1. Details of Module and its structure

Module Detail	
Subject Name	Accountancy
Course Name	Accountancy 04 (Class XII, Semester – 2)
Module Name/Title	Accounting Ratios – Part 3
Module Id	leac_20503
Pre-requisites	Basic knowledge of Ratios
Objectives	At the end of the lesson, the learners will be able to: • Explain meaning of Solvency Ratios • List the types of Solvency Ratio • Calculate Debt Equity Ratio • Calculate Debt to Capital Employed Ratio • Calculate Proprietary Ratio • Calculate Total Assets to Debt Ratio • Calculate Interest Coverage Ratio
Keywords	Solvency Ratio, Debt Equity Ratio, Proprietary Ratio, Total Assets to Debt Ratio, Interest Coverage Ratio

2. Development Team

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1.1. Introduction

The financial details that are prepared by the business enterprisers so as to meet the information requirement of the decision-makers are known as financial statements. These statements provide financial data that require analysis, comparison and interpretation for taking decision by the external as well as internal users of accounting information. This act is termed as financial statement analysis.

The most commonly used techniques of financial statements analysis are comparative statements, common size statements, trend analysis, accounting ratios and cash flow analysis. These techniques are regarded as an integral and important part of accounting.

The creditors who have advanced money to the business on long-term basis are interested in safety of their periodic payment of interest as well as the repayment of principal amount at the end of the loan period. This module will cover the technique of accounting ratios for analysing the information contained in financial statements for assessing the solvency and efficiency of the enterprises.

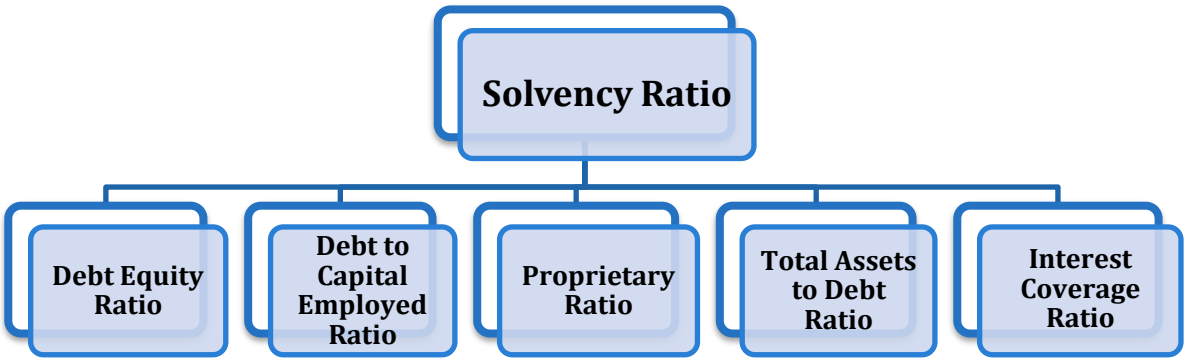
2.1. Meaning of Solvency Ratios

Ratio analysis is a quantitative method of gaining insight into a company's liquidity, operational efficiency, and profitability by studying its financial statements such as the balance sheet and income statement. It compares similar data from a company's financial statements to reveal insights regarding profitability, liquidity, operational efficiency, and solvency.

Solvency Ratios are also called financial leverage ratios. They compare a company's debt levels with its assets, equity, and earnings, to evaluate the life of a company for paying off its long-term debt as well as the interest on its debt.

Solvency ratios are calculated to determine the ability of the business to service its debt in the long run. Thus, solvency ratio indicates whether a company's cash flow is sufficient to meet its short-and long-term liabilities. The lower a company's solvency ratio, the greater the probability that it will default on its debt obligations.

The following ratios are normally computed for evaluating solvency of the business :



Hence, the solvency ratio examines a company's ability to meet its long-term obligations. This ratio is most often used by prospective lenders when evaluating a company's creditworthiness. A higher ratio percentage result indicates a company's increased ability to cover its liabilities over the long term.

3.1 Debt- Equity Ratio

Debt-Equity Ratio measures the relationship between long-term debt and equity. If debt component of the total long-term funds employed is small, outsiders feel more secure. From security point of view, capital structure with less debt and more equity is considered favourable as it reduces the chances of bankruptcy. Normally, it is considered to be safe if debt equity ratio is 2 : 1.

Thus, the Debt -Equity ratio (also called the "debt to equity ratio"), is a financial leverage ratio that calculates the weight of total debt and financial liabilities against total shareholders' equity. This ratio highlights how a company's capital structure is tilted either toward debt or equity financing.

It is calculated as:

$$\text{Debt-Equity Ratio} = \frac{\text{Long} - \text{term Debts}}{\text{Shareholders' Funds}}$$

Where:

Shareholders' Funds (Equity) =

Share capital + Reserves and Surplus + Money received against share warrants + Share application money pending allotment

Share Capital = Equity share capital + Preference share capital

or

Shareholders' Funds (Equity) =

Non-current assets + Working capital – Non-current liabilities

Working Capital = Current Assets – Current Liabilities

Illustration 1

ABC company has applied for a loan. The lender of the loan requests you to compute the debt to equity ratio as a part of the long-term solvency test of the company. The "Liabilities and Stockholders' Equity" section of the balance sheet of ABC company is given below:

Compute Debt Equity Ratio.

Liabilities & Stockholder's Equity	**Amount (Rs.)**
Current Liabilities	
Accounts Payable	2900
Expense Payable	450
Short Term Debts	150
Total	3500
Long Term Liabilities	
6% Debentures	3750
Total Liabilities	7250
Share Capital:	
Preference Share Capital	1500
Equity Share Capital	3000
Reserves & Surplus	4000
Shareholders Fund	8500

Solution:

$$\text{Debt-Equity Ratio} = \frac{\text{Long - term Debts}}{\text{Shareholders' Funds}}$$

$$= \frac{7,250}{8,500}$$

Debt-Equity Ratio = 0.85

The debt to equity ratio of ABC company is 0.85 or 0.85 : 1 (Approx.).

It means the liabilities are 85% of stockholders equity.

Significance and interpretation:

A ratio of 1 (or 1 : 1) means that creditors and stockholders equally contribute to the assets of the business.

A less than 1 ratio indicates that the portion of assets provided by stockholders is greater than the portion of assets provided by creditors (Lenders) and a greater than 1 ratio indicates that the portion of assets provided by creditors (Lenders) is greater than the portion of assets provided by stockholders.

Creditors (Lenders) usually like a low debt to equity ratio because a low ratio (less than 1) is the indication of greater protection to their money. But stockholders like to get benefit from the funds provided by the creditors therefore they would like a high debt to equity ratio.

Debt equity ratio vary from industry to industry. Different norms have been developed for different industries. A ratio that is ideal for one industry may be worrisome for another industry. A ratio of 1 : 1 is normally considered satisfactory for most of the companies.

Illustration 2

From the following information, calculate Debt-equity ratio:

Equity share capital	**Rs 10,00,000**
General Reserve	**Rs. 1,00,000**
Balance of Statement of P/L after interest and Tax	**Rs. 3,00,000**
12% Debentures	**Rs. 4,00,000**
Creditors	**Rs. 3,00,000**
Debtors	**Rs. 1,00,000**

Solution:

$$\text{Debt-Equity Ratio} = \frac{\text{Long - term Debts}}{\text{Shareholders' Funds}}$$

$$= \frac{4,00,000}{14,00,000}$$

Debt-Equity Ratio = 0.286:1 (Approx.)

Working Notes:

Long Term Debts = Rs. 4,00,000

Shareholders Fund = Equity Share Capital + General Reserve + Balance of Statement of Profit and Loss

= Rs. 10,00,000 + Rs. 1,00,000 + Rs. 3,00,000

= Rs. 14,00,000

4.1 Significance of Debt Equity Ratio

The significance of Debt Equity Ratio is to measure the proportions of external funds and shareholders' funds invested in the company. This ratio helps in assessing the long term financial position and financial policies of the enterprise. It also indicates the extent to which the enterprise depends on the external funds for its business.

5.1 Debt to Capital Employed Ratio

The Debt to capital employed ratio refers to the ratio of long-term debt to the total of external and internal funds (capital employed or net assets). The debt to capital employed ratio is a ratio that indicates how leveraged a company is by dividing its interest-bearing debt with its total capital. Most companies are financed by the combination of debt and equity, which is equal to total capital. So, by comparing debt with total capital, we can see the proportion of how much debt in the total capital is being used to fund the company's operation.

It is computed as follows:

$$\text{Debt to Capital Employed Ratio} = \frac{\text{Long} - \text{term Debts}}{\text{Capital Employed (or Net Assets)}}$$

Or

$$\text{Debt to Capital Employed Ratio} = \frac{\text{Total Debts}}{\text{Total Assets}}$$

Where:

Capital Employed = Long Term Debts + Shareholders' Funds

Net Assets = Total Assets – Current Liabilities

Total Debts = Long Term Debts + Current liabilities

Total Assets = Non-Current Assets + Current Assets

Illustration 1

From the following balance sheet of ABC Co. Ltd. as on March 31, 2019. Calculate Debt to Capital Employed Ratio:

ABC Co. Ltd. Balance Sheet as at 31 March, 2019

Particulars	Amount *(Rs.)*
I. Equity and Liabilities	
1. **Shareholders' funds**	
a) Share capital	12,00,000
b) Reserves and surplus	2,00,000
c) Money received against share warrants	1,00,000
2. Non-current Liabilities	
a) Long-term borrowings	4,00,000
b) Other long-term liabilities	40,000
c) Long-term provisions	60,000
3. Current Liabilities	
a) Short-term borrowings	2,00,000
b) Trade payables	1,00,000
c) Other current liabilities	50,000
d) Short-term provisions	1,50,000
II. Assets	**25,00,000**
1. Non-Current Assets	15,00,000
a)Fixed assets	2,00,000
b)Non-current investments	1,00,000
c) Long-term loans and advances	
2. Current Assets	2,50,000
a) Current investments	2,50,000
b) Inventories	2,00,000
c) Trade receivables	**25,00,000**

Solution:

$$\text{Debt to Capital Employed Ratio} = \frac{\text{Long - term Debts}}{\text{Capital Employed (or Net Assets)}}$$

Or

$$\text{Debt to Capital Employed Ratio} = \frac{\text{Total Debts}}{\text{Total Assets}}$$

Capital Employed = Long Term Debts + Shareholders' Funds

= Rs.(4,00,000+40,000+60,000) + Rs.(12,00,000 + 2,00,000+ 1,00,000)

= Rs. 20,00,000

Net Assets = Total Assets – Current Liabilities

= Rs. 25,00,000 – Rs. 5,00,000

= Rs. 15,00,000

Debt to capital employed ratio = $\frac{5,00,000}{20,00,000}$

= 0.25:1.

Thus, in the above case, the debt to Capital Employed ratio is less than half which indicates reasonable funding by debt and adequate security of debt.

6.1 Significance of Debt to Capital Employed Ratio

Like debt-equity ratio, it shows proportion of long-term debts in capital employed. Low ratio provides security to lenders and high ratio helps management in trading on equity.

7.1 Proprietary Ratio

This ratio establishes the relationship between Shareholders' funds and total assets of the business. It indicates the extent to which shareholder's funds have been invested in the assets of the business. The higher the ratio, the lesser the leverage, and comparatively less is the financial risk on the part of the business.

Thus, Proprietary ratio expresses relationship of proprietor's (shareholders) funds to net assets.

It is calculated as:

$$\textbf{Proprietary Ratio} = \frac{\textbf{Shareholders' Funds}}{\textbf{Net Assets}}$$

Where:

Net Assets = Total Assets – Current Liabilities

Illustration 1

From the following balance sheet of ABC Co. Ltd. as on March 31, 2019. Calculate Proprietary Ratio:

ABC Co. Ltd. Balance Sheet as at 31 March, 2019

Particulars	Amount *(Rs.)*
I. Equity and Liabilities	
1. **Shareholders' funds**	
a) Share capital	12,00,000
b) Reserves and surplus	2,00,000
c) Money received against share warrants	1,00,000
2. Non-current Liabilities	4,00,000
a) Long-term borrowings	40,000
b) Other long-term liabilities	60,000
c) Long-term provisions	
3. Current Liabilities	2,00,000
a) Short-term borrowings	1,00,000
b) Trade payables	50,000
c) Other current liabilities	1,50,000
d) Short-term provisions	**25,00,000**
II. Assets	
1. **Non-Current Assets**	
a) Fixed assets	15,00,000
b) Non-current investments	2,00,000
c) Long-term loans and advances	1,00,000
2. **Current Assets**	
a) Current investments	2,50,000
b) Inventories	2,50,000
c) Trade receivables	2,00,000
	25,00,000

Solution:

$$\text{Proprietary Ratio} = \frac{\text{Shareholders' Funds}}{\text{Net Assets}}$$

$$= \frac{\text{Rs. 15,00,000}}{\text{Rs. 20,00,000}}$$

= 0.75 : 1

Working Notes:

Net Assets = Total Assets – Current Liabilities

= Rs. 25,00,000 – Rs. 5,00,000

= Rs. 15,00,000

Shareholders' Funds = Rs.(12,00,000 + 2,00,000+ 1,00,000)

= Rs. 20,00,000

8.1 Significance of Proprietary Ratio

The proprietary ratio shows the contribution of stockholders' in total capital of the company. A high proprietary ratio, therefore, indicates a strong financial position of the company and greater security for creditors. A low ratio indicates that the company is already heavily depending on debts for its operations.

9.1 Total Assets to Debts Ratio

This ratio measures the extent of the coverage of long-term debts by assets. The higher ratio indicates that assets have been mainly financed by owners funds and the long-term loans is adequately covered by assets.

Hence, if a company has a total-debt-to-total-assets ratio of 0.4, 40% of its assets are financed by creditors, and 60% are financed by owners (shareholders) equity.

It is calculated as –

$$\textbf{Total assets to Debt Ratio} = \frac{\textbf{Total assets}}{\textbf{Long-term debts}}$$

Illustration 1

Analyse the Total Assets to Debt Ratio in the following:

	Company A	**Company B**	**Company C**
Total Debt	Rs. 50,785	Rs. 623.61	Rs. 13,186
Total Assets	Rs. 95,789	Rs. 2,026.10	Rs. 9,362
Total Debt to Assets	0.5302	0.3078	1.4085

Solution: A ratio greater than 1 shows that a considerable portion of the assets is funded by debt. In other words, the company has more liabilities than assets. A high ratio also indicates that a company may be putting itself at risk. A ratio below 1 translates to the fact that a greater portion of a company's assets is funded by equity. Investors and creditors will consider Company C as a risky company to invest in and loan to due to its very high ratio.

Illustration 2

From the following balance sheet of a company, calculate Total Assets to Debt Ratio:

Balance Sheet

Particulars	*(Rs.)*
I. Equity and Liabilities	
1. Shareholders' funds	
(a) Share capital	8,00,000
(b) Reserves and Surplus	1,00,000
2. Share application money pending allotment	2,00,000
3. Non-Current Liabilities	1,50,000
a) Long-term borrowings	1,50,000
b) Current liabilities	**14,00,000**
II. Assets	
1. Non-Current Assets	
a) Fixed assets	11,00,000
b) Tangible assets	1,00,000
2. Current Assets	90,000
a) Inventories	1,10,000
b) Trade receivables	
c) Cash and cash equivalents	**14,00,000**

Solution:

$$\text{Total assets to Debt Ratio} = \frac{\text{Total assets}}{\text{Long-term debts}}$$

Total assets to Debt Ratio = Rs. 14,00,000

Rs. 1,50,000

= 9.33 : 1 (Approx.)

The higher ratio indicates that assets have been mainly financed by owners funds and the long-term loans is adequately covered by assets.

10.1 Significance of Total Assets to Debts Ratio

This ratio primarily indicates the rate of external funds in financing the assets and the extent of coverage of their debts are covered by assets. Thus, the total-debt-to-total-assets ratio shows the degree to which a company has used debt to finance its assets. The calculation considers all of the company's debt, not just loans and bonds payable, and considers all assets, including intangibles.

11.1 Interest Coverage Ratio

It is a ratio which deals with the servicing of interest on loan i.e. it used to determine how easily a company can pay interest on its outstanding debt. Thus, it is a measure of security of interest payable on long-term debts. It expresses the relationship between profits available for payment of interest and the amount of interest payable. A higher ratio ensures safety of interest on debts.

It is calculated as follows:

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Tax}}{\text{Interest on Long-term debts}}$$

Illustration 1

ABC Ltd. Has a term loan of Rs. 10,00,000. Interest on the loan for the year is Rs. 1,25,000 and its profit before Interest and Tax is Rs. 5,00,000. Calculate Interest Coverage Ratio.

Solution:

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Tax}}{\text{Interest on Long-term debts}}$$

$$\text{Interest Coverage Ratio} = \frac{\text{Rs. 5,00,000}}{\text{Rs. 1,25,000}}$$

$$= 4 \text{ Times}$$

Hence, Interest Coverage Ratio is 4 Times.

Illustration 2

Calculate Interest Coverage Ratio on a Company's Loan of Rs. 36,00,000 from the following data :

Profit After Tax = Rs. 4,80,000

Tax = Rs. 1,25,000

Interest on loan = Rs. 1,62,000

Solution:

$$\text{Interest Coverage Ratio} = \frac{\text{Profit before Interest and Tax}}{\text{Interest on Long-term debts}}$$

$$\text{Interest on Coverage Ratio} = \frac{\text{Rs. 7,67,000}}{\text{Rs. 1,62,000}}$$

$$= 4.73 \text{ Times (Approx.)}$$

Hence, Interest Coverage Ratio is 4.73 Times.

Working notes:

Profit Before Interest and Tax = Profit after Tax+ Tax + Interest on Loan

= Rs. 4,80,000 + Rs. 1,25,000+ Rs. 1,62,000

= Rs. 7,67,000

12.1 Significance of Interest Coverage Ratio

It reveals the number of times interest on long-term debts is covered by the profits available for interest. Lenders, investors, and creditors often use this formula to determine a company's riskiness relative to its current debt or for future borrowing.

Summary

Ratio analysis is a quantitative method of gaining insight into a company's liquidity, operational efficiency, and profitability by studying its financial statements such as the balance sheet and income statement. Thus, ratio analysis compares similar data from a company's financial statements to reveal insights regarding profitability, liquidity, operational efficiency, and solvency.

There are many types of ratios, viz., liquidity, solvency, activity and profitability ratios. Solvency of business is determined by its ability to meet its contractual obligations towards stakeholders, particularly towards external stakeholders, and the ratios calculated to measure solvency position are known as 'Solvency Ratios'. These are essentially long-term in nature. Solvency ratios include: debt-equity ratios, debt-assets ratios, and interest coverage ratios.

The Debt -Equity ratio (also called the "debt to equity ratio"), is a financial leverage ratio that calculates the weight of total debt and financial liabilities against total shareholders' equity.

The debt to capital employed ratio is a ratio that indicates how leveraged a company is by dividing its interest-bearing debt with its total capital.

The proprietary ratio establishes the relationship between Shareholders' funds and total assets of the business. It indicates the extent to which shareholder's funds have been invested in the assets of the business.

The total-debt-to-total-assets ratio shows the degree to which a company has used debt to finance its assets.

Interest Coverage ratio which deals with the servicing of interest on loan i.e. it used to determine how easily a company can pay interest on its outstanding debt. Thus, it is a measure of security of interest payable on long-term debts

The formulas for each are as follows:

$$\text{Debt-Equity Ratio} = \frac{\text{Long} - \text{term Debts}}{\text{Shareholders' Funds}}$$

$$\text{Proprietary Ratio} = \frac{\text{Shareholders' Funds}}{\text{Net Assets}}$$

$$\text{Total assets to Debt Ratio} = \frac{\text{Total assets}}{\text{Long-term debts}}$$

$$\text{Interest Coverage Ratio} = \frac{\text{Profit before Interest and Tax}}{\text{Interest on Long-term debts}}$$

$$\text{Debt to Capital Employed Ratio} = \frac{\text{Long-term Debt}}{\text{Capital Employed (or Net Assets)}}$$

Or

$$\text{Debt to Capital Employed Ratio} = \frac{\text{Total Debts}}{\text{Total Assets}}$$