KMBN-103: Financial Accounting& Analysis (Unit-4)

Analysis of financial statement - Ratio Analysis

Ratio It is an arithmetical expression of relationship between two related or interdependent items.

Accounting Ratios It is a mathematical expression that shows the relationship between various items or groups of items shown in financial statements. When ratios are calculated on the basis of accounting information, they are called accounting ratios.

Ratio Analysis It is a technique which involves re-grouping of data by application of arithmetical relationship.

Objectives of Ratio Analysis

(i) To know the areas of an enterprise which need more attention.
(ii) To know about the potential areas which can be improved on.
(iii) Helpful in comparative analysis of the performance.
(iv) Helpful in budgeting and forecasting.
(v) To provide analysis of the liquidity, solvency, activity and profitability of an enterprise.
(vi) To provide information useful for making estimates and preparing the plans for future.

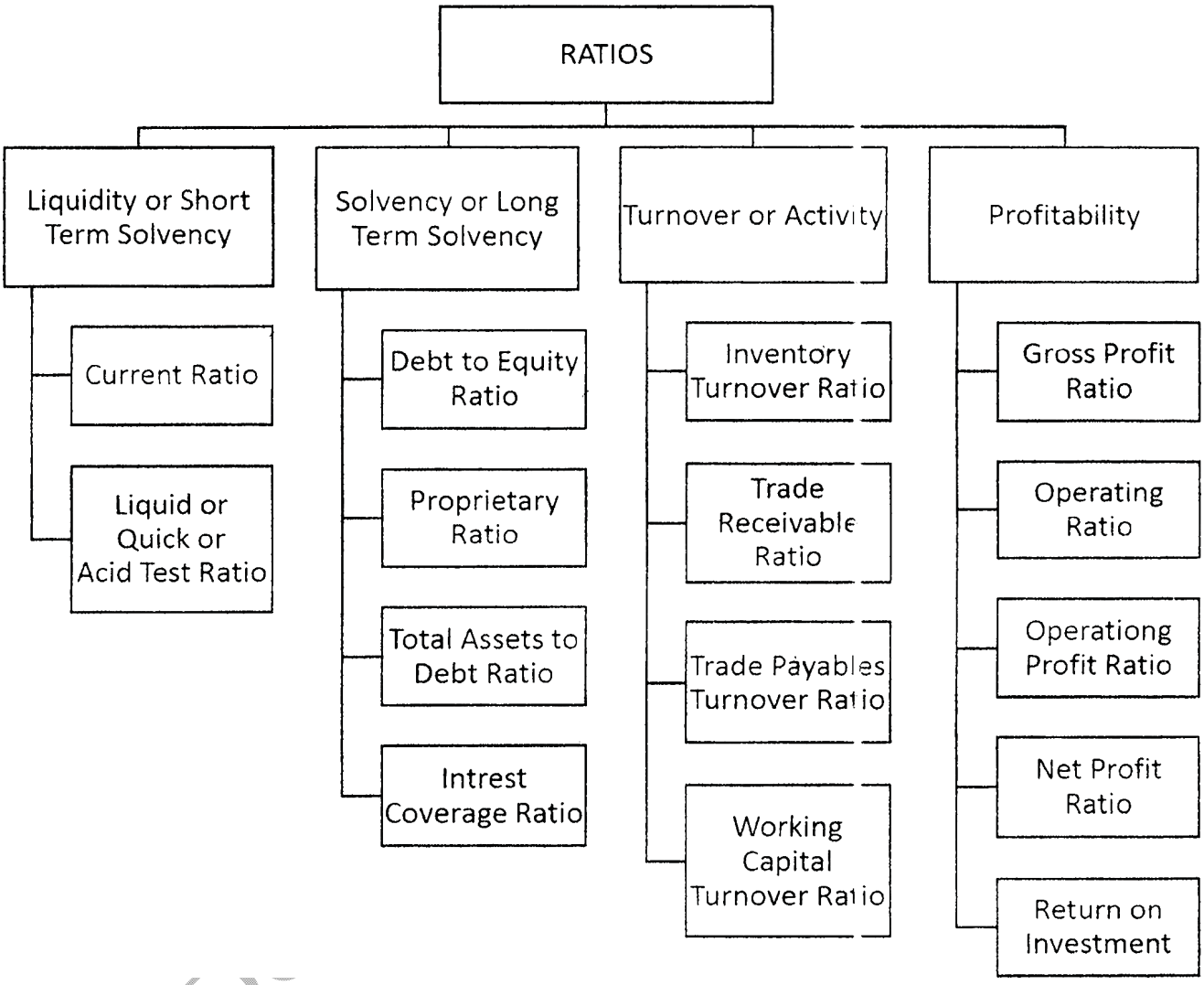
Advantages of Ratio Analysis

(i) It is useful in analysis of financial statements.
(ii) Helps in simplifying accounting figures.
(iii) Useful in judging the operating efficiency of business.
(iv) Helps in identification of problem areas.
(v) Helpful in comparative analysis.

Limitations of Ratio Analysis

(i) Accounting ratios ignore qualitative factors.
(ii) Absence of universally accepted terminology.
(iii) Ratios are affected by window-dressing.
(iv) Effects of inherent limitations of accounting.
(v) Misleading results in the absence of absolute data.
(vi) Price level changes ignored.
(vii) Affected by personal bias and ability of the analyst.

Classification / Types of Ratios



Liquidity Ratios

Liquidity Ratios Liquidity ratios measure the firm's ability to fulfil its short-term financial obligations.

1. Current ratio/Working capital ratio This ratio establishes relationship between current assets and current liabilities and is used to assess the short-term financial position of the business concern.

Current ratio of 2:1 is considered to be ideal.

$$\text{Current Ratio/Working Capital Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Items Included in Current Assets
(a) Current investments
(b) Inventories (Excluding loose tools, stores and spares)
(c) Trade receivables (bills receivable and sundry debtors less provision for doubtful debts)
(d) Cash and cash equivalents (cash in hand, cash at bank, cheques/drafts in hand)
(e) Short-term loans and advances
(f) Other current assets (prepaid expenses, interest receivable, etc.)
Items Included in Current Liabilities
(a) Short-term borrowings
(b) Trade payables (bills payable and sundry creditors)
(c) Other current liabilities (current maturities of long-term debts, interest, accrued but not due on borrowings, interest accrued and due on borrowings, outstanding expenses, unclaimed dividend, calls-in-advance, etc)
(d) Short-term provisions

2. Liquid ratio/Quick ratio/Acid test ratio This ratio establishes relationship between liquid assets and current liabilities and is used to measure the firm's ability to pay the claims of creditors immediately.

This ratio is a better indicator of liquidity and 1 : 1 is considered to be ideal.

$$\text{Liquid Ratio/Quick Ratio/Acid Test Ratio} = \frac{\text{Liquid Assets or Quick Assets}}{\text{Current Liabilities}}$$

Items Included in Liquid/Quick Assets
(i) Current investments.
(ii) Trade receivables (bill receivables, debtors less provisions for doubtful debts).
(iii) Cash and cash equivalents.
(iv) Short-term loans and advances.
(v) Other current assets except prepaid expenses.
Items excluded in liquid assets are inventories, prepaid expenses.
Items Included in Current Liabilities
(i) Short-term borrowings.
(ii) Trade payables (bills payable and sundry creditors).
(iii) Other short-term liabilities.
(iv) Short-term provisions.

Solvency Ratios

Solvency Ratios/ Leverage/ Capital Structure Ratio:- Solvency ratios judge the long-term financial position of an enterprise i.e. whether business is able to pay its long-term liabilities or not.

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.

Debt-Equity Ratio = Long term Debts / Shareholders' Funds

Where:

Shareholders' Funds (Equity) = Share capital + Reserves and Surplus + Money received against share warrants
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

Debt = Debentures + Long term provisions

Equity = Share Capital + General Reserve + Surplus

Example 1:

From the following information calculate Debt equity Ratio:-

Share capital:	**10,000 shares of 10 each**	**1,00,000 debentures**	**75,000**
General Reserve	**45000**	**Long term provision**	**25,000**
Surplus	**30,000**	**Outstanding Expenses**	**10,000**

Solution:

Debt to equity ratio = Debt / Equity (shareholder funds) = 1,00,000 / 1,75,000 = **0.57 : 1**

Where,

Debt = Debentures + Long term provisions = 75,000 + 25,000 = 1,00,000

Equity = Share Capital + General Reserve + Surplus = 1,00,000 + 45,000 + 30,000 = 1,75,000

2. Total Assets to Debt Ratio This ratio measures the extent of the coverage of long-term debts by assets.

Total assets to Debt Ratio = Total assets/Long-term debts

Example 2:

Shareholders' funds Rs. 14,00,000
Total Debts (Liabilities) Rs. 18,00,000
Current Liabilities = Rs. 2,00,000.

Calculate total assets to debt ratio.

Solution:

Total Assets to debt ratio = Total Assets / Long term Debts
= 32,00,000 / 16,00,000 = **2 : 1**

Long term debts = total debts (Liabilities) − Current Liabilities
= 18,00,000 − 2,00,000 = 16,00,000

Total assets = shareholder funds + total debts (liabilities)=14,00,000+18,00,000=32,00,000.

3. Proprietary Ratio: Proprietary ratio expresses relationship of proprietor's (shareholders) funds to net assets and is calculated as follows:

Proprietary Ratio = Shareholders, Funds / Capital employed (or net assets)

Capital employed = Shareholder's find + Long Term Loans.

Significance: Higher proportion of shareholders' funds in financing the assets is a positive feature as it provides security to creditors. This ratio can also be computed in relation to total assets instead of net assets (capital employed)

4. Interest Coverage Ratio: It is a ratio which deals with the servicing of interest on loan. 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.

It is calculated as follows:

Interest Coverage Ratio = Net Profit before Interest and Tax / Interest on long-term debts

Net Profit before tax = Net profit after tax × 100/ (100 − Tax rate)

Net profit before interest and tax = Net profit before tax + Interest

Significance: It reveals the number of times interest on long-term debts is covered by the profits available for interest. A higher ratio ensures safety of interest on debts.

Example 3:

From the following details, calculate interest coverage ratio:

Net Profit after tax Rs. 60,000; 15% Long-term debt 10,00,000; and Tax rate 40%.

Solution:

Net Profit after Tax = Rs. 60,000
Tax Rate = 40%

Net Profit before tax = Net profit after tax × 100/ (100 − Tax rate)
= Rs. 60,000 × 100/(100 − 40)
= Rs. 1,00,000

Interest on Long-term Debt = 15% of Rs. 10,00,000 = Rs. 1,50,000

Net profit before interest and tax = Net profit before tax + Interest
= Rs. 1,00,000 + Rs. 1,50,000 = Rs. 2,50,000

Interest Coverage Ratio = Net Profit before Interest and Tax/Interest on long-term debt
= Rs. 2,50,000/Rs. 1,50,000
= 1.67 times

Activity (or Turnover) Ratio

These ratios indicate the speed at which, activities of the business are being performed. The activity ratios express the number of times assets employed. Higher turnover ratio means better utilisation of assets and signifies improved efficiency and profitability, and as such is known as **efficiency ratios.**

1. Inventory Turnover Ratio: It determines the number of times inventory is converted into revenue from operations during the accounting period under consideration. It expresses the relationship between the cost of revenue from operations and average inventory

The formula for its calculation is as follows:

Inventory Turnover Ratio = Cost of Revenue from Operations / Average Inventory

Cost of Revenue from Operations = Inventory in the beginning + Net Purchases + Wages + Carriage inwards − Inventory at the end.

Average Inventory = Inventory in the beginning + Inventory at the end / 2

Example 4:

From the following information, calculate inventory turnover ratio:

Inventory in the beginning = 18,000
Inventory at the end = 22,000
Net purchases = 46,000
Wages = 14,000
Revenue from operations = 80,000
Carriage inwards = 4,000

Solution:

Inventory Turnover Ratio = Cost of Revenue from Operations / Average Inventory

Cost of Revenue from Operations = Inventory in the beginning + Net Purchases + Wages + Carriage inwards − Inventory at the end
= Rs. 18,000 + Rs. 46,000 + Rs. 14,000 + Rs. 4,000 − Rs. 22,000 = Rs. 60,000

Average Inventory = Inventory in the beginning + Inventory at the end / 2
= Rs. 18,000 + Rs. 22,000/ 2 = Rs. 20,000

∴ Inventory Turnover Ratio = Rs. 60,000/ Rs. 20,000 = 3 Times

2. Trade Receivables Turnover Ratio: It expresses the relationship between credit revenue from operations and trade receivable.

It is calculated as follows:

Trade Receivable Turnover ratio = Net Credit Revenue from Operations / Average Trade Receivable

Credit Revenue from operations = Total revenue from operations − Cash revenue from operations

Where Average Trade Receivable = (Opening Debtors and Bills Receivable + Closing Debtors and Bills Receivable)/2

Average Collection Period = 365 / Trade Receivables Turnover Ratio

Example 5:

Calculate the Trade receivables turnover ratio from the following information:

Total Revenue from operations Rs.4,00,000
Cash Revenue from operations 20% of Total Revenue from operations
Trade receivables as at 1.4.2014 Rs. 40,000
Trade receivables as at 31.3.2015 Rs. 1,20,000

Solution:

Trade Receivables Turnover Ratio = Net Credit Revenue from Operations / Average Trade Receivables

Credit Revenue from operations = Total revenue from operations − Cash revenue from operations

Cash Revenue from operations = 20% of Rs. 4,00,000
= Rs. 4,00,000 × 20 / 100 = Rs. 80,000

Credit Revenue from operations = Rs. 4,00,000 − Rs. 80,000 = Rs. 3,20,000

Average Trade Receivables = Opening Trade Receivables + Closing Trade Receivables / 2
= Rs. 40,000 + Rs. 1,20,000 / 2 = Rs. 80,000

Net Credit Revenue Form Operations / Average Inventory
= Rs. 3,20,000 / Rs. 80,000 = **4 times.**

3. Trade Payable Turnover Ratio / Creditor Turnover Ratio/ Account Payable Turnover Ratio :

Trade payables turnover ratio indicates the pattern of payment of trade payable. As trade payable arise on account of credit purchases, it expresses relationship between credit purchases and trade payable.

It is calculated as follows:

Trade Payables Turnover ratio = Net Credit purchases / Average trade payable

Where,
Average Trade Payable = (Opening Creditors and Bills Payable + Closing Creditors and Bills Payable)/2

Average Payment Period = No. of days/month in a year ÷Trade Payables Turnover Ratio

OR

Trade Payable Turnover Ratio = Purchases / Average Trade Payables

Example 6:

Calculate the Trade payables turnover ratio from the following figures:

Credit purchases during 2014-15 = 12,00,000
Creditors on 1.4.2014 = 3,00,000
Bills Payables on 1.4.2014 = 1,00,000
Creditors on 31.3.2015 = 1,30,000
Bills Payables on 31.3.2015 = 70,000

Solution:

Trade Payables Turnover Ratio = Net Credit Purchases / Average Trade Payables

Average Trade Payables = Creditors in the beginning + Bills payables in the beginning + Creditors at the end + Bills payables at the end / 2
= (Rs. 3,00,000 + Rs. 1,00,000 + Rs. 1,30,000 + Rs. 70,000)/2 = Rs. 3,00,000

∴ Trade Payables Turnover Ratio = Rs. 12,00,000 / Rs. 3,00,000 = 4 times

Example 7:

From the following information, calculate –

i. Trade receivables turnover ratio

ii. Average collection period

iii. Trade payable turnover ratio

Given:

Revenue from Operations	8,75,000
Creditors	90,000
Bills receivable	48,000
Bills payable	52,000
Purchases	4,20,000
Trade debtors	59,000

Solution:

i. **Trade Receivables Turnover Ratio** = Net Credit Revenue from operation / Average Trade Receivable
= Rs. 8, 75,000 / (Rs. 59,000 + Rs. 48,000) = 8.18 times

ii. **Average Collection Period** = 365 / Trade Receivables Turnover Ratio = 365 / 8.18 = 45 days

iii. **Trade Payable Turnover Ratio** = Purchases / Average Trade Payables
= Purchases / Creditors + Bills payable
= 4,20,000 / 90,000 + 52,000
= 4,20,000 / 1,42,000 = **2.96 times**

4. Working Capital Turnover Ratio: It reflects relationship between revenue from operations and net assets (capital employed) in the business.

Working capital turnover ratio = Net Revenue from Operation / Working Capital

Profitability Ratios

Profitability ratios are calculated to analyse the earning capacity of the business which is the outcome of utilisation of resources employed in the business. There is a close relationship between the profit and the efficiency with which the resources employed in the business are utilised.

1. Gross Profit Ratio: Gross profit ratio as a percentage of revenue from operations is computed to have an idea about gross margin. It is computed as follows:

Gross Profit Ratio = Gross Profit / Net Revenue of Operations × 100

Revenue from Operations = Cash Revenue from Operations + Credit Revenue from Operation
Net Purchases = Cash Purchases + Credit Purchases − Return Outwards
Cost of Revenue from = Purchases + (Opening Inventory − Closing Inventory) + operations Direct Expenses
Gross Profit = Revenue from Operations − Cost of Revenue from Operation

Example 8:

Following information is available for the year 2014-15, calculate gross profit ratio:

Revenue from Operations: Cash	**25,000**
Credit	**75,000**
Purchases: Cash	**15,000**
Credit	**60,000**
Carriage Inwards	**2,000**
Salaries	**25,000**
Decrease in Inventory	**10,000**
Return Outwards	**2,000**
Wages	**5,000**

Solution:

Revenue from Operations = Cash Revenue from Operations + Credit Revenue from Operation
= Rs.25, 000 + Rs.75, 000 = Rs. 1,00,000
Net Purchases = Cash Purchases + Credit Purchases − Return Outwards
= Rs. 15,000 + Rs. 60,000 − Rs. 2,000 = Rs. 73,000
Cost of Revenue from = Purchases + (Opening Inventory − Closing Inventory) + operations Direct Expenses
= Purchases + Decrease in inventory + Direct Expenses
= Rs. 73,000 + Rs. 10,000 + (Rs. 2,000 + Rs. 5,000)
= Rs. 90,000
Gross Profit = Revenue from Operations − Cost of Revenue from Operation
= Rs. 1,00,000 − Rs. 90,000 = Rs. 10,000

Gross Profit Ratio = Gross Profit/Net Revenue from Operations × 100
= Rs.10,000/Rs.1,00,000 × 100 = **10%.**

2. Operating Ratio: It is computed to analyse cost of operation in relation to revenue from operations.

It is calculated as follows:

Operating Ratio = (Cost of Revenue from Operations + Operating Expenses)/ Net Revenue from Operations × 100

Operating Cost = Cost of Revenue from Operations + Selling Expenses + Administrative Expenses

3. Operating Profit Ratio: It is calculated to reveal operating margin. It may be computed directly or as a residual of operating ratio. It is calculated as under:

Operating Profit Ratio = Operating Profit/ Revenue from Operations × 100

Where,

Operating Profit = Revenue from Operations − Operating Cost

Example 9:

Given the following information:

Revenue from Operations	**3,40,000**
Cost of Revenue from Operations	**1,20,000**
Selling expenses	**80,000**
Administrative Expenses	**40,000**

Calculate Gross profit ratio and Operating ratio.

Solution:

Gross Profit = Revenue from Operations − Cost of Revenue from Operations
= Rs. 3,40,000 − Rs. 1,20,000
= Rs. 2,20,000
Gross Profit Ratio = Gross Profit / Revenue from operation × 100
= Rs. 2,20,000 / Rs. 3,40,000 × 100 = **64.71%**

Operating Cost = Cost of Revenue from Operations + Selling Expenses + Administrative Expenses
= Rs. 1,20,000 + 80,000 + 40,000 = **Rs. 2,40,000**
Operating Ratio = Operating Cost / Net Revenue from Operations × 100
= Rs. 2,40,000 / Rs. 3,40,000 x 100 = **70.59%**

4. Net Profit Ratio: It relates revenue from operations to net profit after operational as well as non-operational expenses and incomes.

It is calculated as under:

Net Profit Ratio = Net profit / Revenue from Operations × 100

5. Return on Capital Employed or Investment: Capital employed means the long-term funds employed in the business and includes shareholders' funds, debentures and long-term loans.

Capital employed may be taken as the total of non-current assets and working capital. Profit refers to the Profit before Interest and Tax (PBIT) for computation of this ratio.

Thus, it is computed as follows:

Return on Investment (or Capital Employed) = Profit before Interest and Tax / Capital Employed × 100

END OF UNIT -4

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