

Ratio Analysis

Ratio basics

Ratio Analysis compares one figure in one financial statement (say P&L account or Balance Sheet) with another figure in the same financial statement or in another financial statement of the company.

A ratio is expressed in the numerator denominator format. Thus the numerator and denominator can be either from the P&L account or the Balance sheet of the same company.

Ratios give colour to absolute figures. For example a profit of Rs.100 lakhs means very little to an analyst because he needs to know what the sales was or what the networth was against which the Rs.100 lakhs was earned. More than the profit, the ratio of profit to sales and the ratio of profit to networth is useful to understand the performance of a company. Thus if profit grew from Rs 100 lakhs to Rs 125 lakhs, while it is good, what is more important is how it stacked up against the sales achieved or the networth deployed.

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2. Computing ratios
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Hence, ratio analysis facilitates **intra firm comparison**. i.e. comparison of your company's performance in the current year with your company's performance in the previous year.

It also facilitates **inter firm comparison**. i.e. comparison of your company's performance in the current year with your competitor's performance in the current year. Peer review, as this is called, helps you benchmark your performance with your peers.

Ratios help in ascertaining the financial health of the company and also its future prospects. These ratios can be classified under various heads to reflect what they measure. There may be a tendency to work a number of ratios. But we believe that being thorough in the computation and interpretation of a few ratios (Say 20-25) would be ideal, since too much of analysis could lead to paralysis.

Computing Ratios

When a ratio has a P&L figure both in the numerator and in the denominator or has a balance sheet figure both in the numerator and in the denominator it is called a **straight ratio**. Where it has the P&L figure in the numerator and the balance sheet figure in the denominator or the balance sheet figure in the numerator and the P&L figure in the denominator it is called a **cross or hybrid ratio**.

A: Liquidity or Short Term Solvency Ratios

Liquidity refers to the speed and ease with which an asset can be converted to cash. Liquidity has two dimensions: ease of conversion versus loss of value. Remember any asset can be quickly converted to cash if you slash the price. A house property valued at Rs 25 lakhs can be converted to cash within 24 hours if you slash the price to Rs 5 lakhs! So a liquid asset is really one which can be converted to cash without major loss of value. An illiquid asset is one that cannot be en-cashed without a major slash in price.

Current assets are most liquid. Fixed assets are least liquid. Tangible fixed assets like land and building and equipment aren't generally converted to cash at all in normal business activity. They are used in the business to generate cash. Intangibles such as trademark have no physical existence and aren't normally converted to cash.

Liquidity is invaluable. The more liquid a business is, the less is the possibility of it facing financial troubles.

But too much of liquidity too is not good. That's because liquidity has a price tag. Liquid assets are less profitable to hold. Therefore there is a trade off between the advantages of liquidity and foregone potential profits.

Liquidity or Short term solvency ratios provide information about a firm's liquidity. The primary concern is the firm's ability to pay its bills over the short run without undue stress. Hence these ratios focus on current assets and current liabilities. These ratios are particularly useful to the short term lenders.

A major advantage of looking at current assets and current liabilities is that their book values approximate towards their market values. Often these assets and liabilities do not live long enough for the two to step out of line.

1. Current Ratio: This is the ratio of current assets to current liabilities.

- Current Assets / Current Liabilities

Because current assets are convertible to cash in one year and current liabilities are payable within one year, the current ratio is an indicator of short term solvency. The unit of measure is “times”. For instance if the current ratio is 1.4 we say that the ratio is 1.4 times. It means that current assets are 1.4 times the current liabilities.

To a short term lender, including a creditor, a high current ratio is a source of comfort. To the firm, a high current ratio indicates liquidity, but it also may mean inefficient use of cash and other current assets. A ratio of 1.33 is considered welcome.

The current ratio is affected by various types of transactions. For example suppose the firm borrows over the long term to raise money. The short term effect would be an increase in cash and an increase in long term debt. So the current ratio would rise. Finally, a low current ratio is not necessarily bad for a company which has a large reservoir of untapped borrowing.

2. Quick or Acid test Ratio: This is the ratio of quick assets to current liabilities or to quick liabilities.

- Quick Assets / Current Liabilities
- Quick Assets / Quick Liabilities

Three points merit attention.

- a. **Inventory:** The book values of inventory are least reliable as measures of realisable value because over time they may become lost, damaged or obsolete. Further, to an external analyst the market value of inventory may not be available since they are carried in the books at cost.

Large inventories are often a sign of short-term trouble. The firm may have overestimated sales and consequently may have overbought or overproduced leading to a substantial part of the liquidity locked in low moving inventory. Hence inventory is eliminated from current assets to arrive at quick assets.

- b. **Prepaid expenses.** Prepaid expenses too are deducted from current assets since they are not really convertible into cash. They are only adjustments against future payments.
- c. **Overdraft:** In practice, overdraft is not exactly repayable within 12 months because it is almost always renewed. Therefore there is a view that in computing quick liabilities we must deduct overdraft from current liabilities.

3. Cash Reservoir Ratio: Does a company have enough cash or cash equivalents to meet its current liabilities? The Cash reservoir ratio measures this.

- Cash Reservoir / Current Liabilities

Cash Reservoir = Cash + Bank + Marketable securities.

Alternatively, Cash Reservoir = Current Assets – Inventory.

But the former one is more appropriate.

A very short term creditor (one who gives money for say a week or 15 days) should be interested in this ratio.

B: Capital Structure or Long Term Solvency Ratios

Long term solvency ratios measure the firm's long term ability to meet its payment obligations. They are also referred to as leverage ratios. Back in the chapter Capital Structure Planning you learnt about financial leverage as arising out of the existence of debt in the capital structure. In Introduction to Financial Management we understood this as being the first quadrant of the balance sheet.

4. Total debt ratio: This is the ratio of total debt to total assets.

- Total Debt / Total assets

The term “total debt” means all debt; both long term and short term i.e. it includes current liabilities. The term “total assets” means all assets; both fixed assets and current assets.

There are two variants to this ratio namely debt-equity ratio and equity multiplier.

- a. The debt equity ratio is measured as **total debt to total equity**.
- b. The **equity multiplier** is the ratio of total assets to total equity

The equity multiplier is 1 plus debt equity ratio. Given any one of these three ratios, you can immediately compute the other two so they all say the same thing.

5. Times interest earned (Interest coverage ratio): This is the ratio of EBIT to Interest.

- EBIT / Interest

The interest referred to here is the interest on both long term and short term loan. The ratio measures how much earnings are available to cover interest obligations. If coverage is computed only for long term interest then only long term interest should be considered in the denominator and the EBIT will mean earnings before long term interest and taxes.

There are various variants to the above ratio. For instance, there is a view that the earning should be recorded after tax i.e. earnings before interest but after tax. And that the denominator will be unchanged at Interest. However we have stuck to the more traditional and more popular view.

6. Cash coverage: This is the ratio of 'EBIT plus depreciation' to Interest.

- $(\text{EBIT} + \text{Depreciation}) / \text{Interest}$

Need to compute cash cover

While interest is a cash measure, EBIT is not. That's because it has taken into account depreciation which is a non-cash charge.

This ratio is considered as a measure of the firm's ability to generate cash from operations and is used as a measure of cash flow available to meet financial obligations.

C: Asset Management or Turnover Ratios

The Asset management ratios (a.k.a. Asset turnover ratios) measure the efficiency with which a company deploys its assets to generate sales.

7. Total Assets turnover ratio: This is the ratio of sales to total assets.

- $\text{Sales} / \text{Total Assets}$

While "total assets" is technically more correct, average assets could also be used. Average asset is the simple average of opening and closing assets.

If the total assets turnover ratio is 4, it means that for every rupee invested we have generated Rs.4 of sales. The term total assets would be the sum of fixed assets and current assets.

The higher the ratio the better it is for the company.

The reciprocal of the total assets turnover ratio is the "**Capital Intensity ratio**". It can be interpreted as the rupee invested in assets needed to generate Re.1 of sales. High values correspond to capital intensive industries.

- $1 / \text{Total assets turnover ratio}$

The total assets turnover ratio can be split into FATO and WCTO ratio.

8. Fixed Assets turnover ratio (FATO): This is the ratio of sales to fixed assets. The fixed assets should typically be on net basis i.e. net of accumulated depreciation.

- $\text{Sales} / \text{Net fixed assets}$

Average fixed assets i.e. the simple average of opening and closing fixed assets can also be used.

If the fixed assets turnover ratio is 3, it means that for every rupee invested in fixed assets we have generated Rs.3 of sales.

The higher the ratio the better it is for the company.

9. Working capital turnover ratio (WCTO): This is the ratio of sales to net working capital. Net working capital would mean current assets less current liabilities.

- Sales / Net Working Capital

Average working capital i.e. the simple average of opening and closing working capital can also be used.

If the working capital turnover ratio is 6, it means that for every rupee invested in working capital we have generated Rs.6 of sales.

The higher the ratio the better it is for the company.

This ratio becomes more understandable if we convert it into number of days. If we turned over our working capital 6 times a year, it means that the working capital was unlocked every 60 days. This is called the **working capital days' ratio** and is given by the following formula:

- $365 / \text{Working capital turnover ratio}$

The lower this ratio, the better it is for the company.

The working capital turnover ratio can now be broken into its component parts.

10. Inventory turnover ratio: This is the ratio of cost of goods sold to closing inventory.

- Cost of goods sold / Inventory

It can also be expressed as the ratio of cost of goods sold to average inventory. While closing inventory is technically more correct, average inventory could be used since an external analyst is unsure whether the year end numbers are dressed up.

The numerator is "Cost of goods sold" and not sales because inventory is valued at cost. However to use "Sales" in the numerator is also a practice that many adopt.

If the inventory turnover ratio is 3, it means that we sold off the entire inventory thrice. As long as we are not running out of stock and hence losing sales, the higher this ratio is, the more efficient is the management of inventory.

If we turned over inventory over 3 times during the year, then we can say that we held inventory for approximately 121 days before selling it. This is called the **average days' sales in Inventory** and is given by the following formula:

- $365 / \text{Inventory turnover ratio}$

The ratio measures how fast we sold our products. Note that inventory turnover ratio and average days' sales in inventory measure the same thing.

11. Receivable / Debtors turnover ratio: This is the ratio of sales to closing debtors.

- Sales / Debtors

While closing debtors is technically more correct, average debtors could be used since an external analyst is unsure whether the year end numbers are dressed up.

If the debtors' turnover ratio is 8, it means that we collected our outstanding 8 times a year. As long as we do not miss out sales, the higher this ratio is, the more efficient is the management of debtors.

This ratio is far easier to grasp if we converted it into number of days. If we turned over debtors 8 times a year, we can say that debtors on an average were 45 days. This is called the **average days' sales in receivable** and is given by the following formula:

- $365 / \text{Receivable turnover ratio}$

The ratio is often called the **Average Collection period**.

12. Payables / Creditors turnover ratio: In so far as we wanted to know how well we used our debtors we must also know how well we utilise the creditors. Towards this we compute the Creditors turnover ratio which is the ratio of purchases to closing creditors.

- $\text{Credit Purchases} / \text{Creditors}$

Average creditors could also be used since an external analyst is unsure whether the year end numbers are dressed up.

If the creditors' turnover ratio is 5, it means that we paid our outstanding 5 times a year. As long as we do not miss out purchases, the smaller this ratio is, the more efficient is the management of creditors.

This ratio becomes more understandable if we convert it into number of days. If we turned over creditors 5 times a year, we can say that creditors on an average were 73 days. This is called the **average days' purchases in payables** and is given by the following formula:

- $365 / \text{Creditors turnover ratio}$

The ratio is often called the **Average Payment period**.

D: Profitability Ratios

The profitability ratios measure how efficiently a company manages its assets and how efficiently it manages its operation. The focus is on profits. All of these ratios are expressed in terms of a percentage.

13. Gross profit margin: This is the ratio of gross profit to sales.

- $\text{Gross Profit} / \text{Sales}$

The term gross profit refers to the difference between sales and works cost.

Higher the percentage the better it is for the company.

14. Operating profit margin: This is the ratio of operating profit to sales.

- $\text{Operating Profit} / \text{Sales}$

The term operating profit is the difference between gross profit and administration and selling overheads. Non operating income and expenses are excluded. Interest expenditure is also excluded because interest is the reward for a particular form of financing and has nothing to do with operational excellence.

Higher the percentage the better it is for the company.

15. Net profit margin: This is the ratio of net profit to sales.

- $\text{Net Profit} / \text{Sales}$

The term net profit refers to the final profit of the company. It takes into account all incomes and all expenses including interest costs.

Higher the percentage the better it is for the company.

16. Return on total assets: This is the ratio of EBIT to Total Assets.

- $\text{EBIT} / \text{Total Assets}$

The term “total assets” refers to all assets namely net fixed assets and current assets.

Higher the percentage the better it is for the company.

17. Return on capital employed (ROCE): This is the more popular ratio and is the ratio of EBIT to capital employed

- $\text{EBIT} / \text{Capital employed}$

The term “capital employed” refers to the sum of net fixed assets and net working capital. This ratio measures the productivity of money.

Higher the percentage the better it is for the company.

18. Return on net-worth: This is the ratio of PAT to Net worth.

- $\text{PAT} / \text{Net worth}$

The term “Net-worth” means money belonging to equity share holders and includes reserves net of fictitious assets awaiting write off. It measures how much income a firm generates for each rupee stockholders have invested.

Higher the percentage the better it is for the company.

E: Market Ratios

As these ratios are based on the market price they become crucial numbers to analyse a company.

19. Earnings per share: This is the ratio of profit after tax and preference dividends to number of equity shares outstanding.

- $(\text{Profit after tax} - \text{Preference dividend}) / \text{No. of equity shares outstanding}$

This measures the amount of money available per share to equity shareholders.

The EPS has to be used with care. Two companies raising identical amounts of money and making identical after tax profits can report substantially different EPS.

Consider this example. A Ltd. raises Rs.100 lakhs of equity with each share having a face value of Rs.10. The premium on issue is Rs.90 implying that 1,00,000 shares are raised. In accounting speak, Rs.10 lakhs goes to equity account and Rs.90 lakhs goes to share premium account. Suppose the company makes a profit after tax of Rs.50 lakhs. Since there are 1 lakhs shares outstanding the EPS is Rs.50. The return on net-worth is 50%.

Now B Ltd. raises Rs.100 lakhs of equity with each share having a face value of Rs.10. The premium on issue is Rs.40 implying that 2,00,000 shares are raised. In accounting speak, Rs.20 lakhs goes to equity account and Rs.80 lakhs goes to share premium account. Suppose the company makes a profit after tax of Rs.50 lakhs. Since there are 2 lakhs shares outstanding the EPS is Rs.25. The return on net-worth is 50%.

Both companies have the same RONW, the same face value per share, but the first company returns an EPS of Rs.50 and the second an EPS of Rs.25

20. Payout and retention ratio: The payout ratio is the ratio of dividend per share to earnings per share.

- $\text{Dividend per share} / \text{EPS}$
- $\text{Retention ratio} = 1 - \text{Payout ratio}$.

21. Price Earnings ratio: This is the ratio of market price per equity share to earning per share. Also known as the PE multiple, the following is the formula:

- $\text{Market price per share} / \text{Earnings per share}$.

Suppose the PEM is 12. Typically, this means that if all earnings are distributed as dividends then it would take the investor 12 long years before he recovers his initial investment. If that be so, why do investors invest in companies with high PEM? Reason: Investors expect the company's earnings to grow. The PEM can hence be looked upon as an investor's confidence in the growth prospects of the company.

22. Market to book ratio: This is the ratio of market price per equity share to book value per equity share. The following is the formula:

- $\text{Market price per share} / \text{Book value per share}$.

Book value refers to net-worth. Since book value is an accounting number it reflects historical costs. If the value is less than 1 it means that the firm has not been successful overall in creating value for the shareholders.

Interpreting Ratios

We would like to compare the performance of one company with another (Peer review). If we do that we could immediately run into a problem. For instance, if you wanted to compare Infosys with Satyam you will have to reckon with the fact that Infosys is by far a much larger company. It is difficult to even compare Infosys 2002 with Infosys 2007 as the company's size would have changed. If you compare Infosys with Microsoft, you have both a size problem (Infosys is a pigmy compared to Microsoft) and a currency problem (Infosys reports in Rs. and Microsoft reports in dollars). The solution lies in standardising the financial statements and this is done by converting all the items from Rs. to percentages. Such statements are called **common size statements**.

Common Size Balance sheet: All items in the Balance sheet are expressed as a percentage of total assets.

Common size Income statement: All items in the Profit and Loss account are expressed as a percentage of total sales. This statement tells us what happens to each Rupee of sales.

Trend Analysis: One could fall back on the past. Like, take a look at the ratios across the last five years to understand whether liquidity, solvency, profitability etc. have gone up or come down. This is at the heart of inter-firm comparison.

Peer Review: The benchmark could be the industry leader or some company in the industry which your company wants to catch up with. By comparing your ratios with the benchmark company, you understand whether you are performing better than the benchmark company or not.

What is most important in the case of ratio analysis is that not all ratios would indicate things in the same direction. Some would be healthy; others wouldn't be all that healthy. It takes practice and experience to ascertain trend and interpret. In other words you need to become a good financial doctor. It is hence important that one becomes thorough in the computation, understanding and interpretation of a few select ratios than in trying to crack them all. Ratio Analysis is more an art than a science.

Limitations

1. The RONW is a sacred ratio. But imagine a year when the company decides to write off a major part of its manufacturing facility. Both PAT and Net worth will come down by identical amounts thereby increasing the ratio!
2. Then there is the issue of book value. Book value is dangerously susceptible to accounting jugglery and pyro-techniques.

3. There is very little theory to help us identify which ratios to look at and to guide us in establishing benchmarks.
4. Very little theory is available to suggest what constitutes a high ratio or a low ratio.
5. Different firms use different accounting procedure. Like valuation of inventory.
6. Different firms end their fiscal year at different times.
7. **Trouble with ratios:** Different people compute a ratio differently leading to confusion. The specific definitions we use must be spelt out. Those which we are using in this book are the popular usage. When you use ratios to do peer review make sure that the ratios in the two companies are computed in the same way.

The DuPont Identity

Ratios by themselves mean precious little. If you can understand the link between ratios and how some ratios can be decomposed to identify the underlying linkages your appreciation of financial statements and corporate performance will be total. The DuPont Company used to do just that. We present below a few famous DuPont identities.

1. Return on Equity

The Return on Assets or its cousin the Return on Capital Employed talks about the productivity of money. The Return on Equity is generally higher than the Return on Capital Employed. This is on account of the use of debt financing. For instance, if the ROCE is 15%, it means that both debt money and equity money are earning 15%. Now, if debt is rewarded at 8%, it means that the surplus or balance 7% accrues to the equity shareholders. If the debt equity ratio is 1:1 the Return on equity will turn out to be the 15% it earns plus the 7% surplus that it pockets from debt namely 22%.

Return on Equity is decomposed as under:

$$\begin{aligned}\text{ROE} &= \text{PAT} / \text{Net-worth} \\ &= \text{PAT} / \text{Net-worth} \times \text{Assets} / \text{Assets} \\ &= \text{PAT} / \text{Assets} \times \text{Assets} / \text{Net-worth} \\ &= \text{PAT} / \text{Assets} \times \text{Equity Multiplier}\end{aligned}$$

$$\text{ROE} = \text{ROA} \times (1 + \text{Debt-Equity ratio})$$

2. Return on Equity

A second decomposition works as under:

$$\begin{aligned}\text{ROE} &= \text{PAT} / \text{Net-worth} \\ &= \text{PAT} / \text{Net-worth} \times \text{Assets} / \text{Assets} \\ &= \text{PAT} / \text{Assets} \times \text{Assets} / \text{Net-worth} \\ &= \text{PAT} / \text{Assets} \times \text{Sales} / \text{Sales} \times \text{Assets} / \text{Net-worth} \\ &= \text{Pat} / \text{Sales} \times \text{Sales} / \text{Assets} \times \text{Assets} / \text{Net-worth}\end{aligned}$$

ROE = Profit Margin x TATO x Equity multiplier

The ROE is thus the function of operating efficiency (as measured by profit margin), Asset use efficiency (as measure by total asset turnover) and financial leverage (as measured by equity multiplier).

ROA, ROE and Growth

Is it possible to know how rapidly a firm can grow! We must remember that over the long haul, if sales have to grow assets too have to grow because there is only so much that you can milk out of an asset. If assets are to grow the firm must find money to fund these purchases. The money can come either from internal sources (retention) or external sources (debt or fresh equity).

Internal growth rate: If a company does not want to tap external sources of financing and uses only retained earnings to fund new assets, the rate at which sales can grow is given by the following formula:

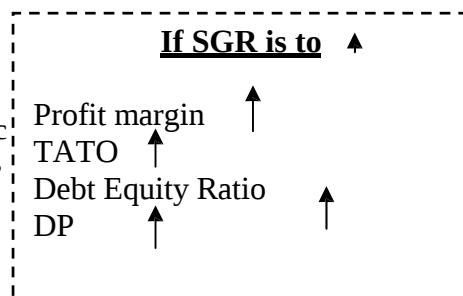
$$\text{Internal growth rate} = \frac{\text{ROA} \times b}{1 - \text{ROA} \times b}$$

Sustainable growth rate (SGR): If a firm relies only on internal financing, over time, the debt equity ratio will decline. Many companies would like to maintain a target debt equity ratio. With this in mind we now lay down the sustainable growth rate on the twin assumptions that (a) company wishes to maintain a target debt-equity ratio and (b) it is unwilling to raise fresh equity. Given these assumptions the maximum growth rate will be

$$\text{Sustainable growth rate} = \frac{\text{ROE} \times b}{1 - \text{ROE} \times b}$$

Piecing all these together, we now identify the four drivers of sales growth.

1. **Profit margin:** If the profit margin increases, the internal resources go up. This increases the SGR.
2. **TATO:** An increase in TATO increases the sales per rupee of investment. This decreases the firm's need for new assets as sales grow and thus increases the sustainable growth rate.
3. **Financial policy:** An increase in the debt equity ratio m available, thus increasing the SGR.
4. **Dividend policy:** A reduction in dividend payout inc increases internally generated funds and thus increases



Box-1

Categories	What they Measure
Liquidity ratios	Short term solvency
Capital Structure Ratio	Long term solvency
Profitability ratios	Ability to make profit
Coverage ratios	Adequacy of money for payments
Turnover ratios	Usage of Assets
Capital Market ratio	Wealth maximisation

Box -2

Ratios	Formulae	Measures	Standard Ratio
I. Liquidity Ratios:			
1. Current Ratio	$\frac{\text{Current assets}}{\text{Current Liabilities}}$	The ability of the company to use the short term money to repay short term liabilities.	1.33
2. Quick Ratio	$\frac{\text{Quick assets}}{\text{Quick Liabilities}}$	The ability of the company to use quick money to repay quick liabilities.	0.74
	$\frac{\text{Quick assets}}{\text{Current Liabilities}}$		
3. Cash Reservoir Ratio	$\frac{\text{Cash reservoir}}{\text{Current Liabilities}}$	The readily available cash to meet current liabilities.	-
4. Interval Measure	$\frac{\text{Cash reservoir}}{\text{Average daily cash operating expenses}}$	The no. of days upto which cash operating expenses can be met with available cash reservoir.	-
II. Capital Structure Ratios:			

5. Debt – Equity Ratio			
(i) as ratio	$\frac{\text{Debt}}{\text{Equity}}$	The financial risk involved.	1.21
(ii) as percentage	$\frac{\text{Debt}}{\text{Debt} + \text{Equity}}$	High debt-equity ratio is risky.	
6. Capital Gearing Ratio	$\frac{\text{Debt} + \text{Preference}}{\text{Equity}}$	The financial risk involved.	-
	$\frac{\text{Debt}}{\text{Preference} + \text{Equity}}$		
7. Proprietary Ratio	$\frac{\text{Equity Funds}}{\text{Net Fixed Assets}}$	High ratio less is the risk.	-
III. Profitability Ratios:			
(a) Turnover Related Ratios:			
8. Gross Profit Ratio	$\frac{\text{Gross Profit}}{\text{Sales}}$	Efficiency of the factory.	21%
9. Operating Profit Ratio	$\frac{\text{Operating Profit}}{\text{Sales}}$	Operating efficiency of the company after taking into account the selling & administration cost.	
10. Net Profit Ratio	$\frac{\text{Net Profit}}{\text{Sales}}$	Overall efficiency of the company.	4.7%
(b) Investment Related Ratios			
11. Return on Capital employed / Return on Investment			
(i) Pre – tax	$\frac{\text{EBIT}}{\text{Capital Employed}}$	How productively the company utilises its money.	

(ii) Post – tax	$\frac{\text{PAT} + \text{Interest}}{\text{Capital Employed}}$ OR $\frac{\text{EBIT} (1 - \text{Tax Rate})}{\text{Capital Employed}}$	How productively the company utilises its money.	
12. Return on Equity	$\frac{\text{PAT} - \text{Preference dividend}}{\text{Shareholders Funds}}$	How much the shareholders earn.	12.7%
IV. Coverage ratios:			
13. Interest coverage ratio	$\frac{\text{PAT} + \text{Interest}}{\text{Interest}}$ OR $\frac{\text{PAT} + \text{Interest} + \text{Depreciation} + \text{Non cash charges}}{\text{Interest}}$	No. of times earnings are available to pay interest.	4.23
		No. of times cash is available out of earnings to pay interest.	
14. Debt - service coverage ratio	$\frac{\text{PAT} + \text{Interest} + \text{Depreciation} + \text{Non cash charges}}{\text{Principal} + \text{Interest}}$	No. of times cash is available to pay out of principle.	1:2 OR 1:3
V. Turnover Ratios			
15. Assets Turnover Ratio	$\frac{\text{Sales Total}}{\text{Assets OR Sales Capital Employed}}$		1.31
16. Fixed Assets Turnover Ratio	$\frac{\text{Sales}}{\text{Net Fixed Assets}}$		2.15
17. Working Capital Turnover Ratio	$\frac{\text{Sales}}{\text{Working Capital}}$		-

18. Inventory Turnover Ratio	$\frac{\text{Sales}}{\text{Average Inventory}}$ OR $\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	6.24
19. Debtors Turnover Ratio	$\frac{\text{Sales}}{\text{Average Debtors}}$ OR $\frac{\text{Cost of sales}}{\text{Average Debtors}}$	7.70
20. Creditors Turnover Ratio	$\frac{\text{Purchases}}{\text{Average Creditors}}$	
VI. Velocity Ratios		
21. Inventory Velocity	$\frac{365}{\text{Inventory Turnover Ratio}}$	No. of times inventory is blocked in a year.
22. Debtors Velocity	$\frac{365}{\text{Debtors Turnover Ratio}}$	How much money are blocked in Debtors. 47.4 days
23. Creditors Velocity	$\frac{365}{\text{Creditors Turnover Ratio}}$	How many days for which the purchases are outstanding.
VII. Capital Market Ratios		
24. EPS	$\frac{\text{PAT - Preference dividend}}{\text{No. of Shares}}$	Earning in a year per share.
25. PE Multiple	$\frac{\text{Market price}}{\text{EPS}}$	No. of times a share is being quoted in relation to its earnings. 9.55%
26. Dividend Yield	$\frac{\text{Dividend}}{\text{Market price per share}}$	Dividend received per share 14.0%
27. Payout Ratio	$\frac{\text{Dividend per share}}{\text{EPS}}$	How much paid for every rupee earned.

Numerator and Denominator

Ratios	Formulae	Numerator	Denominator
I. Liquidity Ratios:			
1. Current Ratio	$\frac{\text{Current assets}}{\text{Current Liabilities}}$	Inventories + sundry debtors + cash + Bank + receivables/ accruals + Prepaid expenses + loans and advances + Marketable Investments	Sundry creditors + short term loans + Bank OD+ Cash credit + Outstanding expenses + Provision for Taxation + Proposed dividends + Unclaimed dividends + other provisions
2. Quick Ratio	$\frac{\text{Quick assets}}{\text{Quick Liabilities}}$ OR $\frac{\text{Quick assets}}{\text{Current Liabilities}}$	Current assets - Inventories - Prepaid expenses OR Current assets - Inventories - Prepaid expenses	Current liabilities - Bank OD - Cash credit OR Current liabilities
3. Cash Reservoir Ratio	$\frac{\text{Cash reservoir}}{\text{Current Liabilities}}$	Cash + Bank + Marketable securities + Short term investment OR Current assets - inventories	Current liabilities
4.Interval Measure	$\frac{\text{Quick assets}}{\text{Average daily operating expenses}}$	Current assets - Inventories - Prepaid expenses	Cost of goods sold + selling, administrative & general expenses - depreciation - other non cash <u>expenditures</u> 360 days
II. Capital			

Structure
Ratios:

5. Debt - Equity Ratio	$\frac{\text{Debt}}{\text{Equity}}$	Long term loan + Short term loan:	Equity share capital + Preference share capital + Reserves & Surplus - Fictitious assets
(i) as ratio	$\frac{\text{Debt}}{\text{Debt} + \text{Equity}}$	- if it is not payable within a year even otherwise when the question is silent - If it is not protected by securities	
(ii) as percentage			
6. Capital Gearing Ratio	$\frac{\text{Debt} + \text{Preference Equity}}{\text{Debt} + \text{Preference} + \text{Equity}}$	Preference share capital + Debentures + Long term loans	Equity share capital + Reserves & Surplus - P & L account (Dr. balance)
7. Proprietary Ratio	$\frac{\text{Proprietary Funds}}{\text{Total Assets}}$	Equity share capital + Preference share capital + Reserves & Surplus - Accumulated loss	Fixed Assets + Current assets (excluding fictitious assets)

III. Profitability**Ratios:****(a) Turnover****Related Ratios:**

8. Gross Profit Ratio (as %)	$\frac{\text{Gross Profit}}{\text{Sales}} \times 100$	Gross profit as per Trading Account	Sales net of returns
9. Operating Profit Ratio (as %)	$\frac{\text{Operating Profit}}{\text{Sales}} \times 100$	Gross profit - Non-operating expenses + Non-operating income	Sales net of returns
10. Net Profit Ratio (as %)	$\frac{\text{Net Profit}}{\text{Sales}} \times 100$	Net profit as per Profit & Loss account	Sales net of returns

(b) Investment**Related Ratios**

11. Return on Capital employed / Return on Investment

(i) Pre- tax	$\frac{\text{EBIT}}{\text{Capital Employed}}$	Net Profit after Tax + Tax + Interest + Non - trading Expenses + Non - operating Incomes.	Equity Share Capital + Preference Share Capital + Reserves & Surplus + Debentures - Loss - Non-trading investment.
(ii) Post - tax	$\frac{\text{PAT} + \text{Interest}}{\text{Capital Employed}}$ OR $\frac{\text{EBIT} (1 - \text{Tax Rate})}{\text{Capital Employed}}$	Profit after Tax + Interest	Equity Share Capital + Preference Share Capital + Reserves & Surplus + Debentures - Loss - Non-trading investment.- Preliminary expenses
12. Return on Equity	$\frac{\text{PAT} - \text{Preference dividend}}{\text{Shareholders Funds}}$	Profit after Tax - Preference dividend (Equity earnings)	Equity Share Capital + Preference Share Capital + Reserves & Surplus - Loss
IV. Coverage ratios:			
13. Interest coverage ratio	$\frac{\text{PAT} + \text{Interest}}{\text{Interest}}$ OR $\frac{\text{PAT} + \text{Interest} + \text{Depreciation} + \text{Non cash charges}}{\text{Interest}}$	Net Profit after Tax + Tax + Interest + Non - trading Expenses + Non - operating Incomes.	Interest on Loan (Long term & short tem)
14. Debt - service coverage ratio	$\frac{\text{PAT} + \text{Interest} + \text{Depreciation} + \text{Non cash charges}}{\text{Principal} + \text{Interest}}$	Net profit as per P & L account - Tax + Interest + Non - trading Expenses + Non - operating Incomes.	Interest on debt + installment of debt
V. Turnover Ratios			

15. Assets Turnover Ratio	$\frac{\text{Sales Total Assets OR Sales}}{\text{Capital Employed}}$	Sales net of return	Net fixed Assets + Current assets (excluding fictitious assets)
16. Fixed Assets Turnover Ratio	$\frac{\text{Sales}}{\text{Net Fixed Assets}}$	Sales net of return	Net fixed Assets (Fixed assets - Depreciation)
17. Working Capital Turnover Ratio	$\frac{\text{Sales}}{\text{Working Capital}}$	Sales net of return	Current assets - current liabilities
18. Inventory Turnover Ratio	$\frac{\text{Sales}}{\text{Average Inventory}}$ OR $\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	Sales net of return OR Cost of production - Closing stock of finished goods	Opening stock + <u>Closing stock</u> 2
19. Debtors Turnover Ratio	$\frac{\text{Sales}}{\text{Average Debtors}}$ OR $\frac{\text{Cost of sales}}{\text{Average Debtors}}$	Net credit sales OR Cost of goods sold + Administration exp. + Selling & Distribution exp.	Opening debtors + <u>Closing debtors</u> 2
20. Creditors Turnover Ratio	$\frac{\text{Purchases}}{\text{Average Creditors}}$	Net credit purchases	Opening creditors + <u>Closing creditors</u> 2
VI. Velocity Ratios			
21. Inventory Velocity	$\frac{365}{\text{Inventory Turnover Ratio}}$		

22. Debtors Velocity	$\frac{365}{\text{Debtors Turnover Ratio}}$
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23. Creditors Velocity	$\frac{365}{\text{Creditors Turnover Ratio}}$
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VII. Capital Market Ratios

24. EPS	$\frac{\text{PAT - Preference dividend}}{\text{No. of Shares}}$	PAT - Preference dividend	No. of equity shares
25. PE Multiple	$\frac{\text{Market price}}{\text{EPS}}$	Current market price of equity share	EPS
26. Dividend Yield	$\frac{\text{Dividend}}{\text{Market price per share}}$	Dividend	Current market price of equity share
27. Payout Ratio	$\frac{\text{Dividend per share}}{\text{EPS}}$	Dividend per share	EPS
