation like the auditors, analysts, consultants and researchers at various levels. You will learn an illustration of this method.

The following assumptions will be made to show depreciation methods:

- 1. Cost of assets N10,000,000
- 2. Estimated lifespan of assets 5 years
- 3. Estimated salvage (or residual) value N2,000,000
- 4. Estimated total hours of use 16,000

Straight line method: This method recognises depreciation in equal amounts over the estimated lifespan of the asset. Calculate depreciation using the straight line method as follows:

$$\begin{aligned}
 \text{Annual depreciation} &= \frac{\text{Cost} - \text{Salvage value}}{\text{Estimated lifespan}} \\
 &= \frac{10,000,000 - 2,000,000}{5}
 \end{aligned}$$

$$= \text{N1,600,000}$$

The N1,600,000 (N1.6m) depreciation amount recognised yearly for five year lifespan of the asset. The salvage (or residual) value is not depreciated.

The Unit-of-production method – relates depreciation to the output capacity of the asset estimated for the lifespan of the asset.

Intangible Assets – These are non-physical assets such as copyrights, trade mark, patent etc. They are recorded at historical cost and amortized over their useful years or legal lifespan, whichever is shorter. Current GAAP – Generally Acceptable Accounting Principles requires amortization for intangibles over a period that cannot exceed 40 years. Research and development costs must be expressed as incurred though this differs according to countries. In Nigeria, the Nigeria Accounting Standard Board (NASB) accept the international accounting standard (IAS) which accept this.

Goodwill is from the acquisition of an enterprise for a sum greater than the physical asset value, usually as attribute of the business with unusual earning power which may have a resultant effect in form of good customer relation, a well respected owner etc. It can be a substantial asset hence the amortization period can ensure a material influence on income.

Patents – this is an exclusive rights granted to an inventor and are valued at acquisition cost, not for their future benefits.

Trademarks – this is a situation where the rights of the holder are granted. These are peculiar and distinctive names or symbols associated to the organisation.

Organisational costs are legal cost incurred when an enterprise has an asset and usually write off same over a period, say five to ten years. Development costs of starting a new business fall into this category.

Franchises are legal right of operating under a particular corporate name to provide trade name, product or service other assets.

These categories of assets do not fit into one of the ones discussed previously. They fall into the class of exigency and might include non-current receivables and non-current prepaid.

Self Assessment Exercise

Discuss the basic elements of balance sheet.

3.4 Liabilities

According to Statement of Financial Accounting Concepts No. 6, paragraph 35, Gibson noted that liabilities are probable sacrifices of economic benefit arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events.

Liabilities are usually classified into current or long-term. Current liabilities are obligations with short-term liquidation within a year or operating cycle.

Items of current liabilities include:

- (i) Payables which is short-term obligations created by the acquisition of goods and services such as accounts payable, wages payable, tax payable and notes payable;
- (ii) Unearned income – these are advanced payments for services to be rendered in future time;
- (iii) Other current liabilities – current obligations for settlement (payment) within the accounting year. For example, dividend, interest, insurance, advertisement, warranties, deferred taxes etc. There are also liabilities relating to financing agreement – they may be long-term in nature but requires systematic payment of principal and interest like bonds payable, notes payable and credit agreements. There are also liabilities relating to operational obligations which include obligations arising from the business e.g. pension obligations;
- (iv) Minority interest is associated with the ownership of minority shareholders in the enterprise. Note – minority interest does not reflect/represent a liability in the enterprise per se. Deferred profit on sales is another non-current liability. Redeemable preferred stock is subject to mandatory redemption requirements or has a redemption feature without the control of the issuer.

Owners' equity according to Statement of Financial Accounting Concepts No. 6, paragraph 212 noted that it is the residual ownership

interest in the asset of an entity that remains after deducting its liabilities.

There are two basic categories of owners' equity, namely: paid-up capital and retained earnings. Other accounts may appear in owners' equity which are normally presented apart from paid-in capital and retained earnings. Accounts like foreign currency translation adjustments, unrealized decline in market value of investments, etc.

Owners' equity is simply called equity (the financial interest of the owners). The owners' interest is residual in nature as inferred from the definition quoted above. They reflect the excess of the enterprise's assets over liabilities. Please note that liabilities are the claims of external parties. Equity represents owners' claim against the enterprise as stated in the balance sheet though the nature of claims differ.

Time defines the difference between them as; creditors' claim is to be fulfilled within a specific period while that of owners' change the payable amount can be determined only when the enterprise is liquidated. The assets values are stated at cost, hence can be considerably different between the owners' book and the real claim at liquidation.

Owners' equity is initially on account of investors' funds, but changes with the earnings of the enterprise and their distribution pattern. The earnings/losses of the enterprise do not affect the claims of the creditor because they are not the risk bearer like the equity owners. Owners' equity will increase when the enterprise makes more earnings and part is retained. Any losses by the enterprise will reduce the claims of owners, the risk bearers.

Owners' equity can be referred to as shareholders' equity or shareholders' funds. I here again reiterate the point that owners' equity has two parts: paid-up share capital and retained earnings/or revenues and surplus.

Pandey (2005) defined paid-up share capital as the amount of funds directly contributed by the shareholders through purchase of shares and that reserves and surplus or retained earning are undistributed (book) profits. The net worth is paid-up share capital, reserves and surplus.

4.0 CONCLUSION

In this unit, you have the conclusion that the balance sheet is a financial statement of an enterprise's assets, liabilities and equity on a specific date.

5.0 SUMMARY

In this unit, you were taught of balance sheet as a financial statement and basic element, its preparation, uses in the context of financial analysis were learnt along side its limitations. In the next unit, you will learn how to prepare income statement and its uses as a financial statement.

6.0 TUTOR MARKED ASSIGNMENT

1. What is the use of balance sheet in financial analysis of an enterprise?
2. Identify the limitations of balance sheet as a financial analysis tool.

7.0 REFERENCES/FURTHER READINGS

Pandey, I.M. (2005). *Financial Management*. New Delhi: Vikas Publishing House PVT Limited.

Glautier, MWE and Underdown (1978). *Accounting Theory and Practice*. London: Pitman Publishing Limited.

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UNIT 3 INCOME STATEMENT

CONTENT

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Income Statement
 - 3.2 Basic Element of Income Statement
 - 3.3 Usage of Income Statement
 - 3.4 Preparation of an Income Statement
 - 3.5 Limitations of Income Statement
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

The Income statement is another aspect of financial statement which is considered important because it measures the financial strength of an enterprise. It is used to state the income (revenue), earnings and operational expenses of an enterprise. This unit will discuss income statement, its usage, basic element, limitations and preparation.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- (i) discuss income statement and state its usage;
- (ii) explain the basic elements of income statement;
- (iii) identify its limitations.

3.0 MAIN CONTENT

3.1 Income Statement

This is a record of all income and expenditure with which the enterprise conducts business activities in the period under review. It is designed to measure the results of transactions which have taken place between two balance sheet dates. It is a summary of all transactions which take place during a period. It shows the result of operations for a period of time.

3.2 Basic Element of Income Statement

A simple multiple-step income statement lists all gains, and then list all expenses and losses. Many firms use this single-step income statement with total expenses and loss items deducted from total revenue and gain items to determine the net income.

It is worthy to emphasise that income statement summarises the revenue and expenses and gains and losses of a business organisation, and ends with the net income for a specific period.

The elements of income statement are:

- (i) Net sales (revenue) or income – sales here stands for revenue from goods and services sold to customers. The firm earns revenue (income) from the sale of its main products;
- (ii) Cost of goods sold or cost of sales – this is the cost of goods sold to obtain revenue. You need to develop a sales mind to capture this explanation. That is, for a retailing enterprise, the cost of goods sold equals beginning inventory plus purchases minus ending stock (inventory).
- (iii) Other operating revenue (income) – this depends on the operations of the business which may bring about royalties and lease revenue (income);
- (iv) Operating expenses – this is made up of two types, namely: selling and administrative. Selling expenses is a product of the enterprise's effort to create sales, including advertising, labeling, packaging, sales supplies, sales commission, etc. Administrative expenses emanates from the general administration of the enterprise's operation. These include office salaries, insurance, telephone (communication, ICT), bad debt expenses, and other cost which is not easily pinned down;
- (v) Other income and expenses are mostly secondary (ancillary) activities not directly related to the operations of the business enterprise like rented warehouse in a producing enterprise. This lease will be other income, interest expense fall into this category of expense.

Sample of an Income Statement

	N		N	
Sales			X	Trading Account
Less: Sales Returns			(X)	
			X	
<u>Less: Cost of Sales</u>				
Opening stock		X		
Purchases	X			
Purchases returns	(X)			
Carriage inwards	X			
Cost of goods available for sale	X			
Closing stock	(X)			
Cost of goods sold	X			
Wages **	X			
Cost of sales			X	
Gross profit			X	
Add: Other Incomes				Profit and Loss Account
Interest received	X			
Rent received	X			
Commission received		X		
Discount received	X			
Decrease in provision for bad/doubtful debt		X		
			X	
			X	
Less: Expenses				
Salaries **	X			
Rent and rates		X		
Carriage outwards	X			
Increase in provision for bad/doubtful debt		X		
Depreciation	X			
Printing and stationery	X			
Discount allowed	X			
Repairs	X			
Telephone	X			
Motor expenses	X			
Loan interest	X			
Advertising	X			
			X	
Net profit			X	

3.3 Usage of Income Statement

Income statement shows the earning capacity of an enterprise. With it, the potential of an enterprise is known. It is the scoreboard of performance during a period of time for a business enterprise. It shows the result of operations for a period of time. It is not a stock or status statement. With it the position of assets, liabilities and owners' equity at a point of time is not known.

3.4 Preparation of an Income Statement

Preparing an income statement starts with the extraction of a trial balance at the close of the accounting period as noted earlier in Unit 2 in the preparation of balance sheet (the two instruments are related to each other) is the basic step. You require to have the knowledge of the role of the trial balance at this level of learning in Financial Accounting course earlier in the programme.

Just like the preparation of balance sheet in the last unit of this course, income statement is a two-stage exercise. The first is an informal one which consists of a worksheet for accumulating all the data incorporating the various adjustments. After the trial balance has been adjusted, certified and confirmed, the adjustments are then put in the appropriate accounts.

At this point, income statement is formally included in the accounting system. It is important at this point for you to recall that the income statement is an account to which the revenue and expenses accounts for the accounting period are transferred as summary, which exists mainly for the aim of measuring the accounting income for that period. As operational statement, a lot of adjustments have to be carried out from time to time as will be shown in accruals, asset values etc. to arrive at periodic income.

Illustration of the nature of the Income Statement

The following trial balance was extracted from the books of John Smith on 31st December, 2009, being the end of the year's trading:

Credit	Debit
N'000	N'000
Capital	
25,000	
Motor vehicles	10,000
Furniture & Fittings	2,500
Purchases	31,000

Cash at bank	6,000	
Sales		
70,000		
Sundry debtors	18,000	
Sundry creditors		
3,500		
Rent	4,500	
Salaries	22,800	
Insurance	400	
Motor expenses	2,000	
Light and heat		1,000
General expenses	<u>300</u>	
<u> </u>		<u>98,500</u>
<u>98,500</u>		

We assume the adjustment required as follows:

- (i) Rent unpaid at the end of the year N1,500;
- (ii) Insurance paid in advance amounted to N50;
- (iii) Rent receivable, but not recorded in the account amounted to N60;
- (iv) Closing inventories at the 31st December, 2009 were valued at N3,000.

We now received additional information:

- (i) Depreciation to be charged on the under-mentioned assets and is to be calculated on the depreciating balance method;

Motor vehicles	20%	(N1,000)
Furniture and Fittings	10%	(N250)

- (ii) Bad debts to be written off N180 with a provision for doubtful debts is to be created in the sum of N178.

Adjusting for accruals above resulted in the following revisions of balances in the trial balance:

Items	Original balance	Adjustment
New balance		
	₦'000	₦'000
₦'000		
Rent	4,500	1,500
6,000		

Insurance	400	50
350		
Insurance prepaid	-	50
50		
Rent receivable	-	60
60		
Rent payable	-	60
60		

The correct adjustable total revenues and expenses may be listed on a worksheet used in the income statement preparation.

Draft Income Statement for the year ended 31st December, 2009

	N'000	
N'000		
Purchases	31,000	Sales
70,000		
Rent	6,000	Rent receivable
60		
Salaries	22,800	
Insurance	350	Closing inventory
(31/12/10) 3,000		
Motor expenses	2,000	
Light and heat	1,000	
General expenses	300	

Adjusting for inventories:

Periodic measurement involved valuing the inventory of goods unsold at the end of the account period. The closing inventory is valued in accordance with the cost convention. This represents the residue of the purchases of the year which have not been sold at the end of the year. This will be sold in the next accounting period.

Adjusting for the loss in asset values:

The most important losses in asset values recognised in the period measurement of income. The most significant losses in asset values which are involved in the process of adjustment like calculation of depreciation and provision of doubtful debts.

(a) Calculating depreciation to be charged against the income of the year as follows:

(i)	Motor vehicles	N'000
	N'000	
	Cost	10,000
	Less: Estimated residual value	<u>1,000</u>
	Net cost for depreciation	9,000
	20% Depreciation for the year 2009	<u>1,800</u>
	1,800	
	Residual balance for depreciation in the following years	<u>7,200</u>
(ii)	Furniture and fittings	
	Cost	2,500

Less: Estimated residual value	<u>250</u>
Net cost for depreciation	2,250
10% Depreciation for the year 2009	<u>225</u>
225	
Residual balance for depreciation in the following years	<u>2,025</u>
<hr/>	
Total depreciation for the year	
<u>2,025</u>	

The provision for depreciation (wear and tear) in respect of the different fixed assets may be reconciled and shown in the balance sheet.

(b) Calculating the provision for doubtful debts:

	<u>Duration of debt</u>	<u>Balance (N'000)</u>	<u>Loss Rate %</u>
	<u>Provision (N'000)</u>		
80	Less than 1 month	15,960	5
90	1 – 2 months	1,800	5
4	2 – 3 months	40	10
4	Over 3 months	<u>20</u>	25
		<u>17,820</u>	
<u>178</u>			

This goes with the presumptions of bad and doubtful debts as projections in case the debts are not paid, the machinery business has to continue by assuming that a portion of the debt owed will be paid and the other position categorise as bad (not foreseeable).

With income statement calculation period, income is set out and distinction is made between gross income and net income.

Gross income is the income after deducting from gross sales revenue of expenses directly connected with the production or purchase of goods sold. Net income is the deduction of overhead expenses from gross income.

The net income figure is the most important result, dividing the income statement into two parts indicating overhead expense burden and focusing attention on important aspects of business activity.

(i) Calculating Gross Income:

For a trading business based on the example in the income statement given above, gross income from trading may be like this:

Trading Account for the year ended 31/12/2009

	N'000	
	N'000	
Purchases	31,000	Sales
70,000		
Less: Closing inventory @ 31/12/09	<u>3,000</u>	
Cost of sales	28,000	
Gross trading income	<u>42,000</u>	
	<u>70,000</u>	
	<u>70,000</u>	

(ii) Calculating Net Income:

This is effected by charging against gross income the indirect expenses accumulated in the trial balance and the expenses such as:

- bad debts
- provisions for doubtful debt, and
- depreciation

With the above data, an updated income statement could be used to calculate the following net income for the year ended 31st December, 2009 as follows:

Profit and Loss Account for the year ended 31st December, 2009

	N'000	
	N'000	
Rent	6,000	Gross trading income
42,000		
Salaries	22,800	Rent receivable
60		
Insurance	350	
Motor expenses	2,000	
Light and heat	1,000	
General expenses	300	
Depreciation:		
Motor vehicle	1,800	
Furniture and fittings	<u>225</u> 2,025	
Bad debts	180	
Provision for doubtful debts	<u>178</u>	
	34,833	

Net income	<u>7,227</u>
	<u>42,060</u>
<u>42,060</u>	

Note: Miscellaneous income (like interest, rent and dividends) which are minor element of business income are dealt with in **net** income calculation rather than in **gross** income calculation. This approach provides a clearer view of significant ratios.

Finally, in the preparation of income statement which is part of the accounting system, the formal presentation is influenced in the financial statement reporting.

This has given room for further classification of interest expenses into selling, administration and financial expenses. Thus, the vertical presentation of the income statement would be as follows:

John Trading Inc.		
Income Statement for the year ended 31st December, 2009		
	₦'000	₦'000
	₦'000	
Sales	70,000	
Less: Cost of Sales:		
Purchases		31,000
Less: Closing inventory		<u>3,000</u>
	<u>28,000</u>	
Gross Trading Income	42,000	
Add: Other Income:		
Rent		
	<u>60</u>	
Total Income	42,060	
Less: Selling and Distribution Expenses:		
Salesman's salaries	12,000	
Motor expenses	2,000	
Depreciation – Motor vehicle	<u>1,800</u>	15,800
Less: Administrative Expenses:		
Rent	6,000	
Office salaries	10,800	

Insurance	350	
Light and heat	1,000	
General expenses	300	
Depreciation: Furniture and fittings	<u>225</u>	18,675

Less: Financial Expenses:

Bad debts	180	
Provision for doubtful debts	<u>178</u>	<u>358</u>

Total Overheads

34,833

Net Income

7,227

3.5 Limitations of Income Statement

The limitations of income statement are based on the fact that it is part of the accounting system (financial statement). It depends on other financial procedures to succeed. From the point of documentation, trial balance arrangement to its preparation and the effects of the balance position of the last and the preceding balance sheet will influence the end result of the true income statement.

As a financial statement, it requires interpretation because of the dynamic nature of business transaction and recording. The timing of events and the economic factors influence the posture of the income statement variables for any given period. It is always done in conjunction with balance sheet position to analyse the financial performance of any enterprise. It cannot explain the changes in assets, liabilities and owners' equity.

4.0 CONCLUSION

You have learnt the use of income statement as an important part of financial statement used to state the income and expenditure of an enterprise. You also learnt about its preparation.

5.0 SUMMARY

The summary of this unit involves discussion of income statement, its basic elements, usages as well as the limitation in financial analysis. The simple procedure in preparing income statement along with necessary adjustments was also explained.

6.0 TUTOR MARKED ASSIGNMENT

1. Explain the basic elements of income statement of an enterprise.
2. Discuss the role of income statement of a business concern.

7.0 REFERENCES/FURTHER READINGS

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UNIT 4 CASH FLOW STATEMENT

CONTENT

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Cash Flow Statement
 - 3.2 Basic Elements of Cash Flow Statement
 - 3.3 Sources and Uses of Cash
 - 3.4 Cash Flow Management
 - 3.5 Preparation of Cash Flow Statement
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

Cash flow statement is the other aspect of financial management that complements the role of balance sheet and income statement. Its analysis explains the changes which focus on cash. It is prepared based on the concept of cash which include short-term instruments mainly for current (immediate) planning. We will define and explain cash flow statement, discuss its basic element, identify its usage and how it is prepared.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- (i) define and explain cash flow statement;
- (ii) discuss the basic elements of cash flow statement;
- (iii) highlight its usage;
- (iv) prepare cash flow statement.

3.0 MAIN CONTENT

3.1 Cash Flow Statement

This is an aspect of financial statement which provides useful information about a business organisation activities in generating cash through its operations to settle debt, distribute dividends, or reinvest such funds in order to maintain or expand the operating capacity of the business financing activities (be it debt or equity; and about its investing or spending of cash).

The statement is the base for the analysis of cash flows which is useful for short-term planning. In principle and practice, every enterprise needs enough cash to settle its indebtedness that matured in the near future, pay interest as they fall due, pay dividends and other expenses.

The enterprise can project cash flows and outflows for the near future to determine cash available. This cash balance can then be matched with the enterprise's need for cash for the period and subsequently arrange to meet the deficit or cash surplus is temporarily invested. At this juncture, you should note that a historical (book-keeping records) analysis of cash flows makes way for a reliable cash flow projections preparation for the immediate future.

This is a financial position that changes based on cash and 'near' cash (immediate liquidity). It summarises the causes of changes in cash position between dates of last and preceding balance sheets. (Cash flow statement is similar to fund flow statement, the only dissimilarity is the emphasis on 'cash'). In short, cash flow statement summarises the flow of cash in and out of the enterprise over a period of time.

3.2 Basic Elements of Cash Flow Statement

The basic elements of cash flow statement include the following main activities headings:

(a) Operating activities

Operating activities consist of all transactions plus other events that are not investing or financing activities.

Cash flows from operating activities are generally the cash effects of transactions and other events that is added to determine net income such as: typical cash inflows and typical cash outflows.

(b) Investing activities

Investing activities consist of lending money and collecting on these loans and acquiring and selling investments and productive long-term assets such as: typical cash inflows and typical cash outflows.

(c) Financing activities

Financing activities consist of cash flows relating to liability and owners' equity including typical cash inflows and typical cash outflows.

3.3 Sources and Uses of Cash

Pandey (2005) stated the sources of cash as follows:

- the profitable operations of cash;
- decrease in assets (except cash);
- increase in liabilities (including bonds);
- sales proceeds from shares issued.

It also stated that the uses of cash are:

- the loss from operations;
 - increase in assets (except cash);
 - decrease in liabilities (including redemption of bonds);
 - redemption of redeemable preference shares;
 - cash dividend payment.
- (i) Cash flow statements are useful by focusing on cash flows in a business enterprise. It helps in explaining the nature of the financial activities affecting cash inventory. For instance, if an enterprise had a balance of ₦*x* at the beginning of the accounting year and ₦*y* at the end, the cash flow statement will show the reason for the difference.
- (ii) Cash flow statements are required for financial planning. In budgeted cash flow statements, a vital element in budgetary planning indicates cash surpluses and shortfalls from budget plans. These surpluses and shortfalls are expressed over the planning period and management will be expected to deal with the forecasted cash surplus or deficit. {The former involves a short-term investment surplus cash while the latter is a short-term borrowing arrangement (overdraft or short-term credit facility by banker)}.
- (iii) Cash flow statements contrast the enterprise's earning capacity with its spending activity. Income statement is restricted by financial conventions to matching periodic revenues with the cost of earning those incomes (revenues). On the part of cash flow statement, there is no restriction in this approach. Therefore, it provides an extended view of the financial inflows and outflows by including both capital and revenue flows. In the inference, borrowings and capital injections and proceeds from assets

realisation are incorporated with the cash generated from sales to give a more complete idea of financial inflows. Such as loans repayment, capital expenditure, dividends and taxation are incorporated with revenue expenses to give a more complete picture of financial outflows.

3.4 Cash Flow Management

The analysis of cash flow benefit is for short-term planning. With enough cash to pay indebtedness maturing in the near future to pay interest, other expenses and to pay dividend to shareholders. The enterprise can make projects of cash inflows and outflows for the near future to determine the availability of cash.

This cash balance can be matched with the cash required for the business for the period and appropriate arrangement can be put in place to meet deficit or invest surplus cash temporarily.

Please note that a historical analysis of cash flows provides insight to the preparation of reliable cash flow projection for the immediate future.

On the other hand, the cash flow statement enables management to explain the change in cash and cash equivalent position. Management can use cash flow statement for dividend policy, cash generated by operation, investing and financing policy.

3.5 Preparation of Cash Flow Statement

The first thing to note is that the main thrust of cash flow statement is to reconcile the opening balance with the closing balance of cash at the end of an accounting period. Hence, we start with balance at the beginning of the year.

Cash flow statement is concerned with cash transactions and does not distinct whether they are of revenue or of a capital nature. Cash flow does not involve adjustments like income statement.

The form and content of a cash flow statement and its purpose may be seen in the light of the following:

Illustration:

The income statement for the year ended 31st December, 2009 showed that a trading stores made a profit of N18,000,000. The bank balance had reduced from N10,000,000 at the beginning of the year to N3,000,000 at the 31st December, 2009. By this adverse situation, the

entrepreneur requested the Financial Manager for an explanation of the reduction in the cash balance. The analysis of cash receipts and payments in the year is summarised as cash movement thus:

Cash Receipts:	₦'000
₦'000	
Cash receipts from sales and debtors	
145,000	
Loan raised for expansion	
20,000	
Cash Payments:	
Purchases of goods and payment to credits	109,000
Payment of wages and salaries	10,000
Payment of interest and bank charges	1,000
Expenditure on extension of premises	30,000
Payment for new fittings	5,000
Cash withdrawn by the entrepreneur	10,000
Payment of miscellaneous expenses	<u>7,000</u>
<u>172,000</u>	
Excess of cash payment over cash receipts in the year	
<u>(7,000)</u>	

From the above presentation, a cash flow statement for the period (year) can be prepared to explain the change in the net cash balances at the beginning and end of the financial period. Notwithstanding, in order to produce a cash flow statement which will enable cash position to be known, the analysis of cash receipts and payments are to be re-arranged and classified to indicate the causes of the cash receipts and the purposes for which cash was expended.

At this point, you are advised to segregate cash flows associated with current operations from cash flows connected with capital items and this shown below.

For financial analysis, by cash flow statement, the explanation of the fall in the bank balance from N10 million to N3 million despite recording a profit of N18 million is to be in the capital expenditure incurred during the year. Hence, total capital expenditure amounting to N35 million was financed by N20 million loan and N18 million from the cash flow generated by current operations. The difference of N7 million had to be found from available cash in the bank account.

Cash Flow Statement for the year ended 31st December, 2009

₦'000	₦'000	₦'000
Bank balance as at 1 st January, 2009		
10,000		
Net cash flows from current operations		
cash receipts from sales and debtors		145,000
Less:		
Purchase of goods and payments to creditors	109,000	
Payment of wages and salaries	10,000	
Payment of interest and bank charges	1,000	
Payment of miscellaneous expenses	<u>7,000</u>	<u>127,000</u>
		18,000
Less:		
Payments from profits to owner		<u>10,000</u>
Cash flow fro current operation available for capital purposes		8,000
Net cash flows on capital items cash obtained by loan		<u>20,000</u>
Cash obtained by loan		28,000
Less:		
Expenditure on extension to premises	30,000	
Payment for new fittings	<u>5,000</u>	<u>35,000</u>
Excess of cash payments over cash receipts during the year		<u>7,000</u>
Bank balance as at 31st December, 2009		<u>3,000</u>

4.0 CONCLUSION

You have learnt about cash flow statement which is the third and final part of financial statement that assists in the analysis of changes in cash position of an enterprise during a given period of time.

5.0 SUMMARY

In this unit, we have discussed cash flow statement showing the basic element, highlight of its usage in financial analysis and the preparation procedure of same.

6.0 TUTOR MARKED ASSIGNMENT

1. Explain the sources and uses of cash in an enterprise.
2. Name with explanation the three categories of cash flows that make up the cash flow statement.

7.0 REFERENCES/FURTHER READINGS

Pandey, I.M. (2005). *Financial Management*. New Delhi: Vikas Publishing House PVT Limited.

Garrison, R.H. & Noreen, E.W. (2000). *Managerial Accounting*. New York: McGraw-Hill Company Inc.

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MODULE 2 FINANCIAL RATIOS ANALYSIS

Unit 1	Liquidity Ratios
Unit 2	Profitability Ratios
Unit 3	Leverage Ratios
Unit 4	Activity Ratios
Unit 5	Investment Ratios

UNIT 1 LIQUIDITY RATIOS

CONTENTS

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	Liquidity Ratio
3.2	Types of Liquidity Ratio
3.2.1	Current Ratio
3.2.2	Quick Ratio
3.2.3	Cash Ratio
3.2.4	Net Working Capital Ratio
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

1.0 INTRODUCTION

Financial ratio is a proportion or fraction or percentage expressing the relationship between one item in a set of financial statements and another item in the same financial statements. Financial ratios are the most powerful of all the tools used in the analysis of financial tools, with empirical approach. In this unit, you shall learn liquidity ratio analysis the definition, computation, types and the analysis of the short-term debt payment ability.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define and explain liquidity ratio
- identify the different types of liquidity ratios and state their usage
- compute the different liquidity ratio.

3.0 MAIN CONTENT

3.1 Liquidity Ratio – Definition

This is a tool generally used to express the extent to which a business can meet its short-term obligations as at when due. When an enterprise owes short-term debts (bills – water electricity etc.) the liquidity is the loop to show the capability.

3.2 Types of Liquidity Ratio

Liquidity position is assessed with the following:

1. Current ratio
2. Quick (Acid-test) ratio
3. Cash ratio
4. Net working capital ratio

3.2.1 Current Ratio

This ratio compares all current assets with current liabilities in the financial statement and indicating the ability of an enterprise's ability to meet its short-term obligation with its current assets.

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

A low current ratio indicates that the enterprise may not be able to pay its future bills on time especially, if it is slow in debt collection. A high current ratio indicates an excessive amount of current assets and management's inability to utilize the enterprise's resources effectively. To be able to withstand the sudden adverse consequences of such eventualities and reduction of creditors (or exceptional amounts of bad debts) is necessary to ensure that it is necessary that the current assets adequately cover the current liabilities.

To determine whether this ratio is high or low or just right, comparisons should be made with current ratio of previous periods and of similar businesses. As a general rule (convention) a current ratio 2:1 is accepted as ideal. This ratio is regarded as industry average. A comparison with this should be made to determine typical current ratio for similar firms. In some other industries, a current ratio slightly or substantially below 2 is adequate, while other industries require a much larger ratio. In general, the shorter the operating cycle of a business, the lower the current ratio. The longer the cycle, the higher the current ratio.

A comparison of the firm's current ratio with prior periods, and a comparison with industry averages, will help to determine if the ratio is high or low. These comparisons do not indicate why it is high or low. Possible reasons can be found from analysis of the individual current asset and current liability, a/c often found in a detailed analysis of a/c receivable and inventory stock.

3.2.2 Quick (Acid Test) Ratio

This ratio expresses the relative amount of cash and other assets that can be easily converted to cash that are available to meet current liabilities. This is a more conservative measure of liquidity as only liquid assets are considered. It excludes stocks (inventory) from current assets. The ratio emphasizes more on assets easily converted into cash (or to a reasonable period without loss of value).

Therefore, stocks are deducted from current assets used in the current ratio above. (In practice, an analysis of debtors is performed to enable debtors' balances which are doubtful of recovery will be deducted from the current assets – for examination purposes this is avoided).

$$\text{Quick (Acid Test) ratio} = \frac{\text{Current Assets} - \text{Stock (inventory)}}{\text{Current Liabilities}}$$

As a general rule quick ratio is 1:1 is accepted as ideal.

You should note the striking difference as a financial analyst that the current ratio evaluates an enterprise's overall liquidity position considering current assets and current liabilities. On the contrary, the quick (or acid-test) ratio relates the more liquid assets to current liabilities.

The usual guideline for the acid-test ratio is 1. A comparison should be made with the enterprise's past acid-test ratios with major competitors and the industry averages. Some industries find that a ratio less than 1 is adequate, while others require a ratio greater than. For example, a grocery store may sell only for cash and not have receivables. This type of business can have a quick ratio which is below the 1 guideline and still have adequate liquidity.

It is also worthy of note that before computing quick ratio, compute debt (at receivable) turnover for this should help you form an opinion of the quick ratio.

3.2.3 Cash Ratio

This ratio examines cash and its equivalent (marketable securities) in relation to current liabilities. It measures most liquid asset of an enterprise by considering only cash and marketable securities in the current asset (numerator).

$$\text{Cash ratio} = \frac{\text{Cash} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

Cash ratio is an analyst need to view the liquidity of an enterprise from an extremely conservative view point. For example, the enterprise may have pledged its receivables and its stock (inventory) or he/she suspects severe liquidity problems with stock (inventory) and receivables. The best indicator of the enterprise's short-term liquidity may be the cash ratio.

Observation

You should note that cash ratio analyst seldom give the ratio much weight when evaluating liquidity of an enterprise because it is not realistic to expect an enterprise to have enough cash equivalents and marketable securities to cover current liabilities. If an enterprise depend on cash equivalents and marketable securities for its liquidity its solvency may be impaired.

Financial analysts should consider the cash ratio of enterprises that have natural show-moving inventories and receivables and enterprises that are highly speculative. For instance, a land development company in Lagos may sell lots paid for over a number years instalmentally.

The cash ratio indicates immediate liquidity of the firm. A high cash ratio indicates that the enterprise is not using its cash to its best advantage. It is pertinent to put cash to work in the enterprise operation. A cash ratio that is too low could indicate an immediate problem with payment of bills.

3.2.4 Net Working Capital (NWC) Ratio

Working capital is defined as the excess of current assets over current liabilities and is regarded as being available for supporting current operations.

Net working capital is the difference between current assets and current liabilities excluding short-term bank borrowing. It is sometimes used as a measure of an enterprise's liquidity. This is done by considering that

between two firms, the one having the larger Net Working Capital has the greater ability to meet its current obligations. This nevertheless measures the enterprise's potential reservoir of funds. This relationship to net assets or capital employed can be expressed as

$$\text{NWC ratio} = \frac{\text{NWC}}{\text{NA}}$$

Where NWC = Net Working Capital
NA = Net assets.

SELF ASSESSMENT EXERCISE

Define liquidity ratio. List the different types of liquidity ratios and their role in financial decision.

4.0 CONCLUSION

You have learnt that liquidity ratio is one of the financial ratios used as a tool to ascertain the level of a business preparedness to settle short-term obligations (debts).

5.0 SUMMARY

In this unit, you have learnt definition, explanation and types of liquidity ratios and usage in financial analysis and management of an enterprise.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain liquidity ratio of an enterprise.
2. Identify different types of liquidity ratios and their uses.

7.0 REFERENCES/FURTHER READING

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UNIT 2 PROFITABILITY RATIOS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Profitability Ratios
 - 3.1.1 Profit Margin
 - 3.1.2 Mark-up on Cost
 - 3.2 Basic Earning Power
 - 3.2.1 Return on Investment
 - 3.2.2 Earnings per Share
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In this unit, we will consider another ratio for financial analysis known as profitability ratio which emphasis the efficiency of the operation of the enterprise. It will indicate how well the business enterprise is being managed. Profitability is the ability of an enterprise to generate earnings.

You shall be shown how profit (ability) is the difference between revenues (income) and expenses over a period usually one year. The management of an outfit uses profitability to measure performance.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define and explain profitability ratios
- identify the different profitability ratio
- compute the profitability ratio.

3.0 MAIN CONTENT

3.1 Profitability Ratios

These ratios are used to measure the operating efficiency of an enterprise profitability indices are expressed in the income statement. The primary financial analysis of profit ratios should include only the types of income arising from the normal operations of the business.

An enterprise is expected to earn profit to survive and grow over a long time. Profit making is essential, but management should not place customers concern, employees welfare consequences of suppliers and other social needs in the lower rung of the ladder in its quest for profit maximization. You will agree with me that the business need to survive first before profit is sort.

Yes, profit is the difference between revenues and expenses over the period could be one year computation. This is the expectation of the enterprise and will help in evaluating the performance (efficiency) of the business.

As an objective, the entrepreneur – owners (managers) will through this process, want to get the rate of return of their invest. On the other hand, creditors will evaluate the ability for them to continue business if the profitability ratio is assuring for interest and principal regular repayment.

Generally, there are two major types of profitability ratios – profitability in relation to sales and the one based on investment.

3.1.1 Profit Margin

What is Profit Margin?

It is margin that indicates the extent to which an enterprise can generate profit from sales. It is a measure of an enterprise's operating efficiency i.e. it helps in measuring the relationship between sales and operating profit. The profit margin in other words measures the profit made on sales after all the running expenses have been deducted from gross profit. Expressed as

$$\frac{\text{Operating Income}}{\text{Sales}} \times 100$$

Net Profit Margin

When operating expenses, interest and are removed from the gross profit you get the Net Profit. Net profit margin ratio is derived from dividing profit after tax by sales. Expressed thus below:

$$\text{Net profit margin} = \frac{\text{Profit after Tax}}{\text{Sales}} \times 100$$

You should note that Net Profit Margin ratio relates net profit with sales. This establishes management's efficiency in manufacturing,

administering and marketing the products. It shows an enterprise's ability to withstand adverse economic conditions. A high net margin ratio connotes an advantage position to survive falling selling prices, rising costs of production or declining in product demand. An enterprise with low net margin ratio would find it difficult to survive adverse situation in the market.

It may be of interest for you to know as student of financial analysis that, similarly an enterprise with high net profit margin can make good use favourable condition. Such as:

- rising selling prices
- falling costs of production or
- increasing demand for the product.

An enterprise of such will be in advantage to accelerate its profits faster than an enterprise with low net profit margin.

Gross Profit Margin

This ratio shows profit relative to sales after the direct production cost have been deducted. In other words, it shows the average gross profit on goods sold. It can be used as an indicator of efficiency of production operation and the relationship between selling price and production costs. This is expressed as an equation as follows:

$$\text{Gross Profit Margin} = \frac{\text{Sales} - \text{Cost of Goods Sold}}{\text{Sales}} \times 100$$

Or

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

As a norm, the higher the ratio, the more efficient an enterprises' operation could be.

Note: If the product of an enterprise is mono, the ratio should correspond to the trade mark-up. For an enterprise with multi-product background, which does not apply uniform trade mark-up to all the different lines of goods sold, a different gross margin should be calculated for each line goods.

Placing a reliance on the gross margin computed, the following factors should be considered.

- The method of stock valuation (this need to be consistent)
- Trade discount granted to customers
- Purchase or production cost
- Sales mix
- Whether theft occurred.

If sales are not recorded, the cost of goods sold in relation to the sales is very high. If stock is being stolen, the ending inventory will be low and the cost of goods sold will be high gross profit margin analyzing help users like managers of budget gross profit levels into their predictions of profitability. The margins are also used in cost control. Estimations utilizing gross profit margins can determine stock (inventory) levels for interim statements in the merchandising industries. It can also be used to estimate stock (inventory) involve in insurve losses. Also, the margin are applied by auditors and Interval Revenue Service to judge the accuracy of accounting system.

3.1.2 Mark-Ups on Cost

This is another ratio used in analyzing trading profitability of an enterprise. It shows the profits relative to direct costs of production expressed as follows:

$$\frac{\text{Gross Profit}}{\text{Cost of Goods Sold}} \quad \times \quad 100$$

This ratio shows gross profit in different ways. A fall of two ratios.

SELF ASSESSMENT EXERCISE 1

Explain profitability ratios and their uses.

3.2. Basic Earning Power

You should note that to analyse an enterprise's financial performance, two aspects are of interest to investors.

First, its financial performance – that is its ability to generate income. (Return on investment). Ratios of financial efficiency in this respect focus on ROI the relationship between income and sales and income and asset.

Second, its financial performance employed may be assessed based on the value of its shares to investors. That is ratios of financial performance focus on earnings per share, dividend yield and price earnings ratios.

The analysis of efficiency as earning power shows that the overall measure of earnings performance for purpose of comparison is the ratio of return on capital employed, otherwise known as return on investment. This ratio consists of several components which two are of the most important of which are the asset turn-over ratio and return on sales ratio.

3.2.1 Return on Investment (Capital Employed)

The term investment refers to in this context as total assets or net assets. The funds employed in net assets are known as capital employed. Net assets equal net fixed assets plus current assets less account liabilities minus bank loans. Alternatively, capital employed is equal to net worth plus total debt.

As could be inferred in summary there are several ways of stating the value of this ratio.

Note:

As discussed earlier in Module 1 analysis could be based on intra or inter-enterprise comparison. (intra- the same industry; inter – different industry; inter – different industry). In this case, care must be taken in making it inter – enterprise comparison.

The ratio may be expressed thus:

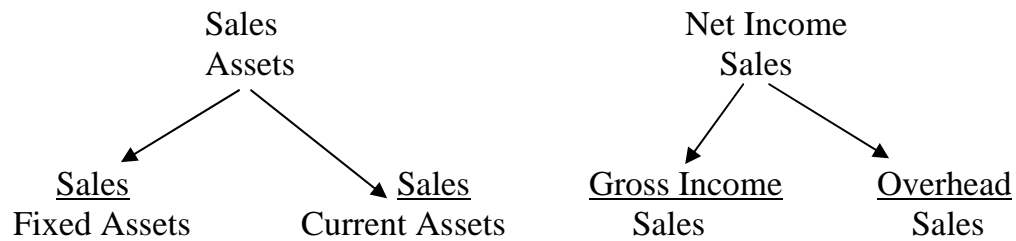
- Net Income/Shareholders' Equity
- $\frac{\text{Net Income} + \text{Interest}}{\text{Equity} + \text{Long-term Liabilities}}$
- $\frac{\text{Net Income}}{\text{Gross Tangible Assets}}$.

You should note that when you are to analyse an enterprise's efficiency in generating income, it is more appropriate to use total assets, that is net fixed assets plus current assets, as the denominator.

On the other hand, the investors would be interested in relating net income to the value of the shareholders' equity.

In this unit, we shall assume that we are seeking a measure of the enterprise's internal efficiency in the generation of income and apply the ratio of net income to total assets.

We therefore breakdown the factors which affect the ratio return on capital employed into the following ratios:



You should also know that these ratios may be further subdivided by a closer analysis of the components of current assets, that is inventories (stocks) and debtors, and the elements of direct and overhead expenses.

Hence, the ratio is generally expressed as follows:

$$\text{R.O.I (ROCE)} = \frac{\text{S}}{\text{CE}} \times \frac{\text{NI}}{\text{S}} \times 100$$

Where

ROI	=	Return On Investment
ROCE	=	Return On Capital Employed
S	=	Sales
CE	=	Capital Employed
NI	=	Net Income.

We will discuss the two components of return on capital employed (1) the asset turnover ratio.

This is the first component of the formula above.

Intension: To reflect the intensity with which assets are employed. That is, if the enterprise is with a low ratio of sales to assets, it memo that some substantial under-utilization of assets will occur or alternatively that assets are not being efficiently employed. The focus of management is on the use of assets made. This is a prime determinant of the level of future flows of income.

ii) The ratio of net margin on sales

This second component of the formula for calculating the Return on Investment seeks to assess the profitability of sales, which is the efficiency of sales as a critical and vital event in income generation.

The ratio of net margin on sales varies widely from enterprise to enterprise and could be used solely for comparison of similar business organizations in the same enterprise/industry. This helps in comparing the operation of similar companies over a time period.

At this juncture, you should note that some enterprises may operate by low profit margins and high levels of turnover, for example manufacturers and marketers of foodstuffs.

3.2.2 Earnings per Share

Investors trade in shares of a particular company to earn reasonably at the end of the business year. They seek to make the best allocation of his investment funds. The earnings efficiency of that company is very important to him, but it has to be in tangent with its shares. For this fact, ratios of several dimension are applied by investors in appraising the performance of companies in terms of share prices and yield.

i. Ratio of Earnings per Share

Stock Exchange prices are quoted on a share basis. It is pertinent to interpret a company's financial performance in terms of earnings per share.

For ordinary shares the ratio is expressed thus:

$$\text{E.P.S.} = \frac{\text{NIAT} - \text{PDR}}{\text{OS}}$$

Where EPS = Earnings per share
NIAT = Net Income after Tax
PDR = Preference dividend requirement
O.S = Number of ordinary shares

Note: This ratio is significant only for ordinary shareholders.
Preference shareholder only have right to a fixed dividend.

Generally, it is acknowledged that ordinary shareholders market value is closely related to the earnings per share. This makes this ratio to be used as a basis for predicting the future ordinary shares value. It also aids in the forecasting of future dividends.

ii. Dividend Yield

The dividend yield focuses on the value of dividends declared to an investor (shareholder).

The formula for its calculation is as follows:

$$\text{Dividend yield} = \frac{\text{Ordinary dividend per share}}{\text{Market price per ord. share}} \times 100$$

Note: Dividend yield is used to evaluate the shareholders' return in relation to the market value of the shares (investment). Hence, the result is to be compared with returns from other types of investment for right decision taking.

Rightly stating, investors interested in seeking high yielding share can compare the dividend yield of other shares investments in other to select for purchase highest yielding shares.

iii. Dividend pay-out ratio

This ratio is otherwise known as Dividend coverage ratio. It reveals the percentage of dividend in relation to the percentage retained to expand the growth of the enterprise or firm.

It indicates the continuous ability of a company to pay current dividend levels in the future forecasted by the dividend coverage ratio. This is calculated as follows:

$$\frac{\text{Dividend per Share}}{\text{Earnings per Share}} \times 100$$

The ratio bears strongly on what accrues to the shareholders as cash dividend since it is a directory to future/potential investors. It will reveal how much is retained for future expansion and growth of the company's internally financed source. It is obvious that the company has provided ample margin of earnings enough to make current dividend declaration.

iv. Earning Yield

This yield states the earnings yield in relation to market price per share. This is expressed thus:

$$\text{Earnings yield} = \frac{\text{Earnings per Share}}{\text{Market Price per Share}} \times 100$$

v. Price earning ratio

This relates earnings per share to the current market price of the share. It reciprocates earnings yield and allows an investor to contemplate on the ordinary shares in other to obtain a more accurate view on return on investment associated by current earnings. This facts makes it a capitalization factor.

Expressed in formula as:
$$\frac{\text{Market Price per Share}}{\text{Earnings per Share}}$$

Example: If the earnings per share in the Eneobong Co. is N10.00 and the Lagos Stock Exchange share price on the date of publication of this result is N25.00 per share. (The price earnings ratio is 2.5). This ratio may be the basis of comparing several purchase alternative in making a decision.

SELF ASSESSMENT EXERCISE 2

What is return on investment for an enterprise?

4.0 CONCLUSION

The conclusion drawn from this unit is that there are different analysis of profitability ratios. Each tends to approach profit from various perspective, the users of the financial information. The core investors, the financial analyst, creditors, financiers, etc. Each consider the analysis from what is for its part.

5.0 SUMMARY

In summary, profitability ratio expresses different profit level of a firm as it affects users. These include profit margin, mark-ups on cost, basic earning power and return on investment.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain profit margin of a business enterprises stating the different types.
2. Discuss basic earning power of an enterprise.

7.0 REFERENCES/FURTHER READING

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UNIT 3 LEVERAGE RATIOS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Leverage Ratios
 - 3.2 Types of Leverage Ratios
 - 3.3 Debt Ratios Implications
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In this unit, you will learn that leverage ratio is another aspect of financial ratio analysis based of financial statement information. It measures the extent of an entrepreneur applying debt financing and its implications as opposed to equity financing.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define and explain leverage ratio
- identify different types of leverage
- assess debt ratios implications in a business organisation.

3.0 MAIN CONTENT

3.1 Leverage Ratios

This ratios measure the relationship between the funds provided by the owners (shareholders) of an enterprise and funds provided by creditors (non-shareholders) of the business enterprise. The funds provided by the owners (Equity shareholders) are known internally generated and when funds are contributed by non-shareholders, this source is known as externally generated funds. Every business uses both sources for funding but the ratio the leverage which measures the ability of the business enterprise service (operate) the charges accruing from the use of outsiders funds (creditors). Borrowing capacity (leverage) ratios measure the degree of protection of suppliers of longterm funds.

Short-term creditors, like bankers and suppliers of material are concerned with the enterprise's current debt-paying ability. The long-term creditors, like debenture holders and financial intermediaries considered the enterprises long-term financial strength.

Every business have to assess the financial leverage or capital structure ratios to ascertain the funds mix provided by the equity owners and creditors (lenders). The statute guiding financing encourages appropriate mix of both means. The process of placing the owner's equity return through the use of debt is called financial leverage or financial gearing or trading on equity. This phenomenon leverage, can work in opposite direction too. With higher cost of debt than the enterprise's overall rate of return, the earnings of shareholders will be reduced. Also there will be threat of insolvency. In case the enterprise is actually liquidated for non-payment of debt-holders dues – the residual owners will bear the brunt as shareholders.

Hence, using debt magnifies the share earnings and increases their risk. Furthermore, a highly indebted enterprise, finds it difficult to raise funds from creditors and owners in future. Margin of safety according to creditors is the owner's equity. If the equity base is small, the creditors risk will be presumably high. Hence, leverage ratios are computed to measure the financial risk and the firm's ability of using debt to shareholder's advantage.

You should note that leverage ratio can be computed from both the balance sheet and income statement.

From the balance sheet items is to determine the proportion of debt in total financing. The ratios under this cover indicate the extent to which the enterprise lies on debt financing assets.

While from income statement computation is by determining the extent to which the fixed charges.

3.2 Types of Leverage Ratios

We have discussed leverage ratio, now, leverage through the following ratios.

i. Debt Equity Ratio

This ratio assesses the extent to which firm is using borrowed funds. The calculation is by dividing the total debt of an enterprise by its shareholders equity (Networth).

This is expressed thus:

$$\frac{\text{Total Debt}}{\text{Shareholders Equity (Networth)}}$$

For creditor, this ratio is best indicated to be low because the higher level of the enterprise's financing that is made available by owner's equity, the larger the margin of protection in case asset values shrink or losses occur. (Where there is preference shares, there are treated as debt with leverage ratio computation).

ii. Debt Total Asset Ratio:

This measures the amount of the total funds provided by creditors in relation to total assets of the enterprise. This is expressed as:

$$\frac{\text{Total Debt}}{\text{Total Assets}}$$

In this case creditors also want a low ratio for all debt's ratios, since lower ratio ensures greater safety against creditors' losses in case of liquidation of the enterprise.

iii. Long-term Debt to Total Capitalization

This measures the relative weight of long-term capital to the capital structure of the enterprise. This is known as Gearing Ratio.

This is expressed as:

$$\frac{\text{Long-term Debt}}{\text{Total Capitalization (capital employed)}}$$

It measures the extent to which an enterprise is funded by long-term loans. The lower the ratio, the lesser the financial risk of the enterprise.

iv. Times Interest Earned Ratio measures how satisfactory an enterprise meet its interest payment. This is expressed as:

$$\frac{\text{Earnings before Interest and Tax}}{\text{Interest Charges}}$$

It checks propensity to bankruptcy as it measures the ability of the enterprise to pay interest and capacity for new debt.

The higher the ratio the greater the likelihood that the firm could cover its interest payments without difficulty.

v. Fixed Charge Coverage

Just similarity interest earned ratio but it is more inclusive since it recognizes that many enterprises lease assets and incur long-term obligation under lease contracts for the payment of lease premium. This is expressed thus:

$$\frac{\text{Earnings before interest and tax + lease obligation}}{\text{Interest charge + lease obligation}}$$

This ratio is preferable to the interest earned ratio for financial analysis leasing is widespread in financing businesses.

SELF ASSESSMENT EXERCISE

List the types of leverage ratios used by an enterprise.

3.3 Debt Ratios Implications

What debt ratio imply is that it show cases the level of debt – financing has been used in the business. A high debt to equity implies that claims of creditors are greater than those of owners equity.

A high debt enterprise

1. Can borrow funds from be restricted in terms and condition since the bargaining stand is not strong. This goes with certain condition before loan agreement is honoured such as

- Maintaining a certain working capital
- Restricting the payment of dividend
- Limit salary of workers which will in turn limit the number and caliber of staff employed.

2. It leads to creditors pressure

3. It constraints independence of management functioning properly

4. It leads to the enterprise entangling in a debt-trap if not timely managed out of the quagmire.

A low debt-equity ratio implies a greater owners' claim than creditors. The creditors regard this position as satisfactory situation since a high proportion of equity provides a greater margin of safety. During low profit period, low debt-equity ratio enterprise enjoys less burden in debt servicing exercise.

From the owners equity views, they are disadvantage at this period. The higher the debt equity ratio the larger the shareholders earnings as the cost of debt is less than the overall rate on return on investment of the enterprise.

The need arises to strike a proper balance between the use of debt and equity. This balance hangs on appropriate debt-equity combination trade off between risk taken and return obtained in the entrepreneurship. There is need to be cautious in the interpretation of this phenomenon – debt ratio.

4.0 CONCLUSION

In this unit you learnt of leverage ratios as an aspect of financial ratios as an aspect of financial ratio which measure the level of debt as against equity in an enterprise.

5.0 SUMMARY

This unit is summarized into explaining and defining leverage ratio, identifying the types of leverage ratios and debt ratios implication for an enterprise which is a going concern.

In the next unit you will learn of Activity ratios in a business enterprise.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain leverage ratio in a business enterprise.
2. What is the implication of debt ratios in a business organisation?

7.0 REFERENCES/FURTHER READING

Gibson, C.H. (1997). Financial Statement Analysis – Using Financial Accounting Information Ohio: South-Western College Publishing.

Oyekanmi Abiodun (2003). Basic Concepts & Application in Business Finance. Ibadan: TL-Peakline Publishers.

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UNIT 4 ACTIVITY RATIOS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Activity Ratios
 - 3.2 Measurement of Overall Performance
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In this unit, you shall learn of another aspect of financial ratio known as activity ratio. Its main focus is to measure the overall performance of an enterprise. It is employed as a tool to evaluate the effectiveness of an enterprise as for the use of its resources.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Define and explain activity ratio
- Identify types of activity ratios
- Measure activity ratios.

3.0 MAIN CONTENT

3.1 Activity Ratio

The activity ratios are used for the evaluation of enterprise efficiency. It aids the entrepreneur or the manager to manage and utilize the assets.

Owners equity and creditors fund are invested in various assets to generate profits and sales. With proper analysis of activity ratios of an enterprise assets will be better managed. Activity ratios are also known as turnover ratios because they show the speed with which assets are converted to sales. Hence, the ratio demonstrate the relationship between sales and assets. When they are well managed, it reflects a proper balance between sales and assets utilization.

SELF ASSESSMENT EXERCISE

What is main focus of activity ratios?

3.2 Measurement of Overall Performance

Overall performance can be measured by several activity ratio as follows:

1. Return on Capital Employed – ROCE

ROCE relates profit earned to the amount of long-term capital invested in the enterprise. With this ratio, management measures how useful the enterprise's resources are efficiently managed. i.e. capital employed is total assets less current liabilities.

Expressed as
$$\frac{\text{Earnings before Interests + Tax}}{\text{Capital Employed}}$$

2. Current asset turnover measures the number of times current assets has been converted into sales.

Expressed as
$$\frac{\text{Sales}}{\text{Total Current Assets}}$$

If this ratio indication is higher, then it reflects how more effective the revenue generation of an enterprise is.

3. Fixed Asset Turnover exposes the efficiency in the usage of fixed assets in the revenue generation expressed as:

$$\frac{\text{Sales}}{\text{Net Fixed Assets}}$$

Note: If the ratio is higher, it reflects better disposition for the enterprise.

4. Inventory (Stock) Turnover Ratio: shows how efficient and effective an enterprise inventory and its liquidity is managed.

Expressed as
$$\frac{\text{Cost of Sales}}{\text{Average Inventory}}$$

To arrive at average inventory we divide by two the sum of opening and closing inventories (stocks).

Note: Higher inventory turnover indicates how efficient the management of an enterprise's inventory and its liquidity is. Low inventory turnover is often a sign of excessive, slow or obsolete items in store.

5. Average Payable Period/Creditors Payment Period:

This ratio measures the insolvency of an enterprise. This shows the average number of days an enterprise uses in paying of its credits.

Expressed as

$$\frac{\text{Account Payable}}{\text{Annual Credit Sales}} \times 360$$

Low credit period ratio shows that the enterprise makes credit payments promptly and that the credit system is efficient. The high ratios shows that the credit payments are not prompt and inefficient.

6. Average Collection Period/Debtors Collection Period

This ratio measures the speed which an enterprise collects amount owed by customers. It determines average period receivable or collected after sales.

Expressed as

$$\frac{\text{Receivables}}{\text{Net Sales}} \times 360$$

7. Receivables Turnover Ratio

It measures the quality of the receivables of the firm and the efficiency in its collection.

Expressed as:

$$\frac{\text{Annual Net Credit Sales}}{\text{Receivables}}$$

Note: Activity ratios is varied and abound. They could be extend to other areas but for the purpose of this course we stop at these few ones which are the basics. Good management which formula measures the inventory and liquidity?

4.0 CONCLUSION

In this unit, you have learnt about the activity ratio of an enterprise as an aspect of financial ratio which measures the overall activity.

5.0 SUMMARY

The summary of this unit entails the activity ratios – definition, explanation, identification of various types and the measurement. In the next unit, you will learn the investment ratio of an enterprise.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain activity ratio of an enterprise
2. Identify different types of activity ratios used in an organisation.

7.0 REFERENCES/FURTHER READING

Gibson, C.H. (1997). *Financial Statement Analysis – Using Financial Accounting Information* Ohio: South-Western College Publishing.

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MODULE 3 WORKING CAPITAL

Unit 1	Cash Management
Unit 2	Receivables Management
Unit 3	Inventory Management
Unit 4	Simulation Approach to Working Capital

UNIT 1 CASH MANAGEMENT

CONTENTS

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	Cash Management
3.1.1	Cash Management and Control
3.1.2	Steps to Cash Management
3.2	Sensitivity Analysis
3.3	Motives for Holding Cash
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

1.0 INTRODUCTION

In business entrepreneurship, when sales arise not in cash, the immediate outlet is receivables – accounts receivables or trade debtors.

Trade credit arises when an enterprise sells its products or services on credit and does not receive cash immediately as an essential marketing tool to retain customers. The management of these receivables is very vital to the business as a going concern. You will learn cash management and sensitivity analysis role.

Cash as you will agree is the basic input to keep a business on a continuous basis – the management of it is of essence in the life of the business.

In Unit 1 of Module 3 of this course, you will be introduced to another important aspect of working capital and current asset cash and receivables (debtors) which assist in the operation of a business enterprise.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Explain cash management
- State the steps to cash management
- Link sensitivity analysis to cash management
- Identify the motives of holding cash.

3.0 MAIN CONTENT

3.1 Cash Management and Control

Cash management is concerned with the managing of

- Cash flows into and out of the enterprise
- Cash flows within the enterprise
- Cash balances held by the enterprise at a point of time by financing deficit or investing surplus cash.

Cash management focuses on managing cash flows in and out of an enterprise i.e. cash flows within and cash balances held by an enterprise at a given point in time which is utilised either by financing the deficit gap or investing surplus cash.

Note: Sales generate cash disbursed.

Surplus cash is invested while deficit is borrowed to make-up.

Cash management attempts to control cash cycle at a minimum cost and tries to achieve liquidity. Cash management places cash as the most significant and at the same time the least productive asset at the disposed of an enterprise. It is a means of settling indebtedness of the enterprise. It is not easy to predict cash flows accurately, that means, it takes time and dexterity to achieve its ideal position. That means the aim of cash management is to maintain adequate control over cash position to be able to keep the enterprise sufficiently liquid and to use excess cash in some profitable way.

Controlling cash in small enterprise is a problem because they entrepreneurs need the secret of controlling their cash through effective cash management skill. The secret of controlling cash is simply having the right amount on hand and in using the surplus wisely when they occur.

The right amount of an enterprise is based controlling cash balance. An enterprise should aim to have just the right amount of cash in hand –

never too little for its needs and never too much for its needs. If a business enterprise has a permanent year around pressure on cash, that enterprise may be undercapitalised. Such shortage of cash can lead to disaster in that the entrepreneur/owner of business may not be able to pay the firm's bills as at when due. This may lead to the business going broke because it is a sign that the owner lacks the immediate financial resources to meet the sudden demands of new-cut throat competition. This situation motivates the entrepreneur to move toward acquiring additional capital into his/her enterprise to shore up enough cash to keep the business financially healthy.

Also, an excess amount of cash often indicates that business is not utilizing its liquid assets properly. Invariably, excess cash gives room to purchase of new stock investing in short-term securities, redeemable as funds needs arises (Treasury bills), profitable ventures which enables the business to grow. In the case of accumulating fairly large amounts of excess cash on a regular basis, the best investment option investment probably would be that of ploughing the money into modernizing (ICT) and expansion of the enterprise into attracting greater patronage.

3.1.2 Steps to Cash Management

This involves two paths of action – (i) having the right amount on hand to pay your bills (2) using any excess of that amount wisely.

We will now consider an approach for a reliable cash management which involves four steps.

- 1) Keeping adequate records on cash book control
- 2) Identifying the cashflow pattern
- 3) Estimating future cash balances and
- 4) Utilizing excess cash to generate income.

Adequate Records

Most entrepreneurs operate without adequate bookkeeping to control cash hence there is no smooth path in the first phase of cash management procedure. To start with, there is need to check the present way of bookkeeping to ensure the records on cash are adequate. Does it show what is needed about the cash that comes into the business?... and what goes out of the business? Does it alert to cash deficits or to cash surpluses?

Cash comes from:

- Daily cash sales

- Payments made by customers to their accounts
- Loans acquired for short-term needs
- Additional capital borrowed on long term basis.

Cash flow Pattern

Book control provides information needed for the second phase of cash management. This path is concerned with keeping business healthy by: providing funds when deficits occur in cash, utilizing surpluses with prudence and working with dynamic situations (changing week to week, month to month, etc.)

Estimated Cash Balances

This is the third phase of cash management. The point which cash balances estimates are projected for the next one year (12 months). This achieved through cash budget (forecast). With the budgeting the income and expenses of the enterprise during the next month during the next 6 months and up to the next 12 months.

Use of Balances to Produce Earning

This is the fourth phase of cash management. The knowledge of cash balances of an enterprise (all things being equal) helps to achieve proper and dynamic control of cash. When there is cash management and control

- it guards cash balances and makes them available when needed.
- it alerts on month to month when the cash balance is less than expected expenses. (This problem can be tackled by an overdraft or short term bank loan to tide the business over the slag and to the next peak).
- it aids to determinate the growth rate of the enterprise. It serves as chart in utilising the cash surplus.
- Finally, if the enterprise grows to the extent that larger amounts of excess cash are accumulated, the alternative is to invest them in government securities, savings and loans shares, bank savings etc. or approach a reliable investment experts who is familiar with the enterprise's investment objectives for proper directives.

SELF ASSESSMENT EXERCISE

State steps of cash management of a business concern.

3.2 Sensitivity Analysis

In practice, there are alternatives to cash management, namely: forecast (budget) planning because of uncertainty based one set of assumptions of cashflows. One very reliable method of having insight about viability of cashflows of an enterprise is sensitivity analysis. By use of insight or experience, the firm would know that sales should decrease at the most by x% under unfavourable conditions as compared to the most probable estimate. This means cash forecasting can be projected under three sales conditions:

- i. Optimistic
- ii. Most probable
- iii. Pessimistic

Determining the outcome of extreme expectations will help the firm to be prepared with contingency plans. If cash budget is based on worst circumstances, it will become useful to the management to face those circumstances.

3.3 Motives for holding cash

The Enterprise need to hold cash to achieve the following three motives:

- Transactions
- Precautionary
- Speculative

Explanations of each motive are:

Transaction Motive

This requires an enterprise to hold cash to perform its ordinary business activities. This cash is to pay for purchase, wages and salaries, other operational expenses, tax dividends etc. With perfect management of cash receipts and cash payment will make the holding of cash not necessary as there will be enough cash when payment is to be made.

Precautionary Motive

This is for the enterprise to meet up contingencies as they arise in the future. Cash at this stage is used to provide a cushion or buffer to withstand some unexpected emergency. The precautionary amount of cash will depend upon the predictable nature of the cash flow of the business. With predictable cash flows less cash will be maintained for

an emergency. This can also be influenced by ability to borrow within a short notice by an enterprise.

Speculative Motive

This is holding cash for investing in profit-making opportunities as and when the need arises. The opportunity to make profit by an enterprise may arise when the security prices change. This is an opportunity to hold cash and expect a rise in interest rates and security prices will fall. This is the inter-play in the capital market which if properly studied those holding cash have better opportunity i.e. securities can be purchased when the interest rate is expected to fall. The business will benefit if price fall subsequent in interest rate leading to increase in security prices.

SELF ASSESSMENT EXERCISE

Explain the three principal motives for holding cash

4.0 CONCLUSION

We have identified cash management as a tool to maintain control over cash position which enhances the effectiveness of an enterprise to keep the required liquidity level and utilise the excess cash for profitable venture.

5.0 SUMMARY

In this unit, we have discussed cash management steps and control, sensitivity analysis and motives for holding cash.

6.0 TUTOR-MARKED ASSIGNMENT

1. In sensitivity analysis, explain under sales condition the means of cash forecasting.
2. Explain cash management in an enterprise.

7.0 REFERENCES/FURTHER READING

Hand, H. H. & Hollingsworth, A. T. (1979). Practical Readings in Small Business, W.B. Saunders Coy.

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UNIT 2 RECEIVABLES MANAGEMENT

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Receivables Management
 - 3.2 Credit Sales versus Cash Sales
 - 3.3 Credit Policy
 - 3.3.1 Nature
 - 3.3.2 Goals
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Organisations usually have claims to future inflows of cash. These claims are known as accounts receivables and note receivables expressed in financial statements.

The main claims come from selling of goods or services on account to customers – trade receivables (debtors) with the customer promising to pay within limited period of time e.g. 30 days.

These claims from customers bear no interest nor involve claims against specific resources of customer. It is purely based on understanding and relationship to keep the business going.

The major factor of receivables is that the organisation expects to receive cash sometime in the future. The management of these receivable alternative will be discussed and the position of this unit.

In this unit, you will learn about receivables management, credit sales versus cash sales as well as credit policy.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Explain receivable management
- Differentiate credit from cash sales
- Show credit policy – its nature and goals.

3.0 MAIN CONTENT

3.1 Receivables Management

Trade credit make way for trade debtors otherwise known as account receivable which a business (an enterprise) expects to receive in form of cash in the near future (usually which a short period within the financial period e.g. a week, fortnight, month, quarter, half a year, a year). The customers benefiting from this gesture are known as trade debtors or generally listed as debtors (to be claimed as asset of the organisation).

Receivables are risk elements, meaning that management must identify some elementary facts (characteristics).

1. It involves the analysis of the implication of value of credit sales. Cash sales are riskless. Credit sales need to be carefully analysed as cash payment will be in future. The integrity of the beneficiary of the sales must not be in doubt judging by the track record of the trade business.
2. Based on economic value, the purchaser benefits at the time sales immediately while the owner of the sales expects an equivalent of the trade value in future time.
3. It connotes that the buyer will provide the cash payment for the good/services received in a future period.

The time lag is the risk which is borne by the seller. He need be sufficient and surplus in its cash holding, control and management to stay afloat till that aspect of account is received as a whole. Any hiccup in repayment by the customer (beneficiary) will negative affect the cash flow level at the expected time. You should note that debtors form a reasonable part of current assets of many enterprise especially where the customer need this service to enhance their being in business as a going concern.

SELF ASSESSMENT EXERCISE

“Receivables expect cash in future”. Discuss

3.2 Credit Sales versus Cash Sales

When credit sales are granted to customers by producers/distributors/providers of goods/services, debtors are created. This leads to engaging the enterprise’s funds until the debt is repaid. The interval of sale between commitment date and the date of settlement of the indebtedness

has to be financed out of working capital. This is done with strong cash management base. The proportion of cash sales must be substantially adequate to sustain the gap. Banks and other sources of sustaining necessities of the business need be cordially sustained. This is the aspect needed for effective management of the amount tied-up in trade debtors. If the cash trade is say 80% and 20% is left for credit trade, the policy will be positively skewed, but if otherwise 20%:80% the cash balance position will be negatively skewed. The receivable management approach will have to adhere to the proportion that allows cash balance to be favourable to the sustenance of the business.

3.3 Credit Policy

Policy is a plan of action, statement of aims and ideals especially one made by business, company etc (Hornby, 2006). Every enterprise organised develop many policies and for a going concern – credit policy is also put in place as a tool of managing the available credit arrangement.

Many firms arrange loan commitments from banks or insurance companies for future loans. Often the firm does not intend to obtain these loans but has arranged the credit arrangement just in case a need exists for additional funds. Such credit arrangements do not represent a liability, unless the firm actually represents the funds. Analytically, a substantial credit agreement is a positive condition in that it could relieve pressure on the firm if there is a problem in meeting existing liabilities (Gibson, 1997).

The finance house obtains a fee in return for giving the credit agreement – usually a percentage of the unused portion of the commitment.

3.3.1 Nature of Credit Policy

Credit policy is usually the combination of decisions variables – credit standards credit terms and collection efforts on which the financial manager has influence.

- Credit standard are criteria to decide the types of customers to whom goods could be sold on credit.
- Credit terms specify duration of credit and terms of payment by customers.
- Collection efforts determine the actual collection period. (Pandey (2005: 602).

3.3.2 Goals of Credit Policy

An enterprise may follow a lenient or stringent credit policy depending on the type of business. The gestation of the venture determines the policy thrust. The enterprise with a lenient credit policy operates on liberal terms and standard with long gestation considerate even to those customers with doubtful creditworthiness.

The business enterprise with a stringent credit policy operates on a highly selective basis only to those customers with proven creditworthiness with strong financial base. The policy falls in between lenient and stringent approach. The cost-benefit analysis helps in determining the point of decision making.

Credit Policy Variables

The optimum and credit policy of an enterprise is established by considering the main decision variables which affect the level of receivables namely:

- Credit standards and analysis
- Credit terms
- Collection policy and procedures.

Whenever administers credit policy of a firm (Financial or credit manager) considers variables from the firm's operation/production (service/product), marketing and finance function in answering the following questions and also ensure that the firm's value of share is maximised.

- What will be the change in sales when a decision variable is altered?
- What will be the cost of altering the decision variable?
- How would the level of receivable be affected by changing the decision variable?
- How are expected rate of return and cost of funds related? (Pandey, 2005).

Credit Standards

In selecting customers for the purpose of credit extension, criteria are set as standards as previously discussed. Standards depend on policy – tight or loose. In credit administration, such standards will result in no bad

debt losses and this will cost less. The profit sacrificed on lost sales may be more than the costs saved by the enterprise.

For credit analysis, credit standard determines the calibre of the firm's customers – the time taken by the customer to repay credit indebtedness and the default rate.

- The average collection on period
- Default rate
- Default risk.

Moreover, character, capacity and condition (three C's) are the qualitative consideration the management will weigh before granting the credit sale.

Economic considerations, information collated from the customers themselves, their published financial statements and other agencies reports on credit information about customers should be able to categorise customers to identify enterprise with

- Good accounts
- Marginal accounts
- Bad accounts.

Once an enterprise has ascertained the creditworthiness level of a customer, credit granting decision is taken – that is – whether or not to grant credit. Good account is a sine-qua-non to the extension of credit, while bad account holder is rejected for a credit extension. Most enterprise consider evaluating marginal accounts – not so bad account customer with not too strong financially but maintain a dependable trend in the business – could be extended credit.

SELF ASSESSMENT EXERCISE

State the goals of a credit policy.

Cash discounts

This is another way of encouraging customers. This is a reduction in payment offered to customer to induce repayment of credit obligations within a specific time less than the normal credit period. The term available shows:

- the rate of discount and
- the period thereof.

Illustration:

Credit term obligation may be expressed as: ‘Z/10, net 30’

This means that a 2 percent discount will be granted, provided the customer is ready to make payment within 30 days (one month).

This is a means of increasing sales and enhancing collection from customer not minding the reduction in the level of receivables and the costs involved.

Collection Policy, Process and Procedure

A collection policy is needed in an enterprise. It lays down clear-cut collection mode. The policy spells out the guide.

The process of operating the collection is worked out by the management as guided by the policy to ensure prompt and regular collection. The procedures for past dues or delinquent transactions should be settled amicably as some of them may be regular customers with ‘hi-cup’ in their business. If they not properly handled, it is possible the enterprise may lose them to their competitors.

Note: It is a known fact that all customers do not pay the firm’s bill at once. Some pay show-payers while others don’t. The general consensus (focus) should therefore aim at accelerating and ensuring prompt and regular collection.

4.0 CONCLUSION

The conclusion is that the major factor of managing receivables is that the organisation expects to receive cash eventually in the future. The gap has to be followed up properly for a favourable return for if left to chance may not be gainful.

5.0 SUMMARY

In this unit, you have learnt about receivables management, cash sales versus credit sales and credit policy.

6.0 TUTOR-MARKED ASSIGNMENT

1. “Credit sales are granted customers by producers of goods/services and debtors are created”. Discuss
2. “Credit is a combination of decision variables”. Explain

7.0 REFERENCES/FURTHER READING

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UNIT 3 INVENTORY MANAGEMENT

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Nature of and Need for Inventory
 - 3.2 Inventory Management
 - 3.3 Inventory Management Techniques
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Inventories are the balance of goods on hand (part of current assets). In a producing enterprise, they comprise raw materials, work-in-progress and finished products. These inventories need to be managed properly to avoid unnecessary cost.

In this unit, the management process and control of inventory will be explained.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Highlight the nature of and the need for inventory
- Explain the process for managing inventory
- Discuss inventory management techniques.

3.0 MAIN CONTENT

3.1 Nature of, and Need for Inventory

As noted in the 1.0 above, inventory is one of the current assets of the financial statement of an enterprise.

Managing current assets generally require a great attention and inventory is inclusive.

- Inventory is constantly being in use. Raw materials and work-in-progress inventories are used in production. Finished goods are

sold, spare parts replace worn-out parts. The rate of usage, depend on the type of inventory.

- Managing the level of inventory can be compared with maintaining the level of water in a bath tub with an open drain. The water flows out continuously. If it flows too slowly, the tub is soon empty. If it is let too fast, the tub overflows. Like the water tub the particular inventory items is dynamic, while the level may stay the same.

The fundamental financial decision problems are:

- to determine the proper level of investment in inventory and
- to decide how much inventory to be acquired at each period to maintain the required level.
- Maintaining inventories means:
 - Tying up the enterprise's funds and
 - Incurrence of storage and
 - Handling of costs.
- Just like cash (Unit 1, Module 3), there are three conventional motives for holding inventories namely:
 - *Transactions motive* – the need to maintain enough inventories to maintain enough inventories in order to facilitate smooth production and sales distribution
 - *Precautionary motive* – enhances holding of inventories to guard against risk of unpredictable changes in demand and supply and other factors in the market
 - *Speculative motive* – being decision to increase or decrease inventories level at one point or the other to capitalise on price level fluctuations.

Yes, an enterprise is obliged to maintain adequate stock of materials for a continuous supply to the factory. This continuous supply will lead to an uninterrupted production if the enterprise is to be sustained as a going concern.

SELF ASSESSMENT EXERCISE

Why is inventory held?

3.2 Inventory Management

Business enterprises manage inventory for different purposes as stated above (3.1). Inventory management is a tool to avoid excessive and inadequate levels of inventories and maintain sufficient inventory for the smooth operations of the enterprise in terms of production and sales output. The management should provide the enterprise with an order at the right time with the right source to acquire the right quantity at the right price and quality.

An effective inventory management ensures

- A continuous supply of raw materials to facilitate functional production and distribution.
- The maintenance of sufficient stocks of raw materials in short supply period and anticipate changes in price level
- Sufficient finished goods inventory for smooth sales distribution in order to sustain efficient customer service.
- Minimum carrying cost and time and
- Investment control in inventories and optimum level of operation.

SELF ASSESSMENT EXERCISE

Explain the effectiveness of inventory management in facilitating production.

3.3 Inventory Management Techniques

In inventory management, the shareholders' view of establishing the enterprise is considered to be in consonance with the objective of the management. This is achievable by determining the optimum level of inventory at a particular time taking into account all variables.

When the inventory management is efficiently controlled, it begets a flexible enterprise; while an inefficient inventory control results in unbalanced inventory. This may in turn lead to:

- Exhausting all available stock; and
- Sometimes, unnecessary stocks pricing.

To that extent, increasing the level of investment renders the enterprise unprofitable. In order to manage the inventories efficiently, two

recognised systems are identified for the timing and amount of the order quantity. They are:

- The first is the re-order level system (continuous review system). This is where an order is made automatically once a certain stock level is reached (i.e. sufficient is left to cover the lead time).
- The second is the periodic review system in which stocks are examined after a pre-determined period and the amount of the order is judged according to the likely demand in the following period.

Note: Both techniques can incorporate a margin of safety to reduce the possibility of 'stock-outs'.

A number of approaches are made for ensuring the size of an order in the re-order level system. Here, the one considered determines the economic order quantity (EOQ):

Stock is used evenly throughout the period the average stock has to be half the re-order level, that is $\frac{1}{2}$ or $.5Q$.

Storage costs per unit per period represent the fixed costs of holding stock. If these costs are constant, the total storage costs of the period are the average number of units multiplied by the storage cost per unit expressed thus:

$$\frac{1}{2} SQ \text{ or } \frac{SQ}{2}$$

Where S = the storage cost/unit/period
 Q = the order quantity

The total number of orders can be determined by dividing the total usage for the period by the re-order quantity. This means that the total stock cost can be expressed as $\frac{SQ}{2} + \frac{TO}{Q}$

The larger the order, the higher the holding costs but the less the number of orders and their total cost.

The EOQ technique balances the fixed holding cost against the cost of orders by differentiation.

$$EOQ = \sqrt{\frac{2TO}{S}}$$

Where:

T = Total period usage

O = Ordering cost per order

S = Storage costs per unit per period.

Illustration

An enterprise uses 10,000 units in 60 days. The ordering costs are N200 per order and the storage cost for one unit for 60 days is N1. Calculate the EOQ

$$\begin{aligned} \text{EOQ} &= \sqrt{\frac{2 \times 10,000 \times 200}{1}} \\ &= 2,000 \text{ units} \end{aligned}$$

This technique is applicable in various circumstances.

Economic Ordering Quantity or Economic Batch Quantity or Economic lot size is a calculated ordering quantity which minimises the balance of costs between inventory holding costs and re-order costs.

- Inventory management problems have been highlighted and the techniques of the management discussed. There are inherent cost which is to be spelt out further below:
 - Ordering cost and
 - Carrying cost.
- Ordering costs include the entire costs of acquiring the raw materials. It increases with number of orders.
- Carrying costs – incurred for maintaining a given level of inventory like special facilities. The summary of the two costs are shown in the table below:

Ordering costs	Carrying costs
Requisition, order placing, transportation, staffing, receiving, inspecting and storage	Warehousing, handling, staff, insurance, tax, obsolescence/deterioration

4.0 CONCLUSION

This unit has highlighted inventory management problems and the techniques thereof and concluded that inventory need proper attention to

avoid unnecessary cost and keep the enterprise in good footing as a going concern.

5.0 SUMMARY

In this unit, you have learnt about the nature of and need for Inventory, inventory management and its technique. You also learnt about the two problems associated with inventory management.

6.0 TUTOR-MARKED ASSIGNMENT

1. If an enterprise has an expected usage of 50,000 units of a product during the next year, the cost of processing an order is N20 and the carrying cost per unit is N0.50 for a year.

Calculate the Economic Order Quantity.

2. Why is inventory management important?

7.0 REFERENCES/FURTHER READING

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UNIT 4 SIMULATION APPROACH TO WORKING CAPITAL

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Working Capital
 - 3.2 Simulation
 - 3.3 Simulation Approach to Working Capital
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will focus on simulation approach to working capital in an enterprise. The concept of working capital will be explained. Simulation approach will be defined and explained along with its usefulness in working capital application.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Discuss the concept of working capital
- Define simulation
- Link simulation approach to working capital.

3.0 MAIN CONTENT

3.1 Working Capital

This is defined as the excess of current assets over current liabilities. It is regarded as being available for supporting current operations as distinct from the financing of capital expenditure.

There are two concepts of working capital:

- Gross working capital and
- Net working capital.

Gross working capital refers to the enterprise's investment in current assets. These are assets convertible to cash within a financial year.

These are:

Cash, marketable securities, debtors (account receivables), bills receivable and inventory (stocks).

Net working capital are the difference between current assets and current liabilities which are expected to mature for payment within a financial year.

These are:

Creditors (account payable), bills payable and outstanding expenses.

Note: This working capital can be positive or negative.

- A positive net working capital arises when current assets is more than current liabilities;
- A negative net working capital is when current liabilities are more than current assets.

They are both significant in management point of view.

SELF ASSESSMENT EXERCISE

3.2 Simulation

Definition – Simulation is the process of experimenting or using a model or noting the results which occur. In a business, the experimenting with a model consists of inserting inputs values and observing the resultant output values.

Illustration:

In a simulation approach of a queuing situation the input values might be the number of arrivals and or services points and the output might be the numbers and or times in the queue.

Why is simulation used?

Simulation is used where analytical techniques are not available or would be overly complex. Typical business examples are:

- Production
- Planning problems
- Corporate planning

Simulation often provides an insight into a problem which would be unobtainable by other means. By simulation approach, the behaviour of a system can be observed overtime and because only a model of the system is used the actual time span can be compressed.

Fundamental to simulation is the concept of model.

Simulation models represent the behaviour of a real system. Simulation models are used where there is no suitable mathematical model, where the mathematical model is too complex or where it is not possible to experiment on a working system without causing disruption. One application of simulation models in the management context is the study of relatively inexpensive computing facilities many business games are based on the simulation of the operation of the complete business.

SELF ASSESSMENT EXERCISE

Define Simulation.

3.0 Simulation Approach to Working Capital

Through computer simulation the **cash flow** of an enterprise can be estimated and evaluated. This evaluation takes place by estimating the impact of a project on the firm's cash flow (inflow and outflow), especially in a large investment that affects many aspects of an enterprise's operation. The cash flow impact of a project can be estimated using simulation (Schall and Haley, 1979).

- Simulation is established as the artificial duplication of a process for example, the duplication, at an abstract and simplified level, of the operations of an enterprise.
- Simulation analysis can evaluate the effects of a particular policy or decision (such as working capital) on some measure of the enterprise performance, for instance cash flow, working capital – (Gross or net), budget etc. One result of the simulation study is an estimate of the probability distribution of the enterprise's additional working capital need.

Glautier and Underdown (1978) stated that modern computers have greatly extended the range of probabilities which are considered in planning decision-making and applicable to such problems of simulation techniques which are more representative of real-life situations. To them, there are various applications of large scale simulation which include working capital and it is evident that as the scale of a problem increases, so this technique becomes more useful.

One of the major contributions of simulation techniques to management science is in improving our understanding of the way in which organisation work, and therefore in improving the efficiency with which decisions are made.

Large scale simulation does not aid only with difficulties created by the number of variables existing in a decision – problem, but it also useful in handling a much wider range of values attached to these variables. The analysis of investment proposals may be carried out through simulation in order to test the probabilities attached to receiving the expected return and the nature of the dispersion which surrounds these probabilities.

Working capital is the difference between current assets and current liabilities and simulation approach will be used in stemming the gap in a large enterprise.

SELF ASSESSMENT EXERCISE

Link up simulation approach to working capital

4.0 CONCLUSION

It is a worthwhile conclusion that when simulation approach is applied to working capital level of a large enterprise, there will be solution as is applied to cash flow, budget etc.

5.0 SUMMARY

The summary of this unit is based on: working capital, simulation and simulation approach to working capital especially in large enterprise.

6.0 TUTOR-MARKED ASSIGNMENT

1. Associated in your own way simulation and working capital of an entrepreneur.
2. Discuss the limitations of calculating working capital of a large enterprise without simulation approach.

7.0 REFERENCES/FURTHER READING

Glantier, MWE and Underdown, B. (1978). “Acting Theory and Practice” Pitman Publishing, London.

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MODULE 4 LINEAR PROGRAMMING AND PRODUCTION CONTROL

Unit 1	Linear Programme for Short-Term Decision
Unit 2	Pricing, Profit Planning
Unit 3	Goal Programming
Unit 4	Opportunity Cost and Control of Production

UNIT 1 LINEAR PROGRAMMING FOR SHORT TERM DECISION

CONTENTS

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	Define Linear Programming
3.2	Short-term Decision – Explanation
3.3	Linear Programming and Short-Term Decision Problem
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

1.0 INTRODUCTION

The nature of relevance of short term tactical decisions depends on the type of decision and problem for which are required. In this unit, we shall examine Linear Programming as a tool of ascertaining short term decision in an enterprise.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Define Linear Programming
- Explain short-term decision
- Solve a solution through Linear Programming model.

3.0 MAIN CONTENT

3.1 Linear Programming

Linear Programming is a mathematical technique which seeks to make the best use of an enterprise's limited resources to meet chosen objectives, which in accounting terms, may be:

- Maximisation of profits or
- Minimisation of costs.

SELF ASSESSMENT EXERCISE

Define Linear Programming.

3.2 Short-term Decision – Explanation

Short-term decisions are aimed at making the best use of available facilities. The contribution margin is a fundamental concept of this and it is defined as the excess of the revenue of any activity over its relevant costs, which is available as a contribution towards fixed costs and profits. Of course, profits are not made until all fixed costs have been covered, but under particular circumstances the expectation of a contribution margin will be enough to justify a certain decision.

We consider a decision problem with which a businessman is frequently faced is the acceptance of a special order which may be a large order at a price below the usual selling price and sometimes below total manufacturing costs.

Illustration:

Bassey Umo Ltd. Manufactures a garment sold under the trade name of Ofong. Its total productive capacity is 100,000 units in the current period and actual production is running at 80% of productive capacity. The product sells at N1,000 per unit and the firm's cost of production are stated below:

Fixed costs	N25,000.00
Variable costs	N0.50 per unit

The enterprise receives a special order for 10,000 Ofong from a mail order firm, subject to the enterprise agreeing to sell the product at N0.60 per unit. The Chief Executive is refusing to accept the order because the selling price is well below the manufacturing costs calculated as thus:

Fixed costs per unit (allocated over 90,000 units)

$$\frac{N25,000}{90,000} = N0.28$$

Variable costs per unit 0.50

Total manufacturing cost N0.78 per unit

The contribution margin approach to the solution of this decision problem leads to a different conclusion. The revenue per unit is N0.60 and the relevant costs associated with the decision are the variable costs of production only, that is, N0.50 per unit.

Therefore a unit contribution margin of N0.10 per unit on that basis, the firm accepts the special order. The fixed costs are not relevant costs because:

1. They are sunk costs (they are not future costs).
2. They are not affected by the decision to accept the special order which is not differential costs.

SELF ASSESSMENT EXERCISE

What makes up short-term decision?

3.3 Linear Programming and Short-Term Decision Problem

For a particular situation where a manufacturer has a limited plant capacity, the level and cost of output will be determined by such capacity. An example will be examined with linear programming approach to find solution of a typical short-term decision problem.

Illustration:

Elmobi Ltd. manufactures two high quality iron products in given the following information:

	Products	
	A	B
	N'000,000	N'000,000
Selling price per unit	30	20
Variable cost per unit	<u>15</u>	<u>10</u>
Contribution	<u>N15</u>	<u>N10</u>

Milling and grinding machines are used in the manufacturing process and the total machines hours are needed to produce are unit of each product as follows:

	Products A		B
Milling	5 hours		1½ hour
Grinding	<u>2</u>		<u>2</u>
Total	<u>7</u>		<u>3½</u>

- Both products are in high demand
- The only constraint on output expansion is machine capacity
- The total machine hours available monthly are:
Milling (3 machines at 200 hours per month – 600 hours)
Grinding (2 machines at 200 hours per month – 400 hours).

Based on these facts, the problem of decision making is to ascertain that combination of output of products – A and B which will maximise the total contribution margin to overhead and profits.

Observations:

At first, it may seem that the enterprise should maximise the production of product A since that product yields the highest unit contribution margin.

Analysis:

Analysed in terms of the machine capacity limit, the total number of units of either product A or B which could be manufactured are expressed as:

Product A	600 hours ÷ 5 hours	=	120 units
Product B	400 hours ÷ 2 hours	=	200 units

These output limits are derived in the case of product A by the fact that output is limited to the capacity of the milling machines for Product A require 5 hours of milling as against only 2 hours of grinding. Product B is limited in output by the capacity of the grinding machines of which it requires 2 hours per unit as against 1½ hours of milling time.

Relating the calculation of the contribution margin to the machine capacity limits, the total contribution to overhead costs and profits which will be obtained by the production of either A or B is expressed below:

Product A:	120 units x N15 = N1800
Product B:	200 units x N10 = N2000

(All amount expressed in N'000,000 for better understanding).

Therefore, that given the option of making either product A or product B the enterprise should focus attention on the making of product B.

Linear Programming Approach

We have from 3.1 inferred that Linear Programming (LP) is an optimisation technique used to maximise total contribution margin of a mix of products (the objective function) with multiple constraints. The solution to the problem stated above will be considered under linear programming.

The first step is to formulate the problem in simple algebraic terms. We observe two aspects of the problem:

- The wish to maximise profits and
- The need to recognise the limits of production.

Let the two aspects be stated algebraically thus:

- i The objective of maximising the contribution to fixed overhead and profit. This is the objective known as the objective function expressed thus:

$$\text{Maximise } C = 15A + 10B$$

Where C = the total contribution and A and B = the total number of units of the two products which is to be manufactured to maximise the total contribution. This equation is subject to the limits that

$$\begin{array}{l} A \geq 0 \\ B \geq 0 \end{array}$$

For it is not possible to produce negative quantities of either A or B .

- ii Constraints on production come from the machine capacity limits of the milling section (600 hours) and of the grinding section (400 hours) and can be expressed thus:

$$\begin{array}{l} 5A + 1\frac{1}{2}B \leq 600 \\ 2A + 2B \leq 400 \end{array}$$

The first equation (inequality) states that the total number of hours used on milling must be equal to or less than 600 hours.

The second equation (inequality) states that the total hours used on grinding machine must be equal to or less than 400 hours.

The problem may now be summarised.

Thus:

$$\text{Maximise } C = 15A + 10B$$

Subject to the constraints:

$$5A + 1\frac{1}{2}B \leq 600$$

$$2A + 2B \leq 400$$

$$A \geq 0$$

$$B \geq 0$$

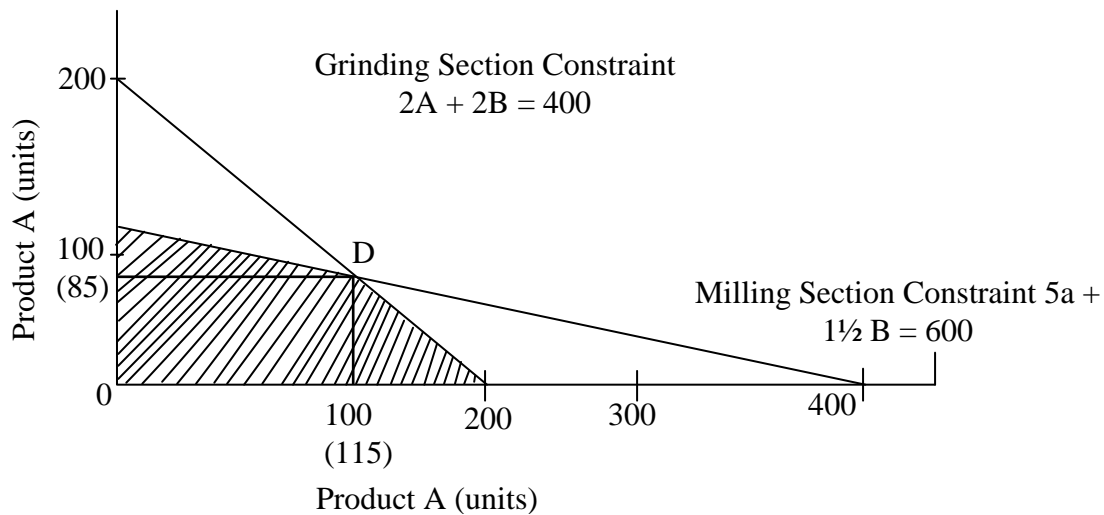
Solving the problem by means of a graph showing the manufacturing possibilities for the two sections:

Milling section

Product A	$600 \div 5 = 120$ units
Or Product B	$600 \div 1\frac{1}{2} = 400$ units

Grinding Section

Product A	$400 \div 2 = 200$ units
Or Product B	$400 \div 2 = 200$ units



The shaded region is the feasible areas to the solution, containing all the combinations of products A and B. This is the feasibility region.

The Optimal Solution:

The product combination A and B – the best of all the feasible solutions lies at the intersection of the lines at D in the graph. This may be read of as 85 units of A and 115 of B.

Observation: The optimal solution lies on a tangent which is the furthest away from the point of origin. The graphical method of solving the problem is susceptible to error unless plotted carefully. A more reliable answer may be calculated mathematically thus:

The optimal combination of products A and B may be found by solving the simultaneous equation given above, that is:

$$\begin{aligned}(1) \quad 5A + 1\frac{1}{2} B &= 600 \\(2) \quad 2A + 2B &= 400\end{aligned}$$

Solution:

Multiply (1) by 4 and (2) by 3 to produce the value of A, thus:

$$\begin{array}{r}20A + 6B = 2400 \\- \quad 6A + 6B = 1200 \\ \hline 12A \quad \quad = 1200 \\ A \quad \quad = 85\frac{5}{7}\text{ths}\end{array}$$

As we are focusing only with completed units of A, the optimal production of product A is 85 units. The optimal number of units of B may be computed by inserting the known value of A into the equation thus:

$$\begin{aligned}6 \times 85 + 6B &= 1200 \\510 + 6B &= 1200\end{aligned}$$

$$\begin{aligned}6B &= 1200 - 510 \\B &= 115\end{aligned}$$

Therefore, the optimal combination of products A and B is 85 units and 115 units respectively, in terms of the limited machine capacity which is expressed thus:

	Milling section (hours)	Grinding Section (hours)
Product A – 85 units	425 (85 x 5)	170 (85 x 2)
Product B – 115 units	<u>172.5</u> (115 x 1½)	<u>230</u> (115 x 2)
Total hours used	597.5	400
Total hours available	600	400

The optimal combination will produce a total contribution to overheads and profits of N2425 thus:

Product A	85 units at N15	=	1275
Product B	115 units at N10	=	<u>1150</u>
			<u>N2425</u>

We therefore verify that this combination of products is the optimal one in terms of profits and available machine capacity thus:

1. Altering the product combination from 85 units of A and 115 units of B to 84 units of A and 116 units of B which would affect machine use as follows:

	Milling section (hours)	Grinding Section (hours)
Product A – 84 units	420 (84 x 5)	168 (84 x 2)
Product B – 116 units	<u>174</u> (116 x 1½)	<u>232</u> (116 x 2)
Total hours used	594	400
Total hours available	600	400

Therefore, this combination is as efficient in the utilisation of the grinding department but less efficient in the utilisation of the milling machines. It is less profitable also yielding a contribution of only N2,420.00 as against N2425.00 as follows:

Product A:	84 units at N15	=	1260
Product B:	116 units at N10	=	<u>1160</u>
			<u>N2420</u>

2. Altering the product combination from 85 units of A and 115 units of B to 86 units of A and 113 units of B, which would affect machine use as under:

	Milling section (hours)	Grinding Section (hours)
Product A – 86 units	430 (86 x 5)	172 (86 x 2)
Product B – 113 units	<u>169½</u> (113 x 1½)	<u>226</u> (113 x 2)
Total hours used	599½	396
Total hours available	600	400

That means, whereas this combination is more efficient in the use of the milling machines than the optional combination, it is less efficient in the use of the grinding machinery. Moreover, to keep within the capacity limits of the milling section production of 2 units have had to be forgone of product B to expand the manufacture of product A by one unit.

The consequential contribution to profits is also only N2420.00 as against the optimal contribution of N2425.00, calculated thus:

Product A:	86 units at N15	=	1200
Product B:	113 units at N10	=	<u>1130</u>
			<u>N2420</u>

You should note that the linear programming approach to the best contribution mix gives a solution which is more profitable than the one which relates the contribution margin to the machine capacity limits which we discussed earlier and which suggested that only product B should be made so that 200 units of B would be manufactured to yield a contribution of N2000.

SELF ASSESSMENT EXERCISE

Practise more of short term calculation using Linear Programming approach.

4.0 CONCLUSION

In conclusion, this unit has shown linear programming as a tool of making short term decision for an enterprise.

5.0 SUMMARY

In this unit, we defined linear programming, discussed short-term decisions, and solved linear programming and short-term decisions.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is linear programming?
2. Explain short term decision based on linear programming approach.

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UNIT 2 PRICING AND PROFIT PLANNING

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Pricing
 - 3.2 Profit Planning
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In this unit, you will learn how to explain pricing and discuss profit planning and how management applies them to the benefit of entrepreneurial growth and development.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Explain pricing
- Discuss profit planning.

3.0 MAIN CONTENT

3.1 Pricing

In our study of pricing, there are many factors critical to the success of an enterprise's short and long term plans. Importance is attached to cost control because of its susceptibility to control than other factors. In the concept of cost-volume-profit analysis is the centre of short-term planning, but in any given enterprise's cost structure, price changes could affect both the sales volume and the profit level. (Consideration of the purchasing power, task demand rate etc). In short, management ability to improve profits through price changes will depend on its knowledge of how the market will react to such changes.

Therefore, a well formulated pricing policy or strategy which considers the likely effects of price changes on the market's demand for the enterprises product, so as to plan a level of operation which, given the enterprise's cost structure will produce the required profit.

We may therefore associate in the study of pricing, the problem of management in the two-fold aspect

- The problem of control-in-the-large and
- That of control-in-the-small.

Pricing policy provides the means in which the enterprise can control to a degree, its relationship with its external environment (control-in-the-large) and at the same time, it is controlling its internal operations accordingly (control-in-the-small).

A further dimension to the problem of pricing: like if an enterprise formulates a pricing policy affecting its relationship with the market, such a policy has short term and long term implications (effect).

Any alteration in the volume of demand for the enterprise's products which results directly from its own pricing policy will affect its capital budgeting programme.

Hence, in summation an enterprise's long-term projected plan should reflect its long-term pricing policy. Thus, short-term changes in that policy should be effected solely for providing that degree of flexibility which essential for effective long-range planning and control.

SELF ASSESSMENT EXERCISE

Explain pricing and its implication, in an enterprise as a going concern.

3.2 Profit Planning

Budget is the profit plan base. A well managed enterprise usually produces a budget cycle planning the performance of the organisation as a whole including the profit projections. Profit planning is related to considering four main factors – fixed costs, variable costs, selling price and sales volume. Any change in one or several of other factors, affect the planned profit. The management has to develop strategies in making sure these factors are properly mixed regarding the term – short, medium or long for the enterprise and the competitions thereof.

4.0 CONCLUSION

Pricing in an enterprise has been shown as an integral decision form of an enterprise which aids in planning process and policy formulation.

5.0 SUMMARY

In the unit, pricing and profit planning were discussed in the line with the pricing policy and decision limitation of an enterprise.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is pricing in an enterprise.
2. Discuss profit planning giving the main factors of consideration.

7.0 REFERENCES/FURTHER READING

Glantier MWE & Underdown B. (1978) "Accounting Theory and Practice" Pitma Publishing, London.

Horngren, C.J., Foster, G. Dta, S.M. (2000) "Cost Accounting – A Managerial Emphasis, Prentice Hall, London.

UNIT 3 ORGANISATIONAL GOAL PROGRAMMING

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Goals
 - 3.2 Organisational Goals Programming
 - 3.3 Long-range Profit Goal
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Organisational goal programming exists when people work out modality toward achieving organisational goals of an enterprise. In this unit you will learn of managers working together in their own best interest to take actions that align with the overall goal of management.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Describe goal of an organisation
- Explain organisational goal programming
- Discuss long-range profit goal

3.0 MAIN CONTENT

3.1 Goals

These are objects of efforts or ambition or expectations as results. Every enterprise has goals of its establishment ranging from profit making, providing goals/services, employment opportunities and other social responsibilities. There are two basic identifiable organisational goals namely:

- Board corporate goals which are general in nature and they are in form of policy statement which represents the ideals of the organisation.
- There are other goals derived from these goals establishing specific targets for the organisation which include peripheral goals – targets

for each units, departments and performance standards for managers and employment.

SELF ASSESSMENT EXERCISE

What is the goal of an enterprise?

3.2 Organisational Goals Programming

Goal programming follow as guidelines for the enterprise. This is a general/broad look at estimated goals which serve as the objective of the enterprises that is, guidelines –

Illustration:

Uto and Sons Ltd. May have the following goals in programme

- Profit goal – to achieve a profit level of sufficiency adequate enough to the yearnings of the shareholders.
- Financial goal – to secure adequate financial resources
- Production goal – to improve in the efficiency of production of high quality products
- Market goal – to improve on public image and create goodwill for products label and packaging
- Employee goal – to provide good working condition for employees
- Technology goal – to initiate new and better product which will stand the test of time.

Specific Goals

Specific goals quantified and set as targets which are intended to apply to the time span of the planning period.

Illustration:

The goals established by Uto and Sons Ltd. For the next five years are:

- Profit goals – to attain a profit level of 20% before tax on the market value of the shareholder' equity by the end of the fifth year.

- Financial goals – to improve the current cash situation and reduce debtors by 5%.
- Production goal – to increase output per employee by 15% over the next five years
- Market goal – to increase total sales of product over the period by 30%
- Employee goal – to reduce labour turnover by 10%
- Technology goal – to improve on the quality of product in the next one year.

SELF ASSESSMENT EXERCISE

3.4 Long-range Profit Goal

The essence of long-range planning is really one of projecting for profit goal. Future cash flows and the attendant profits are highly constrained by past and present capital expenditure decisions. The enterprise's success depends on its ability to generate sufficient cash flows represented by profit. The selection of a profit target for long-range planning purposes is not just a matter of fixing an arbitrary figure such as N5 million. A profit target has little meaning; its significance appears when it is related to some other measurement like – total asset employed, and this makes the profit goal meaningful.

Thus, the Return on Capital Employed (ROCE) in an enterprise, which relates to asset used provides a clearer view and provides an assessment of significance of a profit target (goal) as expressed in formula below:

$$\text{ROCE} = \frac{\text{Planned Net Profit}}{\text{Planned Total Assets}}$$

It is a consensus in financial analysis (management) that ROCE is the most important performance evaluation for long-range planning and for setting long-range profit goals. In common practice, ROCE is computed for each year covered by the long-range plan in order to show whether planned increases in annual profits will be in consonance with annual increases in assets.

SELF ASSESSMENT EXERCISE

What is long-range profit goal setting?

4.0 CONCLUSION

In concluding this unit, you learn that goal programming exists when management workout modality towards achieving organisational goals of a business organisation.

5.0 SUMMARY

In this unit, the summary is goal, goal programming, organisational goals, long-range profit goal of an enterprise.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is long range profit goal setting necessary for management of an organisation.
2. Explain goal programming in a typical business enterprise.

7.0 REFERENCES/FURTHER READING

Glantier MWE & Underdown B. (1978) "Accounting Theory and Practice" Pitma Publishing, London.

Horngren, C.J., Foster, G. Dta, S.M. (2000) "Cost Accounting – A Managerial Emphasis, Prentice Hall, London.

UNIT 4 OPPORTUNITY COST AND CONTROL OF PRODUCTION

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Opportunity Cost Concept
 - 3.2 Control of Production
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In this unit, you will learn of opportunity cost concept and production control mechanism of an enterprise as a going concern and how production is controlled by choice of product (service).

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- Describe opportunity cost concept and explain its usefulness in decision making
- Describe how to control production by choice of products.

3.0 MAIN CONTENT

3.1 Opportunity Costs

The opportunity cost can be defined as the value of the next best opportunity forgone or sacrificed, or of the net cashflow lost as a result of preferring an alternative rather than the next best one. Opportunity cost is the contribution to income that is forgone (rejected) by not using a limited resource in its next-best alternative use. Where it is clear that only the opportunity cost will assist in making the decision, the financial manager is often able to attempt its measurement.

Illustration:

The Allstate Investment Ltd is to invest N1 million. It has two viable projects for analysis:

Thus – Project A is estimated to produce an annual return of 15%

- Project B is estimated to yield 20% annually.

Based on above information, Project B will be selected by the company. The additional gain resulting from this decision may only be measured in terms of the opportunity costs of sacrificing Project A, as follows:

Estimated annual return from Project B	N 200,000
Less: Opportunity cost (the sacrifice of the estimated annual returns from Project A)	<u>150,000</u>
Advantage of Project B	<u>50,000</u>

The opportunity cost is always a relevant cost concept, when problem of choice faces an enterprise. The measure of the cost of decision is the loss sustained by losing the opportunity of the second best alternative. It is the opportunity cost which must be taken into account in computing the advantage of choosing one alternative rather than the other.

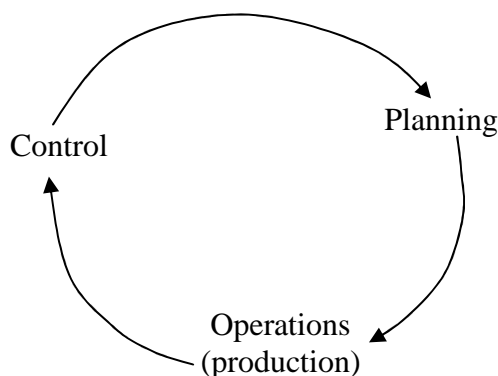
Opportunity cost concept is illustrated in production/operation in the situation – dropping a product line, making or buying a product, selling or further processing a semi-manufactured product etc.

SELF ASSESSMENT EXERCISE

Describe Opportunity Cost concept

3.2 Control of Production

Control is linked to the planning function because its purpose is to ensure that and enhance the enterprise’s activities (production) is in line with the projected plan. It is effected by means of an information feedback system which enables performance to be compared to planned targets. Control is essential in the realisation of plans: long-range and short-term.



In long-range planning, information feedback enhances management assess to what progress is achieved in production towards the realisation of the long-range objectives stated in the plan. In addition, it makes management to review the long-range objectives in the light of new circumstances which may have rendered those objectives unrealistic.

In practice, emphasis in on the control of production (operations) in order to meet the objectives contained in the annual budget which is part of the long-range plan. You should note that information feedback is an integral part of budgetary control procedures which are intended to be sensitive to daily operational variations. This highlights variations from budget plan, thus alerting management for solution actions to be taken promptly.

A pre-requisite to a successful performance of the control function is an efficient information system which reveals the need for corrective action at an appropriate time. This enables managers assess their target to justify the appropriateness of production considering the changes in the environment, monthly and annually. The control function in production is closely linked to the planning function by means of a proper feedback system which provides information on the results of past decisions. Such in-built system is needed to the assessment of the quality of the decision-making process and its improvement on production.

SELF ASSESSMENT EXERCISE

Briefly discuss control concept in an organisation

4.0 CONCLUSION

You have learned the role of opportunity cost in control of production through choice of products.

5.0 SUMMARY

The summary of this unit are opportunity cost concept and control of production as the affect an enterprise as a going concern.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain the usefulness of opportunity cost in decision making in business.
2. Discuss the extent of 'control' in production process of an enterprise.

7.0 REFERENCES/FURTHER READING

Glantier MWE & Underdown B. (1978) "Accounting Theory and Practice" Pitma Publishing, London.

Horngren, C.J., Foster, G. Dta, S.M. (2000) "Cost Accounting – A Managerial Emphasis, Prentice Hall, London.