Unit – 2
Chapter 3
Ratio Analysis

Introduction

- Our study of accounting so far has been restricted to recording of business transaction in books of accounts, preparing a trial balance to check the arithmetical accuracy of accounts and preparing profit and loss account and a balance sheet with a view to ascertaining trading results of a specified period and financial position of the business on a specified date respectively.
- The functions of the accountant do not end at this stage. He should be able to analyze and interpret the figures disclosed by these statements to gauge accurately the financial health of the enterprise.
- The student of accountancy are frequently called upon to advise the prospective investors and should be able to analyze the accounts and say whether it is advisable for him to risk his savings in a particular enterprise.

Accounting Ratios

- The financial statements as prepared and presented annually are of little use for guidance of prospective investors, creditors and even management. If relationship between various related items in these financial statements are established, they can provide useful clues to gauge accurately the financial health and ability of business to make profit.
- This relation between two related items of financial statements is known as ratio. A ratio, is thus, one number expressed in terms of another, e.g., in order to obtain the rate of return on paid up capital, the net profit of the business is divided by the paid up share capital. The figure so obtained is the ratio. If the same is multiplied by 100, a percentage rate of return on paid up capital is obtained.
- A ratio is customarily expressed in three different ways:
  - **Simple figure:** It may be expressed as a proportion between two figures. For example, if the current assets are twice the current liabilities it can be said that the current ratio is 2 : 1.
  - **Percentage:** Second method is to express it in the form of percentage. E.g., the rate of return on capital employed is 30%.
  - **Rate or Times:** Third method is to express it as rates. For example, stock turnover is 6 or stock turns over 6 times a year.

Interpretation through Ratios

- Comparison with Ideal Ratio
- Comparison with Past Ratios
- Help of some Related Ratios
- Comparison with Ratios of Other Firms

Classification of Accounting Ratios

- Accounting ratios are generally classified as follows: (1) Traditional classification or classification according to the type of financial statements, (2) Functional classification

(1) Traditional Classification: The ratios are grouped into three categories on the basis of the statements from which the figures are taken for computing the ratios. It is well-known traditional classification and has been so grouped since the advent of ratio analysis. The ratios according to this classification are:

- **Revenue Statement Ratios:** These are the ratios computed on the basis of items taken from revenue statement. i.e., profit and loss account. E.g., Net profit ratio is computing by dividing Net Profit by Sales. Here, both net profit and sales are appearing in P & L Account.
- **Balance Sheet Ratios:** When two items or groups of items appearing in the balance sheet are compared the ratio so obtained is a balance sheet ratio. E.g., a ratio establishing relationship between current assets and current liabilities is a balance sheet ratio.
- **Composite Ratios:** A ratio showing the relationship between one item taken from Balance Sheet and another taken from Profit and Loss Account is a composite ratio or a combined ratio known as balance sheet and revenue statement ratio. E.g., A return on capital employed shows the proportion of net profit to capital employed and it is a composite ratio.

(2) Functional Classification: Ratios are also grouped in accordance with certain tests. On the basis there are four categories of ratios:

- **Liquidity Ratios:** These ratios indicate the position of liquidity. They are computed to ascertain whether the company is capable of meeting its short-term obligations from its short-term resources. For example, Current ratio shows the capacity of a firm to meet its current liabilities as and when they mature. E.g., (1) Current Ratio, (2) Liquidity Ratio, (3) Acid-Test Ratio.
- **Profitability Ratios:** A number of ratios are designed to indicate the profitability of the business and are grouped into the category of profitability ratio. For example, Return on capital employed is an example of profitability ratio. E.g., (1) Gross Profit Ratio, (2) Net Profit Ratio, (3) Expenses Ratio, (4) Operating Ratio, (5) Return on Capital Employed, (6) Return on shareholders' Funds, and (7) Debt service Coverage Ratio.
- **Leverage Ratios:** The composition of capital of business and the proportion of owners' capital and capital provided by outsiders are reflected by leverage ratios. For example, gearing ratio showing the relationship between the preference capital and ordinary capital is a leverage ratio. E.g., (1) Proprietary Ratio, (2) Debt-Equity Ratio, (3) Gearing Ratio, (4) Fixed Capital-Fixed Assets Ratio.
- **Activity or Efficiency Ratios:** These are the ratios showing the effectiveness with which the resources of the business are employed. It signifies the efficiency of the management. For example, stock turnover is an activity ratio, showing the number of times the average stock is turned over during the year. E.g., (1) Debtors Ratio or Turnover, (2) Creditors Ratio or Turnover, (3) Total Assets Turnover, (4) Fixed Assets Turnover, etc.

- **Example – 1:** The following are the summarized balance sheets of Ashok Mills Co. Ltd.:

Balance Sheets

Liabilities	31-3-2018 ₹	31-3-2019 ₹	Assets	31-3-2018 ₹	31-3-2019 ₹
Share Capital	1,00,000	1,00,000	**Fixed Assets:**		
Reserves	90,000	1,00,000	Land & Building	50,000	50,000
9% Debentures	1,00,000	1,00,000	Plant & Machinery	2,00,000	1,80,000
Current Liabilities:			**Current Assets:**		
Sundry Creditors	40,000	60,000	Stock	55,000	65,000
Provision for Taxation	20,000	10,000	Sundry Debtors	30,000	40,000
			Cash	15,000	35,000
	3,50,000	3,70,000		3,50,000	3,70,000

Additional Information:

	2017-'18 (₹)	2018-'19 (₹)
Sales	3,65,000	2,92,000
Gross Profit	90,000	52,000
Net Profit (before interest and tax)	58,000	30,000

The stock on 1-4-2017 was valued at ₹ 45,000.

- Calculate the following accounting ratios and comment in brief on each of them:
    (1) Current Ratio
    (2) Stock Turnover
    (3) Debtor’s Ratio and Debtors Turnover
    (4) Return on Capital Employed

- **Solution:** **(1) Current Ratio =** $\frac{Current\ Assets}{Current\ Liabilities}$

Working Notes:	31-3-2018	31-3-2019
Current Assets:		
Stock	55,000	65,000
Sundry Debtors	30,000	40,000
Cash	15,000	35,000
Total Current Assets	1,00,000	1,40,000
Current Liabilities:		
Sundry Creditors	40,000	60,000
Provision for Taxation	20,000	10,000
Total Current Liabilities	60,000	70,000
Current Ratio	$\frac{1,00,000}{60,000}$	$\frac{1,40,000}{70,000}$
	1.67 : 1	**2 : 1**

Comment: Current ratio has increased in current year shows the good liquid position.

(2) Stock Turnover Ratio = $\frac{COGS}{Average\ Stock}$

Working Notes:	31-3-2018	31-3-2019
COGS = Sales – Gross Profit		
Sales	3,65,000	2,92,000
Less: Gross Profit	90,000	52,000
COGS	2,75,000	2,40,000

Average Stock:

$\frac{Opening\ stock+Closing\ stock}{2}$	$\frac{45,000+55,000}{2}$	$\frac{55,000+65,000}{2}$
	= 50,000	= 60,000

Stock Turnover Ratio	$\frac{2,75,000}{50,000}$	$\frac{2,40,000}{60,000}$
	5.5 times	**4 times**

Comment: Stock Turnover Ratio decrease during current year shows the weak distribution policy.

$$\textbf{(3) Debtors Ratio} = \frac{\boldsymbol{Debtors + Bills\ Receivable}}{\boldsymbol{Credit\ Sales}} \times \boldsymbol{Days\ of\ the\ year}$$

	31-3-2018	31-3-2019
Debtors Ratio	$\frac{30,000}{3,65,000} \times 365$	$\frac{40,000}{2,92,000} \times 365$
	30 Days	**50 Days**

Comment: In current year debtors turnover ratio has also decreased, shows that the collection policy is not effective.

(4) Return on Capital Employed = $\frac{EBIT}{Capital\ Employed} \times 100$

Working Notes:	31-3-2018	31-3-2019
Capital Employed:		
Share Capital	1,00,000	1,00,000
Reserves	90,000	1,00,000
9% Debentures	1,00,000	1,00,000
Less: Fictitious Assets	----	----
Capital Employed	2,90,000	3,00,000
Return on Capital Employed	$\frac{58,000}{2,90,000} \times 100$	$\frac{30,000}{3,00,000} \times 100$
	20 %	**10 %**

Comment: Return on Capital Employed decrease half in current year, shows company does not earn sufficient to fulfill its requirement.

- **Example – 2:** The following is the Balance Sheet of The Desai Ltd. as on 31-3-2019:

Balance Sheet

Liabilities	31-3-2019 ₹	Assets	31-3-2019 ₹
Equity Share Capital	30,000	Plant and Machinery	60,000
Reserves	20,700	Stock of Goods	15,000
Debentures	30,000	Debtors	3,500
Creditors	5,000	Bills Receivable	1,500
Bills Payable	2,000	Cash	7,700
	87,700		87,700

Total Sales ₹ 60,000; and Net Profit ₹ 12,000.

From the above information calculate the following ratios and explain what they shows:

(1) Current Ratio

(2) Liquidity Ratio

(3) Debtors Ratio

(4) Net Profit to Sales Ratio

- **Solution:** **(1) Current Ratio =** $\frac{Current\ Assets}{Current\ Liabilities}$

Working Notes:	₹
Current Assets:	
Stock of Goods	15,000
Debtors	3,500
Bills Receivable	1,500
Cash	7,700
Total Current Assets	27,700
Current Liabilities:	
Creditors	5,000
Bills Payable	2,000
Total Current Liabilities	7,000
Current Ratio	$\frac{27,700}{7,000}$
	3.96 : 1

Comment: Current ratio of the company is 3.96:1, shows very comfortable liquid position of the company.

(2) Liquid Ratio = $\frac{Liquid\ Assets}{Current\ Liabilities}$

Working Notes:	₹
Liquid Assets:	
Current Assets	27,700
Less: Stock	15,000
Total Liquid Assets	12,700
Current Liabilities:	
Current Liabilities	7,000
Liquid Ratio	$\frac{12,700}{7,000}$
	1.81 : 1

Comment: Liquid ratio of the company is 1.81:1, shows very comfortable liquid position.

$$\textbf{(3) Debtors Ratio} = \frac{Debtors + Bills\ Receivable}{Credit\ Sales} \times Days\ of\ the\ year$$

$$= \frac{3{,}500 + 1{,}500}{60{,}000} \times 365$$

$$= \boxed{30\ \text{Days}}$$

Comment: Debtors ratio is 30 days which shows the collection policy of the company is very efficient.

$$\textbf{(4) Net Profit to Sales Ratio} = \frac{Net\ Profit}{Sales} \times 100$$

$$= \frac{12{,}000}{60{,}000} \times 100$$

$$= \boxed{20\ \%}$$

Comment: Net Profit of the company is 20% to sales, which is reasonable for any business.

- **Example – 3:** The details of Shreenath company are as under:

Revenue from Operations:		
Cash Sales	6,00,000	
+ Credit Sales	9,00,000	15,00,000
Less: Cost of goods sold		7,50,000
Gross Profit		7,50,000
Less: Other Expenses:		
Office Expenses	1,25,000	
Selling Expenses	1,25,000	2,50,000
Profit before taxes		5,00,000
Less: Taxes		2,50,000
Net Profit after taxes		2,50,000

Particulars			₹
I. EQUITY AND LIABILITIES:			
(1) Shareholder's Funds:			
(a) Share Capital:	Equity Share Capital		20,00,000
	10% Preference Share Capital		20,00,000
(b) Reserves and Surplus			11,00,000
(2) Non-Current Liabilities:			
(a) Long Term Borrowings:	Bank Loan		10,00,000
(3) Current Liabilities:			
(a) Trade Payables:	Creditors		1,00,000
	Bills Payables		45,000
(b) Other Current Liabilities:	Bank Overdraft		1,50,000
	Outstanding Expenses		5,000
		TOTAL	64,00,000
II. ASSETS:			
(1) Non-Current Assets:			
(a) Fixed Assets:	Tangible Assets		55,00,000
(b) Other Non-Current Assets:	Preliminary Expenses		1,00,000
(2) Current Assets:			
(a) Inventories:	Stock		1,75,000
(b) Trade Receivables:	Debtors		3,50,000
	Bills Receivable		50,000
(c) Cash and Cash Equivalents:	Cash Balance		2,25,000
		TOTAL	64,00,000

Besides the details mentioned above the opening stock was of ₹ 3,25,000. 360 days of the year, calculate the following ratios; also discuss taking the position of the company:

(1) Gross profit ratio

(2) Stock turnover ratio

(3) Operating ratio

(4) Current ratio

(5) Liquid ratio

(6) Debtors ratio

(7) Creditors ratio

(8) Proprietary ratio

(9) Rate of return on net capital employed

(10) Rate of return on equity shares

- **Solution:** **(1) Gross Profit Ratio** $= \frac{Gross\ Profit}{Net\ Sales} \times 100$

$$= \frac{7,50,000}{15,00,000} \times 100$$

$$= \boxed{50\ \%}$$

(2) Stock Turnover Ratio $= \frac{COGS}{Average\ Stock}$

Working Notes: ₹

Average Stock:

$\frac{Opening\ stock + Closing\ stock}{2}$ $\quad \frac{3,25,000+1,75,000}{2} = 2,50,000$

Stock Turnover Ratio $\quad \frac{7,50,000}{2,50,000}$

3 times

(3) Operating Ratio $= \frac{COGS + Operating\ expenses}{Net\ Sales} \times 100$

$= \frac{7,50,000 + 2,50,000}{15,00,000} \times 100$ $= \boxed{66.67\ \%}$

Where, Operating expenses = Office Exp. + Selling Exp.

= 1,25,000 + 1,25,000 = 2,50,000

(4) Current Ratio $= \frac{Current\ Assets}{Current\ Liabilities}$

$= \frac{8,00,000}{3,00,000}$ $= \boxed{2.67 : 1}$

Where, Current Assets = Stock + Debtors + B.R. + Cash

= 1,75,000 + 3,50,000 + 50,000 + 2,25,000

= ₹ 8,00,000

Current Liabilities = Creditors + Bills Payable + Bank O/d + O/s Exp.

= 1,00,000 + 45,000 + 1,50,000 + 5,000 = ₹ 3,00,000

(5) Liquid Ratio $= \frac{\textit{Liquid Assets}}{\textit{Current Liabilities}}$

$= \frac{6{,}25{,}000}{3{,}00{,}000}$ $= \boxed{2.08 : 1}$

Where, Liquid Assets = Current Assets – Stock

= 8,00,000 – 1,75,000 = ₹ 6,25,000

Current Liabilities = 3,00,000

(6) Debtors Ratio $= \frac{\textit{Debtors+Bills Receivable}}{\textit{Credit Sales}} \times \textit{Days of the year}$

$= \frac{3{,}50{,}000+50{,}000}{9{,}00{,}000} \times 360$ $= \boxed{160 \text{ Days}}$

(7) Creditors Ratio $= \frac{Creditors + Bills\ Payable}{Credit\ Purchase} \times Days\ of\ the\ year$

$= \frac{1,00,000+45,000}{6,00,000} \times 360$ $= \boxed{87\ Days}$

Where, Purchase = COGS – Opening Stock + Closing Stock

= 7,50,000 – 3,25,000 + 1,75,000 = ₹ 6,00,000

(8) Proprietary Ratio $= \frac{Proprietar's\ funds}{Total\ funds} \times 100$

$= \frac{50,00,000}{63,00,000} \times 100$ $= \boxed{79.37\%}$

Where, Proprietor's funds = Eq. Share capital + Pref. share capital + Reserves – Fictitious assets

= 20,00,000 + 20,00,000 + 11,00,000 – 1,00,000 = ₹ 50,00,000

Total funds = Total of Balance sheet – Fictitious assets

= 64,00,000 – 1,00,000 = ₹ 63,00,000

(9) Return on Capital Employed $= \frac{EBIT}{Capital\ Employed} \times 100$

$= \frac{5,00,000}{60,00,000} \times 100$ $= \boxed{8.33\ \%}$

Where, EBIT = Profit Before Tax + Interest

= ₹ 5,00,000

Capital Employed = Proprietor's Fund + Long term Liabilities

= 50,00,000 + 10,00,000 = ₹ 60,00,000

(10) Rate of return on equity shares $= \frac{PAT - Pref.Dividend}{Equity\ share\ capital} \times 100$

$= \frac{2,50,000 - 2,00,000}{20,00,000} \times 100$ $= \boxed{2.5\%}$

Where, Preference Dividend = 20,00,000 × 10% = ₹ 2,00,000

Example – 8: The following is the summarized Balance Sheet of Raj Ltd. as on 31-3-2019:

Particulars	₹
I. EQUITY AND LIABILITIES:	
(1) Shareholder's Funds:	
(a) Share Capital: Equity Share Capital	2,50,000
10% Pref. Share Capital	1,00,000
(b) Reserves & Surplus: General Reserve	1,12,500
(2) Non-Current Liabilities:	
(a) Long Term Borrowings: 12% Debentures	1,50,000
(3) Current Liabilities:	
(a) Trade Payables: Creditors	95,000
Bills Payable	30,000
(b) Other Current Liabilities: Bank Overdraft	25,000
	7,62,500
II. ASSETS:	
(1) Non-Current Assets:	
(a) Fixed Assets	4,80,000
(b) Other Non-Current Assets: Preliminary Expenses	12,500
(2) Current Assets:	
(a) Inventories: Stock	1,12,500
(b) Trade Receivables: Debtors	87,500
Bills Receivable	25,000
(c) Cash and Cash Equivalents: Cash balance	45,000
	7,62,500

Additional Information:	**₹**
(1) Total sales (Cash sales are 1/5th of credit sales)	9,00,000
(2) Gross Profit	3,60,000
(3) Net Profit (Before Interest and Tax)	2,43,000
Rate of tax is 50%	
(4) Stock on 1-4-2018	1,03,500

From the above information, calculate the following accounting ratios for the year and make brief comment on each of them. In bracket, standard ratios are shown (300 days to be taken for the year).

(1) Current Ratio

(2) Debtors Ratio (300 days)

(3) Net Profit Ratio

(4) Capital Gearing Ratio

(5) Return on Shareholder’s Funds

(6) Stock Ratio

Solution: **(1) Current Ratio** $= \frac{Current\ Assets}{Current\ Liabilities}$

$$= \frac{2,70,000}{1,50,000} \qquad = \boxed{1.8 : 1}$$

Where, Current Assets = Stock + Debtors + Bills Receivable + Cash Balance

= 1,12,500 + 87,500 + 25,000 + 45,000 = ₹ 2,70,000

Current Liabilities = Creditors + Bills Payable + Bank Overdraft

= 95,000 + 30,000 + 25,000 = ₹ 1,50,000

(2) Debtors Ratio $= \frac{Debtors + Bills\ Receivable}{Credit\ Sales} \times Days\ of\ the\ year$

$$= \frac{87,500+25,000}{7,50,000} \times 300 \qquad = \boxed{45\ Days}$$

Here, Cash sales are 20% of Credit sales. So, we assume credit sales as 100 X.

It means cash sales are 20% of 100 X.

Now, Total sales = Cash Sales + Credit Sales

9,00,000 = 20 X + 100 X

120 X = 9,00,000 So, X = 7,500.

So, Credit sales = 100 (7,500) = ₹ 7,50,000

(3) Net Profit Ratio = $\frac{PAT\ (Profit\ After\ Tax)}{Net\ Sales} \times 100$

$$= \frac{1,12,500}{9,00,000} \times 100 \qquad = \mathbf{12.5\ \%}$$

EBIT (Profit Before Interest and Tax)	2,43,000
Less: Interest on Debentures (1,50,000 × 12%)	18,000
Profit Before Tax	2,25,000
Less: Taxes (50%)	1,12,500
Profit After Tax	1,12,500

(4) Capital Gearing Ratio = $\frac{Fixed\ interest\ and\ dividend\ bearing\ capital}{Ordinary\ capital}$

$$= \frac{2,50,000}{2,50,000} \qquad = \mathbf{1 : 1}$$

Where, Fixed int. and dividend bearing capital = Pref. capital + Debentures

= 1,00,000 + 1,50,000 = ₹ 2,50,000

(5) Return on Shareholders' Funds $= \frac{PAT}{Shareholders' Funds} \times 100$

$= \frac{1,12,500}{4,50,000} \times 100$ $= \boxed{25\ \%}$

Where, PAT = Profit After Tax = ₹ 1,12,500

Shareholders' Funds = Share Capital + Reserves – Fictitious Assets

= 2,50,000 + 1,00,000 + 1,12,500 – 12,500 = ₹ 4,50,000

(5) Stock Turnover Ratio $= \frac{COGS}{Average\ Stock}$

$= \frac{5,40,000}{1,08,000}$ $= \boxed{\textbf{5 times}}$

Where, Average Stock:

$\frac{Opening\ stock + Closing\ stock}{2}$ $= \frac{1,03,500 + 1,12,500}{2}$ = ₹ 1,08,000

- **Example – 7:** Balance sheet on 31-3-2019 of Buddh Dev Company Ltd.:

Liabilities	₹	Assets	₹
Equity Share Capital	20,00,000	Fixed Assets	15,20,000
Reserve and Surplus	10,80,000	Underwriting Commission	20,000
10% Debentures	10,00,000	Current Investments	10,00,000
Provident Fund	1,80,000	Stock	7,50,000
Creditors	4,50,000	Debtors	8,25,000
Bills Payable	1,50,000	Bills Receivable	3,75,000
Outstanding expenses	1,00,000	Bank Balance	4,00,000
Provision for taxation	40,000	Prepaid expenses	1,00,000
		Prepaid Income-tax	10,000
	50,00,000		50,00,000

Additional Information:

(1) Gross profit is 40% of the sales.

(2) Net profit is ₹ 10,00,000 (Before Interest and Tax), Taxation rate is 50%.

(3) Cash sales are 25% of the credit sales.

(4) On 1-4-2018, the stock is worth ₹ 4,50,000.

(5) The collections are received in 108 days from the debtors (360 days of the year to be considered).

From the above information, calculate the following accounting ratios for the year.

(1) Rate of return on capital employed

(2) Stock turnover ratio

(3) Proprietary ratio

(4) Current ratio

(5) Net profit ratio

(6) Operating ratio

Solution:

(1) Rate of Return on Capital Employed $= \frac{EBIT}{Capital\ Employed} \times 100$

$= \frac{10,00,000}{40,60,000} \times 100$

$= \boxed{24.63\ \%}$

Where, EBIT = Profit Before Interest & Tax = ₹ 10,00,000

Capital Employed = Share Capital + Reserves + Long term liabilities – Fictitious Assets

= 20,00,000 + 10,80,000 + 10,00,000 – 20,000

= ₹ 40,60,000

(2) Stock Turnover Ratio = $\frac{COGS}{Average\ Stock}$

$$= \frac{30,00,000}{6,00,000} \qquad = \boxed{\textbf{5 times}}$$

Where, COGS = Sales – Gross Profit

= 50,00,000 – 20,00,000 (40% of sales) = ₹ 30,00,000

Average Stock: $\frac{Opening\ stock + Closing\ stock}{2}$

$= \frac{4,50,000+7,50,000}{2}$ = ₹ 6,00,000

Here, Sales is not given, we can find out sales from debtors ratio.

Debtors ratio = $\frac{Debtors+Bills\ Receivable}{Credit\ sales} \times Days\ of\ the\ year$

108 days = $\frac{8,25,000+3,75,000}{Credit\ sales} \times 360$

So, Credit sales = $\frac{12,00,000}{108} \times 360$ = ₹ 40,00,000

Total sales = Cash sales + Credit Sales

= 10,00,000 (25% of credit sales) + 40,00,000 = ₹ 50,00,000

(3) Proprietary Ratio $= \frac{Proprietar's\ funds}{Total\ funds} \times 100$

$= \frac{30,60,000}{49,80,000} \times 100$ $= \boxed{61.45\ \%}$

Where, Proprietor's funds = Eq. Capital + Reserve & Surplus – Fictitious Assets

= 20,00,000 + 10,80,000 – 20,000 = ₹ 30,60,000

Total funds = Total of Balance sheet – Fictitious assets

= 50,00,000 – 20,000 = ₹ 49,80,000

(4) Current Ratio $= \frac{Current\ Assets}{Current\ Liabilities}$

$= \frac{34,60,000}{7,40,000}$ $= \boxed{4.68 : 1}$

Where, Current Assets = Invest. + Stock + Debtors + Prepaid Exp. + Prepaid I.T. + B/R + Bank

= 10,00,000 + 7,50,000 + 8,25,000 + 1,00,000 + 10,000 + 3,75,000 + 4,00,000

= ₹ 34,60,000

Current Liabilities = Creditors + Bills Payable + O/s Exp. + Provision for taxation

= 4,50,000 + 1,50,000 + 1,00,000 + 40,000

= ₹ 7,40,000

(5) Net Profit Ratio $= \frac{Net\ Profit(PAT)}{Sales} \times 100$

$= \frac{4{,}50{,}000}{50{,}00{,}000} \times 100$

$= \boxed{9\ \%}$

Where, Net Profit (PAT) = EBIT	10,00,000	
– Interest on debentures	1,00,000	(10% of 10,00,000)
Profit Before Tax	9,00,000	
– Tax (50%)	4,50,000	
Profit After Tax (PAT)	4,50,000	

$$\textbf{(6) Operating Ratio} = \frac{COGS + Operating\ expenses}{Net\ Sales} \times 100$$

$$= \frac{30{,}00{,}000 + 10{,}00{,}000}{50{,}00{,}000} \times 100$$

$$= \boxed{80\ \%}$$

Where, Operating expenses = Gross Profit – Profit Before Interest and Tax

= 20,00,000 – 10,00,000

= ₹ 10,00,000

46. The following are the summarised Balance Sheets of Misha Ltd. :

Particulars		31-3-2019 Rs.	31-3-2020 Rs.
I. EQUITY AND LIABILITIES :			
(1) Shareholders' Funds :			
(a) Share Capital :			
Equity Share Capital		7,00,000	8,00,000
10% Pref. Share Capital		1,00,000	1,00,000
(b) Reserves and Surplus		2,00,000	3,00,000
(2) Non-Current Liabilities :			
(a) Long Term Borrowings :			
10% Debentures		2,00,000	2,00,000
(3) Current Liabilities :			
(a) Trade Payables :			
Creditors		2,00,000	4,00,000
Bills Payable		50,000	1,00,000
	Total	14,50,000	19,00,000
II. ASSETS :			
(1) Non-Current Assets :			
(a) Fixed Assets :			
(i) Tangible Assets :			
Land & Buiiding		4,00,000	5,00,000
Machinery		3,00,000	4,00,000
(2) Current Assets :			
(a) Inventories : Stock		3,60,000	4,40,000
(b) Trade Receivables : Debtors		2,50,000	3,00,000
(c) Cash and Cash Equivalents :			
Bank balance		1,40,000	2,60,000
	Total	14,50,000	19,00,000

Additional Informations :

Particulars	2018-'19 Rs.	2019-'20 Rs.
Total Sales (Cash Sales are 3/5th of Credit Sales)	16,00,000	24,00,000
Gross Profit	4,00,000	8,00,000
Net Profit (before interest and taxes)	3,40,000	5,96,000

Stock as on 1-4-2018 was Rs. 2,40,000.

Assume tax rate at 50% on profit.

From the above informations, calculate the following ratios for both the years and make brief comments on each of them :

(1) Gross Profit Ratio

(2) Net Profit Ratio

(3) Stock Turnover

(4) Current Ratio

(5) Debtor's Ratio (360 days to be taken for the year).

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- **Solution:**

$$\textbf{(1) Gross Profit Ratio} = \frac{\textbf{Gross Profit}}{\textbf{Net Sales}} \times \textbf{100}$$

	2018-’19	2019-’20
Gross Profit Ratio	$\frac{4,00,000}{16,00,000} \times 100$	$\frac{8,00,000}{24,00,000} \times 100$
	25 %	**33.33 %**

Comment: Gross Profit ratio of current year is better than previous year, it shows good profitability.

(2) Net Profit Ratio = $\frac{Net\ Profit\ (PAT)}{Net\ Sales} \times 100$

Working Notes:	2018-'19	2019-'20
Profit Before Interest and Tax	3,40,000	5,96,000
Less: Interest on debentures	20,000	20,000
Profit Before Tax	3,20,000	5,76,000
Less: Tax (50%)	1,60,000	2,88,000
Profit after Tax (PAT)	**1,60,000**	**2,88,000**

Net Profit Ratio	$\frac{1,60,000}{16,00,000} \times 100$	$\frac{2,88,000}{24,00,000} \times 100$
	10 %	**12 %**

Comment: Net profit ratio of the company also shows good profitability because it is high in the current year.

(3) Stock Turnover Ratio = $\frac{COGS}{Average\ Stock}$

Working Notes:	2018-'19	2019-'20
COGS = Sales – Gross Profit		
Sales	16,00,000	24,00,000
Less: Gross Profit	4,00,000	8,00,000
COGS	12,00,000	16,00,000

Average Stock:

$\frac{Opening\ stock + Closing\ stock}{2}$

	2018-'19	2019-'20
	$\frac{2,40,000+3,60,000}{2}$ = 3,00,000	$\frac{3,60,000+4,40,000}{2}$ = 4,00,000
Stock Turnover Ratio	$\frac{12,00,000}{3,00,000}$	$\frac{16,00,000}{4,00,000}$
	4 times	**4 times**

Comment: Stock Turnover Ratio is same in both the year, it shows efficiency of company is stable.

(4) Current Ratio = $\frac{Current\ Assets}{Current\ Liabilities}$

Working Notes:	2018-’19	2019-’20
Current Assets:		
Stock	3,60,000	4,40,000
Debtors	2,50,000	3,00,000
Bank Balance	1,40,000	2,60,000
Total Current Assets	7,50,000	10,00,000
Current Liabilities:		
Creditors	2,00,000	4,00,000
Bills Payable	50,000	1,00,000
Total Current Liabilities	2,50,000	5,00,000
Current Ratio	$\frac{7,50,000}{2,50,000}$	$\frac{10,00,000}{5,00,000}$
	3 : 1	**2 : 1**

Comment: Current ratio has decreased in current year shows the weak liquid position.

(5) Debtors Ratio = $\frac{Debtors+Bills\ Receivable}{Credit\ Sales} \times Days\ of\ the\ year$

	2018-’19	2019-’20
Debtors Ratio	$\frac{2,50,000}{10,00,000} \times 360$	$\frac{3,00,000}{15,00,000} \times 360$
	90 Days	**72 Days**

Here, Cash sales are 3/5th of Credit sales. So, we assume credit sales as 100 X.

It means cash sales are 3/5th of 100 X.

Now, Total sales = Cash Sales + Credit Sales

In 2018-’19 16,00,000 = 60 X + 100 X

160 X = 16,00,000 So, X = 10,000.

So, Credit sales = 100 (10,000) = ₹ 10,00,000

In 2019-’20 24,00,000 = 60 X + 100 X

160 X = 24,00,000 So, X = 15,000.

So, Credit sales = 100 (15,000) = ₹ 15,00,000

Comment: In current year debtors ratio has decreased, shows that the collection policy is effective and speedy.

42. The following are the Balance Sheets of Deval Limited as on 31-3-2017 and 31-3-2018 :

Particulars	Note	31-3-2017 Rs.	31-3-2018 Rs.
I. EQUITY AND LIABILITIES :			
(1) Shareholders' Funds :			
(a) Share Capital :			
Equity Shares of Rs. 100 each		10,00,000	12,00,000
10% Pref. Shares of Rs. 100 each		6,00,000	6,00,000
(b) Reserves and Surplus :			
General Reserve		1,40,000	2,40,000
Profit & Loss A/c		2,60,000	1,60,000
(2) Non-Current Liabilities :			
(a) Long Term Borrowings :			
12% Debentures		2,00,000	2,00,000
(3) Current Liabilities :			
(a) Trade Payables :			
Creditors		2,40,000	3,00,000
Bills Payables		1,60,000	2,00,000
(b) Other Current Liabilities :			
Bank Overdraft		2,00,000	2,60,000
Total		28,00,000	31,60,000
II. ASSETS			

II.	**ASSETS :**		
	(1) Non-Current Assets :		
	(a) Fixed Assets :		
	(i) Tangible Assets :		
	Land & Building	10,00,000	12,00,000
	Machinery	7,00,000	8,00,000
	Furniture & Fixtures	3,00,000	4,00,000
	(2) Current Assets :		
	(a) Inventories : Stock	3,80,000	60,000
	(b) Trade Receivables :		
	Debtors	2,40,000	4,00,000
	Bills Receivables	1,00,000	1,00,000
	(c) Cash and Cash Equivalents :		
	Cash & Bank balance	80,000	2,00,000
	Total	28,00,000	31,60,000

Additional Informations :

Particulars	31-3-'17 Rs.	31-3-'18 Rs.
Total Purchases (Cash purchases are 2/5 of credit purchases)	12,60,000	19,60,000
Net Profit (after interest and tax, tax rate is 50%)	2,00,000	3,00,000
Credit Sales (75% of total sales)	6,00,000	7,20,000

From the above informations, calculate the following accounting ratios :

(1) Current Ratio
(2) Rate of Return on Capital Employed
(3) Creditors Ratio (360 days to be taken for the year)
(4) Rate of Return on Equity Shareholders' Funds
(5) Capital Gearing Ratio
(6) Long Term Funds to Fixed Assets
(7) Net Profit Ratio.

- **Solution:** **(1) Current Ratio = $\frac{Current\ Assets}{Current\ Liabilities}$**

Working Notes:	2017-'18	2018-'19
Current Assets:		
Stock	3,80,000	60,000
Debtors	2,40,000	4,00,000
Bills Receivable	1,00,000	1,00,000
Cash & Bank Balance	80,000	2,00,000
Total Current Assets	8,00,000	7,60,000
Current Liabilities:		
Creditors	2,40,000	3,00,000
Bills Payable	1,60,000	2,00,000
Bank Overdraft	2,00,000	2,60,000
Total Current Liabilities	6,00,000	7,60,000
Current Ratio	$\frac{8,00,000}{6,00,000}$	$\frac{7,60,000}{7,60,000}$
	1.33 : 1	**1 : 1**

Comment: Current ratio has decreased in current year shows the weak liquid position.

(2) Return on Capital Employed = $\frac{EBIT}{Capital\ Employed} \times 100$

Working Notes:	2017-'18	2018-'19
Profit After Tax	2,00,000	3,00,000
Add: Tax (100% of PAT)	2,00,000	3,00,000
Profit Before Tax	4,00,000	6,00,000
Add: Interest on Debentures	24,000	24,000
Profit Before Interest and Tax	**4,24,000**	**6,24,000**

Capital Employed = Share Capital + Reserves + Long term liabilities – Fictitious Assets

In 2017-'18 = 10,00,000 + 6,00,000 + 1,40,000 + 2,60,000 + 2,00,000 – 0

= ₹ 22,00,000

In 2018-'19 = 12,00,000 + 6,00,000 + 2,40,000 + 1,60,000 + 2,00,000 – 0

= ₹ 24,00,000

Return on Capital Employed $\frac{4,24,000}{22,00,000} \times 100$ $\frac{6,24,000}{24,00,000} \times 100$

19.27 % **26 %**

Comment: Return on Capital Employed of the company shows good profitability because it is high in the current year.

(3) Creditors Ratio = $\frac{Creditors+Bills\ Payable}{Credit\ Purchase} \times Days\ of\ the\ year$

	2017-'18	2018-'19
Creditors Ratio	$\frac{2,40,000+1,60,000}{9,00,000} \times 360$	$\frac{3,00,000+2,00,000}{14,00,000} \times 360$
	160 Days	**129 Days**

Here, Cash Purchase are 2/5th of Credit purchase. So, we assume credit purchase as 100 X.

It means cash purchase are 2/5th of 100 X.

Now, Total purchase = Cash Purchase + Credit Purchase

In 2017-'18 12,60,000 = 40 X + 100 X

140 X = 12,60,000 So, X = 9,000.

So, Credit purchase = 100 (9,000) = ₹ 9,00,000

In 2018-'19 19,60,000 = 40 X + 100 X

140 X = 19,60,000 So, X = 14,000.

So, Credit purchase = 100 (14,000) = ₹ 14,00,000

Comment: In current year creditors ratio has decreased, shows that the payment policy is effective and speedy.

(4) Return on Equity Shareholder's fund = $\frac{PAT - Pref.dividend}{Eq.Shareholder's\ fund} \times 100$

Eq. Shareholder's fund = Equity Share Capital + Reserves – Fictitious Assets

In 2017-'18 = 10,00,000 + 1,40,000 + 2,60,000 – 0

= ₹ 14,00,000

In 2018-'19 = 12,00,000 + 2,40,000 + 1,60,000 – 0

= ₹ 16,00,000

Return on Capital Employed $\frac{2,00,000 - 60,000}{14,00,000} \times 100$ $\frac{3,00,000 - 60,000}{16,00,000} \times 100$

10 % **15 %**

Comment: Return on Equity Shareholder's fund of the company has increased, shows good profitability.

(5) Capital Gearing Ratio = $\frac{Pref.Capital+Debentures}{Equity\ Share\ Capital}$

	2017-’18	2018-’19
Capital Gearing Ratio	$\frac{6,00,000+2,00,000}{10,00,000}$	$\frac{6,00,000+2,00,000}{12,00,000}$
	0.8 : 1	**0.67 : 1**

Comment: In current year, gearing ratio of company goes down shows that the proportion of ordinary shares is high.

(6) Long term funds to Fixed assets = $\frac{Long\ Term\ Funds}{Fixed\ Assets}$

Working Notes:	2017-'18	2018-'19
Long Term Funds:		
Equity Share Capital	10,00,000	12,00,000
10% Pref. Share Capital	6,00,000	6,00,000
Reserve & Surplus (Gen. Res. and P & L A/c)	4,00,000	4,00,000
12% Debentures	2,00,000	2,00,000
Total Long term Funds	22,00,000	24,00,000
Fixed Assets:		
Land & Building	10,00,000	12,00,000
Machinery	7,00,000	8,00,000
Furniture & Fixtures	3,00,000	4,00,000
Total Fixed Assets	20,00,000	24,00,000
Long term Fund to Fixed assets	$\frac{22,00,000}{20,00,000}$	$\frac{24,00,000}{24,00,000}$
	1.1 : 1	**1 : 1**

Comment: In second year company is able to pay all its long term funds by selling their fixed assets.

(7) Net Profit Ratio = $\frac{Net\ Profit\ (PAT)}{Net\ Sales} \times 100$

Here, Credit sales are 75% of Total sales.

In 2017-'18:	Credit sales	Total Sales	
	75	100	
	6,00,000	(?)	₹ 8,00,000
In 2018-'19:	Credit sales	Total Sales	
	75	100	
	7,20,000	(?)	₹ 9,60,000

Net Profit Ratio	$\frac{2,00,000}{8,00,000} \times 100$	$\frac{3,00,000}{9,60,000} \times 100$
	25 %	**31.25 %**

Comment: Net profit ratio of the company shows good profitability because it is high in the current year.