

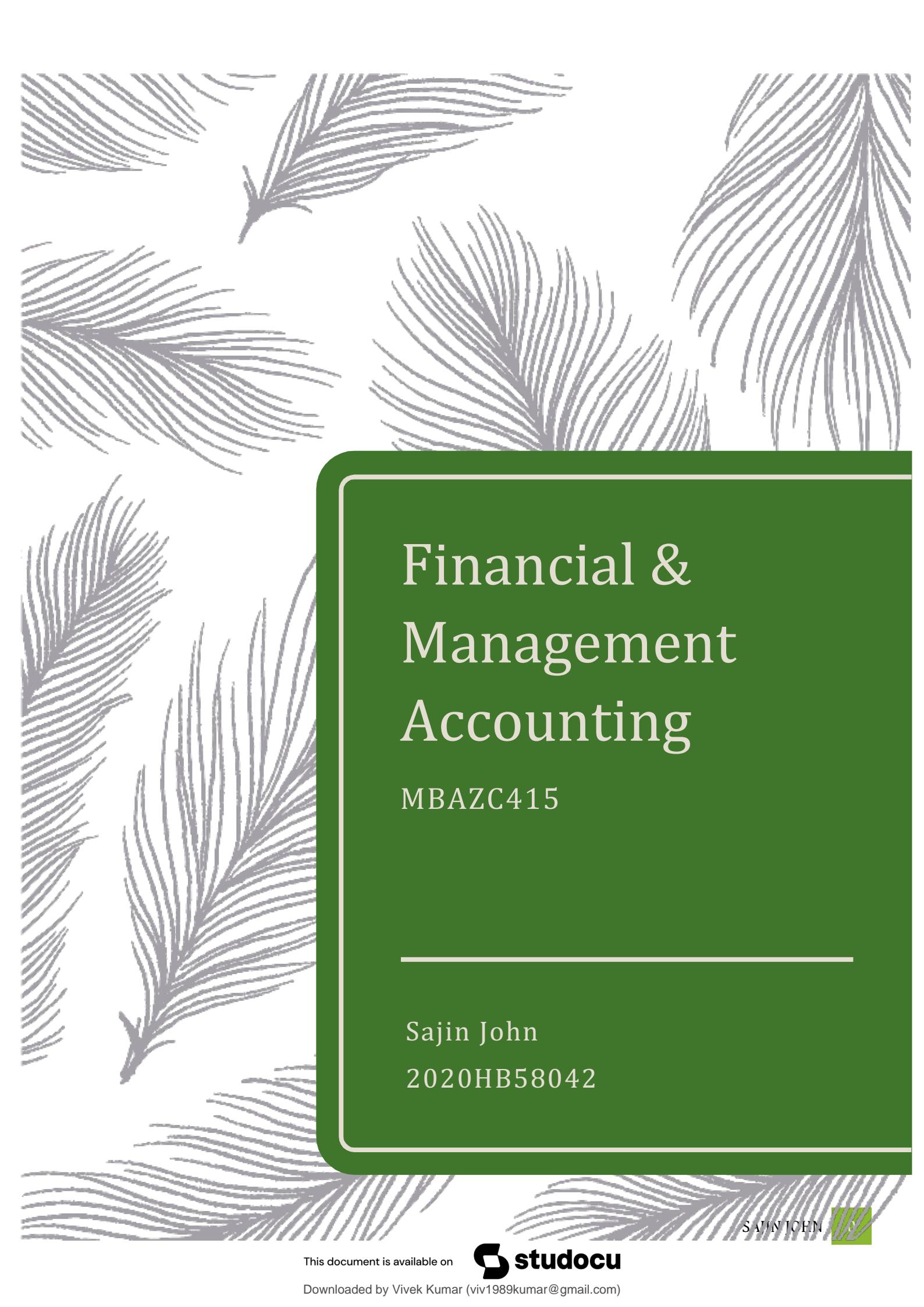


FMA Consolidated-Notes Lectures

Financial & Management Accounting (Birla Institute of Technology and Science, Pilani)



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Financial & Management Accounting

MBAZC415

Sajin John
2020HB58042

SAJIN JOHN

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MODULE 1: INTRODUCTION TO ACCOUNTING

WHAT IS ACCOUNTING?

FUNDAMENTALS OF ACCOUNTING

Invoices – each of which highlights the details of a transaction

Receipts – each of which verifies that a payment has been made

The fundamental principles of accounting as outlined by the Father of Accounting, namely, **Fra Luca Pacioli** in his seminal—“*Summa de arithmeticā, geometriā, Proportionet proportionalita*” (*Summary of Arithmetic, Geometry, Proportions and Proportionality*) —have not changed in essence since 1494, and these rules still form the basis of modern accounting.

“Accounting is the art of recording, classifying and summarizing, in a significant manner, and in term of money, transactions and events which are in part at least of a financial character, and interpreting the results thereof.” --- American Institute of Certified Public Accountants (AICPA)

- Identification of Financial Transactions and Events
- Measuring the Identified Transactions
- **Recording** – each and every transaction – *in journal*
- **Classifying** – because going through all transactions is tedious – *in ledger*
- **Summarizing** – to have a bird's eye view of state of business – *in trial balance & final accounts*
- **In terms of money** – only monetary transactions
- **Interpretation** – make sense of financial data. Analysis of financial statements.

Accounting is a systematic process of identifying, measuring, recording, classifying, summarizing, interpreting and communicating financial information.

INTRODUCTIONS TO FINANCIAL STATEMENTS

Forms of Business Organization

- Sole Proprietorship, Partnership, Corporation

Users and uses of Financial information

- Internal Users, External Users

Business Activities

- Financing, Investing, Operating

Communication with users

- Income Statement
- Balance sheet
- Statement of cash flows

FORMS OF BUSINESS ORGANIZATION

Sole Proprietorship / Trader

- Simple to establish
- Owner controlled
- Tax advantages

Partnership

- Simple to establish
- Shared control
- Broader skills and resources
- Tax advantages

Corporation (Private/Public Company)

- Easier to transfer ownership
- Easier to raise funds
- No personal liability
- Stakeholders are: Shareholder's, Suppliers, Customers, Government, Management, Employees
- Stakeholders depend on the financial statement to understand the company's progress.

CHARACTERISTICS OF BUSINESS FIRMS

Features	Sole Traders	Partnership	Limited Company
Ownership	Single Owner	Min: 2 Max: 100 [Indian Partnership Act 1932 & IC Act 2013]	- Private Limited [2 - 200 shareholders] - Public Limited (listed – Min: 7 shareholder and no upper limit)
Decision – making	Completely flexible	Flexible, partners may disagree	Very rigid: approval from shareholders
Suitability	Small business and small capital	Small, medium	Large, very large that require public capital

USERS AND USES OF FINANCIAL INFORMATION

Internal Users:

- Management:**

Which product line is profitable, and which one should be eliminated?
E.g.: Which PepsiCo product line is the most profitable? Should any product lines be eliminated?



- Marketing:**

What price should we charge to maximize profit?
E.g.: What price should Apple charge for an iPod to maximize the company's net income?

- Finance:**

Do I have cash to pay dividend/employee salaries?
E.g.: Is cash sufficient to pay dividend to Microsoft stockholders



- Human**

can company afford to pay hike this year?
E.g.: Can General Motors afford to give its employees pay raises this year?



External Users:

- Investors:**

Profitability, financial ratios, etc

Three Principles:

- Analyses the *long-term evolution* and management principles of a company before investing
- Protects him or herself from losses by *diversifying investments*
- Never looks for crazy profits, but focuses on *safe and steady returns*

E.g.: Is General Electric earning satisfactory income?



How does Disney compare in size and profitability with Time Warner?

- Creditors:**

Financial statements

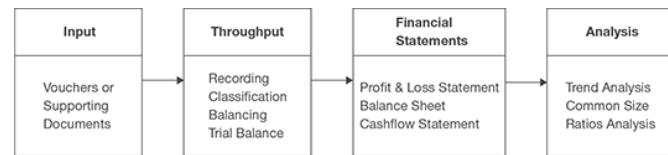
E.g.: Will United Airlines be able to pay its debts as they come due?



BUSINESS ACTIVITIES

The environment within which accounting exists is formally known as the *accounting information system*.

The *accounting information system* keeps track of the results of each of the business activities i.e. Financing, Investing, Operating.



FINANCING ACTIVITIES

Two primary sources of outside funds are:

- Borrowing money (debt financing)**

- Amounts owned are called **liabilities**
- Party to whom amounts are owed are **creditors**
- Notes payable** and **bonds payable** are different types of liabilities.

- Issuing (selling) shares of stock for cash**

- Payments to stockholders are called **dividends**.

INVESTING ACTIVITIES

Purchase of resources a company needs to operate.

- Property, Plant, and equipment.
- E.g.: Computers, delivery trucks, furniture, buildings, etc.*
- Resources owned by a business are called **assets**
- Investments** are another example of an investing activity

OPERATING ACTIVITIES

Once a business has the assets it needs, it can begin its operations.

- Revenues** – Amounts earned from the sale of products (sale revenue, service revenue, and interest revenue).
- Inventory** – Goods available for sale to customers.
- Accounts receivable** – Right to receive money from a customer as the result of a sale.
- Expenses** – cost of assets consumed, or services used. (cost of goods sold, selling, marketing, administrative, interest, and income taxes expense)
- Liabilities** – arising from expenses include accounts payable, interest payable, wages payable, sales taxes payable, and income taxes payable.
- Net Income** – when revenues exceed expenses.
- Net Loss** – when expenses exceed revenues.

COMMUNICATIONS WITH USERS

Companies prepare four financial statements from the summarized accounting data:

Income Statement	Retained Earnings Statement	Balance Sheet	Statement of Cash Flows
------------------	-----------------------------	---------------	-------------------------

The Standard-Setting Environment

Generally Accepted Accounting Principles (GAAP) –

A set of rules and practices, having substantial authoritative support, that the accounting profession recognizes as a general guide for financial reporting purposes.

Standard-setting bodies:

- Securities and Exchange Commission (SEC)
- Financial Accounting Standards Board (FASB)
- International Accounting Standards Board (IASB)
- Public Company Accounting Oversight Board (PCAOB)

International Note:

The primary types of financial statements required by *International Financial Reporting (IFRS)* and U.S. *generally accepted accounting principles (GAAP)* are the same.

Over 115 countries use international standards (called IFRS/GAAP)

INCOME STATEMENT

- Reports revenues and expenses for a specific *period of time*.
- *Net income* – revenues exceed expenses.
- *Net loss* – expenses exceed revenues.
- Past net income provides information for *predicting future net income*.
- **Net Income = Total Revenue – Total Expenses**
- *Financial Performance*

ABC Inc	
Income Statement	
For Year Ended December 31, 2017	
	\$000
Sales Revenue	28,500
Cost of Goods sold (expense)	13,500
Gross Margin	15,000
Selling, general & admin expenses	11,500
Operating earnings	3,500
Interest expense	1,500
Earnings before income tax	2,000
Income Tax expense	550
Net Income	1,450

RETAINED EARNINGS STATEMENT

- *Net income* is needed to determine the *ending balance* in retained earnings.
- Statement shows amounts and *causes of changes* in retained earnings during the period.

Statement of Profit and Loss for the year ended 31st March, 2018

Note	For the year ended 31st March, 2018 (₹ in Crores)	For the year ended 31st March, 2017 (₹ in Crores)
I Revenue From Operations*	21A, 21B	44329.77
II Other Income	22	2129.84
III Total Income (I+II)		46459.61
IV EXPENSES		
Cost of materials consumed		11765.21
Purchases of Stock-in-Trade		2991.98
Changes in inventories of finished goods, Stock-in-Trade, work-in-progress and intermediates		1041.85
Excise duty		3702.23
Employee benefits expense	23	2487.46
Finance costs	24	86.65
Depreciation and amortization expense		1145.37
Other expenses	25	6809.06
Total expenses (IV)		30020.81
V Profit before exceptional items and tax (III-IV)		16438.80
VI Exceptional Items	27(i)	412.90
VII Profit before tax (V+VI)		16851.70
VIII Tax expense:		
Current Tax	26	5599.83
Deferred Tax	26	28.62
IX Profit for the year (VII-VIII)		11223.25
		10200.90

- *Time period* is the same as that covered by the income statement.
- Users can *evaluate dividend* payment practices.
- Retained earnings is the income left after paying all liability of the business
- RE = actual profit of the business.
- **Retail Earnings = Revenue - Expenses - Dividends**
- Changes in retained earnings.
- A company, or a corporation, at the discretion of its board of directors, can pay some of its income, usually after a profitable period, to stockholders, as dividends and keep the remainder as *retained earnings*.

ABC Inc	
Retained Earnings Statement	
For Year Ended December 31, 2017	
	\$000
Retained Earnings January 1	1,080
Add: Net Income	1,450
Less: Cash Dividends	210
Retained Earnings, December 31	2,320

BALANCE SHEET

- Reports assets and claims to assets at a specific point in time.
- Assets = Liabilities + Stockholders' Equity (Owners capital).
- A = L + OE
- WHAT === WHO
Assets === WHO has claim
Assets === Others Claim + My Claim
Assets === Liabilities + Owners' Equity
Car (15K) = Bank Loan(13K) + Cash (2K)
- Lists assets first, followed by stockholders' equity, liabilities
- Strength and liquidity – Statement of financial position

Balance Sheet as at 31st March, 2018

	Note	As at 31st March, 2018 (₹ in Crores)	As at 31st March, 2017 (₹ in Crores)
ASSETS			
Non-current assets			
(a) Property, Plant and Equipment	3A	15120.00	14469.32
(b) Capital work-in-progress	3B	5016.85	3491.33
(c) Intangible assets	3C	445.99	410.92
(d) Intangible assets under development	3D	8.73	45.69
(e) Financial Assets			
(i) Investments	4	13493.77	8485.51
(ii) Loans	5	7.40	5.84
(iii) Others	6	1741.28 15242.45	99.83 8591.18
(f) Income Tax Assets (Net)	20A	18.66	–
(g) Other non-current assets	7	2025.63 37878.31	2670.12 29678.56
Current assets			
(a) Inventories	8	7237.15	7863.99
(b) Financial Assets			
(i) Investments	9	9903.45	10099.78
(ii) Trade receivables	10	2357.01	2207.50
(iii) Cash and cash equivalents	11	96.03	156.15
(iv) Other Bank Balances	12	2498.85	2591.12
(v) Loans	5	4.15	3.37
(vi) Others	6	1147.95 16007.44	1004.91 16062.83
(c) Other current assets	7	1256.41 24503.00	610.57 24537.39
TOTAL ASSETS		62381.31	54215.95
EQUITY AND LIABILITIES			
Equity			
(a) Equity Share capital	13	1220.43	1214.74
(b) Other Equity		50179.64 51400.07	44126.22 45340.96
Liabilities			
Non-current liabilities			
(a) Financial Liabilities			
(i) Borrowings	14	11.13	17.99
(ii) Other financial liabilities	15	35.36 46.49	9.21 27.20
(b) Provisions	16	121.91	131.37
(c) Deferred tax liabilities (Net)	17	1917.94	1871.70
(d) Other non-current liabilities	18	38.30 2124.64	14.65 2044.92
Current liabilities			
(a) Financial Liabilities			
(i) Borrowings	19	–	0.01
(ii) Trade payables		3382.28	2551.22
(iii) Other financial liabilities	15	778.30 4160.58	784.78 3336.01
(b) Other current liabilities	18	4656.78	3351.15
(c) Provisions	16	39.24	41.83
(d) Current Tax Liabilities (Net)	20B	– 8856.60	101.08 6830.07
TOTAL EQUITY AND LIABILITIES		62381.31	54215.95
ABC, Inc. Balance Sheet <i>at December 31, 2017</i>			
Assets		\$000	
Cash		7,875	
Accounts Receivable		1,250	
Inventory		690	
Prepaid expenses		195	
Current assets		10,010	
Property, plant & equipment		5,750	
Accumulated depreciation		(1,875)	
Net of depreciation		3,875	
Total Assets		13,885	

Liabilities and Owners' Equity	
Accounts payable	1,025
Accrued expenses payable	250
Income tax payable	550
Short-term notes payable	1,125
Current Liabilities	2,950
Long-term notes payable	2,880
Owners equity:	
Invested Capital	5,735
Retained earnings	2,320
Total owners' equity	8,055
Total liabilities and owners' equity	13,855

CURRENT ASSETS

- Current assets have a useful *economic life of one year or less* and can be converted *easily into cash*.
- Such assets in this class include cash and cash equivalents, accounts receivable, and inventory

NONCURRENT ASSETS

- Noncurrent assets are assets that *cannot be turned into cash easily*.
- They also have an expected life span of more than a year.
- This can refer to *tangible assets* such as plant and machinery, buildings, and land.
- Noncurrent assets can include intangible assets such as goodwill, patents, or copyrights.
- Intangible assets are not physical in nature, are usually not capitalized, and can make or destroy a company, for example, the value of a brand name, should not be underestimated.
- Depreciation* is calculated and subtracted from tangible assets, which represents the economic cost of the asset over its useful life.

CURRENT LIABILITIES

- Current liabilities* are the company's liabilities that will come due, or must be honoured, *within one year*.
- This includes both *shorter-term borrowings*, such as accounts payables, together with the current portion of longer-term borrowing, such as the latest interest payment on a multi-year loan.

NONCURRENT LIABILITIES

- Long-term liabilities* are debts and other non-debt financial obligations, which are due more than at least one year from the date of the balance sheet.

STOCKHOLDERS' EQUITY

- Shareholders' equity is the amount of money that was initially invested into a business.
- If a company decides to reinvest its net earnings into the company (after taxes), these retained earnings will be moved from the income statement onto the balance sheet and into the *stockholders or shareholder's equity account*.

STATEMENT OF CASH FLOWS

- *Cash flow* statement provides detail about the sources and uses of cash during an accounting period.
- The balance sheet shows the cash balance on a particular date, but it does not explain the change in the cash position since the last balance sheet date.
- Helps in answering below queries:
 - Where did cash come from during the period?
 - How was cash used during the period?
 - What was the *change in the cash* balance during the period?

The cash flows are broken under three heads:

- i. *Cash flow from operating activities*—sources and uses of cash arising directly from the main revenue generating activities of the organization.
- ii. *Cash flow from investing activities*—sources and uses of cash related to investing in long-term assets including long-term investments. This also includes the income generated from these long-term investments.
- iii. *Cash flow from financing activities*—sources and uses of cash related to funds raising activities including repayment of loans, payment of interest on borrowed funds and payments of dividends on shares.

Cash Flow Statement for the year ended 31st March, 2018

	For the year ended 31st March, 2018 (₹ in Crores)	For the year ended 31st March, 2017 (₹ in Crores)
A. Cash Flow from Operating Activities		
PROFIT BEFORE TAX	16851.70	15502.96
ADJUSTMENTS FOR:		
Depreciation and amortization expense	1145.37	1038.04
Share based payments to employees	349.28	450.32
Finance costs	86.65	22.95
Interest income	(917.80)	(864.58)
Dividend Income	(409.79)	(248.85)
Loss on sale of property, plant and equipment - Net	14.48	5.00
Doubtful and bad debts	25.14	30.74
Doubtful and bad advances, loans and deposits	3.74	1.25
Impairment of Investment in joint venture/subsidiary company	23.45	16.29
Net (gain)/loss recognised on disposal of subsidiary and return of capital by subsidiary	(9.61)	(203.95)
Net (gain)/loss arising on investments mandatorily measured at fair value through profit and loss	(716.81)	(605.20)
Foreign currency translations and transactions - Net	4.46	(401.44)
OPERATING PROFIT BEFORE WORKING CAPITAL CHANGES	16450.26	15151.87
ADJUSTMENTS FOR:		
Trade receivables, loans, advances and other assets	(784.11)	(859.05)
Inventories	626.84	655.83
Trade payables, other liabilities and provisions	2077.43	1920.16
CASH GENERATED FROM OPERATIONS	18370.42	15214.98
Income tax paid	(5719.57)	(5212.96)
NET CASH FROM OPERATING ACTIVITIES	12650.85	10002.02

B. Cash Flow from Investing Activities

Purchase of property, plant and equipment, Intangibles etc.	(2619.04)	(2944.49)
Sale of property, plant and equipment	71.23	47.38
Purchase of current investments	(89843.68)	(76998.70)
Sale/redemption of current investments	91080.09	74903.71
Investment in subsidiaries	(224.19)	(139.80)
Purchase of non-current investments	(4713.31)	(2280.65)
Proceeds on disposal of subsidiary	17.53	132.88
Return of capital by subsidiary	-	126.57
Dividend Income	409.79	248.85
Interest received	691.40	720.43
Investment in bank deposits (original maturity more than 3 months)	(3920.32)	(1714.79)
Redemption/maturity of bank deposits (original maturity more than 3 months)	2997.48	5615.52
Investment in deposit with housing finance company	(1135.88)	(500.00)
Redemption/maturity of deposit with housing finance company	500.00	-
Loans given	(7.52)	-
Loans realised	5.18	2.76
NET CASH USED IN INVESTING ACTIVITIES	(6691.24)	(2780.33)

C. Cash Flow from Financing Activities

Proceeds from issue of share capital	912.79	1066.96
Repayment of non-current borrowings	(7.84)	(12.86)
Interest paid	(45.32)	(21.77)
Net increase in statutory restricted accounts balances	0.77	3.69
Dividend paid	(5770.01)	(6840.12)
Income tax on dividend paid	(1110.24)	(1333.52)
NET CASH USED IN FINANCING ACTIVITIES	(6019.85)	(7137.62)
NET INCREASE IN CASH AND CASH EQUIVALENTS	(60.24)	84.07
OPENING CASH AND CASH EQUIVALENTS	156.26	72.19
CLOSING CASH AND CASH EQUIVALENTS	96.02	156.26

ANNUAL REPORTS

U.S. Companies that are publicly traded must provide shareholders with an annual report.

The annual report always includes:

- Financial statements.
- Management discussion and analysis.
- Notes to the financial statements.
- Auditor's report

AUDITORS REPORT

Auditor's opinion as to the *fairness* of the presentation of the financial position and results of operations and their conformance with generally accepted accounting principles.

MODULE 2: GENERALLY ACCEPTED ACCOUNTING PRINCIPLES (GAAP)

BALANCE SHEET PRINCIPLES

MONETARY MEASUREMENT CONCEPT

Requires that only those things that can be expressed in money are included in the accounting records

Money measurement concept makes it possible to aggregate different types of assets, liabilities, revenues and expenses by expressing them in a common unit of reporting.

Scenario 1: A business owns

- Rs30,000 of cash
- 6000 pounds of raw materials
- 50,000 square feet of building space
- Can't be added together

Scenario 2: A business own

- Rs30,000 of cash
- Rs9000 of raw materials
- Rs150,000 of trucks
- Rs40000 of building
- Can be added together

BUSINESS ENTITY CONCEPT

Stats that every economic entity can be separately identified and accounted for. (Separate from its owners)

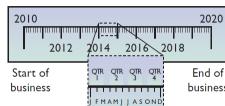
Separate entity concept ensures that the personal affairs of the proprietor are not mixed with business transactions resulting in correct ascertainment of business results and financial position.

E.g.: Ram Manohar & Sons is a proprietorship firm owned by Mr. Ram Manohar. During the year 2017, the firm bought goods worth ₹ 1,00,00,000. Goods costing ₹ 100,000 were consumed by Mr. Ram Manohar for personal purposes. The remaining goods were sold for ₹ 9,60,000. What is the profit or loss for the year?

Total purchases ₹ 1,00,00,000
Goods Consumed costing ₹ 100,000
So, Remaining Goods costing ₹ 900,000
Remaining Goods sold for ₹ 960,000
Hence, Profit of ₹ 60,000 (₹ 960,000 – ₹ 900,000)

PERIODICITY CONCEPT

States that the life of a business can be divided into artificial time periods.



GOING CONCERN CONCEPT

The business will remain in the operation for the foreseeable future.

Going concern concept requires a longer term view to be taken for

recording business transactions as if the business will continue to operate for an indefinite period of time.

E.g.: Healthcare Pharmaceutical Limited has 3 plants located at Delhi, Mumbai and Pune. The company has decided to shut down the Pune plant and sell its assets either as a running unit or in a piecemeal manner. What is the implication of such a decision in the books of accounts of the company?

In respect of Pune plant, the going concern assumption has been violated as such the assets should be shown at their liquidation value. For the other two plants, going concern continues to hold good.

COST CONCEPT

Actual cost paid. Record the assets at their costs. (instead of the current market value).



Cost concept lends

objectivity to the financial statements as a long-term asset will continue to be shown at its historical cost irrespective of fluctuation in the market price. However a permanent fall in value is recognized.

E.g.: Industrial Lab Limited bought a piece of land for ₹ 5 million in the year 1970. The company has used the land to set up an industrial unit. The current market price of the land is ₹ 20 million. At what value this asset should be shown in the financial statements of the company?

The land will continue to appear at its historical cost, i.e., ₹ 5 million irrespective of its current market price following cost concept.

DUAL ASPECT (DOUBLE ENTRY SYSTEM)

A transaction impacts at least two accounts

An account is a record for an item



Debit and Credit

Assets = Liabilities + Owners' Capital

Double entry bookkeeping – every transaction affects at least two accounts in such a way that Assets = Capital + Liabilities.

Assets	=	Capital	+	Liabilities
Cash	₹ 800000	= ₹ 1000000		₹ 700000
Furniture	₹ 200000			
Machines	₹ 700000			

INCOME STATEMENT CONCEPTS

ACCOUNTING PERIOD CONCEPT

Accounting measures activities for a specific interval of time.

One year is the usual accounting year

Interim report – quarterly

Accounting period is usually a period of 12 months. Additionally, interim reports are prepared to meet the requirement of users for more concurrent information.

E.g.: ABC Limited was keeping its books of accounts on a calendar year basis. After preparing its accounts for the year 2014, it decided to change its accounting period to financial year basis. How would the switch over happen in terms of accounting period?

The accounts for the year 2015–16 will be for fifteen months i.e. from 1st January 2015 to 31st March 2016. Thereafter, regular financial year will be followed.

CONSERVATISM CONCEPT

Recognizing expenses and liabilities as soon as possible when there is uncertainty about the outcome, but to only recognize revenues and assets when they are reasonably certain

Conservatism concept prefers accounting policies that understate rather than overstate profits; ignore probable gains but account for probable losses.

E.g.: unearned Rs. 100/-

E.g.: Reliable Limited sells goods on credit basis. At the end of the year, it has a total outstanding of ₹ 120 million from its customers. The past experience shows that about 5% of the customers invariably default. How do we account for this anticipated loss?

As based upon past experience 5% loss is reasonably probable, the company will make a provision for anticipated losses at ₹ 6 million. This will appear in the statement of profit and loss for the year as an expense. In the balance sheet, receivables will be shown at ₹ 114 million, i.e., net of the provisions.

REALIZATION CONCEPT

Amount of revenue should be recognized from a given sale.

Realization: inflows of cash or claims to cash

Accrual: Income is recognized when earned, expenses are recognized when incurred irrespective of when received or paid.

E.g.: Account receivable – A customer buys Rs. 50/- worth of items at a grocery store.

MATCHING CONCEPT

When a given event affects both revenues and expenses, the effect on each should be recognized in the same accounting period.

First revenue and then costs

Matching concept for correct ascertainment of profits, expenses incurred to earn revenue are matched against the revenue earned. Both revenue and related expenses must be accounted for in the same accounting period.

E.g.: During the year, Smart Trading Limited bought goods worth ₹ 1,350,000. It also had goods worth ₹ 200,000 in stock which were bought during the previous year. At the end of the year, goods costing ₹ 450,000 are still unsold. Remaining goods have been sold during the year for ₹ 1,400,000. Ascertain the cost of goods sold during the year and profit or loss for the year.

The total cost of goods available for sale is made up of the goods from the previous year (opening stock) amounting to ₹ 200,000 and goods bought during the year amounting to ₹ 1,350,000. Out of this, goods costing ₹ 450,000 are still unsold (closing stock). The cost of goods sold can be calculated as:

$$\text{Opening stock} + \text{Purchases} - \text{Closing stock} = ₹ 1,100,000.$$

The company has earned ₹ 1,400,000 from sales of goods. By matching the cost of goods sold against this income, the profit for the year comes to ₹ 300,000.

CONSISTENCY CONCEPT

Once an entity has decided on one accounting method, it should use the same method for all subsequent events of the same character unless it has a sound reason to change.

Consistency concept facilitates inter-period comparison by requiring that same accounting policies are followed period after period. Change in accounting policies, if any, must be adequately disclosed.

E.g.: Red Swan Auto Limited is proposing to change its accounting policy for the valuation of inventories as the management feels that it would lead to better estimation of cost of inventories. Can they do so?

Yes, Red Swan Auto can change its accounting policy for better estimation of cost. However, the company needs to disclose the change in accounting policy. The impact of change also must be quantified and disclosed.

MATERIALITY CONCEPT

Insignificant events may be disregarded, but there must be full disclosure of all-important information.

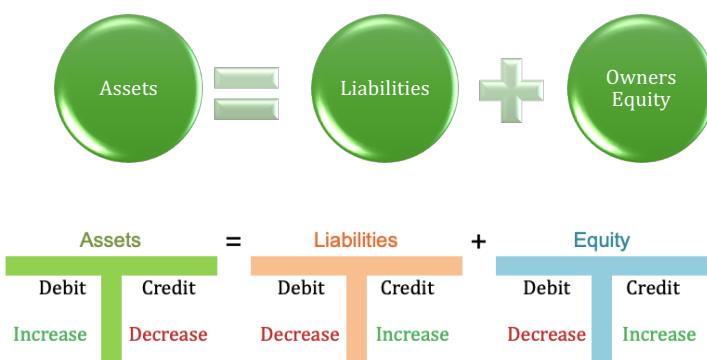
No agreement on the line separating material events from immaterial events.

Materiality concept provide all information that is relevant to the users but avoid unnecessary details.

E.g.: In the statement of profit and loss of Tee Ltd. about 60% of the expenses have been clubbed under the heading 'miscellaneous expenses', whereas Cee Ltd. has reported all heads of expenses separately including about 100 different types of expenses which together constitute only 10% of the total expenses in rupee terms. What are your views?

In case of Tee Ltd. vital details are being lost as 60% of the expenses are being clubbed as 'miscellaneous expenses. The company should analyze its expenses under relevant heads and disclose accordingly. Cee Ltd., on the other hand, is over disclosing. It can club a number of expense heads as miscellaneous and make financial statements simpler.

ACCOUNTING EQUATION



An **asset** is a resource that gives benefits to its owner. An enterprise should consider a resource its asset if (a) it controls the resource, and (b) the resource is expected to give benefits.

A **liability** is an obligation that requires to be settled by given up assets. Usually, it requires payment of cash.

Equity is net assets, i.e. the difference between an enterprise's assets and its liabilities. The equity of a business enterprise increases through investments by owners and profits from operations and decreases through distributions to owners and losses from operations.

Revenues are amounts charged to customers for goods and service provided.

Expenses are the cost of earning revenues.

Net profit is the excess of revenues over expenses

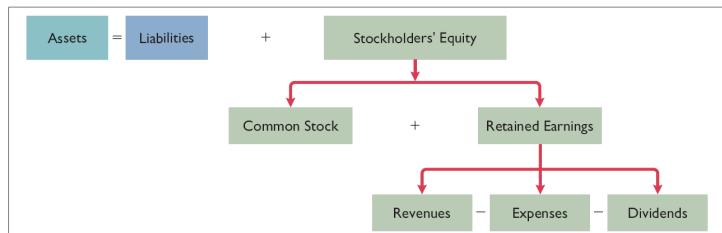
Net loss is the excess of expenses over revenues.

Dividends are distributions to shareholders.

Retained earnings represent the profit kept in the business.

ANALYSING TRANSACTIONS

The process of identifying the specific effects of economic events on the account equation



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

$$\text{Owners' Equity} = \text{Common Stock} + \text{Retained Earnings}$$

$$\text{Retained Earnings} = \text{Revenues} - \text{Expenses} - \text{Dividends} \text{ (or drawing)}$$

$$\text{Net Income} = \text{Revenues} - \text{Expenses}$$

$$\text{Gross Margin} = \text{Sales revenue} - \text{Cost of Sales}$$

THE ACCOUNTING PROCESS

1. Analysis of transactions
 - Select the two/more impacting accounts and analyse which is debit or credit
2. Journalizing Original Entries
 - Recording the results of the transaction analysis in the journal
3. Posting
 - Process of recording changes in ledger accounts exactly as specified by journal entries.
4. Adjusting Entries
 - At the end of accounting period, judgment is involved in deciding on the adjustment entries.
 - These are journalized as done for existing.
5. Closing Entries
 - Accounts are closed, journalized and posted.
6. Financial statements
 - Financial Statements are prepared.

EXERCISE – IDENTIFY ASSETS, LIABILITIES, INCOME & EXPENSES

Headings	Asset	Liability	Income	Expense	Type of A/c	Explanation
Cash	✓				Real A/c	Current Assets. Cash in Hand
Bank Balance	✓				Real A/c	Current Asset
Office Equipment	✓				Real A/c	Life > 1 year; Non-Current Asset
Stock of goods	✓				Real A/c	Life < 1 year; Current Asset
Rent for Building				✓	Nominal	Indirect Exp. Either paid or to be paid
Electricity bills				✓	Nominal	Indirect Expense. Operating Expense
Furniture	✓				Real	Non-Current, Fixed, Tangible Asset
Goodwill	✓				Real	Non-Current, Intangible Asset
Advertising				✓	Nominal	Indirect Expense. Operating Expense
Interest on investments			✓			Non-Operating Income
Vehicle	✓				Real	Non-Current Asset
Petrol / Repairs / Dep				✓	Nominal	
Capital Drawings	✓				Personal	
Purchase (Goods)	✓				Personal	
Sales (Goods)			✓		Nominal	
Carriage				✓	Nominal	
Duty on Purchase				✓	Nominal	
Discount Allowed				✓	Nominal	
Commission				✓	Nominal	
Insurance				✓	Nominal	
Cash at Bank	✓				Real	
Bank overdraft		✓			Personal	
Rent				✓	Nominal	
Salary				✓	Nominal	
Loan from Bank		✓			Personal	
Loss by fire/theft				✓	Nominal	Loss

THE CLASSIFIED BALANCE SHEET

- Presents a snapshot at a point in time.
- To improve understanding, companies group similar assets and similar liabilities together.

STANDARD CLASSIFICATIONS:

Assets	Liabilities & Stakeholders' Equity
<ul style="list-style-type: none"> Current Assets Long-term investments Property, plant, and equipment Intangible assets 	<ul style="list-style-type: none"> Current Liabilities Long-term liabilities Stockholders' equity

Current Assets

- Assets that a company expects to convert to cash or use up within one year or the operating cycle, whichever is longer.
- Common types of current assets are:
 - Cash,
 - Marketable securities,
 - Accounts receivable,
 - Investments,
 - Receivables,
 - Inventories,
 - Prepaid expenses.

MICROSOFT CORP (MSFT) BALANCE SHEET						
Fiscal year ends in June. USD in millions except per share data.	2013-06	2014-06	2015-06	2016-06	2017-06	
Assets						
Current assets						
Cash						
Cash and cash equivalents	3804	8669	5595	6510	7663	
Short-term investments	73218	77040	90931	106730	125318	
Total cash	77022	85709	96526	113240	132981	
Receivables	17486	19544	17908	18277	19792	
Inventories	1938	2660	2902	2251	2181	
Deferred income taxes	1632	1941	1915			
Other current assets	3388	4392	5461	5892	4897	
Total current assets	101466	114246	124712	139660	159851	

Non-current assets - Long-term Investments

- Investments in stocks and bonds of other corporations that are held for more than one year.
- Long-term assets: Investment in real estate
- Long-term notes receivable

Non-current assets - Property, Plant, and Equipment

- Long useful lives.
- Currently used in operations
- Includes land, buildings, equipment, delivery vehicles, and furniture.
- Depreciation – allocating the cost of assets to a number of years.
- Accumulated depreciation – total amount of depreciation expensed thus far in the asset's life.
- Also sometimes called as fixed assets or plant assets.

Non-current assets - Intangible Assets

- Assets that do not have physical substance.
- Include goodwill, patents, copyrights, and trademarks or trade names.

Non-current assets	Year	Year	Year	Year	Year
	2013-06	2014-06	2015-06	2016-06	2017-06
Gross property, plant and equipment	22504	27804	32337	38156	47913
Accumulated Depreciation	-12513	-14793	-17606	-19800	-24179
Net property, plant and equipment	9991	13011	14731	18356	23734
Equity and other investments	10844	14597	12053	10431	6023
Goodwill	14655	20127	16939	17872	35122
Intangible assets	3083	6981	4835	3733	10106
Other long-term assets	2392	3422	2953	3642	6250
Total non-current assets	40965	58138	51511	54034	81235
Total assets	142431	172384	176223	193694	241086

Current Liabilities

- Obligations the company is to pay within the next year or operating cycle, whichever is longer.
- Common examples are
 - accounts payable,
 - salaries and wages payable,
 - notes payable,
 - accrued expenses,
 - Deferred revenues (Unearned revenue)
 - interest payable, and
 - income taxes payable.

Long-Term Liabilities

- Obligations a company expects to pay after one year.
- Include
 - bonds payable,
 - mortgages payable,
 - long-term notes payable,
 - lease liabilities, and
 - pension liabilities.

Liabilities and stockholders' equity	Liabilities	2013-06	2014-06	2015-06	2016-06	2017-06
Current liabilities						
Short-term debt		2999	2000	7484	12904	10121
Accounts payable		4828	7432	6591	6898	7390
Taxes payable		592	782	606	580	718
Accrued liabilities		4117	4797	5096	5264	5819
Deferred revenues		20639	23150	23223	27468	34102
Other current liabilities		4242	7464	6858	6243	6377
Total current liabilities		37417	45625	49858	59357	64527

Non-current liabilities	2013-06	2014-06	2015-06	2016-06	2017-06
Long-term debt	12601	20645	27808	40783	76073
Deferred taxes liabilities	1709	2728	2835	1476	531
Deferred revenues	1760	2008	2095	6441	10377
Other long-term liabilities	10000	11594	13544	13640	17184
Total non-current liabilities	26070	36975	46282	62340	104165
Total liabilities	63487	82600	96140	121697	168692

Stockholders' Equity

- Common stock – investments of assets into the business by the stockholders.
- Retained earnings – income retained for use in business.

MODULE 3: JOURNAL

WHAT IS JOURNAL?

Journal is a *date-wise record* of all the transactions with details of the accounts debited and credited and the amount of each transaction.

The **Journal** is called the book of original entry or primary book because this is the accounting record where we first record transactions.

Special Journals are used to record transactions of specific types.

E.g.: the purchase journal records credit purchases, the sales journal records credit sales, the cash book records cash receipts & payments.

Journal Entry to have below items:

1. Date

- Enter Year, month & date.
- No need to enter year/month for subsequent records

2. Account Name (under Particulars column)

- Debit account first and closer to left margin.
 - Credit account followed with indent.
 - Can have multiple debit/credit accounts
- Debit & Credit amounts
 - Respective amounts in credit/debit columns for each account entered alongside.
 - Brief explanation of the transaction
 - Posting Reference (LF/PF)
 - Ledger Posting reference for respective account

Date	Particulars	LF	Debit Amount	Credit Amount
2020 June 1	Cash A/c To Owner's Capital (Being capital bought in by owner)	Dr 101 102	5,000 5,000	
2	Prepaid Expense A/c To Cash A/c (Being paid as rent in advance)	Dr 103 101	750 750	

RULES OF DEBIT AND CREDIT

Below three sets of rules apply to decide if the account is debited or credited. Any of the three rules can be used to determine.

RULE 1

	Debit	Credit
<i>Real Accounts</i>	What comes in	What goes out
<i>Personal A/c</i>	Receiver	Giver
<i>Nominal A/c</i>	Expenses & Losses	Incomes & Gains

RULE 2

Assets	=	Liabilities	+	Equity
Debit	Credit	Debit	Credit	Debit Credit
Increase	Decrease	Decrease	Increase	Decrease Increase

$$\text{Asset} = \text{Liabilities} + \text{Capital} + \text{Revenues} - \text{Expenses} - \text{Drawings (or Dividends)}$$

$$\text{Asset} + \text{Expenses} + \text{Drawings (or Dividends)} = \text{Liabilities} + \text{Capital} + \text{Revenues}$$

Effect	Assets, Expenses, Drawings, Dividends	Liabilities, Capital, Revenues
Increase	Debit	Credit
Decrease	Credit	Debit

RULE 3

Determine what effect a transaction has or will have on cash. Remember, Increase in Cash is Debit.

For Instance:

- Cash received for consultancy Job → Cash (+) || Revenue
Cash (Dr) – Revenue (Cr)

- Cheque for our utility bill → Cash (-) || Utilities Expense
Cash (Cr) – Utilities Expense (Dr)
- Office equipment purchase → Cash (-) || Equipment
Cash (Cr) – Equipment (Dr)
- Service Provided but client promised to pay next month. (ultimately cash will increase)
A/c Receivable (Dr) – Revenue (Cr)
Cash (Dr) – A/c Receivable (Cr) ← next month

Examples:

Journal Entry for below transactions:

Date	Transactions
01-Jan	Deposited Rs. 25000
02-Jan	Borrows Rs 12,500 from bank
03-Jan	Buys Inventory Rs 5000 in cash
04-Jan	Sells merchandise inventory that cost 500 for 750 Cash

Date	Particulars	LF	Debit Amount	Credit Amount
2020 Jan 1	Cash A/c To Owner's Capital A/c (Being Cash Deposited)	Dr 1 2	25,000 25,000	
2	Cash A/c To Notes Payable A/c (Being borrowed from bank)	Dr 1 3	12,500 12,500	
3	Inventory A/c To Cash A/c (Being inventory bought in cash)	Dr 4 1	5,000 5,000	
4	Cost of goods sold To Inventory A/c (Being goods sold)	Dr 5 4	500 500	
4	Cash A/c To Sale Revenue A/c (Being cash revenue received for sold goods)	Dr 1 6	750 750	

MODULE 4: LEDGER POSTING

MEANING AND FORMAT OF ACCOUNT - T ACCOUNTS

A double-entry system records every transaction with equal debits and credits.

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

The T-ACCOUNT

The common form of an account has three parts:

1. Title – describing the asset, liability or equity account
2. Debit side, or left side
3. Credit side, or right side

This form of account is called a T-account because it looks like a letter T, as shown below:

Account Title	
Debit	Credit

- T-account is merely a shorthand term for the entire ledger account.
- The T-account has a left and a right side.
- As a convention that we've adopted over the years
- Left side of T-account as debit side &
- Right side of T-account as credit side.
- The word debit and credit have no specific meaning other than that they represent a left and right side of the ledger account.

Format for T-account is as follows:

Account			
Dr.	Ref	Amount	Cr.
	Ref	Amount	

LEDGER

The **Ledger** is comprised of the entire group of accounts maintained by a company.

Posting is the process of transferring information from journal to the ledger.

Ledger is posted from the information gathered from Journal entry.

Ledger can be posted either using T-account format or standard (or traditional) form.

Traditional Ledger has below items (on each side Debit/Credit):

1. Account heading
2. Date
3. Post Journal Reference (journal Pg. No.)
4. Particulars
5. Amount

Account Heading							
Date	Particulars	Ref	Amount	Date	Particular	Ref	Amount

Temporary account: A general ledger account that begins each accounting year with zero balance. Then at the end of the year its account balance is removed by transferring the amount to another account.

Ex: Sales Revenue, Wage Expense

At the end of the accounting period, companies transfer the temporary account balances to the permanent stockholder's equity account – Retained Earnings.

Temporary

All revenue accounts
All expense accounts
Dividends

Permanent

All asset accounts
All liability accounts
Stockholders' equity accounts

HOW TO POST JOURNAL ENTRIES INTO LEDGER?

Posting the Journal Entries for the example shown under Journal Entry (earlier section)

Using Traditional/Standard Method:

January 2020

Cash Account					
Date	Particulars	Amount	Date	Particular	Amount
1	To Owners Capital A/c	25,000	3	By Inventory A/c	5,000
2	To Notes Payable A/c	12,500			
4	To Sales Revenue A/c	750			
				By Balance c/d	33,250
					38,250
					38,250
				To Balance b/d	33,250

Owner's Capital Account					
Date	Particulars	Amount	Date	Particular	Amount
			1	By Cash A/c	25,000
					25,000
				By Balance c/d	25,000
					25,000
					25,000
				By Balance b/d	25,000

Notes Payable Account					
Date	Particulars	Amount	Date	Particular	Amount
			2	By Cash A/c	12,500
					12,500
				By Balance c/d	12,500
					12,500
					12,500
				By Balance b/d	12,500

Inventory Account					
Date	Particulars	Amount	Date	Particular	Amount
3	To Cash A/c	5,000	4	By Cost of goods sold A/c	500
				By Balance c/d	4,500
					5,000
					5,000
				To Balance b/d	4,500

Sale Revenue Account					
Date	Particulars	Amount	Date	Particular	Amount
			4	By Cash A/c	750
					750
				To Balance c/d	750
					750
					750
				By Balance b/d	750

Cost of Goods Sold Account					
Date	Particulars	Amount	Date	Particular	Amount
4	To Inventory A/c	500			
				By Balance c/d	500
					500
					500
				To Balance b/d	500

Now, Using T-account format:

January 2020

Cash		Cr.		Notes Payable		Cr.		
Dr.	Ref	Amt	Ref	Amt	Ref	Amt	Ref	
	1	25,000	3	5,000			2	12,500
	2	12,500				-		12,500
	4	750						
				38,250		5,000		
					33,250			
								Balance 12,500

Capital		Cr.		Inventory		Cr.		
Dr.	Ref	Amt	Ref	Amt	Ref	Amt	Ref	
			1	25,000				
			-					25,000
	3	5,000	4	500				
			5,000			500		
				4,500				

Sale Revenue		Cr.		COGS		Cr.		
Dr.	Ref	Amt	Ref	Amt	Ref	Amt	Ref	
			4	750				
			-					750
					500			
						500		
								Balance -

MODULE 5: TRIAL BALANCE

FORMAT OF TRIAL BALANCE

The *trial balance* is a list of account balances at a given time.

- Accounts are listed in the order in which they appear in the ledger.
- Order of presentation in trial balance is:
 - Asset
 - Liabilities
 - Stockholders' equity
 - Revenues
 - Expenses
- Purpose is to prove that debits equal credits.
- May also uncover errors in journalizing and posting.
- Useful in the preparation of financial statements.

Format of Trial Balance is as follows (with no adjustment):

	ITC. Trial Balance As of August 31	Balance
	Debit	Credit
Cash.....	Rs 5,450	
Accounts receivable.....	-0-	
Inventory.....	550	
Prepaid expenses.....	750	
Equipment, at cost.....	7,200	
Accounts payable.....		Rs 2,200
Notes payable.....		4,000
Paid-in capital.....		5,000
Beginning retained earnings.....		-0-
Sales revenue.....		12,200
Cost of sales.....	6,000	
Wage expense.....	3,000	
Utilities expense.....	450	
32 Totals.....	Rs23,400	Rs23,400

PREPARATION OF TRIAL BALANCE

Trial Balance is created with the help of ledger.

So, for the example shared in earlier section, using the ledger below trial balance is created:

Trial Balance as of 30th Jan, 2020

Sr. No.	Heads of Accounts	Debit	Credit
1	Cash Account	33,250	-
2	Inventory Account	4,500	-
3	Notes Payable Account	-	12,500
4	Owner's Capital Account	-	25,000
5	Sales Revenue Account	-	750
6	Cost of Goods Sold Account	500	-
TOTAL		38,250	38,250

During adjustments done at the end of accounting year, all temporary accounts will be closed and moved to a summary account.

Below is the adjusted trial balance sheet:

Trial Balance as of 30th Jan, 2020

Sr. No.	Heads of Accounts	Debit	Credit
1	Cash Account	33,250	-
2	Inventory Account	4,500	-
3	Notes Payable Account	-	12,500
4	Owner's Capital Account	-	25,000
5	Retained Earnings	-	250
TOTAL		37,750	37,750

Income Statement can be fetched using the Trial balance. For the ITC trial balance, below is the Income Statement:

ITC. Income Statement For the period ended August 31	
Sales revenue.....	12,200
Cost of sales.....	6,000
Gross Profit	6200
Operational profit	
Wage expense.....	3,000
Utilities expense.....	450
Earnings before income tax (EBIT)	2750
Net Profit	2750

Balance sheet created with the help of trial balance:

ITC. Balance Sheet August 31	
Current assets	
Cash.....	Rs 5,450
Inventory.....	550
Prepaid expenses.....	750
Non-current assets	
Equipment, at cost.....	7,200
Total Assets	13950
Accounts payable.....	2,200
Notes payable.....	4,000
Total Liabilities	
Paid-in capital.....	5,000
Retained Earnings.....	2750
Total Liability + SE	13950

ERRORS IN PREPARATION OF TRIAL BALANCE

A trial balance that balances is a necessary condition for error-free accounting, but it is not a sufficient condition.

In most cases, a correcting entry would be necessary to fix the error.

ERRORS THAT DON'T AFFECT THE TRIAL BALANCE

Error Type	Example	Effect
Incorrect Classification	Recorded rent paid as telephone expense	Rent expense less, and telephone expense more
Omission	Omitted the credit sale	A/c receivables ad revenue less
Repetition	Recorded the purchase twice	Cash balance less, and office supplies more
Compensating error	Recorded Rs. 200 in both cash & revenue	Cash & revenue less

Such error is handled, by adding a counter entry in Journal. i.e. reversing the calculation effect.

For instance,

Rent Exp (Dr)	1500	
Telephone Exp (Cr)		1500

ERRORS THAT AFFECT THE TRIAL BALANCE

Error Type	Example	Effect
Omitting a debit	Omitted the debit to trade receivables	Trade receivables less
Omitting a credit	Omitted the credit to cash	Cash more
Recording a debit as a credit	Credited instead of debiting cash	Cash less
Recording a credit as a debit	Debited instead of crediting revenue	Revenue from services less
Recording different amounts in debit and credit incorrectly	Debited equipment and cash incorrectly	Cash is changed
Transposing digits	Debited office supplies expense 8100 as 1800	Office supplies expense more

Since these errors contravene double entry, the trial balance will not balance. We initially note the difference as suspense.

Trade Receivable				Suspense		
10	9,000	18	4,000	30 Difference in trial balance	2,000	30 Correcting Entry 2,000
	<u>9,000</u>		<u>4,000</u>		<u>2,000</u>	<u>2,000</u>
Incorrect balance	5,000					
30 Correcting Entry	2,000					
Balance	7,000			Balance	-	

MODULE 6: FINAL ACCOUNTS

PREPARATION OF FINAL ACCOUNTS

Once the Trial balance is ready, then below statements are prepared with the help of it.

1. Unadjusted Trial Balance
2. Adjusted Trial Balance
 - Trial balance generated post adjustments
3. Statement of Profit and Loss
 - This is for revenue and expense items
 - This is calculated or formulated by considering all the Revenues and Expenses from the trial balance

4. Statement of Retained Earnings
 - This is for beginning and ending balances of retained earnings, net profit, and dividends.
 - This is calculated or formulated by considering all the revenues, expenses and dividends
5. Balance Sheet
 - This is for asset, liability, and equity items.

ADJUSTMENTS FOR TRANSACTIONS AFTER CLOSING OF ACCOUNTS

COST OF GOODS SOLD & GROSS PROFIT

$$\text{COGS} = \text{Opening Stock} + \text{Purchases} \\ + \text{Direct Expenses} - \text{Closing Stock}$$
$$\text{Gross Profit} = \text{Sales} - \text{COGS}$$

ADJUSTING ENTRIES

- Ensure that the revenue recognition and expense recognition principles are followed.
- Are required every time a company prepares financial statements.
- Includes one income statement account and one balance sheet account.
- Never include cash

WHY ADJUSTING ENTRIES NEEDED?

Adjusting entries are required to handle temporary accounts as well as any sort-of adjustment required in case of pre-paid expenses/income or to consider depreciation. Like below example:

- Buying a mobile handset worth Rs20,000. After one year?
- Paid rent in advance Rs6000 for six months. After one-month company prepares a statement. How
- Your company received Rs1,00,000 in advance for providing software solution to another company for two years. After one year, assume you provided half of the service.
- Your company has performed services worth Rs2000, but not received cash.
- Wages were not paid from 1st March 31 March 2018, will be paid 2 April 2018.

TYPES OF ADJUSTING ENTRIES

Deferrals

1. *Prepaid expenses*: Expenses paid in cash and recorded as assets before they are used or consumed.
2. *Unearned revenues*: Cash received before service are performed.

Accruals

1. *Accrued revenues*: Revenues for services performed but not yet received in cash or recorded.
2. *Accrued expenses*: Expenses incurred but not yet paid in cash or recorded.

BAD DEBTS

Bad debts (or Credit losses) are the difference between the amounts due to an entity and the amounts it expects to receive.

The adjusting entry would be: (A firm expects a bad debt of Rs20)

dr. Bad Debts Expense	20
cr. Allowance for Doubtful	20

The accounts receivable section of the December 31, 2016 balance sheet would appear as follows:

Accounts Receivable	Rs100
less: allowance for doubtful accounts	20
accounts receivable, net	Rs80

If sometime in 2017 the Essel Company decided that X company was never going to pay his bill of Rs5, the following entry would be made:

dr. Allowance for Doubtful Accounts	5
cr. Accounts Receivable	5

The accounts receivable section of the balance sheet immediately after the write-off entry would show--

Accounts receivable	Rs95
less: allowance for doubtful accounts	15
accounts receivable, net	Rs80

30 No change

MODULE 7: THE STATEMENT OF CASH FLOWS

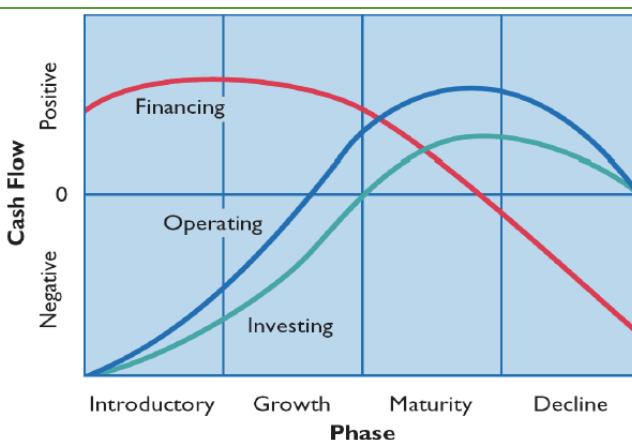
INTRODUCTION TO CASH FLOW STATEMENT

- The purpose of cash flow statement is to provide information about inflows and outflows of cash from operating activities, investing activities and financing activities during the year at one place.
- Cash flows are inflows and outflows of cash and equivalents.
- Cash includes
 - cash in hand and
 - demand deposits.
- Cash equivalents are
 - short-term investments that can be quickly converted into cash without any significant risk of change in value.
 - Highly liquid
 - Convertible to known amounts of cash
 - Mature in no more than 90 days (GAAP)
 - Subject to insignificant risk of changes in value (IASB)
- Cash equivalents are held as a substitute to cash and not as investments.
- Cash flow associated with an entity's operating, investing, and financing activities during a period.
- Reconciles changes in cash account on balance sheet (i.e., beginning balance to ending balance).
- Need for Cash flow statement is due to Income Statement is based on Accrual basis (i.e., entry is made when an event/transaction is agreed even if actual transaction is pending).

$$\text{Cashflow(Operating} + \text{Investing} + \text{Financing}) \\ = \text{NET CASH FLOW}$$

$$\text{Ending Cash Balance} - \text{Beginning Cash Balance} \\ = \text{NET CASH FLOW}$$

IMPACT OF PRODUCT (CORPORATE) LIFE CYCLE ON CASH FLOWS



CATEGORIES OF ACTIVITIES

Sources (Inflows)

- Activities that generate cash
 - Operations
 - New borrowings
 - New stock issues

- Sale of property, plant, and equipment
- Sale of other non-current assets

Uses (Outflows)

- Activities that involve spending cash
 - Cash dividends
 - Repayment of borrowings
 - Repurchase of stock
 - Purchase of property, plant, and equipment.
 - Purchase of non-current assets.

SIGNIFICANT NONCASH TRANSACTIONS

- Non-cash transactions
- Significant investing and financing activities that did not involve cash
- E.g., conversion of a convertible bond into stock, purchase of a building with a note payable
- Not reported in body of statement of cash flows, narrative statement of supplemental disclosure.

ORGANIZATION OF THE STATEMENT OF CASH FLOWS

CASH FLOW FROM OPERATIONS

Consists in cash transactions affecting the firm's Net Income. Cash flow changes deriving from the Income Statement can be considered as operating.

- Cash Inflow
 - Cash received from customers
 - Sales revenues
 - Dividend received
 - Other sources
- Cash Outflow
 - Cash paid to suppliers
 - Cash paid Employees
 - Taxes
 - Interest on loan

CASH FLOW FROM INVESTING

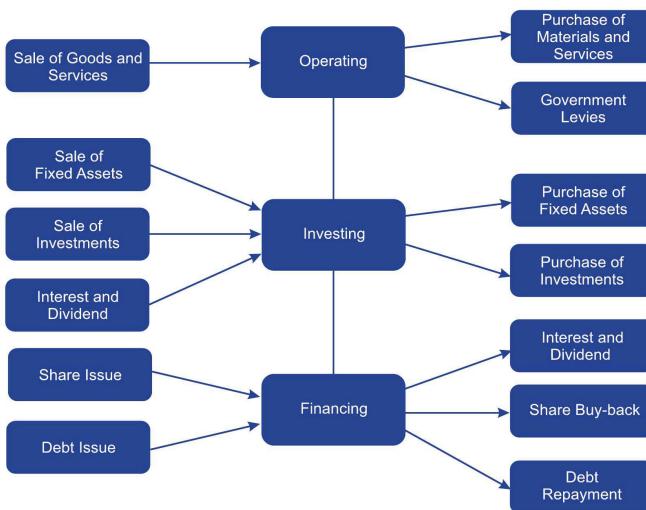
Investments in Fixed Assets and other Long-term Investments

- Cash Inflow
 - Disposing of long-lived assets (e.g., property, plant, equipment).
 - Disposing of investments in securities (i.e., other than cash equivalents)
 - Collecting loans
- Cash Outflow
 - Acquiring long-lived assets (e.g., property, plant, equipment)
 - Making investments in securities (i.e., other than cash equivalents)
 - Lending money.

CASH FLOW FROM FINANCING

Cash transactions affecting a firm's capital structure

- Cash Inflow
 - Borrowing of cash
 - Issuance of equity securities
- Cash Outflow
 - Repaying loans
 - Retiring equity securities
 - Payment of dividends



COMPUTING CASH FLOW FROM OPERATING ACTIVITIES

DIRECT METHOD

Cash from Operating Activities

- *Cash received from customers*

Cash received from customer

= **Sales Revenue**

+ **Decrease (-Increase) in Account Receivable**

- **Writeoffs**

- *Cash paid to suppliers & Employees*

Cash paid to suppliers & employees

= **Cost of goods sold**

+ **Selling & administrative (Operating) expense**

- **Depreciation expense^a – Bad debt expense^b**

+ **Increase (-Decrease) in inventories**

+ **Increase (-Decrease) in prepaid expenses**

+ **Decrease(-Increase) in account payable**

a: if included in cost of goods sold

b: if included in selling & admin(operating)expense

- *Cash paid for taxes*

Income tax paid

= **Income tax expense**

+ **Decrease(-Increase) in tax**

Cash from Investing Activities

- *Capital Expenditures*

Cash from Financing Activities

- *Payments on long-term debt*

INDIRECT METHOD

Net Profit \leftrightarrow NetCash Flow

The two are converted by making adjustments for transactions that have an impact on net income, but do not have an immediate cash effect

We make three type of adjustments:

1. *Non-cash items: (add)*
Bad debt expense, depreciation, depletion, and amortization
2. *Non-operating items: (add expense, subtract income)*
Non-operating items such as gains & losses on disposal of fixed assets and investments, interest income, and interest expense
3. *Changes in working/current capital items:*
Deduct increase (add decrease) in account receivables, inventories, prepaid expenses.
Add increase (deduct decrease) in account payables.

Example:

PIOMA PLASTICS COMPANY Statement of Profit and Loss For the year ended April 30, 20X3		
Sales	₹75,800	
Gain on sale of land	6,300	
Dividend income.....	2,000	
Interest income	5,400	
	89,500	
Cost of goods sold	53,700	
Selling and administrative expenses.....	12,300	
Interest expense.....	5,700	
Loss on sale of plant	3,800	
	75,500	
Profit before income tax.....	14,000	
Income tax.....	2,200	
Profit after tax.....	11,800	

PIOMA PLASTICS COMPANY Balance Sheet, April 30		
	20X3	20X2
Equity and Liabilities		
Shareholders' funds		
Share capital	₹23,000	₹14,000
Reserves and surplus	12,800	7,500
Non-current liabilities		
Long-term borrowings	59,100	45,900
Current liabilities		
Trade payables.....	3,000	21,700
Short-term provisions: Income tax payable	2,300	4,100
	100,200	92,500
Assets		
Non-current assets		
Fixed assets		
Land, cost	₹4,000	₹11,000
Plant and machinery, cost.....	55,800	49,500
Less Accumulated depreciation	19,000	16,300
	36,800	33,200
Non-current investments.....	13,900	13,900
Current assets		
Inventories	16,500	9,300
Trade receivables (less provision: ₹1,700; ₹1,100).....	19,900	10,700
Cash and cash equivalents.....	8,300	13,300
Short-term loans and advances: Prepaid expenses.....	800	1,100
	100,200	92,500

Additional information:

1. Purchased machinery with cash, ₹5,300.
2. Sold a plant, ₹1,900 (cost, ₹6,800; accumulated depreciation, ₹1,100).
3. Purchased machinery in exchange for debentures, ₹7,800.
4. Paid dividends, ₹6,500.
5. Sold land, ₹13,300 (cost, ₹7,000).
6. Issued debentures, ₹5,400.
7. Issued at par equity shares, ₹9,000.
8. Wrote off ₹1,400 of trade receivables and recognized bad debt expense of ₹2,000, included in selling and administrative expenses.
9. Cost of goods sold includes depreciation of ₹3,800.

Required

1. Prepare the cash flow statement according to the direct method.
2. Present the cash flow statement according to the indirect method.

Using balance sheet, we calculate change in current capital items, i.e., Ending balance – Starting balance

Increase in Inventories	20X3	16,500	7,200
	20X2	9,300	
Cash & Cash Equivalent	20X3	8,300	(5,000)
	20X2	13,300	
Increase in Account Receivables	20X3	Gross 19,900 Deduct Allowance for credit losses 1,700	(9,800)
	20X2	Gross 10,700 Deduct Allowance for credit losses 1,100	
	Write-Off	1,400	
Decrease in Prepaid	20X3	800	(300)
	20X2	1,100	
Decrease in Account Payables	20X3	3,000	18,000
	20X2	21,000	
Income Tax Paid	Income Tax Expense	2,200	4,000
	Tax 20X3	2,300	
	Payable 20X2	4,100	

OPERATING ACTIVITIES (DIRECT METHOD):

Cash received from customer

= Sales Revenue

+ Decrease (-Increase) in Account Receivable

- Writeoffs

Cash received from customer

$$= 75800 - 9800 - 1400 = 64600$$

Cash paid to suppliers & employees

= Cost of goods sold

+ Selling & administrative (Operating) expense

- Depreciation expense^a - Bad debt expense^b

+ Increase (-Decrease) in inventories

+ Increase (-Decrease) in prepaid expenses

+ Decrease(-Increase) in account payable

Cash Paid to supplier and employees

$$= 53700 + 12300 - 3800 - 2000$$

$$+ 7200 - 300 + 18000 = 85100$$

Hence,

$$\text{Cash Generated from Operation} = 64600 - 85100 \\ = 20500$$

Income tax paid = Income tax expense
+ Decrease(-Increase) in tax

$$\text{Income tax paid} = 2200 + 1800 = 4000$$

PIOMA PLASTICS Company			
Cash Flow from Operating Activities (Direct Method)			
for the year ended April 30, 20X3			
Cash from operating activities			
Cash received from Customer	64,600		
Cash Paid to supplier and employees	(85,100)		
Cash Generated from Operations	(20,500)		
Income Tax Paid	(4,000)		
Net Cash provided by Operating activities	(24,500)		

OPERATING ACTIVITIES (INDIRECT METHOD)

Profile before income tax = 14000

Adjustments (data from Income & Expense statement),

1. *Non-cash items: (add)*

Depreciation Expense: 3800

Bad Debt Expense: 2000

2. *Non-operating items: (add expense, subtract income)*

Gain on Sale of Land: 6300

Interest Income: 5400
Dividend Income: 2000
Loss on sale of plant: 3800
Interest expense: 5700

$$\begin{aligned} \text{Operating profit before working capital changes} \\ &= 14000 + 3800 + 2000 - 6300 \\ &\quad - 5400 - 2000 + 3800 + 5700 \\ &= 15600 \end{aligned}$$

3. Changes in working/current capital items:

Increase in Inventories: 7200
Increase in Account Receivables: 11200
Decrease in Prepaid Expenses: 300
Decrease in Account Payables: 18000

Cash generated from Operations

$$\begin{aligned} &= 15600 - 7200 - 11200 + 300 \\ &\quad - 18000 = -20500 \end{aligned}$$

XYZ Company		
Cash Flow from Operating Activities (Indirect Method)		
for the year ended March 31, 2020		
Cash from operating activities		
Profit before income tax	14,000	
Adjustments		
Depreciation Expense	3,800	
Bad debt Expense	2,000	
Gain on Sale of Land	(6,300)	
Interest Income	(5,400)	
Dividend Income	(2,000)	
Loss on sale of plant	3,800	
Interest expense	5,700	
Operating profit before working capital changes	15,600	
Change in Inventories	(7,200)	
Change in Account Receivables	(11,200)	
Change in Prepaid Expenses	300	
Change in Account Payables	(18,000)	
Cash generated from Operations		(20,500)
Income Tax Paid		(4,000)
Net Cash provided by Operating activities		(24,500)

INVESTING & FINANCIAL ACTIVITIES

Segregating the additional information provided

1. Investing activity (purchase – subtract)
2. Investing activity (sold – add)
3. Non-cash activity – not to be considered
4. Investing activity (paid – subtract)
5. Investing activity (sold – add)
6. Financing activity (received – add)
7. Financing activity (received – add)
8. Cash Management – considered in operating
9. Cash Management – considered in operating

Cash from investing activities		
Purchase of machinery	(5,300)	
Proceeds Sale of plant	1,900	
Proceeds from sale of land	13,300	
Interest received	5,400	
Dividend received	2,000	
Net Cash provided by investing activities		17,300
Cash from financing activities		
Proceeds from issue of shares	9,000	
Proceeds from issue of debentures	5,400	
Dividend Paid	(6,500)	
Interest Paid	(5,700)	
Net Cash provided by financing activities		2,200
Net decrease in cash and cash equivalents		(5,000)
Cash and cash equivalents at beginning of period		13,300
Cash and cash equivalents at end of period		8,300

MODULE 8: RATIO ANALYSIS

INTRODUCTION TO RATIO ANALYSIS

RETURN OF ASSET (ROA)

Return on assets (ROA) reflects how much the firm has earned on the investment of all the financial resources committed to the firm.

$$\text{Return of Asset} = \frac{\text{Net Income} + \text{Interest} \times (1 - \text{Tax rate})}{\text{Total Assets}}$$

RETURN ON INVESTED CAPITAL

Return on invested capital focuses more on the use of permanent capital

$$\text{Return on Invested Capital} = \frac{\text{Net Income} + \text{Interest} \times (1 - \text{Tax rate})}{\text{Long term Liabilities} + \text{Owners Equity}}$$

RETURN ON SHAREHOLDERS' (OWNERS) EQUITY (ROE)

Return on shareholders' equity (ROE) reflects how much the firm has earned on the funds invested by the shareholders.

$$\text{Return on Shareholders' Equity} = \frac{\text{Net Income}}{\text{Owners Equity}}$$

INVESTMENT CAPITAL TURNOVER

$$\text{Investment Capital Turnover} = \frac{\text{Revenue}}{\text{Investment capital}}$$

PROFIT MARGIN OR RETURN ON SALE

$$\text{Profit Margin} = \frac{\text{Net Income}}{\text{Revenue}}$$

RETURN ON INVESTMENT (ROI)

$$\begin{aligned} \text{Return on Investment} &= \text{Profit Margin} \\ &\times \text{Investment Turnover} \\ &= \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Investment}} \\ &= \frac{\text{Net Income}}{\text{Investment}} \end{aligned}$$

EARNINGS PER SHARE

$$\text{Earnings per share} = \frac{\text{Net Income}}{\text{Number of shares of common stock outstanding}}$$

PRICE/EARNING RATION (P/E)

The price/earnings ratio (P/E) is the best indicator of how investors judge the firm's future performance.

Price / Earning ratio

$$= \frac{\text{Market price per share}}{\text{Net income per share (EPS)}}$$

GROSS PROFIT MARGIN

It shows how much profit remains after paying for the direct costs of the product.

$$\text{Gross margin percentage} = \frac{\text{Gross Margin (profit)}}{\text{Net Sales Revenue}}$$

Why is it important?

- First, the cost of sales, which determines the gross profit, is usually the single largest expense position in the income statement.
- Second, even the most efficiently run company cannot survive without sufficient gross profit to pay for the various fixed costs, interest payments and taxes incurred as a result of running a business.
- A decrease in gross profit margins - an increase in input prices, a decrease in selling prices, or a combination of both.

PROFIT MARGIN

$$\text{Profit Margin} = \frac{\text{Net Income}}{\text{Net Sales Revenues}}$$

ASSET TURNOVER

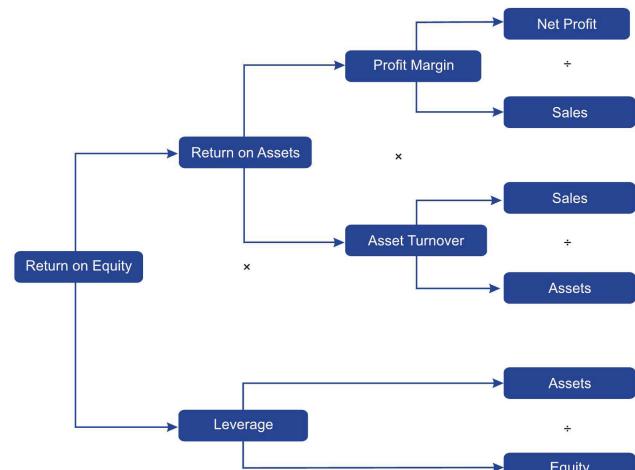
$$\text{Asset Turnover} = \frac{\text{Sales Revenue}}{\text{Total assets (average)}}$$

This ratio should only be used for comparisons within an industry.

More meaningful if the ratio is used for individual companies over time.

EQUITY TURNOVER

$$\text{Equity Turnover} = \frac{\text{Sales Revenue}}{\text{Owners Equity}}$$



CAPITAL INTENSITY

The capital intensity ratio focuses only on the usage of property, plant, and equipment. Companies with a high ratio are particularly vulnerable to cyclical fluctuations.

$$\text{Capital Intensity} = \frac{\text{Sales Revenue}}{\text{Property, plant \& equipment}}$$

WORKING CAPITAL TURNOVER

Working capital is current assets minus current liabilities

$$\begin{aligned}\text{Working Capital Turnover} &= \frac{\text{Sale Revenue}}{\text{Working Capital}} \\ &= \frac{\text{Sale Revenue}}{\text{Current Assets} - \text{Current Liabilities}}\end{aligned}$$

DAY'S PAYABLE

$$\text{Days' Payable} = \frac{\text{Operating payables}}{\text{Pretax cash expenses}/365}$$

Operating payables include accounts payable, accrued wages and payroll taxes, and other items that represent deferred payments for operating expenses.

CASH CONVERSION CYCLE

The cash conversion cycle (CCC) is a metric that expresses the time (measured in days) it takes for a company to convert its investments in inventory and other resources into cash flows from sales.

$$\text{CCC} = \text{DIO} + \text{DSO} - \text{DPO}$$

DIO: Days of inventory outstanding
(days sales of inventory)

DSO: Days sales outstanding

DPO: Days payable outstanding

i.e.

Cash Conversion Cycle

$$\begin{aligned}&= \text{Receivable Conversion Period} \\ &+ \text{Inventory Conversion Period} \\ &+ \text{Operating Cycle} \\ &- \text{Payment Deferral Period}\end{aligned}$$

The result of this calculation is a measure of liquidity; it also indicates the time interval for which additional short-term financing might be needed to support a spurt in sales.

DIVIDEND YIELD

$$\text{Dividend Yield} = \frac{\text{Dividends per share}}{\text{Market price per share}}$$

DIVIDEND PAYOUT

$$\text{Dividend Payout} = \frac{\text{Dividends}}{\text{Net Income}}$$

DAYS' CASH

$$\text{Days' Cash} = \frac{\text{Cash}}{\text{Cash expenses}/365}$$

DAYS' RECEIVABLES

$$\text{Days' Receivables} = \frac{\text{Account Receivable}}{\text{Sales}/365}$$

DAYS' INVENTORY

$$\text{Days' Inventory} = \frac{\text{Inventory}}{\text{Cost of Sales}/365}$$

INVENTORY TURNOVER

$$\text{Inventory Turnover} = \frac{\text{Cost of Sales}}{\text{Inventory}}$$

CURRENT RATIO

$$\text{Current Ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

ACID-TEST (QUICK) RATIO

$$\text{Quick Ratio} = \frac{\text{Monetary current assets}}{\text{Current liabilities}}$$

FINANCIAL LEVERAGE RATIO

$$\text{Financial leverage ratio} = \frac{\text{Assets}}{\text{Owners' Equity}}$$

DEBT/EQUITY RATIO

$$\text{Debt / Equity Ratio} = \frac{\text{Long term liabilities}}{\text{Owners' Equity}}$$

TIMES INTEREST EARNED

$$\begin{aligned}&\text{Times interest earned} \\ &= \frac{\text{Pretax operating profit} + \text{Interest}}{\text{Interest}}\end{aligned}$$

MODULE 9: COST-VOLUME PROFIT ANALYSIS

INTRODUCTION TO COST VOLUME PROFIT ANALYSIS

BEHAVIOR OF COSTS

Cost-volume relationships.

How costs behave as the level of activity changes

Types of costs

- **Fixed** (cost that do not vary, in total, at all with volume)
 - Those costs may increase with time
 - The amount of fixed cost per unit of activity decreases as volume increases
 - Non-variable costs = items of cost that, in total, do not vary at all with volume.
 - Examples: Building rent, property taxes, management salaries.
 - Fixed cost per unit of activity decreases as the level of activity increases.
 - For fixed costs, cost per unit is an average cost.
 - Fixed costs are fixed for a range of activity and a limited period of time.
 - Fixed costs may change for reasons such as a deliberate management decision to change them.
- **Variable costs**
 - Volume: number of outputs produced
 - Items of cost that vary, in total, directly and proportionately with volume.
 - Volume refers to activity level.
 - Examples:
 - Material costs varies with units sold.
 - Electricity costs varies with production hours.
 - Stationery and postage costs varies with number of letters written.
- **Semi-variable costs**
 - Combination of variable-cost and fixed cost items
 - It does not mean exactly
 - The cost of operating an automobile is semi-variable with respect to the number of miles driven.

COST-VOLUME (C-V) DIAGRAM

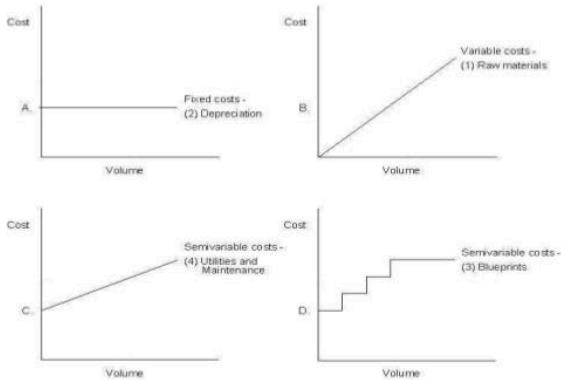


Illustration in the above figure.

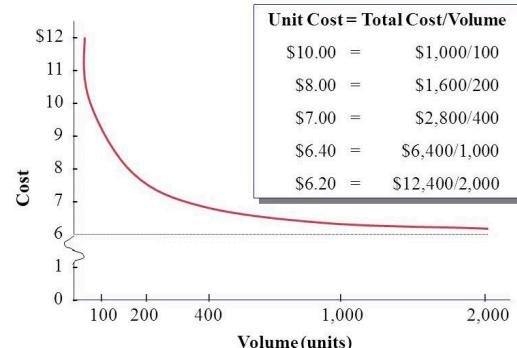
- Y or vertical axis reflects total cost.
- X or horizontal axis reflects volume.
- $y = mx + b$.
 - y is the cost at a volume of x .
 - m is the rate of cost change per unit of volume change, or the slope (variable costs).
 - b is the vertical intercept, which represents the fixed cost component.

COST RELATIONS

Total Cost (TC)

$$\begin{aligned}
 &= \text{Total Fixed Cost (TFC)} \\
 &+ \text{Total Variable Cost (TVC)} \\
 &= \text{Total Fixed Cost} \\
 &+ (\text{Unit Variable Cost}) \times \text{Volume} \\
 &= \text{TFC} + \text{UVC} \times X
 \end{aligned}$$

$$\text{Average Cost} = \frac{\text{Total Cost}}{\text{Volume}}$$



C-V relationship is often not linear.

- Some items of costs may vary in steps
- Some cost functions are curved (curvilinear).
- Segments of the curve can be approximated by a straight line, each with its own relevant range.
- Step function costs = items of cost vary in steps.

As volume goes up

- Total fixed cost remains constant
- Total variable costs go up
- Per unit variable costs stays the same
- Per unit fixed cost goes down
- Per unit total cost goes down.
- As volume increases without limit, unit cost approaches variable unit cost and fixed cost per unit approaches zero.

STEP-FUNCTION COSTS

Step-function costs

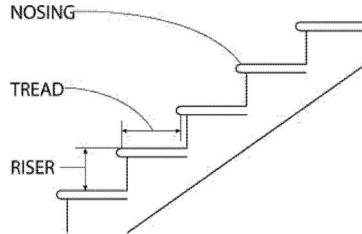
- Incurred when costs are added in discrete chunks, e.g., a supervisor for every 10.

Adding the "chunk"

- One supervisor for every additional 10 employees) of costs increases capacity.

Height of a stair step (riser) indicates

- The cost of adding incremental capacity.



Step width (tread)

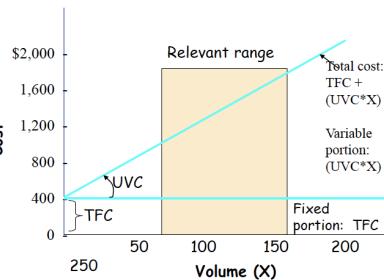
- It shows how much additional volume of that activity can be serviced by this additional increment of capacity.

If "treads" are narrow and "risers" are low

- i.e., steps are small, then the steps can be approximated by a variable cost line.
- If it is believed within the relevant time period that cost will remain within the relevant range for a single stair step (tread), then the cost is appropriately treated as a fixed cost for the time period.
- Step functions are often hidden in C-V diagrams as either variable or fixed costs.

LIMITATIONS OF C-V RELATIONS

- A straight line approximates cost behavior only within a certain range of volume, the relevant range.
 - When volume approaches zero, management takes steps to reduce fixed costs.
 - When volume exceeds relevant range, fixed costs increase.



- Relevant time period
 - Amount of variable costs depends on the time period over which behavior is estimated (the relevant time period).
 - If the time period is one day, few costs are variable.
 - Over an extremely long time period, no costs are fixed.
- Environmental assumptions must be made.
 - Wage rates, fringe benefits, material prices, technology changes.

"STICKY" COSTS

- Sticky cost do not change.
- Generally considered variable but fall less with decreases of activity than they rise with increases.
- Managers tend to increase resources more quickly when volume increase than they reduce them when volume decrease.
- Stickiness varies across companies

Examples:

- Sales commissions with minimum guarantees.
- Managers slower to fire employees than to hire.

ESTIMATING THE COST-VOLUME RELATIONSHIP

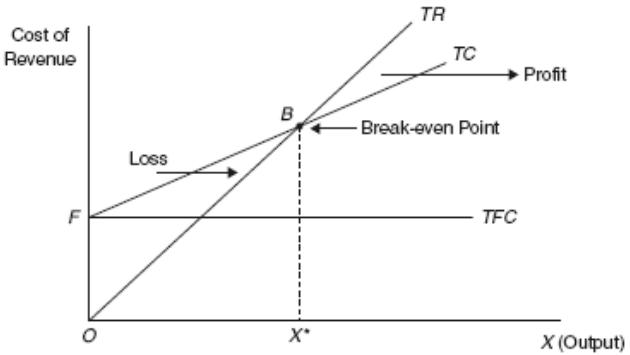
Four Methods:

- Judgment or account-by-account method.*
 - Each account in cost structure is estimated and divided between fixed and variable costs.
- Scatter diagram*
 - Plot a number of observations (perhaps prior period results) of costs and volumes on a graph and visually draw a line of best fit.
- High-low method*
 - Estimate total costs for two volume levels, preferably one high level and one low level.
 - To determine slope (m) or variable cost per unit:
 - Change in total cost between the two points divided by change in units of output.

$$\text{Slope}(m) = \frac{\text{High Cost} - \text{Low Cost}}{\text{High Volume} - \text{Volume Cost}}$$

- Linear regression*
 - To determine fixed costs (b):
 - Subtract from total costs at either one of the points the unit volume times the unit variable costs.
 - $TC = TFC + UVC \cdot X$
 - $TFC = TC - UVC \cdot X$

PROFIT-GRAF



UNIT CONTRIBUTION

Per Unit Contribution margin (marginal income)

Marginal Income

$$= \text{Unit Selling Price} - \text{Unit Variable Cost} = \text{UR} - \text{UVC}$$

$$\text{Total Income, } I = (\text{UR} - \text{UVC}) \times X - \text{TFC}$$

i.e., Total income at any volume is unit contribution ($\text{UR} - \text{UVC}$) times volume, minus Fixed Cost.

Thus, contribution first covers the fixed costs and then move towards the profit.

BREAK-EVEN VOLUME

The break-even level of output is that level of output at which a firm neither makes profits nor losses. It is the level

Thus, Breakeven happens when Total Cost is same as that of Total Revenue. i.e., at Zero profit.

$$\text{Total Revenue} = \text{Average or Unit Revenue} \times \text{Quantity} = \text{UR} \times X$$

$$\text{Total Cost, } TC = \text{TFC} + (\text{UVC} \times X)$$

At breakeven, $TC = TR$

$$\text{UR} \times X = \text{TFC} + (\text{UVC} \times X)$$

$$X = \frac{\text{TFC}}{\text{UR} - \text{UVC}}$$

$$\text{i.e., } Q = \frac{\text{TFC}}{\text{AR} - \text{AVC}}$$

From, Profit-graph the profit performance can be increased by

- Increasing selling price (UR)
- Decreasing variable cost (UVC)
- Decreasing Fixed cost (TFC)
- Increasing Volume (X)

Thus,

$$\text{Breakeven volume (Units)} = \frac{\text{Fixed costs}}{\text{Unit Contribution}}$$

$$\text{Breakeven volume(Revenue)} = \frac{\text{Fixed costs}}{\text{Contribution Percent}}$$

$$\begin{aligned} \text{Contribution Percent} &= \text{Contribution as a percent of revenues} \\ &= \frac{(\text{UR} - \text{UVC})}{\text{UR}} \end{aligned}$$

TOTAL PROFIT

Calculating number of volumes to earn a target profit.

Suppose, T is the target profit to be achieved.

$$TR = \text{UR} \times X = \text{TFC} + (\text{UVC} \times X) + T$$

$$X_T = \frac{\text{TFC} + T}{\text{UR} - \text{UVC}}$$

If, Profit after taxes (PAT) is considered,

$$\text{PAT} = \text{Profit} - (\text{Profit} \times \text{Tax})$$

$$\text{PAT} = T - T \times T_{tax} = T(1 - T_{tax})$$

$$T = \frac{\text{PAT}}{1 - T_{tax}}$$

$$X_{T_{tax}} = \frac{\text{TFC} + \left(\frac{\text{PAT}}{(1 - T_{tax})} \right)}{\text{UR} - \text{UVC}}$$

INFLUENCES ON COSTS

- Changes in input prices.
- Rate at which volume changes - Rapid changes in volume make it more difficult to change personnel costs, therefore, the more likely costs depart from a straight-line relationship.
- Direction of change in volume. - Tends to be a lag in cost changes.
- Duration of change. - Temporary changes affects costs less than a long-term change.
- Prior knowledge of change allows planning for change.
- As productivity changes costs change.
- Management discretion.
- Costs change because of management decisions.
- Learning curves.
 - Productivity increases, i.e., unit production costs decrease, as the company gains experience producing the product.

PREVENTION COSTS

Support activities whose purpose is to reduce the number of defects

APPRAISAL COSTS

Incurred to identify defective products before the products are shipped

INTERNAL FAILURE COSTS

Incurred as a result of identifying defects before they are shipped

EXTERNAL FAILURE COSTS

Incurred as a result of defective products being delivered to customers

MODULE 10: CAPITAL BUDGETING

CAPITAL BUDGETING

- Full costs and differential costs
 - It comes from a company's cost accounting system.
 - No comparable system for collecting differential costs.
 - Differential costs are assembled to meet analytical requirements of a specific problem.
- **FULL COST ACCOUNTING SYSTEM**
 - It collects historical costs.
 - It measures what the costs were.
 - Full cost of a product or other cost object = sum of direct cost + fair share of applicable indirect costs.
- **DIFFERENTIAL COSTS**
 - It relates to future.
 - It includes only those elements of cost that are different under a certain set of conditions.
 - It intends to show what costs will be if a certain course of action is adopted.
 - Rather than what costs were in the past
 - It will always be related to a specific alternative choice problem
- **DIRECTS COSTS**
 - = costs that are traced directly to cost object.
 - Direct variable costs and its direct fixed costs such as depreciation
 - It can be traced directly
- **INDIRECT COSTS**
 - = costs that are not traced directly to cost object.

THE CONTRIBUTION MARGIN

The Gross Margin formats - Separates costs by function

The Contribution Margin format

- Separates Costs into Variable Expenses and Fixed Expenses.
- The Contribution Margin shows how much revenue is left to contribute to Fixed Expenses.
- This is a useful analytical tool for managerial accounting.

The Gross Margin Format		
Sales		\$12,000
Less: Cost of Goods Sold		6,000
Gross Margin:		6,000
Less Operating Expenses		
Selling	\$3,100	
Administration	1,900	5,000
Net Operating Income		\$1,000

The Contribution Margin Format		
Sales		\$12,000
Less: Variable Expenses		
Variable Production	\$2,000	
Variable Selling	600	
Variable Administration	400	3,000
Contribution Margin:		9,000
Less: Fixed Expenses		
Fixed Production	\$4,000	
Fixed Selling	2,500	
Fixed Administration	1,500	8,000
Net Operating Income		\$1,000

DIFFERENTIAL COSTS

- Differential costs
 - = incremental costs
 - = relevant costs
 - = out-of-pocket costs
 - = avoidable costs
- = variable costs (=marginal costs), if all alternatives involve operating at different volume levels within the relevant range.
- May also include fixed costs if any alternative results in changes in step-function costs.
- Future costs, which may be best estimated by looking at past/historical costs.
- Usually estimates are not precise unless determined by contract.

SUNK COST

- Sunk costs = a cost that has already been incurred
- And therefore, cannot be changed by any decision currently being considered.
- e.g., all historical costs (since it exists because of action taken in the past).
- Not a differential cost.
- No decision made today can change what has already happened.
- If asset is used, it is depreciated,
- If it is disposed of, it is written off,
- In either event it is expensed.

OPPORTUNITY COST

- Value lost or sacrificed by giving up an alternative course of action.
- Not associated with cash outlays.
- Not measured in accounting records.
- If an alternative requires resources that would otherwise be used for income producing purposes, opportunity cost is measured by income that would have been earned had resources been invested otherwise.
- Commonly used in economics.

DISPOSAL VALUE

- The cost of the depreciable asset is supposed to be written off over its useful life.
- If machine is scrapped, its useful life has come to an end.
- There will be estimation error if total cost of the machine is not written off by that time.
- Useful life and residual value are correctly estimated, then the net book value of the machine will be zero.

- If the machine had a disposal value it would be relevant because the machine's sale would then bring additional cash
- Relevant and differential cost/revenue if one alternative is to keep equipment and another alternative is disposal.

IMPORTANCE OF TIME SPAN

- What costs are differential depends on time span.
- If the proposal is to make only one additional unit, only material cost may be differential.
- If the proposal is to produce an item over foreseeable future, all items of production cost would be differential.
- The longer the time span the more items of cost are differential.
- In the very long run full costs are differential costs.

OBJECTIVE OF ALTERNATIVE CHOICE PROBLEM

Seek alternative most likely to achieve objectives of organization.

In a profit-oriented business:

- Objective of a company - Maximizing value of shareholders' investment by making alternative choices that earn a satisfactory return on investment.
- Internal performance measure - Return on investment is usually measured using an accounting and not a market-determined measure of return.
- Other factors are also likely to influence decision.

Example:

- A manager is considering a proposal to buy a certain machine to produce an item that is being produced manually.
- Two alternatives
 - Continue to make the item by manual methods
 - Buy the new machine
- Additional alternatives
 - Buy a machine other than proposed
 - Improve the present manual methods
 - Eliminate the production operation altogether and buy the item from an outside source
- Some thoughts should be given to alternatives
- Many advantages and disadvantageous with each alternative

TYPE OF ALTERNATIVE CHOICE PROBLEMS

- Objective of business: satisfactory return on investments

$$ROI = \frac{\text{Net Income}}{\text{Investment}} = \frac{\text{Revenues} - \text{Costs}}{\text{Investment}}$$

- Three sub-categories
 - Problems involving Costs
 - Problems involving revenues and costs
 - Differential investments

PROBLEMS INVOLVING COSTS

One type of cost is traded off for another.

- Change of method of operation.
 - The alternative being proposed is the adoption of some new method of performing an activity.
 - The differential costs of the proposed method are significantly lower than those of the present method, the method should be adopted
- Make or buy decisions (outsourcing choices)
 - It pays outside firms to perform certain other activities.
- Economic order quantity decision.
 - The optimum quantity to produce at one time (the economic order quantity)
 - Trade off setup costs and inventory carrying costs.

PROBLEMS INVOLVING BOTH REVENUES AND COSTS

Best alternative has most differential income or profit.

- Supply and demand analysis.
 - Lower selling price, the greater the demand
 - Demand schedule (we need to precisely estimate the demand schedule). It is complex in competitive markets
 - Supply schedule
- Contribution pricing.
 - Off-price (ups and downs) orders make some contribution to fixed costs and profit.
 - Dumping: Selling surplus quantities of a product at a price below full cost
- Discontinuing a product.
 - If selling price is below its full cost, then it gives signal that the product is being sold at loss
- Adding a service.

NET PRESENT VALUE (NPV) RULE

- The sum of (or the net of) the present value of all cash outflows and inflows related to an investment.
- Convert all cash outflows and inflows to their present value (i.e., discounting)
- Utilize discount rate (also called cost of capital, required rate of return, hurdle rate).
- Compute present value factors with calculator or lookup in table A or table B in the back of text

SUMMARY OF NET PRESENT VALUE (NPV) METHOD

- Select a required rate of return.
- Estimate economic life of proposed project.
- Estimate differential cash inflows for each year.
- Determine net investment made at time zero (and at later periods if needed).
- Estimate terminal values at end of economic life.
- Find present value of all inflows (and outflows) by discounting.
- Determine present value by subtracting net investment (i.e., outflows) from present value of inflows.
 - If NPV is zero or positive (and capital is available) accept project.
 - If NPV is negative, reject project.
- Take into account nonmonetary factors and reach a decision.

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \cdots + \frac{C_N}{(1+r)^N}$$

C_0 : Initial Investment

C : Cash Flow

r : Discount Rate

T : Time

Net Present Value (NPV) Calculation			
Year	Ct (Cashflow in \$)	(1+r) ^t	PV (Present Value in \$)
0	-250000	$(1+0.1)^0 = 1$	-250000
1	110000	$(1+0.1)^1 = 1.10$	100000
2	89000	$(1+0.1)^2 = 1.21$	73554
3	81000	$(1+0.1)^3 = 1.33$	60902
4	72000	$(1+0.1)^4 = 1.46$	49315
Sum Total of Present Values (NPV)			33771

PERPETUITY

$$PV(C \text{ in perpetuity}) = \frac{C}{r}$$

ANNUITY

$$PV(\text{annuity of } C \text{ for } N \text{ periods}) = C \times \frac{1}{r} \left(1 - \frac{1}{(1+r)^N} \right)$$

GROWING PERPETUITY

$$PV(\text{preperpetuity growing at } g) = \frac{C_1}{r-g}$$

GROWING ANNUITY

$$PV(\text{annuity growing at } g) = C \times \left(\frac{1}{r-g} \right) \left(1 - \left(\frac{1+g}{1+r} \right)^N \right)$$

INTERNAL RATE OF RETURN (IRR) METHOD

- Determine rate of return that equates present value of cash inflows with present value of cash outflows.
- Calculated rate is the internal rate of return (IRR) or discounted cash flow (DCF) rate of return.
- Accept project if management is satisfied with IRR.

Year	PV of Cash Flows	
	Cash Flows	Cash Flows
0	-\$500,000	-\$500,000
1	\$160,000	\$141,247
2	\$160,000	\$124,692
3	\$160,000	\$110,077
4	\$160,000	\$97,176
5	\$50,000	\$26,808

NPV	0
IRR	13%

PAYBACK PERIOD

Number of years over which investment outlay will be recovered (paid back) from cash inflows.

Problems:

- Does not consider time value of money.
- Does not consider differences in length of economic life.

DISCOUNTED PAYBACK PERIOD

Same as payback method except discounts cash inflows.

Number of years over which investment outlay will be recovered (paid back) from discounted cash inflows.

Initial investment: \$800,000				
Year	Cash inflow	Present value of cash inflows		
		Present value factor (12%)	Present value of cash inflows	Cumulative cash inflow
1	\$ 250,000	*0.893	\$ 223,250	\$ 223,250
2	400,000	0.797	318,800	542,050
3	300,000	0.712	213,600	755,650
4	450,000	0.636	286,200	1,041,850