

# Auditing Course Material

Part 19 of 61 (Chapters 1801-1900)

## 6. Regulatory Authorities

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The following procedure is usually adopted for issuing Accounting Standards in India:

- **Step 1:** The ASB will identify the broad areas where the formulation of accounting standards may be needed.
  - **Step 2:** Then ASB will constitute study groups and panels to prepare preliminary drafts of the standards. The draft normally includes the definition of important terms, the objective of the standard, its scope, measurement principles and the representation of said data in the financial statements.
  - **Step 3:** ASB then carries out deliberations of the said draft of the standard. If necessary, changes and revisions are made.
  - **Step 4:** This preliminary draft is then circulated to all concerned authorities. This will generally include the members of ICAI, and any other concerned authority like the Ministry of Corporate Affairs (MCA), Securities and Exchange Board of India (SEBI), Central Board of Direct Taxes (CBDT), Standing Conference of Public Enterprises (SCOPE), Comptroller and Auditor General of India (C&AG) etc. These members and departments are invited to give their comments.
  - **Step 5:** Then, ASB arranges meetings with these representatives to discuss their views and concerns about the draft and its provisions.
  - **Step 6:** The exposure draft of the proposed accounting standard is then finalized based on deliberations, if necessary.
  - **Step 7:** This exposure draft is then issued to the public for their review and comments.
  - **Step 8:** The comments by the public on the exposure draft will be reviewed. Then, a final draft will be prepared for the review and consideration of ICAI.
  - **Step 9:** The Council of ICAI will then review and consider the final draft of the standard. If necessary, they may suggest a few modifications in consultation with ASB.
  - **Step 10:** Finally, an Accounting Standard is issued. In the case of standard for non-corporate entities, the ICAI will issue the standard. However, if the relevant subject relates to a corporate entity, the Accounting Standard is issued by the Central Government of India, i.e., Ministry of Corporate Affairs (MCA) under section 133 of the Companies Act, 2013, as recommended by the ICAI in consultation with the National Advisory Committee on Accounting Standards (NACAS), now known as National Financial Reporting Authority (NFRA).
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## **7. Convergence towards Global Standards**

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Each country has its own set of rules and regulations for accounting and financial reporting. Therefore, when an enterprise decides to raise capital from the markets other than the country in which it is located, the rules and regulations of that other country will apply and this in turn will require that the enterprise is in a position to understand the differences between the rules governing financial reporting in the foreign country as compared to its own country of origin. This has led to the growing support for an internationally accepted set of accounting standards for cross-border filings through the process of harmonisation.

Also, a strong need was felt by legislation to bring about uniformity, rationalization, comparability, transparency, and adaptability in financial statements. Having multiplicity of accounting standards around the world is against the public interest. Thus, accounting for same events and information producing different reported numbers (due to multiplicity of accounting standards world-wide), will not only creates confusion, encourage error, and facilitates fraud but also results in increasing discredit in the eyes of users of those numbers. The cure of this problem is to have a single set of global standards, of the highest quality, set in the interest of public. Global standards facilitate cross border flow of money, global listing in different stock markets and comparability of financial statements.

Thus, the convergence of financial reporting and Accounting Standards is a valuable process that contributes to the free flow of global investment and achieves substantial benefits for all capital market stakeholders. Besides improving comparability of investments on global basis, it also lowers their risk of error of judgement. For the companies with joint listings in both domestic and foreign country, the convergence is very much significant.

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## 7. Convergence towards Global Standards

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The ICAI, way back in 2006, initiated the process of moving towards the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB). The Government of India in consultation with the ICAI decided to converge IFRS and come up with its own set of accounting standards which were closely related to IFRS, and are termed as **Ind AS**. ICAI did not adopt IFRS issued by the IASB.

The Finance Minister of India, in his Budget Speech in July 2014 stated that:

*"There is an urgent need to converge the current Indian accounting standards with the International Financial Reporting Standards (IFRS). I propose for adoption of the new Indian Accounting Standards (Ind AS) by the Indian companies from the financial year 2015-16 voluntarily and from the financial year 2016-17 on a mandatory basis. Based on the international consensus, the regulators will separately notify the date of implementation of Ind AS for the Banks, Insurance companies etc. Standards for the computation of tax would be notified separately".*

Thereafter, various steps have been taken to facilitate the implementation of IFRS-converged Indian Accounting Standards (Ind AS). Moving in this direction, the Ministry of Corporate Affairs (MCA) has issued the Companies (Indian Accounting Standards) Rules, 2015 vide Notification dated February 16, 2015 covering the revised roadmap of implementation of Ind AS for companies other than Banking companies, Insurance Companies and NBFCs.

As per the Notification, Indian Accounting Standards (Ind AS) converged with International Financial Reporting Standards (IFRS) shall be implemented on voluntary basis from 1st April 2015 and mandatorily from 1st April 2016. Further, the MCA on 30<sup>th</sup> March, 2016, has also notified the Roadmap for implementation of Ind AS for Scheduled Commercial Banks, Insurance companies and NBFCs from 1<sup>st</sup> April, 2018 onwards and also amendments to Ind AS in line with the amendments made in IFRS/IAS vide Companies (Indian Accounting Standards) Amendment Rules, 2016. However, IRDAI vide press release dated June 28, 2017 has deferred the implementation of Ind AS for the Insurance Sector in India for a period of 2 years and the same shall now be implemented as effective from 1st April 2020.

The Government of India in consultation with ICAI decided to converge and not to adopt IFRSs issued by IASB. The decision of convergence rather than adoption was taken after the detailed analysis of the IFRSs requirements and extensive discussions with various stakeholders. Accordingly, while formulating IFRS-converged Indian Accounting Standards (Ind AS), efforts have been made to keep these standards, as far as possible, in line with the corresponding IFRS and departures have been made where considered essential.

It is also important to note that certain changes have been made considering the economic development of the country, which is different as compared to the economic environment presumed to be in existence by IFRS. These differences are due to differences in economic conditions prevailing in India. These differences which are in deviation to the accounting principles and practices stated in IFRS, are commonly known as 'Carve-outs'.

Additional guidance given in Ind AS over and above what is given in IFRS, is termed as 'Carve-in'.

For convergence of Ind AS with IFRS, the Accounting Standard Board in consultation with MCA, has decided that there will be two separate sets of Accounting Standards viz.

- i. Indian Accounting Standards converged with IFRS (known as Ind AS) and
  - ii. Existing Notified Accounting Standards.
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## **7. Convergence towards Global Standards**

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Ind AS stands for Indian Accounting Standard and are converged standards for IFRS (International Financial Reporting Standards). Ind AS are documents and policies that provide principles for recognition, measurement, treatment, presentation, and disclosures of accounting transactions in the Ind AS financial statements. Ind AS are prepared keeping IFRS in mind, and thus, in actual, these are IFRS in their converged form. IND AS are named and numbered in the same way as the corresponding IAS. However, for IND AS corresponding to IFRS, one need to add 100 to the IFRS number, for example, for IFRS 1, corresponding IND AS is 101.

Indian Accounting Standards (Ind-AS) are the International Financial Reporting Standards (IFRS) converged standards issued by the Central Government of India under the supervision and control of Accounting Standards Board (ASB) of ICAI and in consultation with National Advisory Committee on Accounting Standards (NACAS).

National Advisory Committee on Accounting Standards (NACAS), now National Financial Reporting Authority (NFRA), recommends these standards to the Ministry of Corporate Affairs (MCA). The MCA has to spell out the accounting standards applicable for companies in India.

For example, Ind AS 16 on Property, Plant and Equipment (PPE) will provide principles on the criteria on the basis of which PPE is recognised, what all cost will form part of PPE, how to treat those cost and how to present PPE in the financial statement and relevant disclosures.

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## **7. Convergence towards Global Standards**

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Before the introduction of Ind AS, the financial statements were prepared based on Accounting Standards (AS) which were not in line with the standards and principles applicable globally (IFRS). Due to this, the investors were not able to assess and compare the financial position of Indian companies with other global companies. In order to make the financial statements uniform, Ind AS were introduced which are converged form of IFRS (global standards). Moreover, introduction of Ind AS will bring consistency in the accounting practices and principles followed by companies in India and other companies across world, leading to enhanced accessibility and acceptability of financial statements by global investors.

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## 7. Convergence towards Global Standards

Given below is the list of "Indian Accounting Standards (Ind-AS)"

Indian Accounting Standards	Description
Ind AS 101	First-time Adoption of Indian Accounting Standards
Ind AS 102	Share-based Payment
Ind AS 103	Business Combinations
Ind AS 104	Insurance Contracts
Ind AS 105	Non-current Assets Held for Sale and Discontinued Operations
Ind AS 106	Exploration for and Evaluation of Mineral Resources
Ind AS 107	Financial Instruments: Disclosures
Ind AS 108	Operating Segments
Ind AS 109	Financial Instruments
Ind AS 110	Consolidated Financial Statements
Ind AS 111	Joint Arrangements
Ind AS 112	Disclosure of Interests in Other Entities
Ind AS 113	Fair Value Measurement
Ind AS 114	Regulatory Deferral Accounts
Ind AS 115	Revenue from Contracts with Customers
Ind AS 116	Leases*
Ind AS 1	Presentation of Financial Statements
Ind AS 2	Inventories
Ind AS 7	Statement of Cash Flows
Ind AS 8	Accounting Policies, Changes in Accounting Estimates and Errors
Ind AS 10	Events after the Reporting Period
Ind AS 12	Income Taxes
Ind AS 16	Property, Plant, and Equipment
Ind AS 19	Employee Benefits
Ind AS 20	Accounting for Government Grants and Disclosure of Government Assistance
Ind AS 21	The Effects of Changes in Foreign Exchange Rates
Ind AS 23	Borrowing Costs
Ind AS 24	Related Party Disclosures
Ind AS 27	Separate Financial Statements
Ind AS 28	Investments in Associates and Joint Ventures
Ind AS 29	Financial Reporting in Hyperinflationary Economies
Ind AS 32	Financial Instruments: Presentation
Ind AS 33	Earnings per Share
Ind AS 34	Interim Financial Reporting
Ind AS 36	Impairment of Assets

Ind AS 37	Provisions, Contingent Liabilities and Contingent Assets
Ind AS 38	Intangible Assets
Ind AS 40	Investment Property
Ind AS 41	Agriculture

\*Note: Ind AS 116 was notified by MCA on 30<sup>th</sup> March 2019 and it is applicable for annual reporting periods beginning on or after 1<sup>st</sup> April 2019. Ind AS 116 will replace the current guidance in Ind AS 17, 'Leases'.

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## **7. Convergence towards Global Standards**

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The Government of India has taken various steps to facilitate the implementation of IFRS-converged Ind AS. In this direction, the MCA has issued the Companies (Indian Accounting Standards) Rules, 2015 vide Notification dated February 2015 covering revised roadmap of implementation of Ind AS for companies other than Banking Companies, Insurance Companies and NBFCs.

As per the notification, Indian Accounting Standards (Ind AS) converged with International Financial Reporting Standards (IFRS) shall be implemented on voluntary basis from 1<sup>st</sup> April 2015 and mandatorily from 1<sup>st</sup> April 2016. Separate roadmaps have been prescribed for implementation of Ind AS with regards to Banking, Insurance companies and NBFCs respectively.

Following is the roadmap (in different phases) for implementation of Ind AS for various entities:

### **For Companies other than Banks, NBFCs and Insurance Companies**

**Phase I:** From 1<sup>st</sup> April 2016: Ind AS are applicable on 'mandatory' basis for: -

- i. Companies listed/in process of listing on Stock Exchanges in India or Outside India having net worth of Rs. 500 crore or more.
- ii. Unlisted Companies having net worth of Rs. 500 crore or more.
- iii. Parent, Subsidiary, Associate and Joint Venture of above.

**Phase II:** From 1<sup>st</sup> April 2017, Ind AS are applicable on 'mandatory' basis for: -

- i. All companies which are listed/or in process of listing inside or outside India on Stock Exchanges not covered in Phase I (other than companies listed on SME Exchanges)
- ii. Unlisted companies having net worth of Rs. 250 crore or more but less than Rs. 500 crores.
- iii. Parent, Subsidiary, Associate and Joint Venture of above.

Some special points to be considered are mentioned below.

- Companies listed on SME exchange are not required to apply Ind AS.
- Once Ind AS are applicable, an entity shall be required to follow the Ind AS for all the subsequent financial statements.
- Companies not covered by the above roadmap shall continue to apply Accounting Standards notified in Companies (Accounting Standards) Rules, 2006.

*Note:* From 1st April 2015 or thereafter, Ind AS are applicable on Voluntary Basis for any company and its holding, subsidiary, joint venture, or associate company.

### **For Non-Banking Financial Companies (NBFCs)**

**Phase I:** From 1<sup>st</sup> April 2018, Ind AS are applicable on 'mandatory' basis for: -

- i. NBFCs (whether listed or unlisted) having net worth Rs. 500 crore or more.
- ii. Holding, Subsidiary, Joint Venture and Associate companies of above NBFC other than those already covered under corporate roadmap shall also apply from 1<sup>st</sup> April 2018.

**Phase II:** From 1<sup>st</sup> April 2019, Ind AS are applicable on 'mandatory' basis for: -

- i. NBFCs whose equity and/or debt securities are listed or are in the process of listing on any stock exchange in India or outside India and having net worth less than Rs. 500 crores.
- ii. NBFCs that are unlisted having net worth Rs. 250 crore or more but less Rs. 500 crores.
- iii. Holding, Subsidiary, Joint Venture and Associate companies of above other than those already covered under corporate roadmap shall also apply from said date.

Some special points to be considered are listed below.

- These rules are applicable for both consolidated and individual Financial Statements.
- NBFC having net worth below Rs. 250 crores shall not apply Ind AS.
- Adoption of Ind AS is allowed only when required as per the roadmap.
- Voluntary adoption of Ind AS is not allowed.

### **For Scheduled Commercial banks (excluding RRB's) and Insurers/Insurance companies**

From 1<sup>st</sup> April 2019, Ind AS are mandatorily applicable for Scheduled Commercial Banks (excluding RRB's) and from 1<sup>st</sup> April 2021 for Insurers/Insurances Companies:

- i. Holding, subsidiary, Joint Venture and Associates companies of scheduled commercial banks (excluding RRB's) shall also apply from the said date irrespective of it being covered under corporate roadmap.
- ii. This is applicable for both consolidated and individual Financial Statements.

*Note:* Urban Cooperative banks (UCBs) and Regional Rural banks (RRBs) are not required to apply Ind AS.

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## **8. Applicability of Accounting Standards**

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Accounting Standards **apply** in respect of any enterprise (whether corporate, co-operative, or other forms) engaged in commercial, industrial, or business activities, whether profit oriented and even if established for charitable or religious purposes.

Accounting Standards, however, **do not apply** to enterprises solely carrying on the activities, which are not of commercial, industrial, or business nature (for example, an activity of collecting donations and giving them to flood affected people).

Exclusion of an enterprise from the applicability of the Accounting Standards would be permissible only if no part of the activity of such enterprise is commercial, industrial, or business in nature. Even if a very small proportion of the activities of an enterprise were commercial, industrial, or business in nature, the Accounting Standards would apply to all its activities including those, which are not commercial, industrial or business in nature.

Section 129(1) of the Companies Act, 2013 requires companies to present their financial statements in accordance with the Accounting Standards notified under Section 133 of the said Act. Also, the auditor is required to report whether, in his opinion, the financial statements of the company audited, comply with the accounting standards referred in section 133 of the said Act.

Any non-compliance with the Accounting Standards should be disclosed in company's financial statements, the deviation from the accounting standards, the reasons for such deviation and financial effects, if any, arising out of such deviations.

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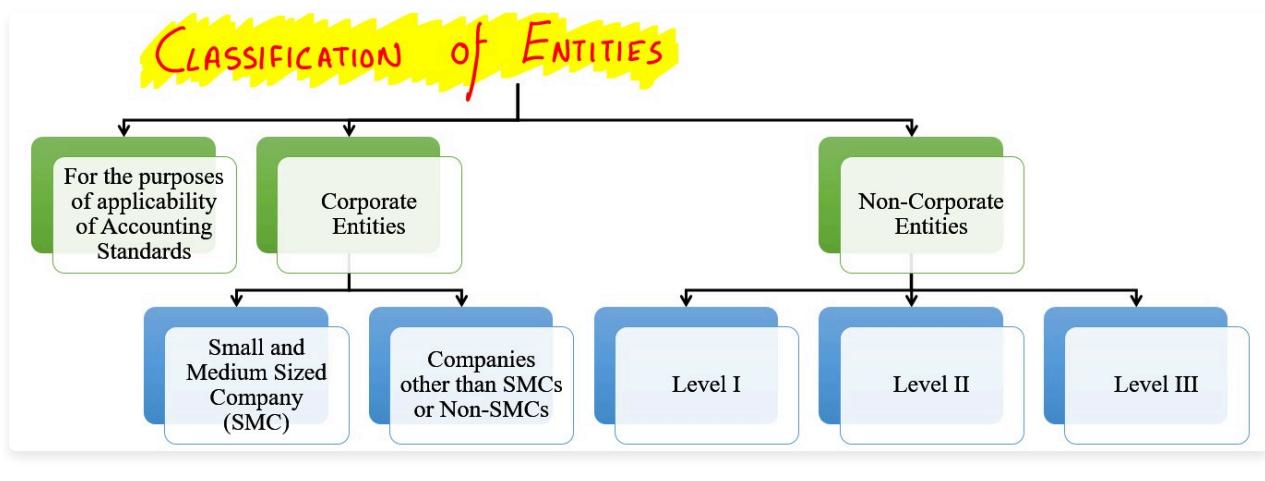
## 8. Applicability of Accounting Standards

To comply with Accounting Standards, the Institute of Chartered Accountants of India (ICAI) had initially issued guidelines to classify entities into three levels based on their size and complexity. According to this classification, Level II and Level III entities were considered Small and Medium Enterprises (SMEs).

However, when the Central Government established its own accounting standards in consultation with the National Advisory Committee on Accounting Standards, it provided a new set of guidelines for classifying companies. This new system divided companies into just two levels:

- (i) Small & Medium-Sized Companies (SMCs) as per the Companies (Accounting Standards) Rules, 2006.
- (ii) Companies other than SMCs.

In response, the ICAI revised its classification criteria for non-corporate entities, while keeping the original three-level system. This means non-corporate entities are still classified into three levels, while companies follow the two-level system outlined by the government.



## **8. Applicability of Accounting Standards**

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Under corporate entities, there are 2 categories SMCs and non-SMCs.

### **Small and Medium Sized Companies (SMC)**

SMCs are companies that satisfy all of the following conditions:

- a. Equity and debt securities of the company are not listed or are not in the process of listing of any stock exchange, whether in India or outside India;
- b. Company is not a bank or financial institution or insurance company;
- c. Company's turnover (excluding other income) does not exceed Rs. 50 crores in the immediately preceding accounting year;
- d. Company does not have borrowing (including public deposits) exceeding Rs. 10 crores at any time during the immediately preceding accounting year; and
- e. Company is not a holding company or subsidiary of a non-SMC.

SMCs must comply with all of the Accounting Standards with certain exemptions/relaxations.

Partial relaxations are provided with respect to following Accounting Standards:

- i. AS 15- Employee Benefits
- ii. AS 17- Segment Reporting
- iii. AS 19- Leases
- iv. AS 20- Earnings Per Share (EPS)
- v. AS 29- Provisions, contingent liabilities and contingent assets

Full Exemption is provided for AS 3- Cash Flow Statements, which shall not apply to SMCs, if it is a One Person Company (OPC), dormant company and Small Company.

### **Non Small and Medium Sized Companies (non-SMC)**

Non-SMCs are companies which do not satisfy the conditions to be a Small and Medium Sized Companies (SMC).

Companies other than SMCs must comply with all the Accounting Standards in their entirety without any exemption/relaxations.

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## 8. Applicability of Accounting Standards

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Non-corporate entities are entities other than companies (as defined in the Companies Act, 2013) and include:

- Cooperative society and charitable entity, if they carry on any commercial, industrial or business activities (even if a very small portion), in such cases AS will apply to its entire activity (whether charitable or otherwise)
- Partnership firms and sole proprietary concerns
- Societies registered under Societies registration Act, Hindu Undivided Family (HUF) and Association of Person (AOP).

Non-corporate entities are not under any obligatory requirement to follow accounting standards, but if such entities are required to get its financial statements attested, it will be the duty of member of institute (CA in practice) to examine whether AS have been complied with. So indirectly, non-corporate entities are also required to follow accounting standards based on level in which it falls.

All Non-Corporate entities are classified as Level I entity or Level II entity or Level III entity at the end of the relevant accounting period. The conditions on which such classification is done are discussed below along with the accounting standards applicable at each of the 3 levels.

### **Level I Entities**

Non-Corporate entities which fall in any one or more of the following categories, at the end of the relevant accounting period, are classified as Level I entities:

- i. Entities whose equity or debt instruments are listed or are in process of listing on any stock exchange (in or outside India).
- ii. Banks (including co-operative banks), financial institutions or entities carrying on Insurance business.
- iii. All commercial, industrial or business reporting entities having Borrowings including public deposits more than Rs. 10 crores during the previous year, as per the audited Financial Statement.
- iv. All commercial, industrial or business reporting entities having Total Turnover excluding other incomes exceeding Rs. 50 crores during the previous year, as per the audited Financial Statement.
- v. Holding or Subsidiary Companies of any of the above.

*Note:* All the accounting standards are applicable to Level I entities. However AS 21, 23 and 27 will apply based on regulatory requirement.

### **Level II Entities (SMEs)**

Non-corporate entities which are not Level 1 entities but fall in any one or more of the following categories are classified as Level II entities:

- i. All commercial, industrial or business reporting entities having Borrowings including public deposits more than Rs. 1 crore but does not exceed Rs. 10 crores, during the previous year, as per the audited Financial Statement.
- ii. All commercial, industrial or business reporting entities having Total Turnover excluding other incomes exceeding Rs. 1 crore but does not exceed Rs. 50 crores during the previous year, as per the audited Financial Statement.
- iii. Holding or Subsidiary Companies of any of the above.

*Note:* All accounting standards are applicable to Level II entities except AS 3, 17, 18, 21, 23, 24, 25, 27.

AS applicable but with certain relaxations regarding disclosure requirement include AS 19 - Leases, AS 20 – Earning Per Share and AS 29 – Provisions, contingent liabilities and contingent assets.

### **Level III Entities (SMEs)**

Non-corporate entities which are not covered under Level 1 and Level II are considered as Level III entities.

*Note:* All accounting standards are applicable to Level III entities except AS 3, 17, 18, 21, 23, 24, 25, 27.

AS applicable but with certain relaxations regarding disclosure requirement include AS 15 – Employees Benefits, AS 19 - Leases, AS 20 – Earning Per Share, AS 28 – Impairment of Assets and AS 29 – Provisions, contingent liabilities and contingent assets.

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## 9. Conflict between Accounting Standards and Prevailing Law

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It should be noted that the Accounting Standards are required to be in line with the prevailing law or statutes. Thus, in case of any conflicts between Law and Accounting Standards, Law would prevail over Accounting Standards and the financial statements should be prepared in conformity with such law.

Efforts are to be made to issue Accounting Standards which are in conformity with the provisions of the applicable laws, customs, usages, and business environment in India. The Accounting Standards by their very nature cannot and do not override the local regulations which govern the preparation and presentation of financial statements in the country.

Further, on 17 November 2004, the Council of the ICAI has announced that, if an item in the financial statement of an enterprise is treated differently pursuant to an Order made by Court/Tribunal, as compared to the treatment required by an Accounting Standard, the following disclosures should be made in the financial statement of the year in which different treatment has been given:

- A description of the accounting treatment made along with the reason that the same has been adopted because of the Court/Tribunal Order.
  - Description of the difference between the accounting treatment prescribed in the Accounting Standards than that followed by the enterprise.
  - The financial impact, if any, arising due to such a difference.
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## 1. Accounting as Measurement Discipline

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Measurement is a significant aspect of accounting. Measurement discipline deals with 3 basic elements:

1. *Identification* of objects and events to be measured
2. *Selection* of standard or scale to be used, and
3. *Evaluation* of dimension of measurement standards or scale.

Kohler defined measurement as the assignment of a system of ordinal or cardinal numbers to the results of a scheme of inquiry or apparatus of observations in accordance with logical or mathematical rules. In accounting, money is the scale of measurement; however, development in accounting trends now also requires quantitative information to be communicated along with monetary information.

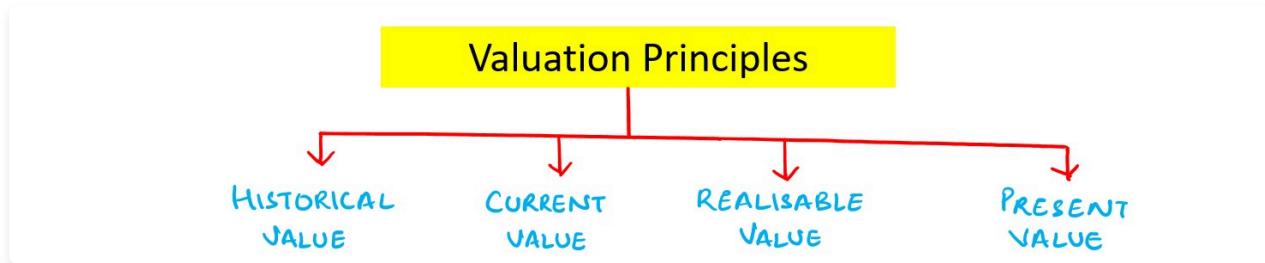
Money as a scale of measurement has no universal denomination and no constant exchange relationship exists among the currencies. It takes the shape of currency ruling in a country. For example, in India the scale of measurement is Rupee (Rs.), in Germany Deutsche Mark (DM), in the United States Dollar (\$).

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## 2. Valuation Principles

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Valuation principles in accounting are essential to measure the amount at which transactions are to be recorded in the books of accounts. These valuation principles help in the ascertainment of the price while selling off an asset or discharging an obligation at some time in the future.



There are 4 generally accepted measurement bases or valuation principles in accounting, that are as follows:

1. Historical value
2. Current value
3. Realizable Value
4. Present Value

These are discussed next one by one.

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## 2. Valuation Principles

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It refers to the acquisition price of an item. According to this valuation principle, assets are recorded at an amount of cash or cash equivalent paid at the time of acquisition. Liabilities are recorded at the amount of proceeds received in exchange for the obligation. However, in certain cases, a liability is recorded at the amount of cash or cash equivalent expected to be paid to satisfy it in the normal course of business.

For example, Vishesh, a sole proprietor, paid Rs. 70,000 to purchase a machine and spent Rs. 20,000 on its installation; its acquisition price including installation charges is Rs. 90,000. Therefore, the historical value of machine is Rs. 90,000.

In another example, Mr. Surender, a businessman, takes a loan of Rs. 10,00,000 from a bank @ 10% p.a. interest. It is to be recorded at the amount of proceeds received in exchange for the obligation. Here, the obligation is the repayment of loan as well as payment of interest at an agreed rate of interest 10% p.a. Proceeds received are Rs. 10,00,000 and it is the historical value of the transaction.

Take another case regarding payment of income tax liability. Every individual must pay income tax on his income if it exceeds the minimum limit. But, note that the income tax liability is not settled immediately when one earns his income. The income tax authority settles it in the assessment year (Assessment Year is the year in which income earned in the previous year is assessed. Income tax is paid in the assessment year). Now, as per historical cost base, it is to be recorded at an amount expected to be paid to discharge the liability.

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## **2. Valuation Principles**

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It is an alternative measurement base. As per current value base, assets are carried out at the amount of cash or cash equivalent that would have to be paid, if the same or an equivalent asset was acquired currently. Liabilities are carried at the undiscounted amount of cash or cash equivalents that would be required to settle the obligation currently.

For example, Mr. Anoop purchased a machine on 1<sup>st</sup> March 2019 and paid Rs. 10,00,000. As per historical cost base, he must record it at Rs. 10,00,000, i.e., the acquisition price. Now, on 1<sup>st</sup> January 2020, Mr. Anoop found that it would cost Rs. 25,00,000 to purchase that machine. Mr. Anoop also took loan from a bank as on 1<sup>st</sup> March 2019 of Rs. 5,00,000 @ 18% p.a. interest, repayable at the end of 15<sup>th</sup> year. On 1<sup>st</sup> January 2020, the bank announces 1% prepayment penalty on the loan amount if it is paid within 15 days starting from 1<sup>st</sup> January 2020.

As per historical value, the liability is recorded at Rs. 5,00,000 at the amount or proceeds received in exchange for obligation and asset is recorded at Rs. 10,00,000. But, as per current cost base, the machine value is Rs. 25,00,000 while the value of bank loan is Rs. 5,05,000 (including Pre-Payment Penalty).

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## **2. Valuation Principles**

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As per this valuation principle, assets are carried at the amount of cash or cash equivalents that could currently be obtained by selling the assets in an orderly disposal. Haphazard disposal may yield something less. Liabilities are carried at their settlement values, i.e., the undiscounted amount of cash or cash equivalents expressed to be paid to satisfy the liabilities in the normal course of business.

For example, Mr. Ramesh discovers that he may get Rs. 20,00,000, if he sells the machine purchased on 1<sup>st</sup> January 2019 for Rs. 7,00,000. Mr. Ramesh also has an outstanding bank loan of Rs. 5,00,000. The current value of the same machine is Rs. 25,00,000. Mr. Ramesh found that he had no money to pay the bank loan of Rs. 5,00,000 currently. Now, as per Realisable Value, the machine should be recorded at Rs. 20,00,000, while the bank loan should be recorded at Rs. 5,00,000, i.e., the settlement value in the normal course of business.

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## 2. Valuation Principles

As per this valuation principle, an asset is carried at the present discounted value of the future net cash inflows that the item is expected to generate in the normal course of business. Liabilities are carried at the present discounted value of future net cash outflows that are expected to be required to settle the liabilities in the normal course of business.

To understand this concept with clarity, assume that you have Rs. 100 in hand as on 1.1.2017, but this Rs. 100 is not equivalent to Rs. 100 in hand as on 31.12.2017. There is a time gap of one year. If Mr. Aman had Rs. 100 as on 1.1.2017 he could use it at that time. If he received it only on 31.12.2017, he had to sacrifice his use for a year. The value of this sacrifice is called **Time Value of Money**. A rational person would agree to sacrifice Rs. 100 on 1.1.2017, only when the value of money he receives on 31.12.2017 compensates for the sacrifice, to make the money receivable at a future date equal with the money of the present date it is to be devalued. Such devaluation is called "discounting of future money".

The Present Value (P) of any Future Cash flow (A) is calculated using the following formula:

$$A = P(1+i)^n$$

where ,  $A$  = Future Cash Flow

$P$  = Present Value

$i$  = Interest Rate

$n$  = Time

Thus, Present Value  $P$  is calculated as  $P = \frac{A}{(1+i)^n}$

Therefore, Present value of Rs 1,00,000 (received after 1 year) at 20% rate of interest will be

Present Value of Rs 1,00,000 (received after 1 year) at  
20% rate of interest will be

$$P = \frac{A}{(1+0.2)^n} = \frac{1,00,000}{(1.0-2)^1} = \boxed{\text{Rs } 83,333}$$

### 3. Accounting Estimates

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The measurement of certain assets and liabilities is based on estimates of uncertain future events. As a result of the uncertainties inherent in business activities, many financial statement items cannot be measured with precision but can only be estimated. Therefore, the management makes various estimates and assumptions of assets, liabilities, incomes, and expenses as on the date of preparation of financial statements. Such estimates are made in connection with the computation of depreciation, amortisation (Depreciation on intangible assets) and impairment losses (permanent loss in the value of intangible assets) as well as, accruals, provisions, and employee benefit obligations.

Estimates may be required in determining the bad debts, useful life, and residual value of an item of plant and machinery and inventory obsolescence. The process of estimation involves judgements based on the latest information available.

There are certain items, which have not occurred and therefore, cannot be measured using valuation principles. But these items are necessary to record in the books of account. For example, provision for doubtful debts. For such items, we need to estimate some value. In such a situation, reasonable estimates are based on the existing situation and past experiences are made.

An estimate can require revision, if changes occur relating to circumstances on which the estimate was based, or because of new information, more experience or subsequent developments. Change in accounting estimate means difference arises between certain parameters estimated earlier and re-estimated during the current period or actual result achieved during the current period.

For example, a company incurs expenditure of Rs. 50,00,000 on development of patent. Now, the company must estimate that for how many years the patent would benefit the company. This estimation should be based on the latest information and logical judgement.

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### 1. Introduction

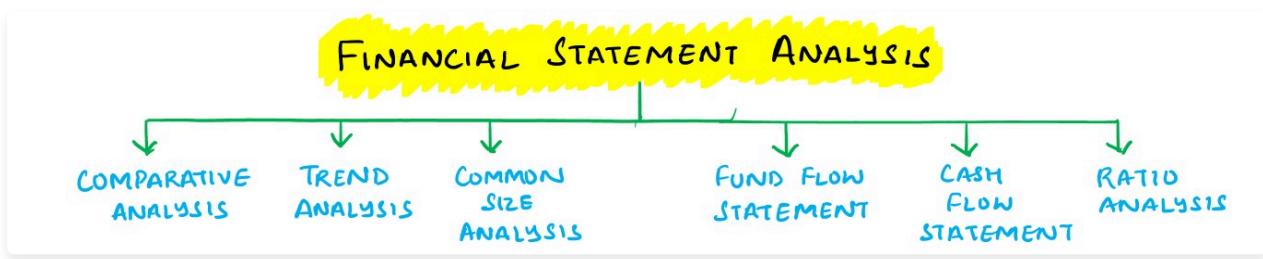
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The Financial statements are a formal record of a business, person, or an entity's financial activities and position. The financial statements are prepared with an objective to provide information and to make understand the firm's financial aspects. The financial statement is an organized collection of data according to logical and consistent accounting procedures. Its purpose is to convey an understanding of the financial aspects of a business firm.

The financial statements generally consist of two important statements: Income Statement and Position Statement.

Financial Statement Analysis is the process of analyzing a company's financial statements for decision-making purposes and understanding an organization's overall health. Financial statement analysis is a judgmental process that aims to estimate current and past financial positions and the results of the operation of an enterprise, with a primary objective of determining the best possible estimates and predictions about the future conditions. It essentially involves regrouping and analysis of information provided by financial statements to establish relationships and throw light on the points of strengths and weaknesses of a business enterprise. This can be useful in decision-making involving comparison with other firms (cross-sectional analysis) and with firms' own performance, over a time period (time series analysis).

Some of the methods of analysis of Financial Statements are shown in the Figure. They are discussed in this chapter, except Ratio Analysis, which is discussed in the next chapter.



## 2. Comparative Statement Analysis

Comparative statement analysis is an analysis of financial statements at different periods of time. When financial statements' figures for two or more years are placed side-by-side to facilitate comparison, these are called 'Comparative Financial Statements'. This is also known as 'Horizontal Analysis'. Such statements not only show the absolute figures of various years but also provide for columns to indicate the increase or decrease in these figures from one year to another. In addition, these statements may also show the change from one year to another in percentage form.

The following steps may be followed to prepare the comparative statements:

Step 1: List out absolute figures in rupees relating to two points of time (as shown in columns 2 and 3 of Table below).

Particulars	First Year	Second Year	Absolute Increase (+) or Decrease (-)	Percentage Increase (+) or Decrease (-)
1	2	3	4	5
	Rs.	Rs.	Rs.	%

Step 2: Find out change in absolute figures by subtracting the first year (Column 2) from the second year (Column 3) and indicate the change as increase (+) or decrease (-) and put it in Column 4.

Step 3: Preferably, also calculate the percentage change as follows and put it in Column 5.

$$\frac{\text{Absolute increase or decrease}}{\text{First year absolute increase}} \times 100$$

### 3. Classification of Comparative Statement Analysis

Comparative financial statements are further classified as follows:

#### Comparative Balance Sheet Analysis

Comparative Balance sheet analysis concentrates only on the balance sheet of the concern at different periods of time. Under this analysis, various items in the balance sheets are compared with previous year's figures. The sample analysis is given below.

Particulars	March 31, 2014	March 31, 2015	Absolute Increase (+) or Decrease (-) Rs. (in lakhs)	Percentage Increase (+) or Decrease (-) %
<b>I. Equity and Liabilities</b>				
<i>Shareholders' funds</i>				
a) Share capital	15	20	5	33.33
b) Reserves and surplus	14	13	(1)	(7.14)
<i>Non-current liabilities</i>				
Long-term borrowings	16	19	3	18.75
<i>Current liabilities</i>				
Trade payables	2	3	1	50.00
<b>TOTAL</b>	<b>47</b>	<b>55</b>	<b>8</b>	<b>17.02</b>
<b>II. Assets</b>				
<i>Non-current assets</i>				
<i>Fixed assets</i>				
a) Tangible assets	15	20	5	33.33
b) Intangible assets	16	19	3	18.5
<i>Current assets</i>				
a) Inventories	14	13	(1)	(7.14)
b) Cash & cash equivalent	2	3	1	50.00
<b>TOTAL</b>	<b>47</b>	<b>55</b>	<b>8</b>	<b>17.02</b>

#### Comparative Profit and Loss Account Analysis

Another comparative financial statement analysis is comparative profit and loss account analysis. Under this analysis, only items in profit and loss account are taken in order to compare with previous year's figure or compare within the statement. This analysis helps to understand the operational performance of the business concern in each period. The sample analysis is given below.

Particulars	2013-14 (Rs.)	2014-15 (Rs.)	Absolute Increase (+) or Decrease (-) (Rs.)	Percentage Increase (+) or Decrease (-) (%)
<b>I. Revenue from operations</b>				
	16,00,000	20,00,000	4,00,000	25
<b>II. Less: Expenses</b>				
a) Employee benefit expenses	8,00,000	10,00,000	2,00,000	25
b) Other expenses	2,00,000	1,00,000	(1,00,000)	(50)
<b>Profit before tax</b>	<b>6,00,000</b>	<b>9,00,000</b>	<b>3,00,000</b>	<b>50</b>
<b>III. Less tax @ 40%</b>				
	2,40,000	3,60,000	1,20,000	50

Profit after tax	3,60,000	5,40,000	1,80,000	50
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## 4. Trend Analysis

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The financial statements may be analyzed by computing trends of series of information. It may be upward or downward directions that involve the percentage relationship of each item of the statement with the common value of 100%.

In other words, this method involves the calculation of percentages relationship that each statement bears to the same item in the base year. The base year may be any one of the periods involved in the analysis, but the earliest period is mostly taken as the base year. This trend percentage can be represented in various ways. They may be shown in a horizontal or vertical manner. They can be plotted on a chart or on a graph by plotting curves. They are sometimes calculated using the trend "X" as an index. By looking at a trend, in a ratio, one may find, whether the ratio is falling, rising or stagnant. From this observation, a problem is detected, or the sign of good/poor management is detected. A sample analysis is given below.

(Rs. in lakhs)						
Year	Sales (Rs.)	Trend (%)	Stock (Rs.)	Trend (%)	Profit (Rs.)	Trend (%)
2010	1881	100	709	100	321	100
2011	2340	124	781	110	435	136
2012	2655	141	816	115	458	143
2013	3021	161	944	133	527	164
2014	3768	200	1154	163	627	195

## 5. Common Size Analysis

Another important financial statement analysis technique is Common Size Analysis in which figures reported are converted into a percentage to some common base. A common size statement is a statement that gives only the vertical percentages or ratios for financial data. In the balance sheet, the total assets figures are assumed to be 100 and, in the profit, and loss account, the sales figure (total revenue) is assumed to be 100 and all figures are expressed as a percentage of this total. It is one of the simplest methods of financial statement analysis, which reflects the relationship of each item with the base value of 100%. It is also called 'Vertical Analysis'.

Common size analysis is of immense use for comparing enterprises that differ substantially in size as it provides an insight into the structure of financial statements. Inter-firm comparison or comparison of the company's position with the related industry is possible with the help of common size statement analysis.

The following steps may be adopted for preparing the common size statements.

1. List out absolute figures in rupees at two points of time, say year 1, and year 2 (Column 2 & 3) of the Format below.
2. Choose a common base (as 100). For example, revenue from operations is taken as the base (100) in the case of statement of profit and loss and total assets or total liabilities (100) in case of balance sheet.
3. For all items of Column 2 and 3, work out the percentage of that total. Column 4 and 5 shows these percentages in the Format below.

Common Size Statement Format

Common Size Statement Format				
Particulars	Year 1	Year 2	Percentage of Year 1	Percentage of Year 2
1	2	3	4	5

A sample of the Common Size Statement is given below.

Particulars	Absolute Amounts (Rs.)		Percentage of Net Sales (%)	
	2013-14	2014-15	2013-14	2014-15
Net Sales	25,00,000	18,00,000	100.00	100.00
Less: Cost of goods Sold	(12,00,000)	(10,00,000)	48.00	55.56
Gross Profit	13,00,000	8,00,000	52.00	44.44
Less: Operating Expenses	(1,20,000)	(80,000)	4.80	4.44
Operating Income	11,80,000	7,20,000	47.20	40.00
Less: Non-Operating expenses	(15,000)	(12,000)	0.60	0.67
Profit	11,65,000	7,08,000	46.60	39.33
Note: Net Sales figure is taken as base for calculating percentages of all other items.				

## 6. Funds Flow Statement

Another important tool in the hands of finance managers for ascertaining the changes in the financial position of a firm between two accounting periods is known as the Fund Flow Statement. Funds flow statement analyses the reasons for the change in financial position between two balance sheets. It shows the inflow and outflow of funds, i.e., sources and application of funds during a particular period.

Fund Flow Statement summarizes for a particular period the resources made available to finance the activities of an enterprise and the uses to which such resources have been put. A funds flow statement may serve as supplementary financial information to the users.

It helps to understand the changes in the financial position of a business enterprise between the beginning and ending financial statement dates. It is also called a 'Statement of Sources and Uses/Application of Funds'.

The 'Fund' means working capital. Working capital is viewed as the difference between current assets and current liabilities. If we see the balance sheets of a company for two consecutive years, we may note that working capital in such Balance Sheets is different.

The following table shows the transactions which affect funds:

Transactions	Examples
A transaction involving a non-current liability and a current asset	When shares are issued for cash, both share capital and cash increases. The increase in cash increases total current assets and the working capital increases to that extent. Thus, this transaction is an example of 'source of funds'.
A transaction involving a non-current liability and a current liability	Creditors may be settled by issue of debentures to them. Here 'debentures' which is a long-term liability (or-non-current liability) increases and 'creditors' which is a current liability decrease. The decrease in creditors decreases the total current liabilities and the working capital increases to that extent. This transaction is an example of 'source of funds' without involving cash.
A transaction involving a non-current asset and a current asset	When building is sold for cash, 'buildings', a fixed asset decreases and 'cash' a current asset increases. Total current assets go up and the working capital also increases. This transaction is also an example of 'sources of funds'.
A transaction involving a non-current asset and a current liability	When furniture is purchased by accepting a two months bill, fixed assets increase and also the current liabilities go up. The increase in current liabilities, decreases the working capital. This transaction is an example of 'application of funds' without involving cash.

The following table shows the transactions which does not affect funds:

Transactions	Examples
<b>1. Any Transaction between a Current Account and Another Current Account</b>	
A transaction involving two current assets	When debtors are collected, debtors decrease but cash increases by the same amount. Total current assets remain unaffected. Working capital does not change.
A transaction involving two current liabilities	When bills payable are issued to creditors, bills payable increase but creditors decrease by the same amount. Total current liabilities remain the same. Working capital does not change.
A transaction involving a current asset and a current liability	When cash is paid to creditors, creditors decrease, but cash also decreases. Thus, the decrease in the current liabilities is equal to the decrease in current

assets.  
Working capital is not at all affected.

## 2. Any Transaction between a Noncurrent Account and Another Noncurrent Account

A transaction involving two non-current or fixed assets

When Land is given to a builder in return for some flats, land which is a fixed asset decreases but 'Flats' another fixed asset increases.  
No current asset or current liability is involved in the transaction and working capital is not at all affected.

A transaction involving two non-current liabilities

When Debentures are converted into shares, debentures which is a long-term liability decreases but share capital which is also a long-term liability increases.  
No current asset or current liability is involved and thus working capital (or) Funds is not at all affected.

A transaction involving a non-current asset and a non-current liability

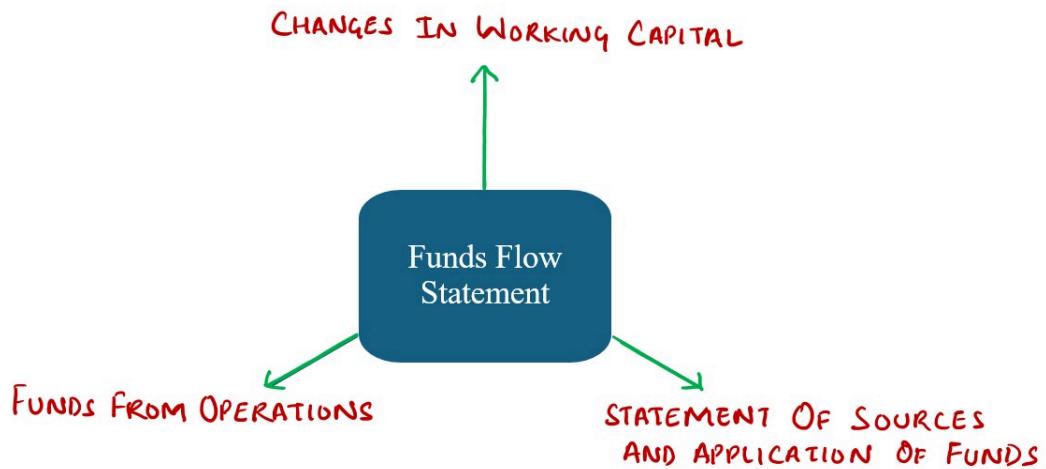
When Machinery is acquired by issue of shares, Machinery which is a fixed asset increase.  
Share capital which is a long-term liability also increases.  
However, no current assets or current liabilities are affected and working capital does not change.

The above discussion leads to the following conclusions:

1. Transactions between two current items or two long term items do not effect funds or working capital.
2. Transactions between current and long-term assets or liabilities (i.e., Cross Transactions) affect the working capital and funds.

## 7. Components of Funds flow statement

The Funds flow statement comprises 3 statements:



1. Changes in Working Capital
2. Funds From operations
3. Statement of Sources and Application of Funds

These are discussed below one by one.

## 7. Components of Funds flow statement

The statement of changes in working capital denotes the movement of working capital. The variation or change in working capital is shown by a 'Schedule of working capital'. As working capital represents the excess of current assets over current liabilities, the schedule of working capital shows the aggregate of current assets and current liabilities at the end of two years and then the increase or decrease in working capital is measured by comparing the net working capital.

Statement of changes in Working Capital				
Particulars / Accounts	Previous Period	Current period	Working Capital Change	
			Increase	Decrease
A. Current Assets 1) Stock/Inventories 2) Sundry Debtors 3) Bills Receivable 4) Bank 5) Cash				
<b>Total Current Assets</b>				
B. Current Liabilities/Provisions 1) Bills Payable 2) Sundry Creditors 3) Provision for Taxation				
<b>Total Current Liabilities</b>				
<b>Total Working Capital (A – B)</b>				
<b>Increase / Decrease in Working Capital</b>				
<b>TOTAL</b>				
<i>Notes:</i> Increase in Current Assets will result into increase in Working Capital. Decrease in Current Assets will result into decrease in Working Capital. Increase in Current Liabilities will result into decrease in Working Capital. Decrease in Current Liabilities will result into increase in Working Capital.				

## 7. Components of Funds flow statement

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Sales are the main source of funds inflow and at the same time funds flow out for expenses and costs of goods sold. Thus, funds are increased if inflow from sales exceeds the outflow for expenses and cost of goods sold. Funds from operations refers to the profit earned or loss incurred from the regular business operations, hence certain items need to be added (i.e., non-operating expenses) or subtracted (i.e., non-operating incomes) from the figure of 'net profit' as per profit and loss account. It can be calculated as shown under:

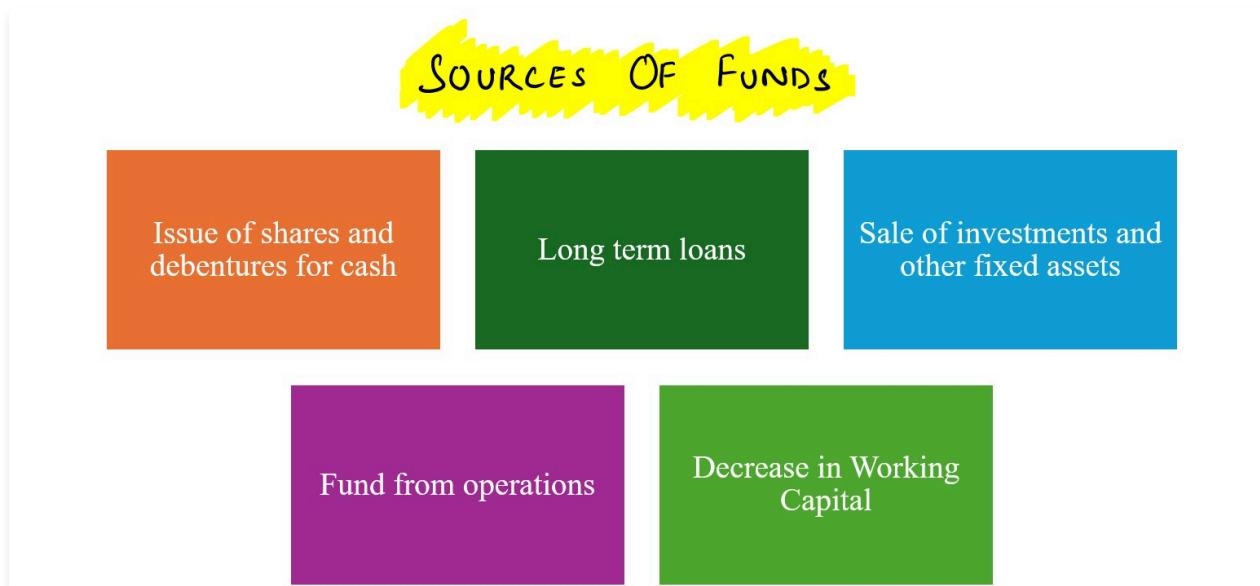
	<b>Particulars</b>	<b>Amount (Rs.)</b>	
	Net Profit as shown in Profit & Loss A/c		xxx
	<i>Non-operating Expenses:</i>		
	Depreciation and Depletion	xxx	
	Amortizations of Fictitious Assets	xxx	
	Provision for Taxation	xxx	
	Appropriation of Retained Earnings	xxx	
	Interim Dividend	xxx	
	Proposed Dividend	xxx	
	Loss on Sale of any Fixed Assets	xxx	
	Any other Non-Cash Expenditure	xxx	
	Interest on Debentures	xxx	xxx
<i>Add:</i>			
	<i>Non-operating Incomes:</i>		
	Dividend Received	(xxx)	
	Interest on Investment/Bank Deposits	(xxx)	
	Re-transfer of Excess Provision	(xxx)	
	Profit on Sale of Fixed Assets	(xxx)	
	Appreciation in value of Fixed Assets	(xxx)	(xxx)
<i>Less:</i>			
<b>Result</b>	<b>Funds from Operations</b>		xxx

## 7. Components of Funds flow statement

We have already seen that there are numerous movements in funds in an accounting year. It is important to understand these movements since they affect the financial position of a company. This is done by preparing a statement known as 'Funds Flow Statement', also known as 'Sources and Application of Funds Statement' or the 'Statement of Changes in Financial Position'. There is no prescribed form in which the statement should be prepared. However, it is customary to draw it in a manner as would disclose the main sources of funds and their uses. It shows the various sources and uses of funds during a year. Some of the sources and applications of funds are listed below:

### Sources of Funds

The sources of funds that lead to an inflow of funds into the business are explained below.



- Issue of shares and debentures for cash:** If shares or debentures are issued at par, the paid-up value constitutes the source of fund. If shares/debentures are issued at a premium, such premium is to be added and if shares/debentures are issued at a discount, such discount is to be subtracted to determine the source of fund. But the issue of bonus shares, conversion of debentures into equity shares or shares issued to the vendors in case of business purchases do not constitute sources of fund.
- Long-term Loans:** The amount of long-term loan raised constitutes a source of fund. But if a long-term loan is just renewed for an old loan, then the money received by such renewal becomes the source.
- Sale of investments and other fixed assets:** Sale proceeds constitute a source of fund. For example, an old machine costing Rs. 8 Lakhs, with WDV. of Rs. 2 Lakhs is sold for Rs. 1.75 Lakhs. Here, the source of fund is only Rs. 1.75 lakhs.
- Fund from Operations:** Fund generated from the operation may result in a source of fund depending on the result from the statement of funds from operations (in case of profit).
- Decrease in Working Capital:** It is a balancing figure obtained from the statement of changes in working capital.

**Note:** If provision for taxation and proposed dividend is excluded from current liabilities, then only these items are to be added back to find out the 'Fund from Operations'. By Funds From Operations if we refer to gross fund generated before tax and dividend, then this concept is found useful. At the same time, the fund from operations may also mean net fund generated after tax and dividend. For explaining the reasons for the change in the fund, it would be better to follow the gross concept.

### Applications of Funds

The application of funds that lead to an outflow of funds from the business are explained below.

## APPLICATIONS OF FUNDS

Purchase of fixed assets and investments

Redemption of debentures

Payment of dividend and tax

Increase in working capital

Funds from operations

- i. **Purchase of fixed assets and investments:** Cash payment for purchase is an application of fund. But if a purchase is made by issue of shares or debentures, it will not constitute application of fund. Similarly, if purchases are on credit, these will not constitute funds application.
- ii. **Redemption of debentures, preference shares and repayment of the loan:** Payments made including premium (less: discount) is to be taken as funds application.
- iii. **Payment of dividend and tax:** These two items are to be taken as application of funds, if provisions are excluded from current liabilities and current provisions are added back to profit to determine the 'Funds from Operations'.
- iv. **Increase in working capital:** It is the balancing figure. This figure will come from the change in the working capital statement.
- v. **Funds from operations:** Fund generated from the operation may result application of fund depending on the result from the statement of funds from operations (in case of loss).

### **Statement of Fund Flow**

This is the final statement of the entire fund flow, and we take the above statements ('Fund from operations' and Changes in Working Capital) into account to see the effect in this statement. One thing we need to keep in mind is that when the uses of funds would be deducted from the sources, it should match the net increase/decrease in working capital.

Funds Flow Statement (Statement of Sources and Application of Funds)

<b>Funds Flow Statement (Statement of Sources and Application of Funds)</b>			
<b>Sources of Funds</b>	<b>Amount (Rs.)</b>	<b>Application of Funds</b>	<b>Amount (Rs.)</b>
Issue of Preference shares	xxx	Purchase of Fixed Assets	xxx
Issue of Equity	xxx	Purchase of Investments	xxx
Issue of Debentures	xxx	Redemption of Shares	xxx
Loan Borrowed	xxx	Non-Trading Losses	xxx
Sale of Fixed Assets	xxx	Redemption of Debenture	xxx
Sale of Investments	xxx	Payment of Loan	xxx
Non-Trading Incomes	xxx	Payment of Tax	xxx
Fund from Operation (profit)	xxx	Payment of Dividend	xxx
Decrease in Working Capital	xxx	Increase in Working Capital	xxx
		Fund from Operation (loss)	xxx
Total	xxx	Total	xxx

Analysis of Funds Flow Statement

Fund Flow Statement is prepared to explain the change in the working capital position of a business. Particularly there are two flows of funds (inflow):

- a. Long term fund raised by the issue of shares, debentures or sale of fixed assets and
- b. Fund generated from operations which may be taken as a gross before payment of dividend and taxes or net after payment of dividend and taxes.

On the other hand, applications of the funds are for investment in fixed assets or repayment of capital. If long-term funds requirement is met just out of long-term sources, then the whole fund generated from operations will be represented by an increase in working capital. On the other hand, if the fund generated from operations is not enough to bridge a gap of long-term fund requirement, then there will be a decline in working capital. A fund flow statement is an important tool for analyzing the financial statements and it provides the following information:

- It highlights the different 'sources' and 'applications' or 'uses' of funds between the two-accounting periods.
  - It brings into light about financial strength and weakness of a concern.
  - It acts as an effective tool to measure the causes of changes in working capital.
  - It helps the management to take corrective actions for deviations between two Balance Sheet figures.
  - It is an instrument used by the investors for effective decisions at the time of their investment proposals.
  - It also presents detailed information about profitability, operational efficiency and financial affairs of a concern.
  - It serves as a guide to the management to formulate its dividend policy, retention policy, investment policy, etc.
  - It helps to evaluate the financial consequences of business transactions involved in operational finance and investments.
  - It gives a detailed explanation about the movement of funds from different sources or uses of funds during an accounting period.
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## 7. Components of Funds flow statement

From the following Balance Sheet of Maharaja Ltd., prepare Fund Flow Statement.

Liabilities	2018	2019	Assets	2018	2019
Share Capital	3,00,000	4,00,000	Goodwill	1,15,000	90,000
Debentures	1,50,000	1,00,000	Machinery	2,00,000	1,70,000
General Reserve	40,000	70,000	Land & Building	1,60,000	2,00,000
Profit & Loss A/c	72,000	98,000	Stock	1,57,000	3,09,000
Creditors	55,000	83,000	Cash	10,000	18,000
Bills Payable	20,000	16,000	Preliminary Expenses	35,000	30,000
Provision for Tax	60,000	80,000	Bill Receivable	20,000	30,000
<b>TOTAL</b>	<b>6,97,000</b>	<b>8,47,000</b>	<b>Total</b>	<b>6,97,000</b>	<b>8,47,000</b>

Solution:

Funds from operations (in account form):

Dr.	Adjusted Profit A/c		Cr.
Particulars	Amount (in Rs.)	Particulars	Amount (in Rs.)
To Goodwill written off	25,000	By Bal b/d	72,000
To Depreciation on Machinery	30,000	By Funds from Operations (Balancing figure)	1,96,000
To Preliminary Expenses w/off	5,000		
To General Reserve	30,000		
To Provision for Tax	80,000		
To Bal c/d	98,000		
	<b>2,68,000</b>		<b>2,68,000</b>

*Note:*

- If Balance Sheet shows a provision for tax, then previous year provision is taken as tax paid during the year and treated as outflow (and accordingly shown under 'application of funds'). The current year provision is added back to net profit of the year. Similar treatment is done in case of proposed dividend as it is assumed that the liability which was acknowledged in previous year must have been paid in the current year.
- The amounts of various items are obtained by taking the difference between the 2-year values given in the Balance Sheet.
- As Goodwill has decreased from Rs. 1,15,000 in 2018 to Rs. 90,000 in 2019, the written off value is 25,000. A decrease in value of Fixed Asset is due to depreciation in case of tangible asset and amortization in case of intangible assets, which is charged to Profit and Loss A/c. Hence, to calculate actual Funds from Operation, it is to be added back to net profit after tax as extra-ordinary item.

The Statement of Funds from Operations can be prepared as under (in Statement Form):

<b>Statement of Funds from Operations</b>		
	Particulars	Amount (in Rs.)
	Net Profit shown as in Profit & Loss A/c (98,000 – 72,000)	26,000

	To Goodwill Written Off	25,000	
Add:	Depreciation on Machinery	30,000	
	Provision for Taxation	80,000	
	General Reserve	30,000	
	Preliminary Expenses	5,000	
	<b>Funds from Operations</b>		<b>1,96,000</b>

<b>Statement of Changes in Working Capital (Amt. in Rs.)</b>				
<b>Particulars</b>	<b>2018</b>	<b>2019</b>	<b>Increase</b>	<b>Decrease</b>
<i>Current Assets</i>				
Bills Receivable	20,000	30,000	10,000	
Cash	10,000	18,000	8,000	
Stock	1,57,000	3,09,000	1,52,000	
<b>Total (A)</b>	<b>1,87,000</b>	<b>3,57,000</b>		
<i>Current Liabilities</i>				
Creditors	55,000	83,000	4,000	28,000
Bills Payable	20,000	16,000		
<b>Total (B)</b>	<b>75,000</b>	<b>99,000</b>		
<b>Working Capital (A)-(B)</b>	<b>1,12,000</b>	<b>2,58,000</b>		
<i>Increase in Working Capital</i>				
<b>TOTAL</b>	<b>1,46,000</b>			<b>1,46,000</b>
<b>TOTAL</b>	<b>2,58,000</b>	<b>2,58,000</b>	<b>1,74,000</b>	<b>1,74,000</b>

*Notes:*

1. All the figures are obtained by taking the difference between the values of Current Assets and Current Liabilities, as they are the only components impacting the working capital.
2. If there is an increase in working capital, it means that the funds available with the organization will decrease, as more amount will be blocked in working capital. Therefore, an increase in the amount of working capital is shown on the decrease side. For example, as 'Bill Receivable' is increased from 20,000 in 2018 to 30,000 in 2019. Hence, there is an increase in Bill Receivable, which means that more amount is blocked in Bills Receivable. Therefore, it is shown in the increase column. Likewise, increase and decrease of all other current assets will be shown.
3. The working capital of the firm increases, if there is an increase in the current assets or decrease in the current liabilities. However, the working capital of the firm decreases, if there is a decrease in the current assets and an increase in the current liabilities.

<b>Funds Flow Statement</b>			
<b>Sources</b>	<b>Amount (in Rs.)</b>	<b>Application</b>	<b>Amount (in Rs.)</b>
Issue of Shares	1,00,000	Purchase of Land & Building	40,000
Funds from Operations	1,96,000	Tax Paid	60,000
		Redemption of Debentures	50,000
		Increase in Working Capital	1,46,000
<b>TOTAL</b>	<b>2,96,000</b>	<b>TOTAL</b>	<b>2,96,000</b>

*Note:* In the above statements, all the items through which the funds are obtained are written under sources and all the items where funds are applied or used are shown under the application. For example, an issue of shares for cash will bring more funds to the firm, therefore, it is shown under the 'source' column.

## **8. Cash Flow Statements**

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When it is desired to explain to the management, the sources of cash and its uses during a particular period, a statement known as a Cash Flow Statement is prepared. A statement of cash flows reports the inflows (receipts) and outflows (payments) of cash and its equivalents of an organisation during a period. It provides important information that complements the Statement of Profit & Loss and Balance Sheet. A statement of cash flow reports cash inflow and outflow classified according to the entities' major activities, i.e., operating, investing and financing activities during the period. This statement reports a net cash inflow or net cash outflow for each activity and for the overall business for a period, generally an accounting year. It also reports from where cash has come and how it has been spent. Thus, it explains the causes for the changes in the cash balance at the end of the period.

The statement of cash flows reports the cash receipts, cash payments, and net changes in cash resulting from operating, investing and financing activities of an enterprise during a period, in a format, that reconciles the beginning and ending cash balances. The cash flow statement should be prepared in accordance with the stipulations given in AS-3.

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## **8. Cash Flow Statements**

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Accounting Standard-3 (AS-3), issued by ICAI in June 1981, which dealt with a statement showing 'Changes in Financial Position' (Funds Flow Statement), has been revised and now deals with the preparation and presentation of Cash flow statement. The revised AS-3 has made it mandatory for all listed companies to prepare and present a cash flow statement along with other financial statements on annual basis. Hence, it may be noted that "Funds Flow statement is no more considered relevant in accounting."

The applicability of Cash flow statement has been defined under the Companies Act, 2013. As per the definition in the said Act, a financial statement includes the following:

- Balance sheet
- Profit and loss account / Income and expenditure account
- Cash flow statement
- Statement of changes in equity
- Explanatory notes

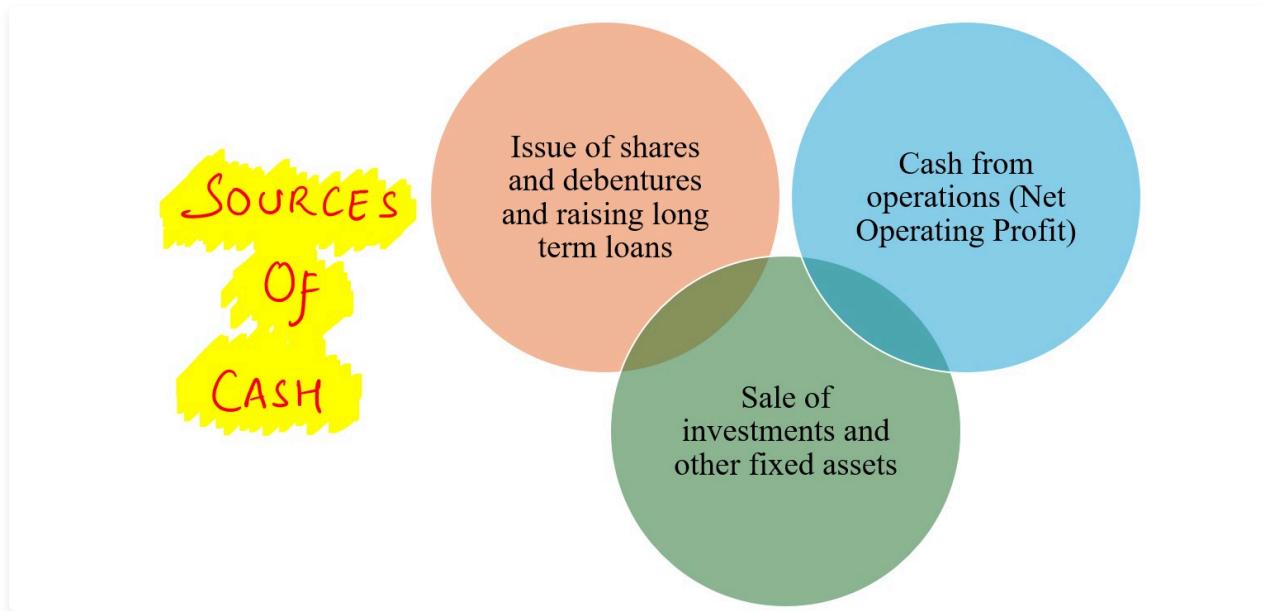
Further, as per the Companies Act, 2013, in relation to companies, Cash Flow Statement is required to be prepared by every company except a one person, small and dormant company. For non-companies, AS-3 is not mandatory for entities falling in Level II and Level III.

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## 8. Cash Flow Statements

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The various sources of Cash are as follows:

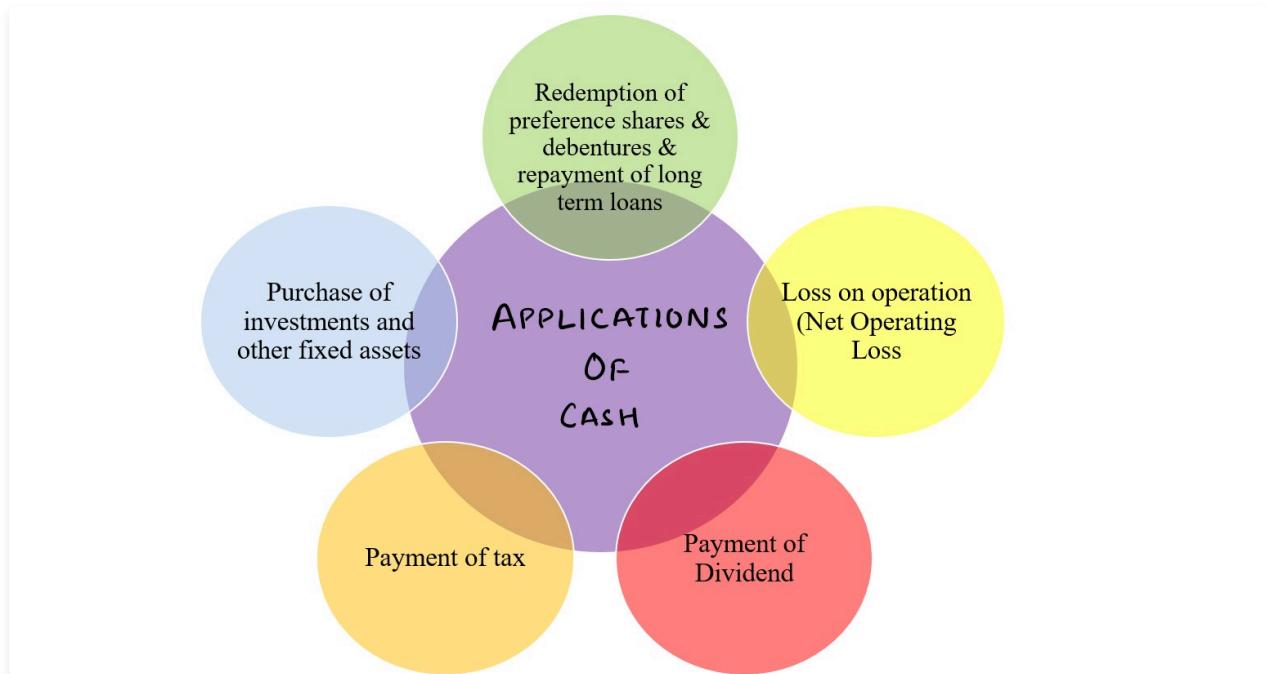


- Issue of shares and debentures and raising long-term loans.
  - Sale of investments and other fixed assets.
  - Cash from operations (Net Operating Profit).
-

## 8. Cash Flow Statements

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The various applications (uses) of cash are as follows:



- Redemption of preference shares and debentures and repayment of long- term loans
  - Purchase of investments and other fixed assets
  - Payment of tax
  - Payment of dividend
  - Loss on Operations (Net Operating Loss)
-

## 8. Cash Flow Statements

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Before we proceed further, let us understand few important related terms.

### Cash

Cash comprises cash in hand and demand deposits with banks. Demand deposits mean those deposits which are repayable by bank on demand by the depositor.

### Cash equivalents

Cash equivalents are short term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value. Cash equivalents are held for the purpose of meeting short term cash commitments rather than for investments or other purposes. Examples of cash equivalents are treasury bills, commercial papers etc. They are one of the three main asset classes, along with stocks and bonds. These securities have a low-risk, low-return profile and include:

- Current investments,
- Cash & bank,
- Government Treasury bills,
- Bank certificates of deposit,
- Bankers' acceptances,
- Corporate commercial papers and
- Other money market instruments.

### Cash flows

Cash flows are inflows and outflows of cash and cash equivalents. It means the movement of cash into the organisation and movement of cash out of the organisation. The difference between the cash inflows and outflows is known as **net cash flow** which can be either net cash inflow or net cash outflow. Cash flows exclude movements between items that constitute cash or cash equivalents because these components are part of the cash management of an enterprise rather than part of its operating, investing and financing activities.

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## 8. Cash Flow Statements

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The cash flow statement is an important tool for the management to provide the following information:

- It explains the cash movements between two points of time.
  - It provides information about the changes in cash and cash equivalents of an enterprise.
  - It identifies cash generated from trading operations.
  - It provides information about cash generated from different activities for better allocation of resources.
  - It identifies the portion of cash from operations that is used to pay dividend and tax and the other portion that is ploughed back.
  - It is a very useful tool for planning.
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## 8. Cash Flow Statements

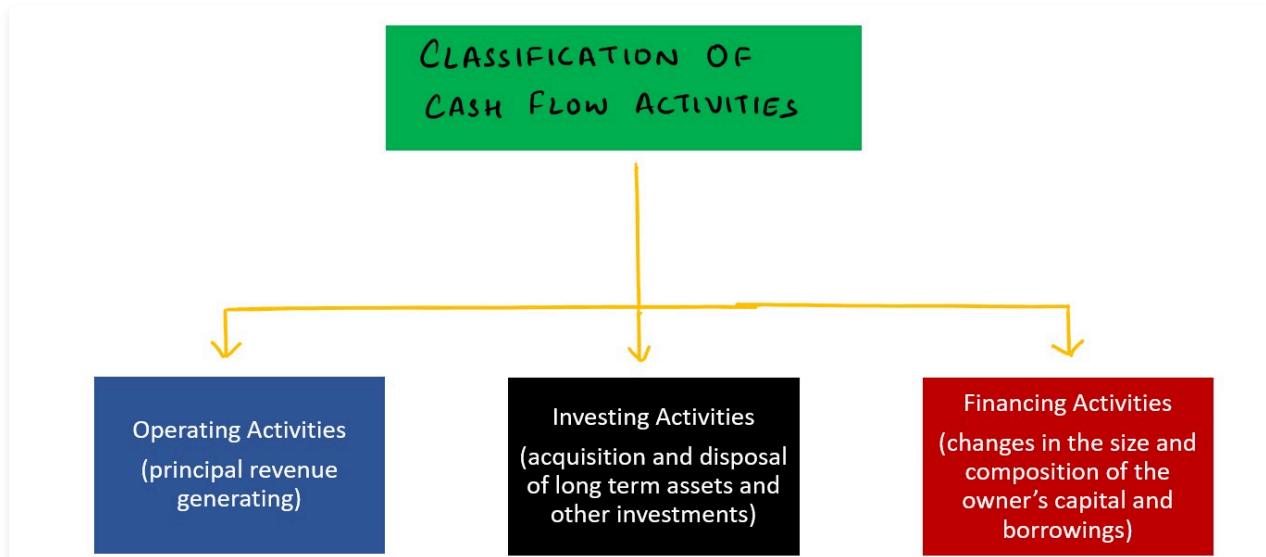
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Difference between Cash Flow Statement and Funds Flow Statement is given in the table.

Cash Flow Statement	Fund Flow Statement
It shows causes for changes in cash and cash equivalent.	It shows causes of changes in net working capital.
It starts with opening and closing balances of cash.	There is no opening or closing balances.
It deals only with cash.	It deals with all components of working capital.
It is useful for short term financing.	It is useful for long term financing.
It is based on cash basis of accounting.	It is based on accrual basis of accounting.
Improvement in cash flow can be taken as an indicator of improved working capital position.	Sound fund position may not necessarily mean sound cash position.

## 9. Classification of Cash Flow Activities

AS 3 provides explanation for changes in cash position of the business entity. As per Accounting Standard 3, cash flows during a period are classified as:



1. Operating activities
2. Investing activities
3. Financing activities

With these 3 classifications, the proforma Cash Flow Statement is shown below.

Cash Flow Statement (with Main heads only)

Particulars	Amount (in Rs.)
(A) Cash flow from operating activities	xxx
(B) Cash flow from investing activities	xxx
(C) Cash flow from financing activities	xxx
Net increase (decrease) in cash and cash equivalents (A) + (B) + (C)	xxx
+ Cash and cash equivalents at the beginning	xxx
= Cash and cash equivalents at the end	xxx

Now, we are explaining these activities one by one.

## 9. Classification of Cash Flow Activities

It refers to cash activities related to net income. For example, cash generated from the sale of goods (revenue) and cash paid for merchandise (expense) are operating activities because they generally result from the transactions and other events that enter into the determination of net profit.

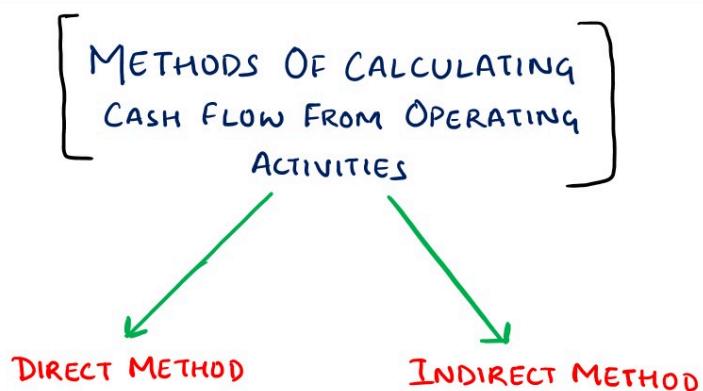
For example, for a company manufacturing garments, operating activities are procurement of raw material, incurrence of manufacturing expenses, sale of garments, etc. These are the principal revenue generating activities (or the main activities) of the enterprise and these activities are not investing or financing activities.

However, an enterprise may hold securities and loans for dealing in them or for trading purposes. In either case, if they represent inventory specifically held for resale, then cash flows arising from the purchase and sale of trading securities are classified as operating activities. Similarly, cash advances and loans made by financial enterprises are usually classified as operating activities since they relate to main activity of that enterprise.

Examples of cash flows from Operating Activities	
In case of non-financial companies	
<b>Cash Inflow</b> Cash receipts from the sale of goods and the rendering of services Cash received from debtors Cash receipts from royalties, fees, commissions, and other revenues	<b>Cash Outflow</b> Cash payments to suppliers for goods and services Cash payments made to creditors Cash payments to and on behalf of employees Other Cash operating expenses
In case of financial companies	
<b>Cash Inflows</b> Cash received against interest and dividends Cash received against sale of securities	<b>Cash Outflows</b> Cash paid towards interest Cash paid towards purchase of securities

Note: In case of non-financial companies, Interest and dividend paid will be included in Financing activities and Interest and dividend received will be included in Investing activities.

There are two methods of calculating cash flow from operating activities. An enterprise can determine cash flow from operating activities using either of the following. In other words, cash flow from operating activities can be determined using either the Direct method or the Indirect method.



These methods are discussed in detail below.

### Direct Method

Under direct method, major heads of cash inflows and outflows (such as cash received from trade receivables, employee benefits expenses paid, etc.) are considered. It is important to note here that items are recorded on accrual basis in statement of profit and loss. Hence, certain adjustments are made to convert them into cash basis such as the following:

1. **Cash receipts from customers** = Revenue from operations + Trade receivables in the beginning – Trade receivables in the end.
2. **Cash payments to suppliers** = Purchases + Trade Payables in the beginning – Trade Payables in the end.

3. **Purchases** = Cost of Revenue from Operations – Opening Inventory + Closing Inventory.

4. **Cash expenses** = Expenses on accrual basis - Prepaid expenses in the beginning and Outstanding expenses in the end + Prepaid expenses in the end and Outstanding expenses in the beginning.

However, the following items are not to be considered:

1. Non-cash items such as depreciation , discount on shares, etc., be written off.
2. Items which are classified as investing or financing activities such as interest received, dividend paid, etc.

<b>Proforma for Cash Flow from Operating Activities (by Direct Method)</b>	
<b>A. Cash flows from operating activities</b>	<b>Amount (Rs.)</b>
Cash receipts from customers	xxx
Less: Cash paid to suppliers and employees	(xxx)
= Cash generated from operations	xxx
Less: Income tax paid	(xxx)
= Cash flow before extraordinary items	xxx
Add or Less: Extraordinary items	± xxx
= Net Cash from Operating Activities	xxx

#### **Indirect Method**

Indirect method of ascertaining cash flow from operating activities begins with the amount of net profit/loss. This is so because statement of profit and loss incorporates the effects of all operating activities of an enterprise. However, Statement of Profit and Loss is prepared on accrual basis (and not on cash basis). Moreover, it also includes certain non-operating items such as interest paid, profit/loss on sale of fixed assets, etc.) and non-cash items (such as depreciation, goodwill to be written-off, etc.).Therefore, it becomes necessary to adjust the amount of net profit/loss as shown by Statement of Profit and Loss for arriving at cash flows from operating activities.

As per AS-3, under indirect method, net cash flow from operating activities is determined by adjusting net profit or loss for the effect of:

- Non-cash items such as depreciation, goodwill written-off, provisions, deferred taxes, etc., which are to be added back.
- All other items for which the cash effects are investing or financing cash flows. The treatment of such items depends upon their nature. All investing and financing incomes are to be deducted from the amount of net profits while all such expenses are to be added back. For example, finance cost which is a financing cash outflow is to be added back while other income such as interest received which is investing cash inflow is to be deducted from the amount of net profit.
- Changes in current assets and liabilities during the period. Increase in current assets and decrease in current liabilities are to be deducted while increase in current liabilities and decrease in current assets are to be added up.

<b>Proforma for Cash Flow from Operating Activities (by Indirect Method)</b>	
<b>Particulars</b>	<b>Amount (Rs.)</b>
<i>Cash Flow from Operating Activities</i>	
<i>Net Profit / Loss for the year (before tax and extraordinary items)</i>	
Add: Deductions already made in P & L A/c on account of Non-cash items such as Depreciation, Goodwill to be Written-off etc.	xxx xxx
Add: Deductions already made in P & L A/c on account of Non-operating items such as Interest on bank overdraft, interest on borrowings, loss on sale of fixed assets etc.	xxx
Less: Additions (incomes) made in P & L A/c on account of Non-operating items such as dividend received, profit on sale of fixed assets, rent received etc.	(xxx)
<i>Operating Profit before Working Capital Changes</i>	xxx
<i>Add: Decrease in Current Assets</i>	xxx
<i>Add: Increase in Current Liabilities</i>	xxx

<i>Less: Increase in Current Assets</i>	(xxx)
<i>Less: Decrease in Current Liabilities</i>	(xxx)
Cash flows from operating activities before tax and extraordinary items	xxx
<i>Less: Income Tax Paid</i>	xxx
<i>Add or Less: Effects of Extraordinary items</i>	±xxx
<i>Net Cash Generated from Operating Activities (Cash from Operations)</i>	xxx

Notes:

1. While working out the cash flow from operating activities, the starting point is the 'Net profit before tax and extraordinary items' and not the 'Net profit as per Statement of Profit and Loss'. Income tax paid is deducted as the last item to arrive at the net cash flow from operating activities.
  2. The direct method provides information which may be useful in estimating future cash flows and which is not available under the indirect method and is, therefore, considered more appropriate than the indirect method. However, in practice, indirect method is mostly used by the companies for arriving at the net cash flow from operating activities.
  3. The computation of net cash inflow or cash outflow from operating activities by the indirect method takes a path that is very different from the computation by the direct method. However, the two methods arrive at the same amount of net cash flow from operating activities.
-

## 9. Classification of Cash Flow Activities

From the following information, calculate cash flow from operating activities using:

1. direct method
2. indirect method

Statement of Profit and Loss for the year ended on 31 <sup>st</sup> March, 2020		
Particulars	Amount (in Rs.)	
Revenue from Operations		2,20,000
Less Expenses:		
Cost of material consumed	1,20,000	
Employee benefit expenses	30,000	
Depreciation	20,000	
Other Expenses (Insurance Premium)	8,000	(1,78,000)
Profit before Tax		42,000
Less: Income Tax		(10,000)
Profit after tax		32,000

Additional Information:

Particulars	01.04.2019	01.04.2020
Trade Receivables	33,000	36,000
Trade Payables	17,000	15,000
Inventory	22,000	27,000
Outstanding Employee Benefits Expenses	2,000	3,000
Prepaid Insurance	5,000	5,500
Income Tax Outstanding	3,000	2,000

Solution (a): Direct Method

Cash flow from Operating Activities	
Particulars	Amt. in Rs.
Cash receipts from customers	2,17,000
Less: Cash paid to suppliers	(1,27,000)
Less: Cash paid to employees	(29,000)
Less: Cash paid for insurance premium	(8,500)
= Cash generated from operations	52,500
Less: Income Tax paid	(11,000)
Net Cash inflow from operations	41,500
<i>Working Notes:</i>	
1. Cash Receipts from Customers is calculated as under: Cash Receipts from Customers = Revenue from Operations + Trade Receivables in the beginning – Trade Receivables in the end	

- = Rs. 2,20,000 + Rs. 33,000 – Rs. 36,000 = Rs. 2,17,000
2. Purchases = Cost of Material Consumed (or Cost of Revenue from Operations) – Opening Inventory + Closing Inventory  
= Rs. 1,20,000 – Rs. 22,000 + Rs. 27,000 = Rs. 1,25,000
3. Cash payment to suppliers = Purchases + Trade Payables in the beginning – Trade Payables in the end  
= Rs. 1,25,000 + Rs. 17,000 – Rs. 15,000 = Rs. 1,27,000
- Further, Cash Expenses = Expenses on accrual basis – Prepaid Expenses in the beginning and Outstanding Expenses in the end + Prepaid Expenses in the end and Outstanding Expenses in the beginning. Therefore,
4. Cash Paid to Employees = Rs. 30,000 + Rs. 2,000 – Rs. 3,000 = Rs. 29,000
5. Cash Paid for Insurance Premium = Rs. 8,000 – Rs. 5,000 + Rs. 5,500 = Rs. 8,500
6. Income Tax Paid = Rs. 10,000 + Rs. 3,000 – Rs. 2,000 = Rs. 11,000
7. There are no extraordinary items.

#### Solution (b): Indirect Method

Cash flow from Operating Activities:	
Particulars	Amt. in Rs.
Net Profit before Taxation and Extraordinary Items (see Working Note below)	42,000
Adjustments for:	
Add: Depreciation	20,000
= Operating Profit before working capital changes	62,000
Less: Increase in Trade Receivables	(3,000)
Less: Increase in Inventories	(5,000)
Less: Increase in Prepaid Insurance	(500)
Less: Decrease in Trade Payables	(2,000)
Add: Increase in Outstanding Employees Benefits Expenses	1,000
= Cash generated from operations	52,500
Less: Income Tax paid	(11,000)
= Net Cash from operating activities	41,500
<i>Working Notes:</i>	
1. Net Profit before taxation and extraordinary items = Net Profit + Income Tax = Rs. 32,000 + Rs. 10,000 = Rs. 42,000	
2. Income Tax Paid = Rs. 10,000 + Rs. 3,000 – Rs. 2,000 = Rs. 11,000	

Note: The amount of cash flows from operating activities are the same whether we use direct method or indirect method for its calculation.

## 9. Classification of Cash Flow Activities

Investing activities include cash activities related to non-current assets. Non-current assets include long-term investments; property, plant, and equipment; and the principal amount of loans made to other entities.

As per AS-3, investing activities are the acquisition and disposal of long-term assets and other investments not included in cash equivalents. For example, cash generated from the sale of land and cash paid for an investment in another company are included in this category. Investing activities relate to purchase and sale of long-term assets or fixed assets such as machinery, furniture, land and building, etc. Transactions related to long-term investment are also investing activities.

Examples of cash flows from Investing Activities	
Cash Inflow	Cash Outflow
1. Cash receipts from sale of Fixed assets 2. Cash receipts from sale of investments 3. Interest Received 4. Dividend Received	1. Cash payments for purchase of Fixed Assets 2. Cash payment made for purchase of Investments

Proforma of Cash Flow from Investing Activities	
Particulars	Amount (Rs.)
<b>Cash Flow from Investing Activities</b>	
Add: Receipt of Cash	
Proceeds from sale of Fixed assets	xxx
Proceeds from sale of Investments (other than Marketable securities)	xxx
Proceeds from sale of Intangible Assets	xxx
Interest/ Dividend received	xxx
Less: Payment of Cash	
Payment for purchase of Fixed assets	(xxx)
Payment for purchase of Investments	(xxx)
Payment for purchase of Intangible assets	(xxx)
<b>Cash Flow from/ used in Investing Activities</b>	<b>xxx</b>

## 9. Classification of Cash Flow Activities

These are the activities that result in changes in the size and composition of the owner's capital (including preference share capital) and borrowings of the enterprise. The separate disclosure of cash flows arising from financing activities is important because it is useful in predicting claims on future cash flows by providers of funds (both capital and borrowings) to the enterprise.

Examples of cash flows from Financing Activities	
Cash Inflows	Cash Outflows
1. Issue of equity shares in cash 2. Issue of Debentures for cash 3. Proceeds from Borrowings 4. Issue of Preference shares for cash	1. Re-payments of Loans 2. Redemption of Preference Shares 3. Buy Back of Equity Shares 4. Payment of Interest 5. Payment of Dividend

Proforma of Cash Flow from Financing Activities	
Particulars	Amount (Rs.)
Cash flow from Financing Activities	
Add: Receipts of Cash	
Proceeds from Issue of Shares/ Debentures	xxx
Proceeds from Other Long-Term Borrowings	xxx
Less: Payments in Cash	
Payment of Dividend	(xxx)
Payment of Interest on Loan	(xxx)
Repayment of Loan	(xxx)
Redemption of Debentures	(xxx)
Payment for Buy Back of Shares	(xxx)
Payment of Expenses on Issue of Shares	(xxx)
Cash flow from/ used in Financing Activities	xxx

## 9. Classification of Cash Flow Activities

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From the following information, calculate cash flows from financing activities:

Particulars	01.04.2019	31.03.2020
Long-term Loan	2,00,000	2,50,000
During the year, the company repaid a loan of Rs 1,00,000.		

**Solution:**

Cash flow from financing activities:

Proceeds from long-term borrowings (see working note) 1,50,000

Repayment of long-term borrowings (1,00,000)

Net cash flow from financing activities 50,000

*Working Note:*

Long-term Loan Account			
Particulars	Amt. (Rs.)	Particulars	Amt. (Rs.)
Cash (loan repaid)	1,00,000	Balance b/d	2,00,000
Balance c/d	2,50,000	Cash (new loan raised) [bal. fig.]	1,50,000
	3,50,000		3,50,000

## 9. Classification of Cash Flow Activities

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Some items require certain adjustments for being used in statement appropriately and fulfil the purpose of preparing the statements. The adjustments are done according to AS-3, dealing with preparation and presentation of Cash Flow Statement. These adjustments are as follows:

### **Extraordinary items**

Extraordinary items are not the regular phenomenon, e.g., loss due to theft or earthquake or flood. Extraordinary items are non-recurring in nature and hence cash flows associated with extraordinary items should be classified and disclosed separately when arising from operating, investing or financing activities. This is done to enable users to understand their nature and effect on the present and future cash flows of an enterprise.

### **Taxes on Income and Gains**

Taxes may be income tax (tax on normal profit), capital gains tax (tax on capital profits), dividend tax (tax on the amount distributed as dividend to shareholders). AS-3 requires that cash flows arising from taxes on income should be separately disclosed. It should be classified as cash flows from operating activities unless they can be specifically identified with financing or investing activities. This clearly implies that:

- Tax on operating profit should be classified as operating cash flows.
- Dividend tax, i.e., tax paid on dividend should be classified as financing activity along with dividend paid.
- Capital gains tax paid on sale of fixed assets should be classified under investing activities.

*Note:* The Finance Act 2020 has scrapped dividend distribution tax and the incidence of tax has been shifted to investors, effective from 1<sup>st</sup> April 2020.

### **Interest and Dividend**

In case of a financial enterprise (whose main business is lending and borrowing), interest paid, interest received, and dividend received are classified as operating activities while dividend paid is a financing activity. In case of a non-financial enterprise, it is considered more appropriate that payment of interest and dividends are classified as financing activities whereas receipt of interest and dividends are classified as investing activities.

### **Non-Cash Transactions**

Investing and financing transactions that do not require the use of cash or cash equivalents should be excluded from a cash flow statement. For example, acquisition of a machinery by issue of equity shares or redemption of debentures by issue of equity shares. Hence, assets acquired by issue of shares or liability reduced by issue of shares are not disclosed in cash flow statement due to non-cash nature of the transaction.

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## 10. Preparation of Cash Flow Statement

As stated above, Cash flow statement provides information about change in the position of Cash and Cash Equivalents of an enterprise, over an accounting period. The activities contributing to this change are classified into operating, investing and financing. The methodology of working out the net cash flow (or use) from all the three activities for an accounting period has been explained above and a brief format of complete Cash Flow Statement is given below. However, while preparing a cash flow statement, full details of inflows and outflows are given under these heads including the net cash flow (or use). The aggregate of the net 'cash flows' (or use) is worked out and is shown as 'Net Increase/Decrease in cash and Cash Equivalents' to which the amount of 'cash and cash equivalent at the beginning' is added and thus, the amount of 'cash and cash equivalents at the end' is arrived at. This figure will be the same as the total amount of cash in hand, cash at bank and cash equivalents (if any) given in the balance sheet.

Proforma of Cash flow statement	
Particulars	Amt. (Rs.)
I. Cash flow from Operating Activities	
<i>Net Profit / Loss for the year (before tax and extraordinary items)</i>	
Add: Deductions already made in P & L A/c on account of Non-cash items such as Depreciation, Goodwill to be Written-off etc.	xxx
Add: Deductions already made in P & L A/c on account of Non-operating items such as Interest on bank overdraft, interest on borrowings, loss on sale of fixed assets	xxx
Less: Additions (incomes) made in P & L A/c on account of Non-operating items such as dividend received, profit on sale of fixed assets, rent received	xxx (xxx)
<i>Operating Profit before Working Capital Changes</i>	xxx
Add: Decrease in Current Assets	xxx
Add: Increase in Current Liabilities	xxx
Less: Increase in Current Assets	(xxx)
Less: Decrease in Current Liabilities	(xxx)
Cash flows from operating activities before tax and extraordinary items	xxx
Less: Income Tax Paid	xxx
Add or Less: Effects of Extraordinary items	±xxx
A. Net Cash Generated from Operating Activities (Cash from Operations)	xxx
II. Cash Flow from Investing Activities	
Add: Receipt of Cash	
Proceeds from sale of Fixed assets	xxx
Proceeds from sale of Investments (other than Marketable securities)	xxx
Proceeds from sale of Intangible Assets	xxx
Interest/ Dividend received	xxx
Less: Payment of Cash	(xxx)
Payment for purchase of Fixed assets	(xxx)
Payment for purchase of Investments	(xxx)
Payment for purchase of Intangible assets	(xxx)
B. Cash Flow from/ used in Investing Activities	xxx
Add: Receipts of Cash	xxx
Proceeds from Issue of Shares/ Debentures	xxx
Proceeds from Other Long-Term Borrowings	
Less: Payments in Cash	(xxx)
Payment of Dividend	(xxx)
Payment of Interest on Loan	(xxx)
Repayment of Loan	(xxx)
Redemption of Debentures	(xxx)

<i>Payment for Buy Back of Shares</i>	
<i>Payment of Expenses on Issue of Shares</i>	
C. Cash flow from/ used in Financing Activities	xxx
Net Increase (Decrease) in Cash and Cash Equivalent (A + B + C)	xxx
+ Cash and Cash Equivalents at the Beginning of the Period	xxx
= Cash and Cash Equivalent in the End	xxx

## 10. Preparation of Cash Flow Statement

From the following balances, calculate cash from operations:

(Amt. in Rs. thousands)		
Particulars	2019	2020
Bills receivable	5,000	4,700
Debtors	1,000	1,250
Bills payable	2,000	2,500
Creditors	800	600
Outstanding Expenses	100	120
Prepaid Expenses	80	70
Accrued Income	60	75
Income received in advance	80	25
Profit made during the year	-	7,000

Solution:

Calculation of cash from Operating Activities:

(Amt. in Rs. thousands)		
Profits made during the year		7,000
Add: Decrease in current assets (CA) and increases in current liabilities (CL):		
Decrease in bills receivable (CA)	300	
Decrease in prepaid expenses (CA)	10	
Increase in bills payable (CL)	500	
Increase in outstanding expenses (CL)	20	830
		7,830
Less: Increase in current assets and decrease in current liabilities:		
Increase in Debtors (CA)	250	
Increase in Accrued Income (CA)	15	
Decrease in Creditors (CL)	200	
Decrease in income received in advance (CL)	55	(520)
Cash from Operating Activities		7,310

## 10. Preparation of Cash Flow Statement

The following summary cash account has been extracted from the company's accounting records:

Summary Cash Account		
	(Amt in '000')	
Balance as at 01.03.2020		35
Receipts from customers		2,783
Issue of Shares		300
Sale of Fixed Assets		128
		3,246
Payment to Suppliers	2,047	
Payments for property, plant & equipment	230	
Payments for overheads	115	
Wages and salaries	69	
Taxation	243	
Dividends	80	
Repayment of Bank Loan	250	(3,034)
Balance as at 31.03.2021		212

Prepare Cash Flow Statement for the year ended 31<sup>st</sup> March, 2021. The company does not have any cash equivalents.

**Solution:**

Cash Flow Statement for the year ended 31st March, 2021 (using Direct Method)		
	(Amt in '000')	
Cash flows from operating activities		
Cash receipts from customers	2,783	
Less: Cash payments to suppliers	(2,047)	
Less: Cash paid to employees (wages and salaries)	(69)	
Less: Other cash payments (for overheads)	(115)	
Cash generated from Operations	552	
Less: Income Tax Paid	(243)	
Net cash from operating activities		309
Cash flows from investing activities		
Less: Payment for purchase of fixed assets	(230)	
Add: Proceeds from sale of fixed assets	128	
Net cash used in investing activities		(102)
Cash flows from financing activities		
Add: Proceeds from issue of shares	300	
Less: Bank loan repaid	(250)	

<i>Less: Dividend paid</i>	(80)	
<i>Net cash used in financing activities</i>		(30)
<i>Net increase in cash and cash equivalents</i>		177
<i>Cash and cash equivalents at the beginning of period</i>		35
<i>Cash and cash equivalents at the end of period</i>		212

## 10. Preparation of Cash Flow Statement

Following is the Balance Sheet of a Company on 1st January, 2019 and 31st December 2019. You are required to prepare a cash flow statement.

	(Amount in Rs.)	
	01.01.2019	31.12.2019
<b>1. Equity and Liabilities:</b>		
Equity Share Capital	30,000	35,000
Share Premium	--	3,000
General Reserve	4,500	6,500
Profit and Loss	3,000	8,080
6% Debentures	--	7,000
Sundry Creditors	8,500	9,070
Provision for taxation	2,250	4,050
Proposed Dividend	3,000	3,500
	<b>51,250</b>	<b>76,200</b>
<b>2. Assets:</b>		
Land and Building	23,000	39,000
Plant and Machinery	8,540	14,000
Furniture	550	650
Stock	8,240	9,570
Sundry Debtors	7,500	8,550
Bank Balance	3,420	4,430
	<b>51,250</b>	<b>76,200</b>

Additional Information:

Depreciation written off during the year:

Land and Building - 6,000

Plant and Machinery - 5,000

Furniture - 120

Solution:

<b>Cash Flow Statement for the year ended 31.12.2019</b>		
<b>Particulars</b>	<b>Amount (in Rs.)</b>	
<i>I. Cash Flow from Operating Activities</i>		
Net profit before Tax and Extraordinary items (see WN 1)	14,630	
Add: Non-cash Expenses:		
Depreciation:		
Land and Building	6,000	
Plant & Machinery	5,000	
Furniture	120	
<i>Operating profit Before Working Capital Changes</i>	25,750	
Add: Decrease in CA and Increase in CL		
Increase in Creditors (9,070 – 8,500)	570	
	<b>26,320</b>	
<i>Less: Increase in CA and Decrease in CL</i>		
Increase in Stock (9,570 – 8,240)	(1,330)	
Increase in Debtors (8,550 – 7,500)	(1,050)	

(A) Cash Generated from/used in Operating Activities		21,690
II. Cash Flow from Investing Activities		
Less: Payment of Cash		
Payment for purchase of Land and Building (see WN 2)	(22,000)	
Payment for purchase of Plant and Machinery (see WN 3)	(10,460)	
Payment for purchase of Furniture (see WN 4)	(220)	
(B) Cash Flow / Used in Investing Activities		(32,680)
III. Cash flow from Financing Activities		
Add: Receipt of Cash		
Proceeds from Issue of Equity Shares	5,000	
Share Premium	3,000	
Proceeds from Issue of Debentures	7,000	
Less: Payment in Cash		
Payment of Dividend (see WN 1)	(3,000)	
(C) Cash flow from / used in Financing Activities		12,000
Net Increase (Decrease) in Cash and Cash Equivalent (A) + (B) + (C)		1,010
Cash and Cash Equivalents at the Beginning of the Period		3,420
Cash and Cash Equivalent in the End		4,430

#### Working Notes (WN)

Calculation of Net Profit before Taxation and Extraordinary items (Working Note 1):

Profit and Loss at the end	8,080
Less: Profit and Loss at the beginning	(3,000)
Net profit during the year	5,080
Add: Provision for tax during the year	4,050
Add: Proposed dividend	3,500
Add: Transfer to General Reserve	2,000
Net Profit before taxation and extraordinary items	14,630
It is assumed that dividend of Rs 3,000 and tax of Rs 2,250 provided last year has been paid during the current year. Hence, proposed dividend and provision for tax during the year amounts to Rs. 3,500 and Rs. 4,050 respectively.	
Further, sometimes, neither the amount of net profit is specified nor the Statement of profit and loss is given. In such a situation, the amount of net profit can be worked out by comparing the balances of Statement of Profit and Loss given in the comparative balance sheets for two years. The difference is treated as the net profit for the year; and, then, by adjusting it with the amount of provision for tax etc. and other extraordinary items, the amount of 'Net Profit before tax' can be ascertained.	

Further, the following accounts have been prepared to determine the relevant information.

#### Land and Building Account (Working Note 2)

Particulars	Amount	Particulars	Amount
To balance b/d	23,000	By Depreciation	6,000
To Bank (purchase) (bal. fig.)	22,000	By balance c/d	39,000
	45,000		45,000

#### Plant and Machinery Account (Working Note 3)

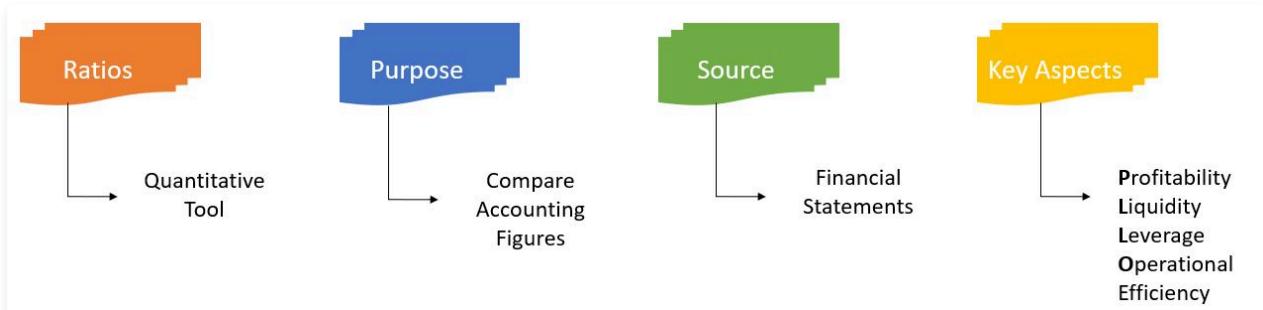
Particulars	Amount	Particulars	Amount
To balance b/d	8,540	By Depreciation	5,000
To Bank (purchase) (bal. fig.)	10,460	By balance c/d	14,000
	19,000		19,000

Furniture Account (Working Note 4)

Particulars	Amount	Particulars	Amount
To balance b/d	550	By Depreciation	120
To Bank (purchase) (bal. fig.)	220	By balance c/d	650
	770		770

## 1. Introduction

A **financial ratio** is a quantitative tool that compares two accounting figures from a company's financial statements to provide insights into various aspects of its performance, efficiency, and financial health. Calculated by dividing one accounting number by another, these ratios offer an easy-to-understand measure of aspects such as profitability, liquidity, leverage, and operational efficiency.



Financial ratios are commonly used by investors, analysts, and managers to make informed business and investment decisions.

## 2. Objectives of Ratio Analysis

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Ratio analysis is essential because it provides a structured approach to evaluating a company's financial health, operational efficiency, and overall performance.

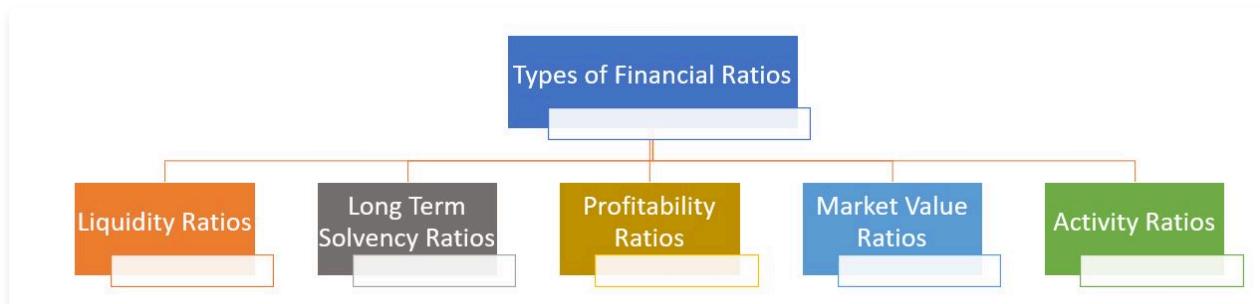
Here's why it's important:

- **Simplifies Financial Data:** By comparing key figures, ratio analysis distills large amounts of financial data into easy-to-understand indicators, making it simpler to analyze financial statements.
  - **Assesses Financial Health:** Ratios help evaluate crucial aspects like profitability, liquidity, solvency, and efficiency, providing insights into the company's strengths and potential weaknesses.
  - **Facilitates Comparisons:** Ratio analysis allows for comparisons over time (trend analysis) and across companies within the same industry, helping stakeholders assess relative performance and industry positioning.
  - **Supports Decision-Making:** Managers, investors, and creditors use ratios to make informed decisions, such as whether to invest, lend, or make strategic adjustments to improve performance.
  - **Identifies Financial Trends:** By analyzing ratios over multiple periods, companies can spot trends, detect financial improvements or declines, and make proactive changes to address issues.
  - **Highlights Areas for Improvement:** Specific ratios can point to inefficiencies, such as slow inventory turnover or high debt levels, enabling management to target areas that need attention.
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## 3. Classification or Types of Accounting Ratios

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These ratios can be broadly divided into 5 types:



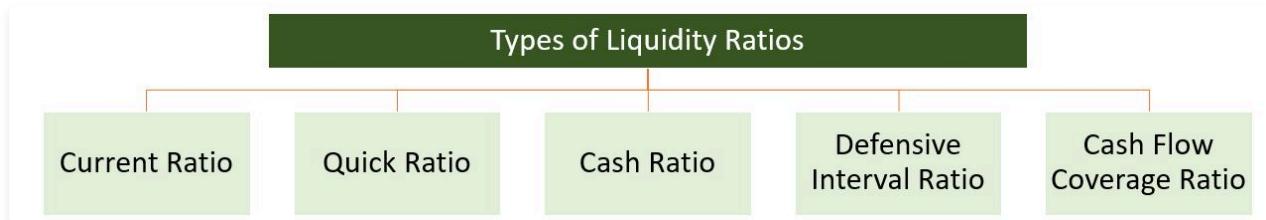
1. Liquidity ratio
2. Long term solvency ratio
3. Profitability ratio
4. Market Value Ratios
5. Activity ratios.

We will discuss the types of accounting ratios in detail one by one.

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## 4. Liquidity Ratios

Liquidity Ratios, also known as **Short-term Solvency Ratios**, are financial indicators that assess whether a company's current assets are adequate to meet its short-term obligations as they come due.



These ratios measure a business's capacity to fulfill its short-term liabilities, reflecting its liquidity or short-term solvency. Failure to meet these liabilities can negatively impact a company's credibility and credit rating.

## 4. Liquidity Ratios

The Current Ratio is a financial metric used to evaluate a company's ability to meet its short-term obligations with its short-term assets. It provides insight into the company's liquidity and short-term financial health.

The current ratio is calculated by dividing current assets (such as cash, inventory, and receivables) by current liabilities (like accounts payable and other debts due within a year):

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

### *Interpretation of the Current Ratio*

- **Ratio of 1 or Higher:** Indicates that the company has enough current assets to cover its current liabilities, suggesting it's in a stable position to meet short-term debts.
- **Ratio Below 1:** Suggests potential liquidity issues, as the company may not have sufficient assets to meet its upcoming obligations.
- **Excessively High Ratio:** While a high current ratio shows strong liquidity, it might also indicate that the company is not efficiently using its assets or may have too much inventory or receivables.

### *Example*

If a company has Rs 2,00,000 in current assets and Rs 1,00,000 in current liabilities, the current ratio would be:

$$\text{Current Ratio} = \frac{2,00,000}{1,00,000} = 2$$

This means the company has twice the amount of current assets as current liabilities, indicating a good level of liquidity.

In summary, the current ratio helps determine whether a company can comfortably cover its short-term liabilities, making it a key measure of financial health and stability.

## 4. Liquidity Ratios

The **Quick Ratio**, also known as the **Acid-Test Ratio**, is used to evaluate a company's short-term liquidity, focusing on assets that can quickly be converted into cash.

Unlike the current ratio, which includes all current assets, the quick ratio excludes inventory from current assets because inventory is often less liquid and may not accurately reflect its book value due to potential issues like obsolescence, damage, or overproduction.

Inventory can be one of the least liquid current assets, and its book value may not always represent its market value. For example:

- Some inventory may become obsolete, damaged, or lost over time.
- Large inventory levels can signal short-term problems, such as overproduction or overstocking due to overestimated sales, tying up liquidity in slow-moving inventory.

By excluding inventory, the quick ratio provides a clearer view of a company's ability to meet its immediate liabilities using only the most liquid assets.

The quick ratio is calculated as follows:

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

*Interpretation*

- **Quick Ratio > 1:** Indicates that the company has enough liquid assets (excluding inventory) to cover its current liabilities.
- **Quick Ratio < 1:** Suggests potential liquidity issues, as the company may rely on less liquid assets like inventory to meet short-term obligations.

*Example*

If a company has current assets of Rs 3,00,000, inventory of Rs 1,00,000, and current liabilities of Rs 1,50,000, the quick ratio would be:

$$\text{Quick Ratio} = \frac{3,00,000 - 1,00,000}{1,50,000} = \frac{2,00,000}{1,50,000} = 1.33$$

This quick ratio of 1.33 indicates that the company has sufficient liquid assets to cover its immediate liabilities, excluding inventory.

In summary, the quick ratio is a more stringent test of liquidity than the current ratio, as it focuses only on the most readily available assets, offering a better measure of a company's ability to meet short-term obligations without relying on inventory.

## 4. Liquidity Ratios

The **Cash Ratio**, also known as the **Absolute Liquidity Ratio** or **Super Acid Test Ratio** or **Super Quick Ratio**, is a measure of a company's ability to pay off its short-term liabilities using only its cash and cash equivalents, without relying on other current assets. It is considered an extreme liquidity ratio as it evaluates only the most liquid assets—cash and cash equivalents—against current liabilities.

The cash ratio indicates a company's capacity to meet its immediate obligations using only the cash on hand and easily convertible assets. This makes it a very conservative measure of liquidity, as it excludes other current assets like inventory and receivables, which may take time to convert to cash.

The cash ratio is calculated as:

$$\text{Cash Ratio} = \frac{\text{Cash and Cash Equivalents}}{\text{Current Liabilities}}$$

*Cash* includes cash held by the business. *Cash Equivalents* are assets that can be quickly converted to cash, such as treasury bills, short-term government bonds, marketable securities, commercial papers, and money market funds.

### *Interpretation of the Cash Ratio*

- **High Cash Ratio (>1):** Indicates the company has more than enough cash and cash equivalents to cover its current liabilities, suggesting very strong liquidity. However, a very high ratio could also indicate inefficient use of cash.
- **Cash Ratio = 1:** Means the company has just enough cash and cash equivalents to cover its short-term obligations.
- **Low Cash Ratio (<1):** Suggests the company may struggle to meet immediate liabilities with cash alone, although it may still be able to meet obligations with other current assets.

### *Example*

If a company has cash and cash equivalents of Rs 2,00,000 and current liabilities of Rs 1,50,000, the cash ratio would be:

$$\text{Cash Ratio} = \frac{2,00,000}{1,50,000} = 1.33$$

This means the company has 1.33 times more cash than needed to cover its current liabilities, indicating strong absolute liquidity.

## 4. Liquidity Ratios

The Defensive Interval Ratio (DIR), also known as the Defensive Interval Period (DIP) or Basic Defense Interval (BDI), is a liquidity measure that assesses how long a company can continue to operate using its liquid assets without needing additional cash inflows.

In other words, it calculates the number of days a company can cover its daily operating expenses using only its current liquid assets (cash, cash equivalents, and receivables). This ratio helps evaluate the company's financial resilience in covering expenses during periods without cash inflows.

The Defensive Interval Ratio is calculated as:

$$\text{Defensive Interval Ratio} = \frac{\text{Cash} + \text{Cash Equivalents} + \text{Accounts Receivable}}{\text{Daily Operating Expenses}}$$

where:

- *Cash and Cash Equivalents*: Includes cash on hand and assets that can be quickly converted into cash, such as marketable securities.
- *Accounts Receivable*: Amounts owed to the company by customers from sales made on credit.
- *Daily Operating Expenses*: This includes operating expenses necessary to keep the business running, excluding non-cash expenses like depreciation. It is typically calculated by dividing the company's total operating expenses for a period by the number of days in that period.

*Interpretation of the Defensive Interval Ratio*

- **Higher DIR**: Indicates the company can operate for a longer period without needing new cash inflows, showing stronger liquidity and financial stability.
- **Lower DIR**: Suggests the company may run out of liquid assets sooner, making it potentially more vulnerable if cash inflows are disrupted.

*Example*

Suppose a company has Rs 5,00,000 in cash and cash equivalents, Rs 2,00,000 in accounts receivable, and daily operating expenses of Rs 20,000. The Defensive Interval Ratio (DIR) would be:

$$\text{Defensive Interval Ratio} = \frac{5,00,000 + 2,00,000}{20,000} = \frac{7,00,000}{20,000} = 35 \text{ days}$$

This result indicates that the company can cover its daily operating expenses for 35 days using only its liquid assets, even if no additional cash inflows occur during this period.

Thus, the Defensive Interval Ratio offers a practical view of a company's short-term financial endurance, providing an essential indicator of how long it can sustain operations using readily available resources.

## 4. Liquidity Ratios

The Cash Flow Coverage Ratio is a financial metric that evaluates a company's ability to meet its debt obligations using its operating cash flow.

It measures how well a company's cash flow from operations can cover its interest payments and other fixed financial obligations, providing insight into the company's liquidity and financial stability. This ratio is particularly useful for creditors and investors to assess the risk of lending to or investing in a company.

The Cash Flow Coverage Ratio is calculated as:

$$\text{Cash Flow Coverage Ratio} = \frac{\text{Operating Cash Flow}}{\text{Total Debt Service}}$$

where:

- **Operating Cash Flow:** This is the cash generated from the company's core operations, found in the cash flow statement.
- **Total Debt Service:** This includes required debt payments, such as interest expenses and principal repayments, for a given period.

*Interpretation of the Cash Flow Coverage Ratio*

- **Higher Ratio ( $>1$ ):** A ratio greater than 1 indicates that the company's operating cash flow is sufficient to cover its debt obligations, suggesting strong liquidity and lower financial risk.
- **Lower Ratio ( $<1$ ):** A ratio below 1 suggests that the company may not have enough operating cash flow to meet its debt obligations, raising concerns about its liquidity and ability to sustain operations without additional financing.

*Example*

Suppose a company has an operating cash flow of Rs 5,00,000 and total debt service of Rs 4,00,000. The Cash Flow Coverage Ratio would be:

$$\text{Cash Flow Coverage Ratio} = \frac{5,00,000}{4,00,000} = 1.25$$

This ratio of 1.25 indicates that the company generates enough cash from its operations to cover 125% of its debt obligations, showing strong coverage and a low likelihood of default.

*Importance of the Cash Flow Coverage Ratio*

- **Evaluates Debt Repayment Capacity:** The ratio shows how well a company can service its debt using its core operating cash, providing a direct measure of financial health.
- **Creditworthiness Assessment:** Lenders and creditors use this ratio to determine whether a company is a safe lending prospect.
- **Financial Planning:** The ratio helps management assess whether they can sustain current debt levels or if they need to improve cash flow or reduce debt.

## 4. Liquidity Ratios

For the following data, compute all liquidity ratios.

Assets	Amount (₹)
Cash and Cash Equivalents	₹15,000
Marketable Securities	₹10,000
Accounts Receivable	₹30,000
Inventory	₹20,000
Prepaid Expenses	₹5,000
<b>Total Current Assets</b>	<b>₹80,000</b>
Property, Plant & Equipment (PP&E)	₹1,00,000
<b>Total Assets</b>	<b>₹1,80,000</b>

Liabilities	Amount (₹)
Accounts Payable	₹25,000
Short-Term Debt	₹15,000
Accrued Liabilities	₹10,000
<b>Total Current Liabilities</b>	<b>₹50,000</b>
Long-Term Debt	₹60,000
<b>Total Liabilities</b>	<b>₹1,10,000</b>

Operating Expenses for the year = ₹1,20,000

Cash Flow from Operations = ₹80,000

Interest Expense = ₹10,000

Solution:

### 1. Current Ratio

The Current Ratio measures the company's ability to pay off its short-term liabilities with its current assets.

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

Using values,

$$\text{Current Ratio} = \frac{80,000}{50,000} = 1.6$$

*Interpretation:* A Current Ratio of 1.6 suggests that XYZ Ltd. has 1.6 times more current assets than current liabilities, indicating moderate short-term liquidity.

### 2. Quick Ratio

The Quick Ratio excludes inventory from current assets to focus on more liquid assets.

$$\text{Quick Ratio} = \frac{\text{Total Current Assets} - \text{Inventory}}{\text{Total Current Liabilities}}$$

Using Values,

$$\text{Quick Ratio} = \frac{80,000 - 20,000}{50,000} = \frac{60,000}{50,000} = 1.2$$

*Interpretation:* A Quick Ratio of 1.2 indicates that, excluding inventory, XYZ Ltd. still has 1.2 times its current liabilities covered by liquid assets.

### 3. Cash Ratio

The Cash Ratio is the most conservative liquidity measure, only considering cash and cash equivalents and marketable securities.

$$\text{Cash Ratio} = \frac{\text{Cash & Cash Equivalents} + \text{Marketable Securities}}{\text{Total Current Liabilities}}$$

Using values,

$$\text{Cash Ratio} = \frac{15,000 + 10,000}{50,000} = \frac{25,000}{50,000} = 0.5$$

*Interpretation:* A Cash Ratio of 0.5 suggests that XYZ Ltd. can cover 50% of its current liabilities with its most liquid assets, which may limit immediate liquidity flexibility.

### 4. Defensive Interval Ratio (DIR)

The Defensive Interval Ratio calculates how long the company can operate using only its liquid assets.

$$\text{DIR} = \frac{\text{Cash & Cash Equivalents} + \text{Marketable Securities} + \text{Accounts Receivable}}{\text{Daily Operating Expenses}}$$

Where,

$$\text{Daily Operating Expenses} = \frac{\text{Operating Expenses}}{365} = \frac{1,20,000}{365} \approx 328.77$$

Using values,

$$\text{DIR} = \frac{15,000 + 10,000 + 30,000}{328.77} = \frac{55,000}{328.77} \approx 167.3 \text{ days}$$

*Interpretation:* With a DIR of approximately 167 days, XYZ Ltd. can operate for about 167 days using its liquid assets alone.

#### 5. Cash Flow Coverage Ratio

This ratio measures the company's ability to cover its interest expenses with its operating cash flow.

$$\text{Cash Flow Coverage Ratio} = \frac{\text{Cash Flow from Operations}}{\text{Interest Expense}}$$

Using values,

$$\text{Cash Flow Coverage Ratio} = \frac{80,000}{10,000} = 8.0$$

*Interpretation:* A Cash Flow Coverage Ratio of 8.0 suggests that XYZ Ltd. generates eight times its interest expense in operating cash flow, indicating strong coverage of interest payments.

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## 4. Liquidity Ratios

XYZ Corp. provides the following data. Using this data, calculate all liquidity ratios.

*Assets:*

Cash and Cash Equivalents = ₹25,000  
Marketable Securities = ₹15,000  
Accounts Receivable = ₹50,000  
Inventory = ₹45,000  
Prepaid Expenses = ₹10,000  
Other Current Assets = ₹5,000  
Total Current Assets = ₹1,50,000  
Property, Plant & Equipment (PP&E) = ₹2,00,000  
Total Assets = ₹3,50,000

*Liabilities:*

Accounts Payable = ₹40,000  
Short-Term Debt = ₹25,000  
Accrued Liabilities = ₹15,000  
Other Current Liabilities = ₹10,000  
Total Current Liabilities = ₹90,000  
Long-Term Debt = ₹80,000  
Total Liabilities = ₹1,70,000

*Additional Information:*

Operating Expenses for the year = ₹2,20,000  
Cash Flow from Operations = ₹1,10,000  
Interest Expense = ₹15,000

**Solution:**

### 1. Current Ratio

The Current Ratio shows a company's ability to meet its short-term liabilities with its current assets.

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

Using Values,

$$\text{Current Ratio} = \frac{1,50,000}{90,000} = 1.67$$

*Interpretation:* A Current Ratio of 1.67 means that XYZ Corp. has 1.67 times more current assets than current liabilities, suggesting it has sufficient short-term liquidity.

### 2. Quick Ratio

The Quick Ratio (or Acid-Test Ratio) excludes inventory and prepaid expenses from current assets, focusing on the more liquid assets.

$$\text{Quick Ratio} = \frac{\text{Total Current Assets} - \text{Inventory} - \text{Prepaid Expenses}}{\text{Total Current Liabilities}}$$

Using values,

$$\text{Quick Ratio} = \frac{1,50,000 - 45,000 - 10,000}{90,000} = \frac{95,000}{90,000} \approx 1.06$$

*Interpretation:* A Quick Ratio of 1.06 indicates that, excluding inventory and prepaid expenses, XYZ Corp. has slightly more liquid assets than it needs to cover its current liabilities.

### 3. Cash Ratio

The Cash Ratio is the most conservative liquidity ratio, only including cash and cash equivalents and marketable securities.

$$\text{Cash Ratio} = \frac{\text{Cash & Cash Equivalents} + \text{Marketable Securities}}{\text{Total Current Liabilities}}$$

Using values,

$$\text{Cash Ratio} = \frac{25,000 + 15,000}{90,000} = \frac{40,000}{90,000} \approx 0.44$$

*Interpretation:* A Cash Ratio of 0.44 indicates that XYZ Corp. has 44% of its current liabilities covered by its most liquid assets, meaning immediate liquidity is somewhat limited.

### 4. Defensive Interval Ratio (DIR)

The Defensive Interval Ratio (DIR) measures how many days the company can operate using only its liquid assets without any additional revenue.

$$\text{DIR} = \frac{\text{Cash & Cash Equivalents} + \text{Marketable Securities} + \text{Accounts Receivable}}{\text{Daily Operating Expenses}}$$

Where,

$$\text{Daily Operating Expenses} = \frac{\text{Operating Expenses}}{365} = \frac{2,20,000}{365} \approx 602.74$$

Using values,

$$\text{DIR} = \frac{25,000 + 15,000 + 50,000}{602.74} = \frac{90,000}{602.74} \approx 149.34 \text{ days}$$

*Interpretation:* A DIR of approximately 149 days means XYZ Corp. can sustain its operations for around 149 days using only its liquid assets, which reflects good liquidity coverage.

#### 5. Cash Flow Coverage Ratio

The Cash Flow Coverage Ratio measures the company's ability to cover its interest payments with cash flow from operations.

$$\text{Cash Flow Coverage Ratio} = \frac{\text{Cash Flow from Operations}}{\text{Interest Expense}}$$

Using values,

$$\text{Cash Flow Coverage Ratio} = \frac{1,10,000}{15,000} \approx 7.33$$

*Interpretation:* A Cash Flow Coverage Ratio of 7.33 indicates that XYZ Corp. generates over seven times its interest expense from its operating cash flow, suggesting strong coverage of interest obligations.

## 5. Long Term Solvency Ratios

Long-term solvency ratios are used to evaluate a company's ability to meet its debt obligations over the long term, reflecting its overall financial health and stability. These ratios focus on the firm's financial leverage by measuring the extent to which it relies on debt financing compared to equity. These are also called financial leverage ratios or simply leverage ratios.

### Types of Long-term Solvency Ratios

- Debt Ratio
- Equity Ratio
- Debt-to-Equity Ratio
- Equity Multiplier
- Capital Gearing Ratio
- Debt to Capitalization Ratio
- Times Interest Earned Ratio
- Cash Coverage Ratio
- Debt Service Coverage Ratio
- Preference Dividend Coverage Ratio
- Equity Dividend Coverage Ratio
- Fixed Charges Coverage Ratio

High leverage ratios can indicate significant reliance on debt, which may lead to higher financial risk, particularly during economic downturns. Conversely, lower leverage ratios often suggest a more conservative financial structure, potentially indicating a stronger capacity to withstand financial stress.

## 5. Long Term Solvency Ratios

The Debt Ratio measures the proportion of a company's assets that are financed by debt. It is also known as **debt to assets ratio**.

It indicates how much of a company's assets are funded through borrowing rather than equity, providing insight into the company's financial leverage and risk level. A higher debt ratio suggests greater reliance on debt to finance operations, which could mean higher financial risk if the company faces difficulties in repaying its obligations.

The Debt Ratio is calculated as:

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

where:

- **Total Liabilities:** The sum of all the company's debts, including short-term and long-term liabilities.
- **Total Assets:** The total value of everything the company owns, including both current and non-current assets.

### *Interpretation of the Debt Ratio*

- **Debt Ratio < 1 (or < 100%):** This indicates that the company has more assets than debt, suggesting a relatively lower financial risk. It implies that a good portion of the company's assets is financed by equity rather than debt.
- **Debt Ratio > 1 (or > 100%):** This indicates that the company has more debt than assets, which can be risky. It implies that the company is highly leveraged and may struggle to meet debt obligations if its revenues decline.
- **Debt Ratio = 0.5 (or 50%):** This means that half of the company's assets are financed by debt, and the other half by equity, representing a balanced financial structure.

### *Example*

If a company has total liabilities of Rs 2,00,000 and total assets of Rs 5,00,000, its debt ratio would be:

$$\text{Debt Ratio} = \frac{2,00,000}{5,00,000} = 0.4 \text{ or } 40\%$$

This means that 40% of the company's assets are financed by debt, and the remaining 60% are financed by equity.

### *Importance of the Debt Ratio*

- **Assessing Financial Risk:** A higher debt ratio implies greater financial risk, as the company is more dependent on borrowed funds, which come with regular interest obligations.
- **Evaluating Solvency:** The debt ratio helps assess the company's long-term solvency, or its ability to sustain operations over time. High debt levels may hinder a company's ability to finance growth or invest in new opportunities.
- **Creditworthiness and Lending Decisions:** Lenders and investors use the debt ratio to evaluate the risk of lending to or investing in the company. A lower debt ratio typically indicates a safer investment or lending opportunity.

A higher debt ratio is not always bad; it depends on the industry and the company's ability to manage its debt. Some industries, like utilities or real estate, naturally operate with higher debt ratios because stable cash flows make it easier to meet debt obligations. Additionally, if the debt is used to fund growth opportunities that generate higher returns than the cost of borrowing, it can be beneficial. However, an excessively high debt ratio across any industry could signal financial risk if the company faces downturns or cash flow issues.

Preferred stock is sometimes included as debt rather than as equity when debt ratios are calculated. Preferred stock represents a prior claim from the standpoint of the investors in common stock; consequently, investors might include preferred stock as debt when analyzing a firm.

## 5. Long Term Solvency Ratios

The Equity Ratio measures the proportion of a company's assets financed by shareholders' equity, indicating the level of financial stability and independence from debt. It shows how much of a company's assets are funded by its own funds rather than borrowed money.

It is also called **Proprietary Ratio**. The Proprietary Ratio measures the proportion of a company's total assets financed by shareholders' or proprietors' funds (equity).

The Equity Ratio is calculated as:

$$\text{Equity Ratio} = \frac{\text{Total Equity}}{\text{Total Assets}}$$

where:

- **Total Equity:** Represents shareholders' funds, including retained earnings and any additional paid-in capital.
- **Total Assets:** The total value of everything the company owns, both current and non-current assets.

*Interpretation of the Equity Ratio*

- **Higher Equity Ratio:** Indicates a strong reliance on equity for financing, meaning the company has less debt and is considered financially stable and less risky.
- **Lower Equity Ratio:** Suggests greater dependence on debt to finance assets, potentially increasing financial risk due to higher debt obligations.

*Example*

If a company has total equity of Rs 4,00,000 and total assets of Rs 10,00,000, the Equity Ratio would be:

$$\text{Equity Ratio} = \frac{4,00,000}{10,00,000} = 0.4 \text{ or } 40\%$$

This means that 40% of the company's assets are financed by equity, while the remaining 60% may be financed by debt.

*Importance of the Equity Ratio*

- **Financial Stability:** A higher equity ratio indicates greater financial independence and lower reliance on debt, which reduces financial risk.
- **Creditworthiness:** Lenders may prefer companies with higher equity ratios, as they are seen as less risky due to their reduced debt levels.
- **Investment Insight:** Investors use the equity ratio to gauge the financial health of a company, as a higher equity ratio suggests lower vulnerability to economic downturns.

The Debt Ratio and Equity Ratio are complementary measures of a company's capital structure. Together, they show how assets are financed: the Debt Ratio reflects the portion funded by debt, while the Equity Ratio shows the portion funded by shareholders' equity. The sum of the Debt Ratio and Equity Ratio equals 1 (or 100%), representing the total financing of the company's assets.

## 5. Long Term Solvency Ratios

The Debt-to-Equity Ratio compares a company's total debt to its shareholders' equity, showing how much of the company's financing comes from debt versus equity. It's an indicator of financial leverage, measuring the degree to which a company is financing its operations through borrowed funds rather than its own funds.

The Debt-to-Equity Ratio is calculated as:

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Shareholders' Equity}}$$

where:

- **Total Liabilities:** The sum of all the company's short-term and long-term debts.
- **Shareholders' Equity:** The net value owned by shareholders, which includes retained earnings and contributed capital.

*Interpretation of the Debt-to-Equity Ratio*

- **Higher Ratio:** A high ratio indicates a company is heavily financed by debt relative to equity, suggesting higher financial risk. It may signal that the company relies more on borrowing, which increases its obligations to repay.
- **Lower Ratio:** A low ratio means the company relies more on equity than debt, indicating lower financial risk and potentially more financial stability.

*Example*

If a company has total liabilities of Rs 3,00,000 and shareholders' equity of Rs 6,00,000, the debt-to-equity ratio would be:

$$\text{Debt-to-Equity Ratio} = \frac{3,00,000}{6,00,000} = 0.5$$

This means the company has Rs 0.50 of debt for every Rs 1 of equity, showing a balanced approach to financing.

*Importance of the Debt-to-Equity Ratio*

- **Risk Assessment:** Helps assess a company's financial risk by showing the extent of debt relative to equity.
- **Creditworthiness:** Lenders and investors use this ratio to gauge the risk level of lending to or investing in a company. Lower ratios generally signal safer investment.

Creditors would generally like this ratio to be low. The lower the ratio, the higher the level of the firm's financing that is being provided by shareholders, and the larger the creditor cushion (margin of protection) in the event of shrinking asset values or outright losses.

## 5. Long Term Solvency Ratios

Equity Multiplier is another version of Debt to Equity ratio.

The Equity Multiplier measures the proportion of a company's assets financed by its shareholders' equity. It indicates how much of the company's assets are funded by equity versus debt. The formula for the Equity Multiplier is:

$$\text{Equity Multiplier} = \frac{\text{Total Assets}}{\text{Total Equity}}$$

Alternatively, it can also be calculated as:

$$\text{Equity Multiplier} = 1 + \text{Debt-to-Equity Ratio}$$

This is because the debt-to-equity ratio represents the proportion of debt relative to equity, and adding 1 (representing the equity portion) gives the overall asset-to-equity ratio.

A higher equity multiplier means more of the company's assets are financed through debt, while a lower equity multiplier indicates greater reliance on equity financing.

## 5. Long Term Solvency Ratios

Capital Gearing measures the proportion of a company's capital structure financed through fixed-interest debt (like loans or bonds) relative to equity (shareholders' funds). It assesses the level of financial leverage and helps indicate how reliant a company is on debt versus equity for financing.

While Capital Gearing and the Debt-to-Equity Ratio are similar, they are not exactly the same.

Capital Gearing specifically focuses on the proportion of fixed-interest debt in the capital structure, calculated as:

$$\text{Capital Gearing Ratio} = \frac{\text{Fixed-Interest Debt}}{\text{Equity or Shareholders' Funds}}$$

Debt-to-Equity Ratio includes all forms of debt (both fixed-interest and other liabilities) compared to equity:

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Shareholders' Equity}}$$

In essence, while both ratios measure leverage, Capital Gearing is often more specific to fixed-interest debt, whereas Debt-to-Equity provides a broader view of all debt relative to equity.

## 5. Long Term Solvency Ratios

The Debt to Total Capitalization Ratio is a financial leverage ratio that measures the proportion of a company's total capital (debt and equity combined) that is financed by debt. It helps assess how much of the company's funding structure is dependent on borrowing, giving insights into its financial risk and leverage.

The Debt-to-Total Capitalization Ratio is calculated as:

$$\text{Debt-to-Total Capitalization Ratio} = \frac{\text{Total Debt}}{\text{Total Debt} + \text{Total Equity}}$$

where:

- *Total Debt*: This includes both short-term and long-term liabilities.
- *Total Equity*: This is the shareholders' equity, which includes retained earnings and common stock.

*Interpretation of the Debt-to-Total Capitalization Ratio*

- **Higher Ratio**: A higher ratio indicates that a significant portion of the company's capital comes from debt, meaning the company is more leveraged and potentially at higher financial risk.
- **Lower Ratio**: A lower ratio suggests that the company relies more on equity for its capital, indicating a more conservative financial structure and potentially lower financial risk.

*Example*

If a company has total debt of Rs 300,000 and total equity of Rs 700,000, the Debt-to-Total Capitalization Ratio would be:

$$\text{Debt-to-Total Capitalization Ratio} = \frac{3,00,000}{3,00,000 + 7,00,000} = \frac{3,00,000}{10,00,000}$$
$$= 0.3 \text{ or } 30\%$$

This result means that 30% of the company's total capital is financed by debt, while the remaining 70% is financed by equity.

## 5. Long Term Solvency Ratios

The Times Interest Earned (TIE) Ratio, also known as the Interest Coverage Ratio, is a financial metric that assesses a company's ability to meet its interest obligations on debt. It indicates how many times a company's earnings before interest and taxes (EBIT) can cover its interest payments, providing insight into the company's long-term solvency and financial stability.

The Times Interest Earned Ratio is calculated as:

$$\text{Time Interest Earned Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

where:

- *EBIT (Earnings Before Interest and Taxes)*: This is the company's operating profit, indicating earnings generated from core operations before deducting interest and taxes.
- *Interest Expense*: The total interest that the company must pay on its outstanding debt.

*Interpretation of the TIE Ratio*

- **Higher TIE Ratio**: A high ratio indicates that the company has ample earnings to cover its interest payments, suggesting strong financial health and a lower risk of default.
- **Lower TIE Ratio**: A low ratio suggests that the company may struggle to cover its interest expenses, raising concerns about financial stability, especially if earnings decline.

*Example*

If a company has an EBIT of Rs 5,00,000 and an interest expense of Rs 1,00,000, its TIE ratio would be:

$$\text{Time Interest Earned Ratio} = \frac{5,00,000}{1,00,000} = 5$$

This means the company's earnings cover its interest payments five times over, indicating a solid ability to meet debt obligations.

*Importance of the TIE Ratio*

- **Solvency Indicator**: It shows how comfortably a company can pay its interest, which is crucial for assessing long-term financial health.
- **Creditworthiness**: Lenders use the TIE ratio to evaluate a company's risk level. A higher ratio suggests lower credit risk.
- **Financial Planning**: A strong TIE ratio provides flexibility for future borrowing or investment, while a low ratio may prompt the company to reduce debt or improve earnings.

## 5. Long Term Solvency Ratios

The **Cash Coverage Ratio** improves upon the *Times Interest Earned (TIE) Ratio* by providing a more accurate measure of a company's ability to cover its interest expenses with actual cash flow. Unlike the TIE ratio, which uses EBIT (Earnings Before Interest and Taxes) and excludes non-cash expenses, the Cash Coverage Ratio includes depreciation and amortization in the calculation to reflect the company's cash-generating capability more accurately.

The Cash Coverage Ratio is calculated as:

$$\text{Cash Coverage Ratio} = \frac{\text{EBIT} + \text{Depreciation} & \text{Amortization}}{\text{Interest Expense}}$$

where:

- *EBIT (Earnings Before Interest and Taxes)*: Represents the operating income before deducting interest and taxes.
- *Depreciation and Amortization*: Non-cash expenses added back to EBIT, as they reduce net income but do not affect cash flow.
- *Interest Expense*: The total interest payable on the company's debt.

By including depreciation and amortization, the Cash Coverage Ratio uses EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization), which is a measure of cash generated from core operations. Since interest payments are a cash outflow, this ratio provides a more realistic view of whether the company can meet these payments.

*Example*

If a company has an EBIT of Rs 691 million, depreciation and amortization of Rs 276 million, and an interest expense of Rs 141 million, the Cash Coverage Ratio would be:

$$\text{Cash Coverage Ratio} = \frac{691 + 276}{141} = \frac{967}{141}$$

$$= 6.9 \text{ times}$$

This result means the company's cash flow covers its interest obligations 6.9 times over, suggesting a strong ability to meet these financial commitments.

*Importance of the Cash Coverage Ratio*

- **Enhanced Liquidity Assessment**: It provides a clearer picture of a company's ability to cover interest expenses by focusing on cash-generating capacity.
- **Better Solvency Insight**: By accounting for cash flow rather than just accounting profits, the Cash Coverage Ratio offers a more reliable measure of financial stability.
- **Useful for Credit Analysis**: Lenders often prefer this ratio over TIE, as it reflects the actual cash available for interest payments, helping to assess creditworthiness accurately.

## 5. Long Term Solvency Ratios

The **Debt Service Coverage Ratio (DSCR)** measures a company's ability to cover its total debt obligations (both principal and interest payments) with its net operating income (NOI) or cash flow from operations. It is commonly used by lenders and investors to assess the financial stability of a company and its capacity to repay its debt, especially when considering new loans or financing.

The Debt Service Coverage Ratio is calculated as:

$$DSCR = \frac{\text{Net Operating Income (NOI) or EBITDA}}{\text{Total Debt Service (Principal + Interest Payments)}}$$

where:

- *Net Operating Income (NOI) or EBITDA:* Represents the income available to service debt before taxes, interest, and non-cash expenses.
- *Total Debt Service:* This includes both the interest and principal payments due within a specific period, typically a year.

*Interpretation of DSCR*

- **DSCR > 1:** Indicates that the company generates more than enough income to cover its debt payments, suggesting a strong ability to repay and a low credit risk.
- **DSCR = 1:** Means the company's cash flow exactly matches its debt obligations, which is acceptable but leaves little room for fluctuations in income.
- **DSCR < 1:** Indicates that the company may not be generating enough cash flow to cover its debt payments, raising concerns about financial stability and the likelihood of default.

*Example*

If a company has a net operating income (NOI) of Rs 5,00,000 and total annual debt obligations (interest and principal) of Rs 4,00,000, the DSCR would be:

$$DSCR = \frac{5,00,000}{4,00,000} = 1.25$$

This DSCR of 1.25 means that the company has 1.25 times its debt obligations in available income, indicating a comfortable cushion for debt repayment.

*Importance of DSCR*

- **Creditworthiness Assessment:** Lenders rely on DSCR to evaluate whether a company can handle additional debt. Higher DSCRs indicate lower risk and stronger repayment ability.
- **Financial Health Indicator:** DSCR provides insight into the company's financial stability and ability to generate cash flow to meet obligations.
- **Investment Decision Tool:** Investors use DSCR to gauge the risk of default and assess a company's capacity for sustainable growth.

## 5. Long Term Solvency Ratios

The Preference Dividend Coverage Ratio measures a company's ability to pay its preferred dividends from its net income. It assesses how many times a company's earnings can cover the dividend payments owed to preferred shareholders.

This ratio is particularly important for preferred shareholders, as it indicates the level of security they have in receiving their dividend payments regularly.

The Preference Dividend Coverage Ratio is calculated as:

$$\text{Preference Dividend Coverage Ratio} = \frac{\text{Net Income}}{\text{Preference Dividends}}$$

where:

- *Net Income*: The profit available to the company after all expenses, including taxes and interest, but before paying dividends.
- *Preference Dividends*: The total dividend obligation to preferred shareholders.

*Interpretation of the Preference Dividend Coverage Ratio*

- **Higher Ratio**: Indicates that the company generates significantly more earnings than needed to cover its preferred dividend obligations, providing a cushion and security to preferred shareholders.
- **Lower Ratio (< 1)**: Suggests that the company may struggle to cover its preferred dividends from current earnings, raising concerns about dividend security for preferred shareholders.

## 5. Long Term Solvency Ratios

The Equity Dividend Coverage Ratio measures a company's ability to pay dividends to its equity (common) shareholders from its net income. This ratio helps assess how many times a company's earnings can cover its equity dividend payments, providing insight into the security and sustainability of dividends for common shareholders.

The Equity Dividend Coverage Ratio is calculated as:

$$\text{Equity Dividend Coverage Ratio} = \frac{\text{Net Income}}{\text{Equity Dividends}}$$

where:

- *Net Income*: The profit available after all expenses, including interest, taxes, and preference dividends.
- *Equity Dividends*: The total dividend payments made to common shareholders.

*Interpretation of the Equity Dividend Coverage Ratio*

- **Higher Ratio**: A high ratio suggests that the company's earnings can comfortably cover its dividend payments to equity shareholders, indicating financial stability and a reliable dividend stream.
- **Lower Ratio**: A low ratio may indicate that the company is at risk of not being able to sustain its dividend payments to equity shareholders, potentially leading to dividend cuts if earnings fluctuate.

## 5. Long Term Solvency Ratios

The **Fixed Charges Coverage Ratio** assesses a company's ability to cover its fixed financial obligations, including interest expenses and other fixed charges, from its earnings. This ratio provides a broader view of financial stability compared to the Times Interest Earned (TIE) ratio, as it includes not only interest but also other fixed obligations, such as lease payments and insurance premiums.

The Fixed Charges Coverage Ratio is calculated as:

$$\text{Fixed Charges Coverage Ratio} = \frac{\text{EBIT} + \text{Fixed Charges}}{\text{Fixed Charges} + \text{Interest Expense}}$$

where:

- **EBIT (Earnings Before Interest and Taxes):** Represents the company's operating income before interest and tax expenses.
- **Fixed Charges:** Includes all other fixed obligations, such as lease payments, insurance premiums, and any other contractual fixed costs.
- **Interest Expense:** The interest payable on the company's debt.

*Interpretation of the Fixed Charges Coverage Ratio*

- **Higher Ratio:** Indicates that the company's earnings comfortably cover its fixed financial obligations, suggesting lower financial risk and greater stability.
- **Lower Ratio (< 1):** Implies that the company may struggle to meet its fixed obligations, which could lead to liquidity issues, especially if earnings decline.

*Example*

If a company has an EBIT of Rs 5,00,000, fixed charges of Rs 50,000, and interest expenses of Rs 1,00,000, the Fixed Charges Coverage Ratio would be:

$$\begin{aligned}\text{Fixed Charges Coverage Ratio} &= \frac{5,00,000 + 50,000}{1,00,000 + 50,000} \\ &= \frac{5,50,000}{1,50,000} = 3.67\end{aligned}$$

This result means that the company's earnings cover its fixed obligations, including interest, about 3.67 times over, indicating solid financial health.

*Importance of the Fixed Charges Coverage Ratio*

- **Broader Financial Stability Assessment:** This ratio offers a more comprehensive view of a company's ability to meet all fixed obligations, not just interest expenses.
- **Solvency Indicator:** It provides insights into the company's long-term solvency and risk of default on fixed payments.
- **Creditworthiness:** Creditors use this ratio to gauge the company's reliability in meeting its financial commitments, influencing lending decisions.

## 5. Long Term Solvency Ratios

XYZ Industries provides the following financial data:

Assets:

Total Assets = ₹5,00,000

Liabilities:

Total Liabilities = ₹2,00,000

Long-Term Debt = ₹1,50,000

Short-Term Debt = ₹50,000

Equity:

Total Equity = ₹3,00,000

Using this information, calculate the following ratios for XYZ Industries:

1. Debt Ratio
2. Equity Ratio
3. Debt-to-Equity Ratio
4. Equity Multiplier
5. Capital Gearing Ratio
6. Debt to Capitalization Ratio

Solution:

### 1. Debt Ratio

The Debt Ratio measures the proportion of a company's assets that are financed by debt.

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

Using values,

$$\text{Debt Ratio} = \frac{2,00,000}{5,00,000} = 0.4 \text{ or } 40\%$$

*Interpretation:* A Debt Ratio of 40% indicates that 40% of XYZ Industries' assets are financed by debt, which shows a moderate reliance on debt for asset financing.

### 2. Equity Ratio

The Equity Ratio measures the proportion of assets financed by shareholders' equity.

$$\text{Equity Ratio} = \frac{\text{Total Equity}}{\text{Total Assets}}$$

Using values,

$$\text{Equity Ratio} = \frac{3,00,000}{5,00,000} = 0.6 \text{ or } 60\%$$

*Interpretation:* An Equity Ratio of 60% indicates that 60% of the company's assets are financed through shareholders' equity,

suggesting a relatively strong equity base.

### 3. Debt-to-Equity Ratio

The Debt-to-Equity Ratio compares the company's total debt to its equity, showing the relative balance of debt and equity financing.

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

Using Values,

$$\text{Debt-to-Equity Ratio} = \frac{2,00,000}{3,00,000} = 0.67$$

*Interpretation:* A Debt-to-Equity Ratio of 0.67 means that XYZ Industries has ₹0.67 in debt for every ₹1 of equity, indicating a moderate debt load relative to equity.

### 4. Equity Multiplier

The Equity Multiplier shows how much of the company's assets are financed by shareholders' equity. It is also an indicator of financial leverage.

$$\text{Equity Multiplier} = \frac{\text{Total Assets}}{\text{Total Equity}}$$

Using Values,

$$\text{Equity Multiplier} = \frac{5,00,000}{3,00,000} \approx 1.67$$

*Interpretation:* An Equity Multiplier of 1.67 indicates that each ₹1 of equity supports ₹1.67 of total assets, suggesting moderate leverage.

### 5. Capital Gearing Ratio

The Capital Gearing Ratio measures the proportion of fixed-cost financing (debt) to equity in the company's capital structure.

$$\text{Capital Gearing Ratio} = \frac{\text{Long-Term Debt}}{\text{Total Equity}}$$

Using Values,

$$\text{Capital Gearing Ratio} = \frac{1,50,000}{3,00,000} = 0.5$$

*Interpretation:* A Capital Gearing Ratio of 0.5 means that the long-term debt is 50% of the equity, suggesting that the company has a moderate level of fixed-cost capital in its structure.

### 6. Debt to Capitalization Ratio

The Debt to Capitalization Ratio assesses the proportion of total capital that is financed by debt, providing insight into the company's capital structure risk.

$$\text{Debt to Capitalization Ratio} = \frac{\text{Total Debt}}{\text{Total Debt} + \text{Total Equity}}$$

where,

$$\begin{aligned}\text{Total Debt} &= \text{Long Term Debt} + \text{Short Term Debt} \\ &= 1,50,000 + 50,000 = 2,00,000\end{aligned}$$

Using values,

$$\begin{aligned}\text{Debt to Capitalization Ratio} &= \frac{2,00,000}{2,00,000 + 3,00,000} \\ &= \frac{2,00,000}{5,00,000} = 0.4 \text{ or } 40\%\end{aligned}$$

*Interpretation:* A Debt to Capitalization Ratio of 40% indicates that 40% of XYZ Industries' capital structure is financed by debt, showing a balanced mix of debt and equity.

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## 5. Long Term Solvency Ratios

XYZ Corporation provides the following financial data:

*Income Statement Information:*

Earnings Before Interest and Taxes (EBIT) = ₹3,00,000

Interest Expense = ₹40,000

Depreciation and Amortization = ₹30,000

Net Income = ₹1,50,000

*Cash Flow Information:*

Cash Flow from Operations = ₹2,50,000

*Dividend Information:*

Preferred Dividends = ₹20,000

Equity Dividends = ₹50,000

*Fixed Charges:*

Fixed Lease Payments = ₹10,000

*Additional Information:*

Total Debt Obligations (Principal Repayment) = ₹1,00,000

Using this data, calculate the following ratios for XYZ Corporation:

1. Times Interest Earned Ratio
2. Cash Coverage Ratio
3. Debt Service Coverage Ratio
4. Preference Dividend Coverage Ratio
5. Equity Dividend Coverage Ratio
6. Fixed Charges Coverage Ratio

**Solution:**

**1. Time Interest Earned Ratio**

The Times Interest Earned (TIE) Ratio measures a company's ability to cover its interest obligations with its earnings before interest and taxes (EBIT).

$$\text{Time Interest Earned Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

*Using Values,*

$$\text{Time Interest Earned Ratio} = \frac{3,00,000}{40,000} = 7.5$$

*Interpretation:* A TIE Ratio of 7.5 indicates that XYZ Corporation earns 7.5 times its interest expense in operating profit, suggesting strong interest coverage.

**2. Cash Coverage Ratio**

The Cash Coverage Ratio includes non-cash expenses like depreciation to provide a more cash-focused view of interest coverage.

$$\text{Cash Coverage Ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest Expense}}$$

Using Values,

$$\text{Cash Coverage Ratio} = \frac{3,00,000 + 30,000}{40,000}$$

$$= \frac{3,30,000}{40,000} = 8.25$$

*Interpretation:* A Cash Coverage Ratio of 8.25 suggests that XYZ Corporation has ample cash to cover its interest payments, making it financially resilient.

### 3. Debt Service Coverage Ratio

The Debt Service Coverage Ratio (DSCR) measures a company's ability to cover its total debt obligations, including principal and interest payments, with cash flow from operations.

$$\text{Debt Service Coverage Ratio} = \frac{\text{Cash Flow from Operations}}{\text{Total Debt Obligations} + \text{Interest Expense}}$$

Using Values,

$$\text{Debt Service Coverage Ratio} = \frac{2,50,000}{1,00,000 + 40,000}$$

$$= \frac{2,50,000}{1,40,000} \approx 1.79$$

*Interpretation:* A DSCR of 1.79 means that XYZ Corporation generates enough cash flow to cover its total debt obligations 1.79 times, indicating solid debt coverage.

### 4. Preference Dividend Coverage Ratio

The Preference Dividend Coverage Ratio measures the company's ability to pay preferred dividends with its net income.

$$\text{Preference Dividend Coverage Ratio} = \frac{\text{Net Income}}{\text{Preferred Dividends}}$$

Using Values,

$$\text{Preference Dividend Coverage Ratio} = \frac{1,50,000}{20,000} = 7.5$$

*Interpretation:* A Preference Dividend Coverage Ratio of 7.5 indicates that XYZ Corporation's net income can cover its preferred dividend obligations 7.5 times, showing strong coverage for preferred shareholders.

## 5. Equity Dividend Coverage Ratio

The Equity Dividend Coverage Ratio measures the company's ability to pay equity (common) dividends with its net income.

$$\text{Equity Dividend Coverage Ratio} = \frac{\text{Net Income}}{\text{Equity Dividends}}$$

Using Values,

$$\text{Equity Dividend Coverage Ratio} = \frac{1,50,000}{50,000} = 3.0$$

*Interpretation:* An Equity Dividend Coverage Ratio of 3.0 suggests that XYZ Corporation's net income can cover its equity dividend obligations three times, showing adequate coverage for common shareholders.

## 6. Fixed Charges Coverage Ratio

The Fixed Charges Coverage Ratio measures a company's ability to cover all fixed financial obligations, including interest and fixed lease payments.

$$\text{Fixed Charges Coverage Ratio} = \frac{\text{EBIT} + \text{Fixed Charges (before tax)}}{\text{Fixed Charges (before tax)} + \text{Interest Expense}}$$

*Include  
fixed lease payments*

Using Values,

$$\text{Fixed Charges Coverage Ratio} = \frac{3,00,000 + 10,000}{10,000 + 40,000} = \frac{3,10,000}{50,000} = 6.2$$

*Interpretation:* A Fixed Charges Coverage Ratio of 6.2 indicates that XYZ Corporation earns 6.2 times its fixed financial obligations, demonstrating strong capacity to meet these commitments.

## 6. Profitability Ratios

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Profitability ratios are financial metrics used to assess how effectively a company's management utilizes its assets to generate sales and control operations. These ratios are crucial for stockholders, creditors, and managers, as they provide insights into the company's earnings and overall financial health.

Types of Profitability Ratios						
Gross Profit Margin	Operating Profit Margin	Net Profit Margin	Return on Assets	Return on Investment	Return on Equity	Return on Capital Employed

By focusing on the firm's ability to produce profits, these ratios help evaluate the company's operational efficiency and profitability. Generally, higher profitability ratios indicate stronger performance, reflecting the company's ability to generate income and manage expenses effectively. These ratios are commonly used by stakeholders to analyze and compare a firm's financial success.

These ratios evaluate the company's ability to generate income against expenses and other cost associated with the generation of income. These ratios are expressed in percentage (%).

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## 6. Profitability Ratios

The **Gross Profit Margin** (Gross Profit Ratio) is a profitability ratio that indicates the percentage of revenue remaining after deducting the Cost of Goods Sold (COGS). It reflects how efficiently a company is producing or delivering its products by focusing only on the direct costs associated with production, such as materials and labor. Gross profit margin excludes other expenses, such as operating expenses, taxes, and interest.

The formula for Gross Profit Margin is:

$$\text{Gross Profit Margin} = \frac{\text{Revenue} - \text{COGS}}{\text{Revenue}} \times 100$$

where:

- Revenue is the total sales income.
- COGS (Cost of Goods Sold) includes direct costs related to production.

*Interpretation*

- A higher gross profit margin indicates efficient production and cost control, as the company retains more from each dollar of sales after covering production costs.
- A lower gross profit margin may suggest high production costs or pricing issues, which could affect profitability.

*Example*

If a company has revenue of Rs 1,00,000 and COGS of Rs 60,000, the gross profit margin would be:

$$\begin{aligned}\text{Gross Profit Margin} &= \frac{1,00,000 - 60,000}{1,00,000} \times 100 \\ &= 40\%\end{aligned}$$

This means that 40% of the company's revenue is retained as gross profit after covering production costs.

## 6. Profitability Ratios

The **Operating Profit Margin** measures the percentage of sales revenue remaining after all operating expenses have been deducted, except for interest and taxes. It focuses on a company's core business operations and is calculated using EBIT (Earnings Before Interest and Taxes), making it independent of financing costs and tax strategies. This margin reflects the efficiency of a company's operations by showing how much profit it generates from each dollar of sales after covering costs directly associated with operating the business. It is also called **EBIT Margin**.

Formula for Operating Profit Margin is:

$$\text{Operating Profit Margin} = \frac{\text{EBIT}}{\text{Sales}} \times 100$$

where:

- *EBIT* is the earnings before interest and taxes, representing operating income.
- *Net Sales* is the total revenue from sales after any returns, allowances, and discounts.

*Example*

If EBIT is Rs 168.4 and Net Sales is Rs 1,563.7, then:

$$\text{Operating Profit Margin} = \frac{168.4}{1563.7} \times 100 = 10.77\%$$

This result indicates that 10.77% of the company's sales revenue is left as operating profit after covering its operating expenses.

*Importance*

The Operating Profit Margin is a critical indicator of a company's operational efficiency and profitability. It excludes non-operating factors like financing and tax expenses, allowing investors to evaluate how well the business generates profit solely from its operations. A **higher margin** suggests strong cost control and efficient operations, while a **lower margin** could indicate higher operating costs relative to sales.

### EBITDA Margin

Sometimes, analysts use EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) instead of EBIT for a similar metric known as the EBITDA Margin. This version further removes non-cash expenses (depreciation and amortization) from the calculation, providing a clearer view of cash flow generated from operations.

## 6. Profitability Ratios

The **Net Profit Margin** is a financial ratio that shows the percentage of revenue that remains as profit after all expenses are deducted, including cost of goods sold (COGS), operating expenses, interest, taxes, and any other costs. It is a comprehensive indicator of a company's profitability, as it reflects the final profit (net income) relative to its total revenue.

Formula for Net Profit Margin is:

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Revenue}} \times 100$$

where:

- *Net Income* is the profit remaining after all expenses, interest, and taxes have been subtracted from total revenue.
- *Revenue* is the total income generated from sales.

*Interpretation*

- **Higher Net Profit Margin:** Indicates strong overall profitability, as the company retains more of its revenue as profit after all expenses.
- **Lower Net Profit Margin:** Suggests higher costs or lower efficiency, as a smaller portion of revenue is converted to profit.

*Example*

If a company has a Net Income of Rs 1,00,000 and Revenue of Rs 10,00,000:

$$\begin{aligned}\text{Net Profit Margin} &= \frac{1,00,000}{10,00,000} \times 100 \\ &= 10\%.\end{aligned}$$

This means that 10% of the company's revenue is retained as net profit after all costs.

## 6. Profitability Ratios

Return on Assets (ROA) measures how efficiently a company uses its assets to generate profit. It shows the percentage of net income (profit) produced for each dollar of assets owned by the company.

ROA is an indicator of management's effectiveness in using the company's resources to create value and is useful for comparing profitability across companies in the same industry.

Formula for Return on Assets is:

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}} \times 100$$

where:

- *Net Income* is the profit remaining after all expenses, taxes, and interest have been subtracted from total revenue.
- *Total Assets* represents all resources owned by the company, including cash, inventory, equipment, and property.

*Interpretation*

- **Higher ROA:** Indicates that the company is efficient in using its assets to generate profit. A high ROA suggests effective management and resource utilization.
- **Lower ROA:** Implies lower efficiency in asset usage, as the company generates less profit relative to its assets. This could be a sign of underutilized assets or high operational costs.

*Example*

If a company has a net income of Rs 2,00,000 and total assets of Rs 20,00,000:

$$\text{Return on Assets} = \frac{2,00,000}{20,00,000} \times 100 = 10\%$$

This means the company generates 10 cents of profit for every dollar of assets it owns, or a 10% return on its assets.

*Importance of ROA*

- **Measures Efficiency:** ROA helps assess how effectively management is using assets to generate profit.
- **Company Comparison:** ROA is useful for comparing companies within the same industry, as it shows how well each company utilizes its resources.
- **Investment Decisions:** Investors use ROA to gauge whether a company is a good investment based on its asset profitability.

It may be noted that ROA is accounting rates of return. It may also be called Return on book assets.

**Return on Investment**

Return on Investment (ROI) is a financial metric used to assess the profitability of a specific investment by comparing the net profit generated to the initial investment cost. It shows the percentage of return gained or lost relative to the money invested, helping investors and managers evaluate the effectiveness of different investments.

The formula for ROI is:

$$\text{ROI} = \frac{\text{Net Profit} - \text{Investment Cost}}{\text{Investment Cost}} \times 100$$

A higher ROI indicates a more profitable investment. ROI is commonly used to compare the returns of various projects or investments, guiding decision-making by identifying which options yield the best returns.

## 6. Profitability Ratios

Return on Equity (ROE) measures a company's profitability relative to the shareholders' equity. It is sometimes called return on net worth.

It indicates how effectively the company is using the investments from its shareholders to generate profits. ROE is an important measure for investors because it shows the rate of return on the money they have invested in the company.

Formula for ROE is:

$$ROE = \frac{\text{Net Income}}{\text{Shareholders' Equity}} \times 100$$

where:

- *Net Income* is the profit after all expenses, taxes, and interest have been deducted.
- *Shareholders' Equity* includes the money invested by shareholders plus retained earnings.

*Interpretation*

- **Higher ROE:** Suggests the company is effective at generating profits from its equity, indicating good management performance and efficient use of capital.
- **Lower ROE:** Implies less efficiency in generating returns for shareholders, which may raise concerns about management effectiveness.

*Example*

If a company has a net income of Rs 1,50,000 and shareholders' equity of Rs 10,00,000:

$$ROE = \frac{1,50,000}{10,00,000} \times 100 = 15\%$$

This means the company generated a 15% return on shareholders' equity.

This ROE ratio tells us the earning power on shareholders' book value investment, and is frequently used in comparing two or more firms in an industry. A high return on equity often reflects the firm's acceptance of strong investment opportunities and effective expense management. However, if the firm has chosen to employ a level of debt that is high by industry standards, a high ROE might simply be the result of assuming excessive financial risk.

It may be noted that ROE is accounting rates of return. It may also be called Return on book equity .

## 6. Profitability Ratios

Return on Capital Employed (ROCE) is a financial ratio that measures a company's profitability and efficiency in using its capital. It indicates how well a company generates profit from its capital base, which includes both equity and long-term debt. ROCE is especially useful for evaluating companies in capital-intensive industries, where significant investment in assets is required.

Formula for ROCE is:

$$\text{ROCE} = \frac{\text{Earnings Before Interest & Taxes (EBIT)}}{\text{Capital Employed}} \times 100$$

where:

- *EBIT (Earnings Before Interest and Taxes)* represents the company's operating profit, excluding interest and tax expenses.
- *Capital Employed* is the total capital used by the company, calculated as Total Assets minus Current Liabilities, or as the sum of Equity and Long-term Debt.

*Interpretation*

- **Higher ROCE:** Indicates that the company is efficiently using its capital to generate profits, which is favorable for investors and suggests strong operational performance.
- **Lower ROCE:** Suggests the company is not making effective use of its capital, which could indicate inefficiency or low profitability relative to the capital invested.

*Example*

If a company has EBIT of Rs 5,00,000 and Capital Employed of Rs 20,00,000:

$$\begin{aligned}\text{ROCE} &= \frac{5,00,000}{20,00,000} \times 100 \\ &= 25\%\end{aligned}$$

This means the company generates a 25% return on the capital it employs.

*Importance*

- **Efficiency Indicator:** ROCE shows how well a company uses its total capital (debt + equity) to generate profit, providing insight into operational efficiency.
- **Comparative Tool:** Useful for comparing profitability across companies in the same industry, particularly in capital-intensive sectors.
- **Investor Appeal:** A high ROCE is generally attractive to investors, as it indicates that the company generates significant returns from its capital, which can signal effective management.

## 6. Profitability Ratios

DuPont Analysis is an in-depth framework used to dissect Return on Equity (ROE) into its key components to better understand a company's financial performance.

Developed by the DuPont Corporation in the early 20th century, this model breaks ROE down into 3 primary elements: profitability, operational efficiency, and financial leverage. By analyzing each component, DuPont Analysis offers a comprehensive view of how a company generates returns for its shareholders, helping investors, managers, and analysts pinpoint the specific drivers of ROE and identify areas for improvement.

The standard form of DuPont Analysis expresses ROE as the product of three distinct ratios:

$$\text{ROE} = \text{Net Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$$

Breaking it down:

**Net Profit Margin:** This measures profitability by showing how much profit the company makes for each dollar of sales. A higher net profit margin indicates that the company is effectively controlling costs and converting sales into profit.

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

**Asset Turnover:** This metric reflects operational efficiency, showing how effectively a company uses its assets to generate sales. A high asset turnover ratio suggests that the company efficiently utilizes its asset base to generate revenue.

$$\text{Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}}$$

**Equity Multiplier:** This represents financial leverage, indicating how much of the company's assets are financed by equity relative to debt. A higher equity multiplier shows greater reliance on debt, which can amplify returns but also increases risk.

$$\text{Equity Multiplier} = \frac{\text{Total Assets}}{\text{Shareholders' Equity}}$$

### Expanded (Five-Step) DuPont Formula

In a more detailed version, the DuPont Analysis expands ROE into five components, providing even more granular insights into a company's financial structure:

$$\text{ROE} = \frac{\text{Net Income}}{\text{EBT}} \times \frac{\text{EBT}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

$\downarrow$        $\downarrow$        $\downarrow$        $\downarrow$        $\downarrow$

Tax Burden      Interest Burden      Operating Profit Margin      Asset Turnover      Equity Multiplier

Breaking down each part:

**Tax Burden:** This ratio shows the impact of taxes on profits, where a lower tax burden means a higher portion of earnings before taxes is retained as net income.

$$\text{Tax Burden} = \frac{\text{Net Income}}{\text{EBT}}$$

**Interest Burden:** This ratio reflects the effect of interest expenses on operating income. A lower interest burden means a greater proportion of EBIT (Earnings Before Interest and Taxes) is retained after interest costs, signifying lower debt costs.

$$\text{Interest Burden} = \frac{\text{EBT}}{\text{EBIT}}$$

**Operating Profit Margin:** This shows operational efficiency by measuring profit from core business operations before interest and taxes. It provides insight into how well the company's operations are controlled, independent of financing and tax expenses.

$$\text{Operating Profit Margin} = \frac{\text{EBIT}}{\text{Sales}}$$

**Asset Turnover:** This ratio, also seen in the traditional DuPont formula, measures efficiency in asset utilization, indicating how effectively the company generates sales from its asset base.

$$\text{Asset Turnover} = \frac{\text{Sales}}{\text{Assets}}$$

**Equity Multiplier:** This again represents financial leverage, showing the extent to which a company uses debt in its capital structure. Higher leverage can enhance returns on equity but also increases financial risk.

$$\text{Equity Multiplier} = \frac{\text{Assets}}{\text{Equity}}$$

#### Example

Suppose a company has:

Net Profit Margin = 10%

Asset Turnover = 1.5

Equity Multiplier = 2

The ROE would be calculated as follows:

$$\text{ROE} = 10\% \times 1.5 \times 2 = 30\%$$

This means that the company generates a 30% return on equity. Each component contributes to the ROE: a strong profit margin improves profitability, high asset turnover shows operational efficiency, and the equity multiplier reflects leverage.

#### Importance of DuPont Analysis

- **Insight into Profitability Drivers:** DuPont Analysis reveals specific elements driving ROE, helping investors and managers understand what aspects of the business contribute most to profitability.
- **Comparative Analysis Across Companies and Industries:** ROE alone can be misleading when comparing companies. DuPont Analysis breaks down ROE into comparable factors, making it easier to assess companies within the same industry by examining which factors (profit margins, asset utilization, or leverage) drive differences in performance.
- **Targeted Performance Improvement:** For management, DuPont Analysis can pinpoint areas for improvement. For example, if a company's ROE is low due to a low asset turnover ratio, management may focus on better asset utilization to boost returns.
- **Understanding Leverage Effects:** The equity multiplier component helps assess the company's reliance on debt. While leverage can amplify ROE, it also increases financial risk, which is essential for both managers and investors to consider.

- **Investment Decision-Making:** Investors use DuPont Analysis to understand a company's fundamental strengths and weaknesses. A high ROE driven by strong operating profit margins and efficient asset turnover may indicate a solid investment, whereas a high ROE solely due to leverage may be riskier.

#### *Limitations*

- **Complexity in Calculation:** DuPont Analysis can become complex, especially in the expanded form, requiring detailed financial information for each component.
  - **Doesn't Account for Non-Operational Factors:** While useful for operational insights, DuPont Analysis may overlook non-operational factors like market conditions or competitive pressures.
  - **Focus on Short-Term Profitability:** ROE and its components focus on current profitability and may not fully capture long-term growth potential or risks.
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## 6. Profitability Ratios

ABC Ltd. has provided the following income statement data for the year:

Total Sales (Revenue) = ₹10,00,000

Cost of Goods Sold (COGS) = ₹6,00,000

Operating Expenses (excluding interest and taxes) = ₹2,00,000

Interest Expense = ₹30,000

Tax Expense = ₹40,000

Net Income = ₹1,30,000

Using this data, calculate the following profitability ratios:

1. Gross Profit Margin
2. Operating Profit Margin
3. Net Profit Margin

Solution:

### 1. Gross Profit Margin

The Gross Profit Margin measures the percentage of sales revenue that exceeds the cost of goods sold (COGS). It indicates how efficiently a company is producing its goods relative to its revenue.

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

where,  $\text{Gross Profit} = \text{Total Sales} - \text{COGS}$

$$\begin{aligned} &= 10,00,000 - 6,00,000 \\ &= 4,00,000 \end{aligned}$$

Using values,

$$\text{Gross Profit Margin} = \frac{4,00,000}{10,00,000} \times 100 = 40\%$$

*Interpretation:* A Gross Profit Margin of 40% means that ABC Ltd. retains 40% of its revenue after accounting for the cost of goods sold. This indicates good production efficiency and a healthy markup on goods.

### 2. Operating Profit Margin

The Operating Profit Margin measures the percentage of revenue remaining after covering both COGS and operating expenses. It shows how well the company manages its core business operations.

$$\text{Operating Profit Margin} = \frac{\text{Operating Profit}}{\text{Total Sales}} \times 100$$

Where, Operating Profit = Gross Profit - operating Expenses  
= 4,00,000 - 2,00,000 = 2,00,000

Using Values,

$$\text{Operating Profit Margin} = \frac{2,00,000}{10,00,000} \times 100 = 20\%$$

Interpretation: An Operating Profit Margin of 20% indicates that ABC Ltd. retains 20% of its revenue after covering COGS and operating expenses, reflecting solid operational efficiency.

### 3. Net Profit Margin

The Net Profit Margin measures the percentage of revenue left after all expenses, including interest and taxes, are deducted. It reflects the overall profitability of the company.

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Total Sales}} \times 100$$

Using Values,

$$\text{Net Profit Margin} = \frac{1,30,000}{10,00,000} \times 100 = 13\%$$

Interpretation: A Net Profit Margin of 13% means that ABC Ltd. retains 13% of its revenue as profit after all expenses, indicating overall profitability and financial health.

## 6. Profitability Ratios

DEF Ltd. provides the following financial information:

*Income Statement Information:*

Net Income = ₹1,80,000

Interest Expense = ₹20,000

*Balance Sheet Information:*

Total Assets (Beginning of Year) = ₹10,00,000

Total Assets (End of Year) = ₹12,00,000

Total Equity (Beginning of Year) = ₹6,00,000

Total Equity (End of Year) = ₹7,00,000

Total Capital Employed (Total Equity + Long-Term Debt) = ₹9,00,000 (average for the year)

Using this data, calculate the following profitability ratios:

1. Return on Assets (ROA)
2. Return on Equity (ROE)
3. Return on Capital Employed (ROCE)

**Solution:**

### 1. Return on Assets (ROA)

The Return on Assets (ROA) measures how efficiently a company generates profit from its assets. It shows the percentage of net income generated from the company's average total assets.

$$ROA = \frac{\text{Net Income}}{\text{Average Total Assets}} \times 100$$

where, Average Total Assets =  $\frac{\text{Beginning Assets} + \text{Ending Assets}}{2}$

$$= \frac{10,00,000 + 12,00,000}{2} = 11,00,000$$

Using values,

$$ROA = \frac{1,80,000}{11,00,000} \times 100 \approx 16.36\%$$

*Interpretation:* A ROA of 16.36% means that DEF Ltd. generates approximately 16.36% profit for every ₹1 invested in assets, indicating efficient asset use.

### 2. Return on Equity (ROE)

The Return on Equity (ROE) measures how efficiently a company generates profit from its shareholders' equity. It indicates the percentage of net income relative to the average equity.

$$ROE = \frac{\text{Net Income}}{\text{Average Total Equity}} \times 100$$

where,

$$\begin{aligned}\text{Average Total Equity} &= \frac{\text{Beginning Equity} + \text{Ending Equity}}{2} \\ &= \frac{6,00,000 + 7,00,000}{2} = 6,50,000\end{aligned}$$

Using values,

$$ROE = \frac{1,80,000}{6,50,000} \approx 27.69\%$$

*Interpretation:* An ROE of 27.69% indicates that DEF Ltd. generates a return of 27.69% on shareholders' equity, reflecting strong profitability relative to equity.

### 3. Return on Capital Employed (ROCE)

The Return on Capital Employed (ROCE) measures the percentage return generated on the capital employed, which includes both equity and long-term debt. ROCE shows how efficiently a company generates profit from its overall capital base.

$$ROCE = \frac{\text{Earnings Before Interest & Taxes (EBIT)}}{\text{Average Capital Employed}} \times 100$$

Where,

$$\begin{aligned}EBIT &= \text{Net Income} + \text{Interest Expense} \\ &= 1,80,000 + 20,000 = 2,00,000\end{aligned}$$

Using values,

$$ROCE = \frac{2,00,000}{9,00,000} \times 100 \approx 22.22\%$$

*Interpretation:* A ROCE of 22.22% indicates that DEF Ltd. generates a return of 22.22% on its capital employed, suggesting effective utilization of its total capital base (both debt and equity) to generate profit.

## 6. Profitability Ratios

ABC Corp. provides the following financial data:

*Income Statement Information:*

Net Income = ₹2,40,000

Total Sales (Revenue) = ₹12,00,000

*Balance Sheet Information:*

Total Assets (Beginning of Year) = ₹10,00,000

Total Assets (End of Year) = ₹14,00,000

Total Equity (Beginning of Year) = ₹6,00,000

Total Equity (End of Year) = ₹8,00,000

Using this data, perform the DuPont Analysis to calculate the Return on Equity (ROE).

Solution:

The DuPont Analysis breaks down ROE into three components:

$$ROE = \text{Net Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$$

Step 1: Calculate Each Component

(a) Net Profit Margin

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

Using values,

$$\text{Net Profit Margin} = \frac{2,40,000}{12,00,000} \times 100 = 20\%$$

(b) Asset Turnover

$$\text{Asset Turnover} = \frac{\text{Sales}}{\text{Average Total Assets}}$$

Where,

$$\begin{aligned}\text{Average Total Assets} &= \frac{\text{Beginning Assets} + \text{Ending Assets}}{2} \\ &= \frac{10,00,000 + 14,00,000}{2} = 12,00,000\end{aligned}$$

Using values.

$$\text{Asset Turnover} = \frac{12,00,000}{12,00,000} = 1.0$$

(c) Equity Multiplier

$$\text{Equity Multiplier} = \frac{\text{Average Total Assets}}{\text{Average Total Equity}}$$

Where,

$$\text{Average Total Equity} = \frac{\text{Beginning Equity} + \text{Ending Equity}}{2}$$

Using values,

$$\text{Equity Multiplier} = \frac{12,00,000}{7,00,000} \approx 1.71$$

Step 2: Calculate ROE Using DuPont Analysis

Now, combine the components to calculate ROE:

$$\text{ROE} = \text{Net Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$$

Using values,

$$\text{ROE} = 20\% \times 1.0 \times 1.71 = 34.2\%$$

Interpretation: ABC Corp.'s ROE of 34.2% indicates that it generates a 34.2% return on shareholders' equity, showing strong profitability. This high ROE is driven by a solid profit margin and moderate leverage, with asset turnover playing a balanced role.

## 7. Market Value Ratios

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Market Value Ratios are financial metrics that evaluate a company's current market price relative to its key financial indicators, such as earnings, book value, and dividends.

### Types of Market Value Ratios

Earnings per Share (EPS)
Dividend per Share (DPS)
Dividend Payout Ratio
Retention Ratio
Price to Earnings Ratio
Market to Book Ratio
Enterprise Value Multiples
Tobin's Q Ratio

These ratios provide insights into how the stock market values a company, indicating its perceived worth, growth potential, and risk level. Market value ratios are essential tools for investors and analysts, as they help assess whether a stock is undervalued, overvalued, or fairly valued based on its financial performance and market expectations.

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## 7. Market Value Ratios

Earnings Per Share (EPS) is a financial metric that represents the amount of profit earned by a company for each outstanding share of its common stock. It's a key measure of profitability, helping investors understand how much income the company generates on a per-share basis, which is useful for comparing companies within the same industry.

The formula to calculate EPS is:

$$\text{EPS} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Shares Outstanding}}$$

where:

- *Net Income*: The total profit after all expenses, including taxes and interest.
- *Preferred Dividends*: Dividends paid to preferred shareholders (subtracted because EPS applies to common shareholders).
- *Weighted Average Shares Outstanding*: The average number of common shares outstanding during the period, accounting for any stock issuance or buybacks.

Example

Income Statement	Amount (₹)
Revenue	15,00,000
Cost of Goods Sold (COGS)	(9,00,000)
Gross Profit	6,00,000
Operating Expenses	(2,00,000)
Operating Income	4,00,000
Interest Expense	(50,000)
Earnings Before Tax (EBT)	3,50,000
Taxes (20%)	(70,000)
Net Income	2,80,000
Preferred Dividends	(30,000)
Net Income Available to Common Shareholders	2,50,000

Assume the Weighted Average Shares Outstanding is 1,00,000 shares.

Net Income Available to Common Shareholders = ₹2,50,000 (Net Income - Preferred Dividends)

Weighted Average Shares Outstanding = 1,00,000 shares

$$\text{EPS} = \frac{2,50,000}{1,00,000} = 2.5$$

The EPS in this example is ₹2.50, meaning the company earned ₹2.50 for each common share outstanding.

Types of EPS

- **Basic EPS**: The standard EPS calculation, showing earnings per share without adjusting for dilution.

- **Diluted EPS:** Adjusts for securities like options and convertible bonds that could increase the total shares outstanding, offering a conservative view of earnings per share.

#### *Importance of EPS*

- **Profitability Indicator:** EPS shows the earnings generated per share, reflecting company profitability on a per-share basis.
  - **Comparative Tool:** Investors use EPS to compare profitability across companies within an industry.
  - **Basis for Valuation Ratios:** EPS is a foundation for key valuation metrics, like the Price-to-Earnings (P/E) ratio, which helps assess a stock's value relative to its earnings.
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## 7. Market Value Ratios

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Dividend per Share (DPS) shows the cash dividend paid to common shareholders for each share they own. It represents the portion of a company's earnings distributed to shareholders as dividends, providing insight into the company's dividend policy and returns for shareholders. DPS is especially important for investors seeking regular income from dividends.

The formula for calculating DPS is:

$$DPS = \frac{\text{Total Dividends Paid to Common Shareholders}}{\text{Weighted Average Shares Outstanding}}$$

where:

- **Total Dividends Paid to Common Shareholders:** The total cash amount distributed as dividends to common shareholders (excluding preferred dividends).
- **Weighted Average Shares Outstanding:** The average number of common shares outstanding during the period.

#### **Difference between DPS and EPS**

While Earnings per Share (EPS) reflects profitability per share, Dividend per Share (DPS) focuses on the actual cash returned to shareholders. DPS provides insight into the company's dividend-paying capacity and policy.

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## 7. Market Value Ratios

The Dividend Payout Ratio indicates the proportion of a company's earnings distributed to shareholders as dividends. It shows how much of the net income is returned to shareholders versus retained for reinvestment in the company. This ratio helps investors understand the company's dividend policy and how sustainable the dividend payments might be over time.

The Dividend Payout Ratio can be calculated as:

$$\text{Dividend Payout Ratio} = \frac{\text{Total Dividends}}{\text{Net Income}} \times 100$$

or, if using Dividend per Share (DPS) and Earnings per Share (EPS):

$$\text{Dividend Payout Ratio} = \frac{\text{DPS}}{\text{EPS}} \times 100$$

where:

- *Total Dividends* is the amount paid to common shareholders.
- *Net Income* is the company's profit after all expenses, including taxes and interest.
- *DPS* is Dividend per Share, and *EPS* is Earnings per Share.

*Interpretation*

- **High Dividend Payout Ratio:** Indicates the company distributes a large portion of its earnings as dividends, which may appeal to income-focused investors. However, if the ratio is very high, it could indicate less money for reinvestment, potentially impacting future growth.
- **Low Dividend Payout Ratio:** Suggests the company retains a larger portion of earnings for reinvestment, potentially supporting growth. This approach may appeal to growth-oriented investors.

The Dividend Payout Ratio of 35% means that the company pays out 35% of its earnings to shareholders as dividends and retains the remaining 65% for reinvestment or other purposes.

*Importance of the Dividend Payout Ratio*

- **Income Stability:** A stable payout ratio can indicate steady earnings, as the company consistently allocates a portion of profits to dividends.
- **Growth vs. Income:** A low payout ratio suggests potential for growth through reinvestment, while a high payout ratio suggests a focus on income distribution.
- **Sustainability:** Investors assess whether a company can maintain or grow dividends based on the payout ratio, ensuring it is not distributing more than it earns.

## 7. Market Value Ratios

The **Retention Ratio**, also known as the **Plough Back Ratio**, is a financial metric that shows the percentage of a company's earnings that are retained and reinvested rather than distributed as dividends to shareholders. It reflects the portion of profit that a company keeps to fund growth, pay off debt, or enhance operations.

The Retention Ratio is the opposite of the Dividend Payout Ratio; together, they add up to 100%.

The Retention Ratio is calculated as:

$$\text{Retention Ratio} = \frac{\text{Net Income} - \text{Dividends}}{\text{Net Income}} \times 100$$

Alternatively, it can be expressed as:

$$\text{Retention Ratio} = 1 - \text{Dividend Payout Ratio}$$

where:

- *Net Income* is the company's profit after taxes and expenses.
- *Dividends* is the amount paid to shareholders.

*Interpretation*

- **High Retention Ratio:** Indicates that a company retains a significant portion of its earnings, often suggesting a focus on growth and expansion, as more funds are reinvested in the business.
- **Low Retention Ratio:** Suggests the company distributes a larger portion of its earnings as dividends, which may appeal to income-focused investors but could limit growth potential if retained earnings are low.

## 7. Market Value Ratios

The Price to Earnings (P/E) Ratio is a market value ratio that compares a company's current stock price to its earnings per share (EPS). It shows how much investors are willing to pay for each dollar of a company's earnings, providing insight into the market's expectations for future growth.

The P/E ratio is widely used by investors to assess whether a stock is overvalued, undervalued, or fairly valued relative to its earnings.

The P/E ratio is calculated as:

$$\text{P/E Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings Per Share (EPS)}}$$

where:

- *Market Price per Share* is the current price of a single share of the company's stock.
- *Earnings per Share (EPS)* represents the company's profit allocated to each share of common stock.

*Interpretation of P/E Ratio*

- **High P/E Ratio:** Indicates that investors are willing to pay a higher price for the stock because they expect strong future growth. High P/E ratios are often found in growth-oriented sectors, though they may also suggest that the stock is overvalued.
- **Low P/E Ratio:** Suggests that the stock may be undervalued or that the company has slower growth prospects. Lower P/E ratios are typical in mature or value-oriented sectors, but can also signal potential issues with the company's future profitability.

*Example*

Suppose a company's stock is currently trading at ₹100 per share, and its Earnings per Share (EPS) is ₹5:

$$\text{P/E Ratio} = \frac{100}{5} = 20$$

This means that investors are willing to pay ₹20 for every ₹1 of the company's earnings.

*Types of P/E Ratios*

- **Trailing P/E:** Based on earnings from the past 12 months, reflecting the company's historical performance.
- **Forward P/E:** Uses projected earnings for the next 12 months, giving a forward-looking view based on anticipated growth.

*Importance of the P/E Ratio*

- **Investment Comparison:** The P/E ratio allows investors to compare the relative valuation of companies within the same industry.
- **Growth Expectations:** A high P/E ratio generally suggests optimism about future growth, while a low P/E may indicate a mature company or one with limited growth potential.
- **Valuation Tool:** P/E can help investors determine if a stock is overvalued or undervalued based on earnings. Generally, a lower P/E ratio is considered a good value, provided the company's fundamentals are strong.

*Limitations*

- **Doesn't Consider Growth Rates:** High growth companies may naturally have higher P/E ratios, making this measure less useful without context.
- **Industry Differences:** P/E ratios vary widely across industries, so it's more effective when comparing similar companies.
- **Earnings Manipulation:** EPS, the denominator in P/E, can be influenced by accounting practices, which may impact the ratio's accuracy.



## 7. Market Value Ratios

The **Market to Book Ratio**, also known as the **Price to Book (P/B) Ratio**, is a financial metric that compares a company's market value to its book value.

It shows how the market values the company relative to the recorded value of its net assets (assets minus liabilities). This ratio is commonly used by investors to assess whether a stock is undervalued or overvalued based on the company's net assets.

The Market to Book Ratio is calculated as:

$$\text{Market-to-Book Ratio} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$$

Or,

$$\text{Market-to-Book Ratio} = \frac{\text{Market Capitalization}}{\text{Total Book Value of Equity}}$$

where:

- *Market Price per Share* is the current trading price of one share of the company's stock.
- *Book Value per Share* is the company's net assets (total assets - total liabilities) divided by the total number of shares outstanding.
- Market Capitalization is the total market value of the company's outstanding shares.

*Interpretation*

- **Market-to-Book Ratio > 1:** This indicates that the market values the company above its book value, often due to high growth potential, strong brand value, or intangible assets like intellectual property that are not reflected on the balance sheet. A ratio significantly above 1 suggests investor optimism about future performance.
- **Market-to-Book Ratio < 1:** Indicates that the market values the company below its book value. This may suggest that the stock is undervalued or that the market has concerns about the company's future profitability.

*Example*

Suppose a company's stock is trading at ₹120 per share, with a book value per share of ₹80:

$$\text{Market-to-Book Ratio} = \frac{120}{80} = 1.5$$

This result means that the market is valuing the company at 1.5 times its book value.

*Importance of the Market-to-Book Ratio*

- **Valuation Insight:** Helps investors determine if a stock is undervalued or overvalued relative to its net asset value.
- **Growth Potential:** A high Market-to-Book Ratio often indicates high growth expectations, while a low ratio may suggest undervaluation or concerns about the company's future.
- **Industry Comparison:** The ratio is especially useful for comparing companies within the same industry, where book value differences are less influenced by unique asset structures.

*Limitations*

- **Intangible Assets:** Book value often excludes intangible assets like brand value, patents, and intellectual property, which can lead to undervaluing companies in innovation-heavy sectors.
- **Industry Variations:** Capital-intensive industries typically have lower Market-to-Book Ratios, while technology and service-based companies may have higher ratios due to the intangible nature of their assets.
- **Historical Cost Accounting:** Book value is based on historical costs, which may not reflect the current value of assets in today's market.

#### **Market Capitalization**

Market Capitalization, often referred to as market cap, is the total value of a company's outstanding shares of stock in the market. It represents the market's valuation of the company and is calculated by multiplying the current stock price by the total number of outstanding shares. Market capitalization gives investors a sense of a company's size and is commonly used to classify companies into categories like large-cap, mid-cap, and small-cap.

The formula for calculating market capitalization is:

$$\text{Market Capitalization} = \text{Current Stock Price} \times \text{Total Outstanding Shares}$$

## 7. Market Value Ratios

**Enterprise Value Multiples** are financial ratios that use a company's Enterprise Value (EV) in relation to its earnings or revenue to assess its valuation. The most common EV multiple is the EV/EBITDA multiple, which divides the company's enterprise value by its EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization). EV multiples are useful for comparing companies with different capital structures, tax rates, or capital expenditures, as they offer a more standardized approach to valuation.

The formula for the EV/EBITDA multiple is:

$$\text{EV} / \text{EBITDA} = \frac{\text{Enterprise Value (EV)}}{\text{EBITDA}}$$

Enterprise Value (EV) is calculated as:

$$\text{EV} = \text{Market Capitalization} + \text{Total Debt} - \text{Cash & Cash Equivalents}$$

EBITDA stands for Earnings Before Interest, Taxes, Depreciation, and Amortization, representing a measure of core operational profitability.

### Interpretation

- **Higher EV/EBITDA Multiple:** Indicates that the market values the company highly relative to its operating income, which may suggest strong growth potential, high investor confidence, or industry leadership. However, a very high multiple can also mean that the stock is overvalued.
- **Lower EV/EBITDA Multiple:** Suggests that the market values the company less relative to its operating income. This could indicate limited growth potential, financial or operational challenges, or possibly undervaluation if other fundamentals are strong.

### Why EV Multiples are Useful

- **Capital Structure Independence:** Unlike P/E ratios, EV multiples are less affected by differences in debt and equity structures. EV includes both debt and equity, so the multiple provides a more holistic view of a company's valuation regardless of its capital structure.
- **Comparison Tool:** EV multiples make it easier to compare companies in the same industry, even if they have different tax rates, debt levels, or capital expenditures.
- **Growth Indicator:** High EV multiples are typically associated with firms that have high growth expectations, similar to high P/E ratios.

### Example

Suppose a company has:

Enterprise Value (EV) = ₹1,500 crore

EBITDA = ₹300 crore

Then, the EV/EBITDA multiple would be:

$$\text{EV} / \text{EBITDA} = \frac{1,500}{300} = 5$$

This means the company's EV is 5 times its EBITDA, suggesting investors are willing to pay ₹5 for every ₹1 of EBITDA generated.

Other Common Enterprise Value Multiples are:

### **EV/Sales**

Compares EV to total revenue (sales), used when EBITDA is negative or in early-stage companies with high revenue but low profits.

$$\text{EV/Sales} = \frac{\text{Enterprise Value}}{\text{Revenue}}$$

### **EV/EBIT**

Compares EV to EBIT (Earnings Before Interest and Taxes), useful for companies with significant depreciation or amortization expenses.

$$\text{EV/EBIT} = \frac{\text{Enterprise Value}}{\text{EBIT}}$$

#### *Limitations of EV Multiples*

- **Industry Dependency:** EV multiples vary widely by industry, so they are most meaningful when comparing companies within the same sector.
- **Sensitivity to Earnings Estimates:** EBITDA estimates can vary depending on accounting methods, so EV multiples may fluctuate based on subjective adjustments.
- **Not Always Suitable for Early-Stage Companies:** For companies with low or negative EBITDA, EV/Sales may be a better metric, as EV/EBITDA might be misleading.

## 7. Market Value Ratios

Tobin's Q Ratio is a financial metric that compares the market value of a company's assets to their replacement cost. Developed by economist James Tobin, this ratio provides insight into whether a company is valued above or below the cost of its assets. It is calculated by dividing the total market value of a company by the replacement cost of its assets.

Tobin's Q is primarily used to assess the attractiveness of investment in companies and is also applied to evaluate entire markets.

The formula for Tobin's Q Ratio is:

$$\text{Tobin's Q Ratio} = \frac{\text{Market Value of Assets}}{\text{Replacement Cost of Assets}}$$

where:

- *Market Value of Assets* is often taken as the Enterprise Value (EV) of the company, including both equity and debt.
- *Replacement Cost of Assets* is the estimated cost to replace the company's assets at current prices.

*Interpretation*

- **Tobin's Q > 1:** Indicates that the market values the company more than the cost of replacing its assets. This could mean that investors expect the company to generate high returns from its assets and may reflect strong growth prospects or intangible assets not fully captured on the balance sheet.
- **Tobin's Q < 1:** Suggests the company's market value is less than the cost of replacing its assets, which might imply the company is undervalued or facing profitability challenges. It could also indicate that the market does not believe the company is making efficient use of its assets.

*Example*

Market Value of Assets (Enterprise Value) = ₹1,200 crore

Replacement Cost of Assets = ₹1,000 crore

Then, Tobin's Q Ratio would be:

$$\text{Tobin's Q Ratio} = \frac{1,200}{1,000} = 1.2$$

This result means that the market values the company at 1.2 times the cost of replacing its assets, suggesting that investors see added value beyond the replacement cost.

*Importance of Tobin's Q Ratio*

- **Investment Insight:** Tobin's Q Ratio helps investors determine if a company or market is overvalued or undervalued relative to its assets.
- **Efficiency Indicator:** A Q ratio significantly above 1 suggests that a company is using its assets efficiently, while a ratio below 1 may indicate underperformance.
- **Market Analysis:** At the market level, a high average Tobin's Q ratio can signal overvaluation, while a low Q ratio may indicate undervaluation, providing insights into broader market trends.

*Application of Tobin's Q in Market Analysis*

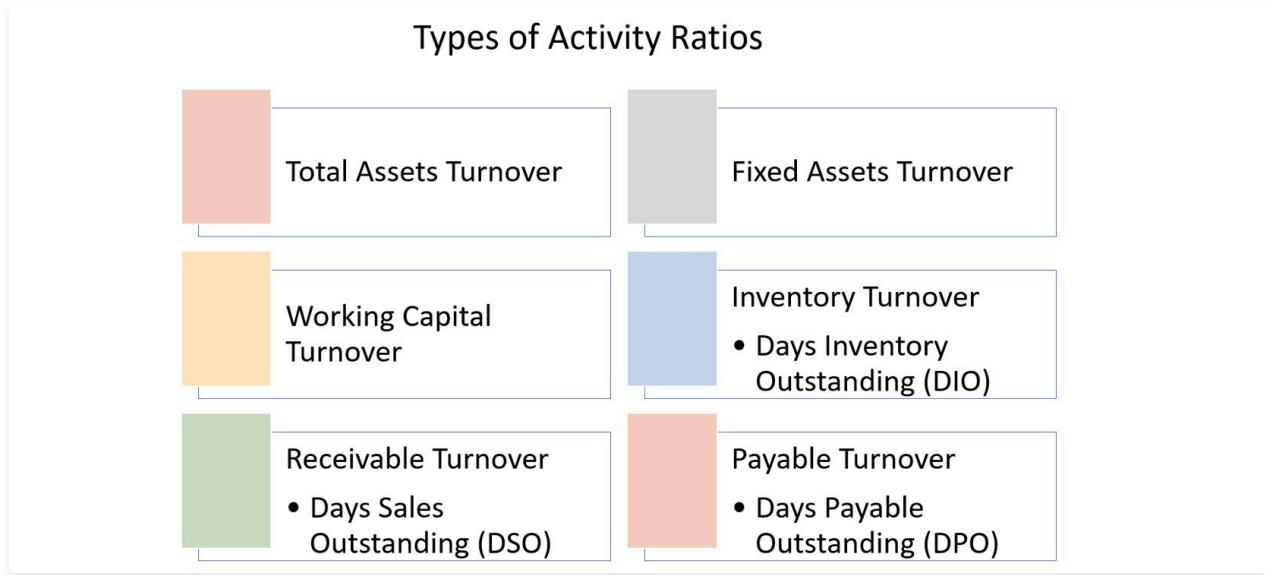
- **Entire Market Valuation:** Tobin's Q can be applied to evaluate whether the overall market is overvalued or undervalued by comparing the total market value of publicly traded companies to the replacement cost of all corporate assets.

- **Industry Comparison:** Tobin's Q can also be useful for comparing companies within an industry to assess how the market values their assets relative to the cost to replace them.
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## 8. Activity Ratios

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Activity ratios, also known as **efficiency or turnover ratios**, assess how well a company uses its assets to generate revenue. These ratios indicate how efficiently the firm manages its resources, such as inventory, receivables, and overall asset base, to support business operations and sales.



Higher activity ratios typically reflect better asset utilization and operational efficiency.

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## 8. Activity Ratios

Total Assets Turnover is an activity ratio that shows how effectively a company uses its total assets to generate sales. It is also called *Asset Turnover Ratio* or *Sales-to-Assets Ratio*.

It indicates how many times a company can convert its assets into revenue within a specific period. This ratio is essential for understanding asset utilization and efficiency, particularly in asset-heavy industries.

$$\text{Total Assets Turnover} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

where:

- *Net Sales* refers to the revenue earned from sales after discounts and returns.
- *Average Total Assets* is calculated by taking the average of beginning and ending total assets for the period.

Example

Suppose a company has Net Sales of ₹10,00,000 and Average Total Assets of ₹5,00,000. The Total Assets Turnover Ratio would be:

$$\text{Total Assets Turnover} = \frac{10,00,000}{5,00,000} = 2$$

This result means the company generates ₹2 in sales for every ₹1 of assets it holds.

Total Assets Turnover measures how efficiently a company utilizes its assets to produce sales. It is valuable for assessing operational efficiency and comparing asset utilization across companies in similar industries.

Interpretation

- **High Total Assets Turnover:** A high ratio signifies efficient asset utilization, meaning the company generates more sales relative to its asset base. This is generally seen as positive, reflecting good management of resources.
- **Low Total Assets Turnover:** A low ratio suggests less efficient use of assets, meaning the company generates fewer sales for each unit of asset it owns. This may indicate underutilization or excessive asset investment relative to sales.

## 8. Activity Ratios

Fixed Assets Turnover is an activity ratio that measures how efficiently a company uses its fixed assets (such as property, plant, and equipment) to generate sales. It is also called Sales-to-Fixed Assets Ratio.

This ratio provides insight into how well a company is using its long-term assets to produce revenue, making it particularly useful for asset-intensive industries like manufacturing and retail.

$$\text{Fixed Assets Turnover} = \frac{\text{Net Sales}}{\text{Average Net Fixed Assets}}$$

where:

- *Net Sales* is the total revenue from sales after accounting for any returns and discounts.
- *Average Net Fixed Assets* is the average value of fixed assets (property, plant, and equipment) over a specific period, typically calculated by averaging the beginning and ending net fixed assets.

*Example*

Suppose a company has Net Sales of ₹8,00,000 and Average Net Fixed Assets of ₹2,00,000. The the Fixed Assets Turnover Ratio would be:

$$\text{Fixed Assets Turnover} = \frac{8,00,000}{2,00,000} = 4$$

This result means that for every ₹1 invested in fixed assets, the company generates ₹4 in sales.

*Interpretation*

- **High Fixed Assets Turnover:** A high ratio indicates that the company is using its fixed assets efficiently, generating a high amount of sales relative to its investment in fixed assets. This is generally a positive sign of asset utilization and operational effectiveness.
- **Low Fixed Assets Turnover:** A low ratio suggests that fixed assets are not being used efficiently to generate sales. This may indicate underutilization of assets or excessive investment in fixed assets without a corresponding increase in revenue.

Fixed Assets Turnover is particularly valuable for capital-intensive industries, such as manufacturing, where a significant portion of the investment is in fixed assets like machinery, factories, and equipment. A high ratio in such industries is crucial for maintaining competitive efficiency, while a low ratio might prompt management to review asset usage and explore efficiency improvements.

## 8. Activity Ratios

Working Capital Turnover is an activity ratio that measures how effectively a company uses its working capital to generate sales. This ratio shows how well the business leverages its short-term assets and liabilities to support revenue generation, making it useful for analyzing liquidity and operational efficiency.

$$\text{Working Capital Turnover} = \frac{\text{Net Sales}}{\text{Average Working Capital}}$$

where:

- *Net Sales* represents total revenue from sales, after accounting for any returns and discounts.
- *Average Working Capital* is calculated as average current assets minus average current liabilities over a given period.

Example

Suppose a company has Net Sales of ₹15,00,000 and Average Working Capital of ₹3,00,000. Then the Working Capital Turnover Ratio would be:

$$\text{Working Capital Turnover} = \frac{15,00,000}{3,00,000} = 5$$

This result means that the company generates ₹5 in sales for every ₹1 of working capital it has.

Interpretation

- **High Working Capital Turnover:** A high ratio indicates that the company is generating significant sales relative to its working capital, suggesting efficient use of short-term assets and liabilities. This is typically positive, as it shows good liquidity management and operational efficiency.
- **Low Working Capital Turnover:** A low ratio suggests that working capital is not being used effectively to generate sales. It may indicate overinvestment in inventory or receivables or inefficient use of current assets.

Working Capital Turnover is especially valuable for businesses that rely heavily on managing inventory, receivables, and payables, such as retail. It helps companies and investors assess how efficiently short-term resources are being used to drive sales, guiding decisions on optimizing current asset levels and managing liquidity to ensure smooth operations.

## 8. Activity Ratios

Inventory Turnover is an activity ratio that measures how often a company sells and replaces its inventory over a specific period. It indicates the efficiency of inventory management, showing how quickly products are sold and how well inventory is being used to support sales.

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold (COGS)}}{\text{Average Inventory}}$$

where:

- *Cost of Goods Sold (COGS)* represents the cost to produce the goods sold during the period.
- *Average Inventory* is calculated by averaging the beginning and ending inventory for the period.

Example

Suppose a company has:

Cost of Goods Sold (COGS) = ₹6,00,000

Beginning Inventory = ₹1,50,000

Ending Inventory = ₹1,00,000

First, calculate Average Inventory and then, calculate Inventory Turnover:

$$\text{Inventory Turnover} = \frac{6,00,000}{1,25,000} = 4.8$$

Where,

$$\text{Average Inventory} = \frac{1,50,000 + 1,00,000}{2} = ₹1,25,000$$

This result means the company sells and replenishes its inventory 4.8 times over the period.

Interpretation

- **High Inventory Turnover:** A high ratio indicates that inventory is being sold quickly, which can be positive if demand is strong. However, too high a turnover might indicate insufficient inventory levels.
- **Low Inventory Turnover:** A low ratio suggests slower inventory movement, which could mean overstocking, weaker demand, or potential inventory management issues.

**Days Inventory Outstanding (DIO)**

Days Inventory Outstanding (DIO), also known as Days Sales of Inventory (DSI), measures the average number of days it takes for a company to sell its inventory. It is a more time-focused measure of inventory efficiency, providing insight into how quickly products are converted into sales.

$$\text{Days Inventory Outstanding (DIO)} = \frac{365}{\text{Inventory Turnover}}$$

Or, alternatively,

$$\text{DIO} = \frac{\text{Average Inventory}}{\text{COGS}} \times 365$$

Using the previous example:

Inventory Turnover = 4.8

Calculate DIO:

$$\text{DIO} = \frac{365}{4.8} \approx 76 \text{ days}$$

This result means it takes the company approximately 76 days, on average, to sell its inventory.

#### *Interpretation*

- **Low DIO:** A low DIO indicates fast inventory turnover and a shorter time to convert inventory into sales, which can be beneficial for liquidity.
- **High DIO:** A high DIO suggests that inventory takes longer to sell, which might indicate overstocking, weaker demand, or slower sales, potentially tying up capital in inventory.

#### *Usefulness*

- Inventory Turnover helps companies gauge their inventory management efficiency, ensuring optimal stock levels without over- or under-stocking.
- DIO complements Inventory Turnover by providing a time perspective, helping companies understand how many days inventory remains unsold, which is crucial for cash flow and operational planning.

## 8. Activity Ratios

Receivable Turnover is an activity ratio that measures how efficiently a company collects cash from its credit sales. Other names for Receivable Turnover are Accounts Receivable Turnover, Debtors Turnover Ratio, Trade Receivables Turnover.

It shows how often a company can turn its receivables into cash during a specific period, providing insight into the effectiveness of the company's credit policies and collection process.

$$\text{Receivable Turnover} = \frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable}}$$

where:

- *Net Credit Sales* represents sales made on credit, excluding cash sales.
- *Average Accounts Receivable* is calculated by averaging the beginning and ending accounts receivable for the period.

Example

Suppose a company has:

Net Credit Sales = ₹9,00,000

Beginning Accounts Receivable = ₹1,80,000

Ending Accounts Receivable = ₹2,20,000

First, calculate Average Accounts Receivables and then, calculate Receivable Turnover:

$$\text{Receivable Turnover} = \frac{9,00,000}{2,00,000} = 4.5$$

Where,

$$\begin{aligned}\text{Average Accounts Receivable} &= \frac{1,80,000 + 2,20,000}{2} \\ &= ₹ 2,00,000\end{aligned}$$

This result means the company collects its receivables 4.5 times in the period.

Interpretation

- **High Receivable Turnover:** A high ratio indicates efficient credit and collection practices, meaning customers are paying their dues quickly.
- **Low Receivable Turnover:** A low ratio suggests slower collections, which could indicate lenient credit policies, delayed payments from customers, or inefficient collection efforts.

**Days Sales Outstanding (DSO)**

Days Sales Outstanding (DSO) measures the average number of days it takes for a company to collect payment from its credit sales. DSO provides a time-focused perspective on receivables management and is an important indicator of cash flow efficiency. Other names for Days Sales Outstanding (DSO) are Average Collection Period, Days Receivables Outstanding, Receivables Collection Period, Debtor Collection Period or Receivables Velocity.

$$\text{Days Sales Outstanding (DSO)} = \frac{365}{\text{Receivable Turnover}}$$

Or, alternatively,

$$DSO = \frac{\text{Average Accounts Receivable}}{\text{Net Credit Sales}} \times 365$$

#### Example

Using the previous example:

Receivable Turnover = 4.5

Calculate DSO:

$$DSO = \frac{365}{4.5} \approx 81 \text{ days}$$

This result means it takes the company approximately 81 days, on average, to collect payments from credit sales.

#### Interpretation

- **Low DSO:** A low DSO indicates that the company collects its receivables quickly, which is positive for cash flow.
- **High DSO:** A high DSO suggests that receivables are taking longer to be collected, potentially signaling issues with credit policies or collections that could impact liquidity.

#### Usefulness

- Receivable Turnover helps companies gauge the effectiveness of their credit policies and collections process.
- DSO complements Receivable Turnover by showing the average collection period, giving a clearer picture of how long sales remain in receivables.
- Both ratios are especially critical for companies that rely heavily on credit sales, as they directly affect cash flow and working capital management. High turnover and low DSO are generally desirable, as they indicate efficient cash collection and reduced risk of bad debt.