



Ratio Analysis



Financial Analysis

- Assessment of the firm's past, present and future financial conditions
- Done to find firm's financial strengths and weaknesses
- Primary Tools:
 - Financial Statements
 - Comparison of financial ratios to past, industry, sector and all firms



Financial Statements

- Balance Sheet
- Income Statement
- Cashflow Statement
- Statement of Retained Earnings



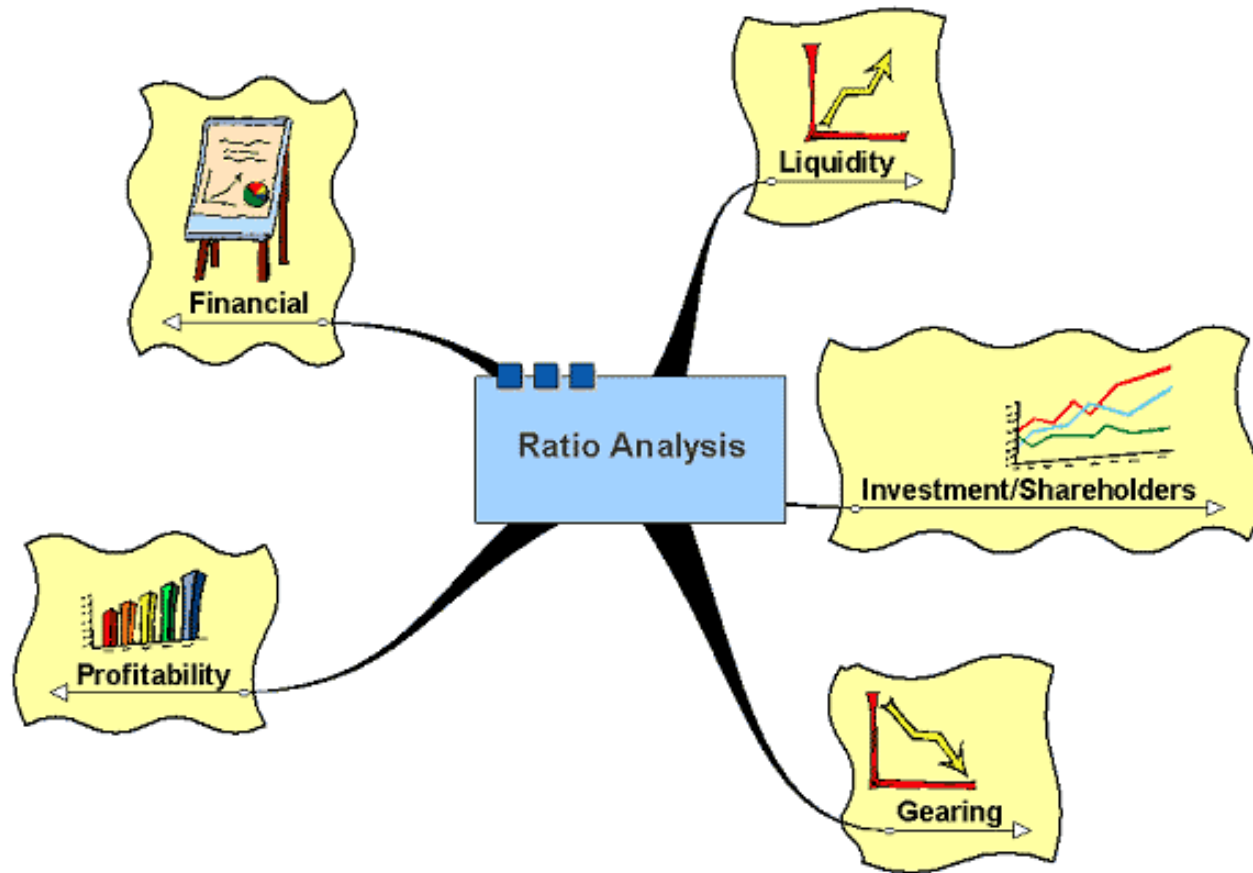
Objectives of Ratio Analysis



- Standardize financial information for comparisons
- Evaluate current operations
- Compare performance with past performance
- Compare performance against other firms or industry standards
- Study the efficiency of operations
- Study the risk of operations



Ratio Analysis



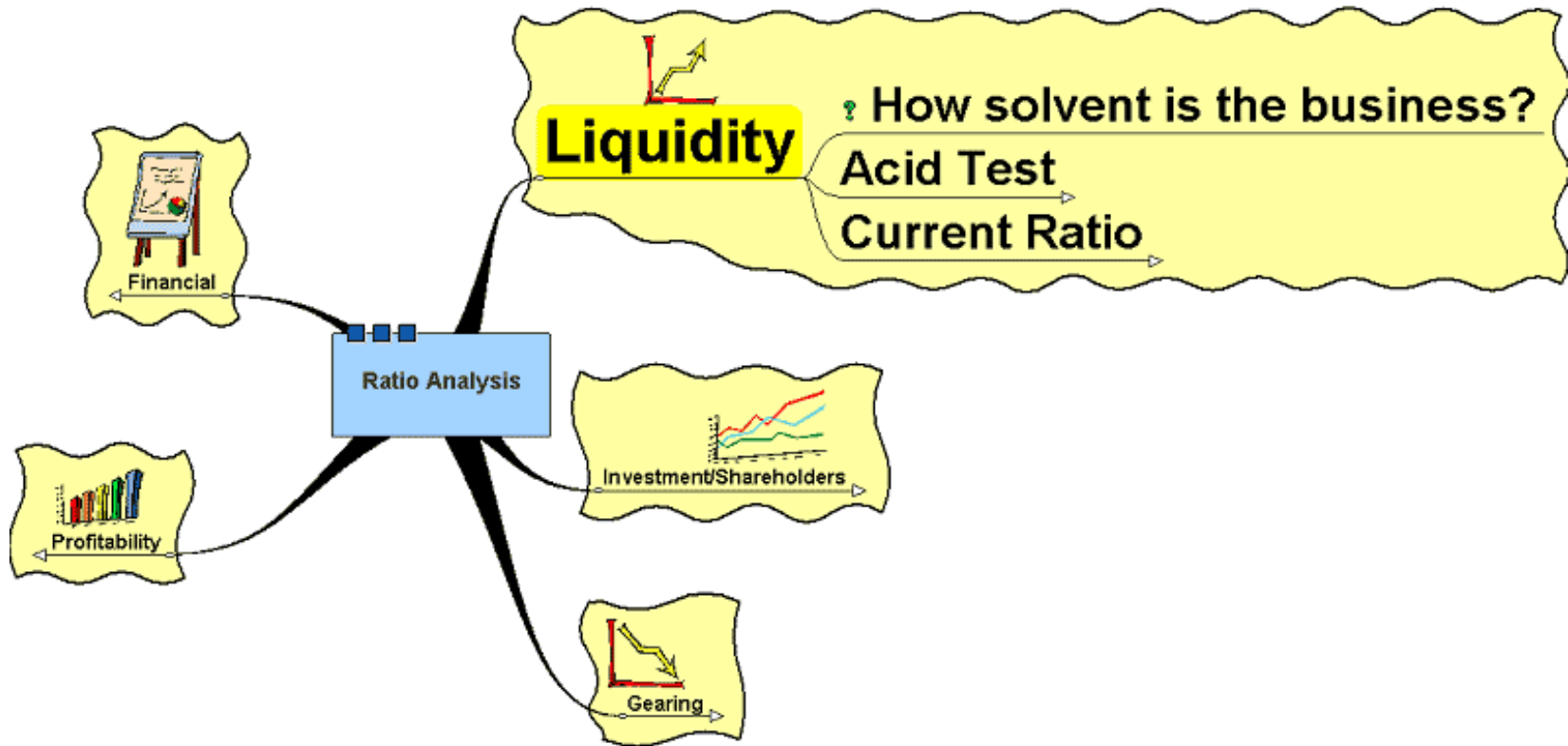


Ratio Analysis

1. **Liquidity** – the ability of the firm to pay its way
2. **Investment/shareholders** – information to enable decisions to be made on the extent of the risk and the earning potential of a business investment
3. **Gearing** – information on the relationship between the exposure of the business to loans as opposed to share capital
4. **Profitability** – how effective the firm is at generating profits given sales and or its capital assets
5. **Financial** – the rate at which the company sells its stock and the efficiency with which it uses its assets



Liquidity





Acid Test

- Also referred to as the ‘Quick ratio’
- **(Current assets – stock) : liabilities**
- 1:1 seen as ideal
- The omission of stock gives an indication of the cash the firm has in relation to its liabilities (what it owes)
- A ratio of 3:1 therefore would suggest the firm has 3 times as much cash as it owes – very healthy!
- A ratio of 0.5:1 would suggest the firm has twice as many liabilities as it has cash to pay for those liabilities. This *might* put the firm under pressure but is not in itself the end of the world!

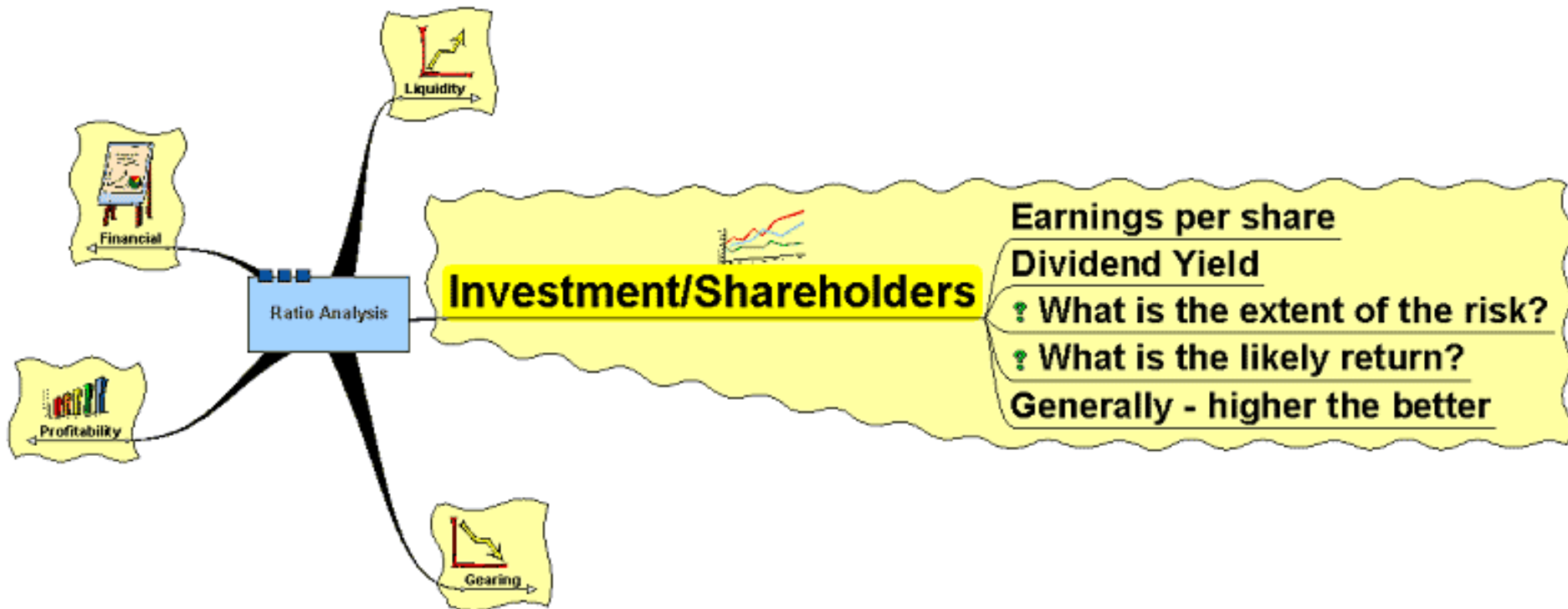


Current Ratio

- Looks at the ratio between Current Assets and Current Liabilities
- **Current Ratio = Current Assets : Current Liabilities**
- Ideal level? – 1.5 : 1
- A ratio of 5 : 1 would imply the firm has £5 of assets to cover every £1 in liabilities
- A ratio of 0.75 : 1 would suggest the firm has only 75p in assets available to cover every £1 it owes
- Too high – Might suggest that too much of its assets are tied up in unproductive activities – too much stock, for example?
- Too low - risk of not being able to pay your way



Investment/Shareholders





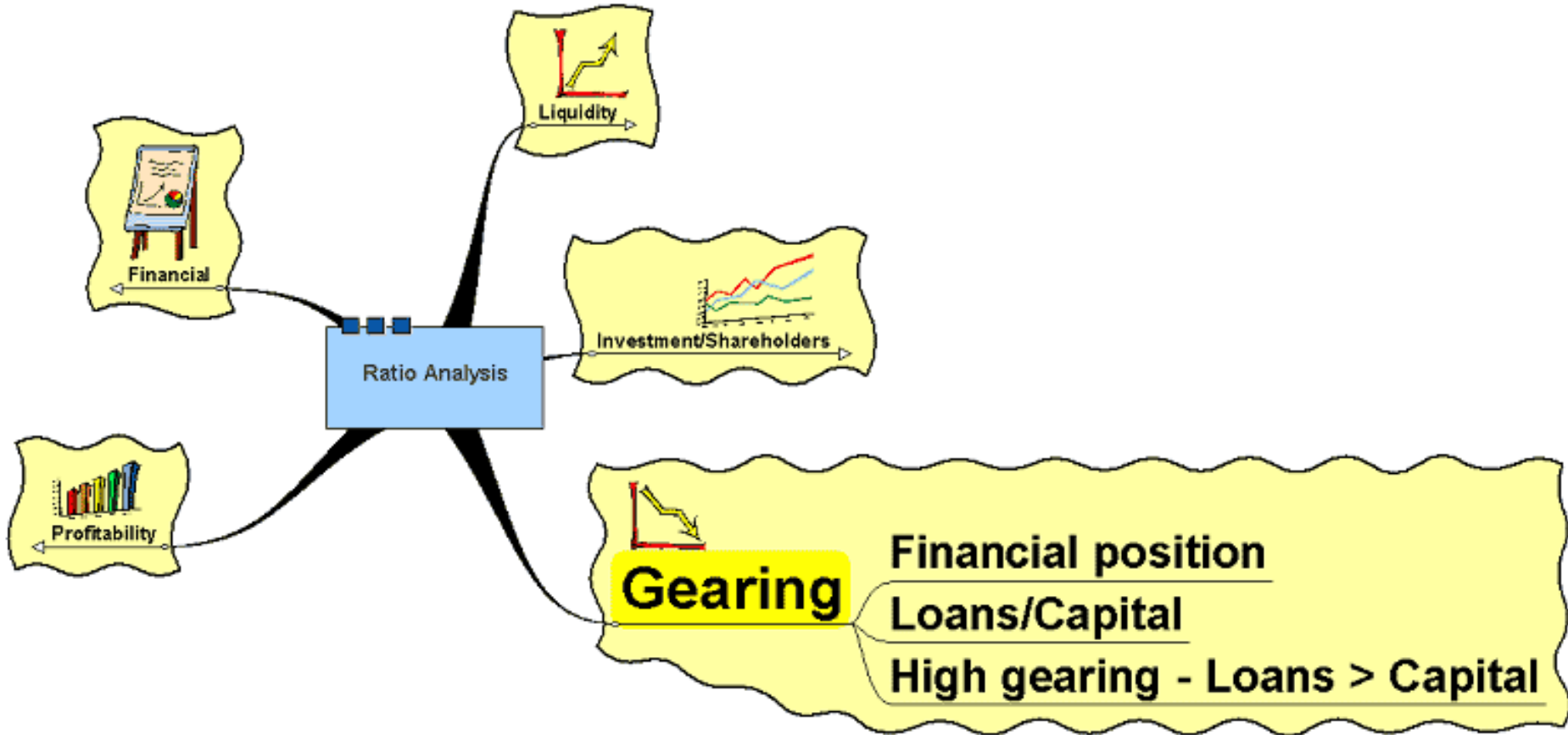
Investment/Shareholders



- **Earnings per share** – profit after tax / number of shares
- **Price earnings ratio** – market price / earnings per share – the higher the better generally for company. Comparison with other firms helps to identify value placed on the market of the business.
- **EV / EBITDA Ratio** - Enterprise Value / EBITDA ratio - the higher the better generally for company . It measures the operational performance of the firm.
- **Dividend yield** – ordinary share dividend / market price x 100 – higher the better. Relates the return on the investment to the share price.



Gearing



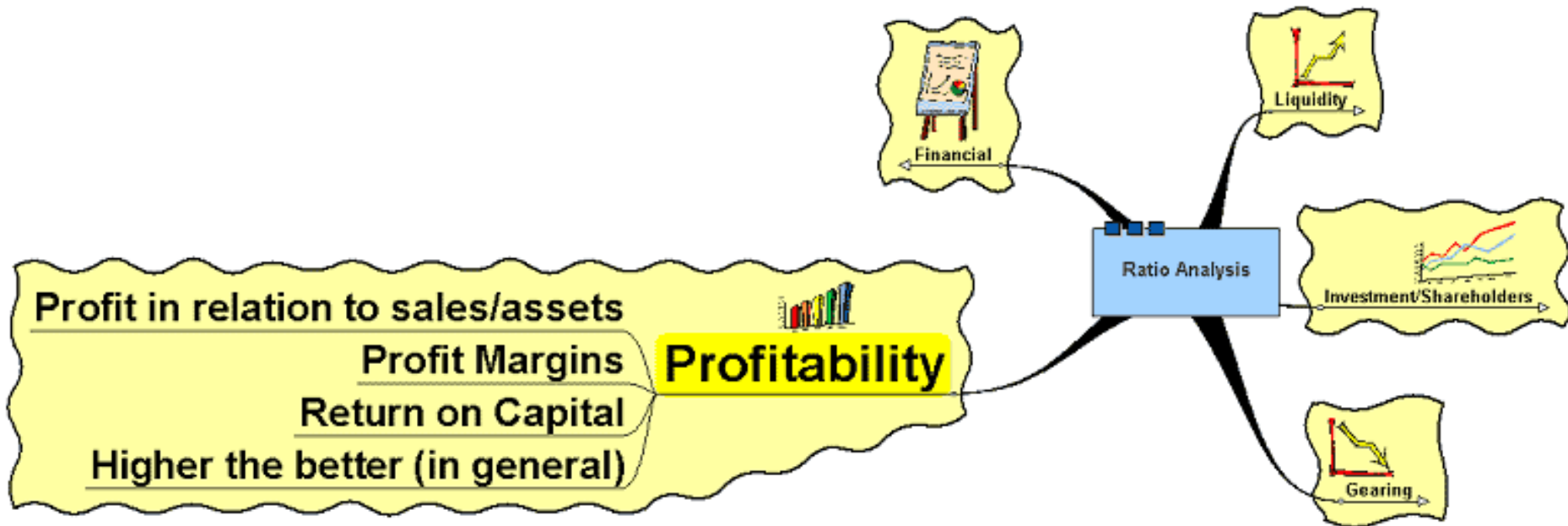


Gearing

- **Gearing Ratio = Long term loans / Capital employed x 100**
- The higher the ratio the more the business is exposed to interest rate fluctuations and to having to pay back interest and loans before being able to re-invest earnings



Profitability





Profitability

- Profitability measures look at how much profit the firm generates from sales or from its capital assets
- Different measures of profit – gross and net
 - **Gross profit** – effectively total revenue (turnover) – variable costs (cost of sales)
 - **Net Profit** – effectively total revenue (turnover) – variable costs and fixed costs (overheads)



Profitability

- **Gross Profit Margin = Gross profit / turnover x 100**
- The higher the better
- Enables the firm to assess the impact of its sales and how much it cost to generate (produce) those sales
- A gross profit margin of 45% means that for every £1 of sales, the firm makes 45p in gross profit



Profitability

- **Net Profit Margin = Net Profit / Turnover x 100**
- Net profit takes into account the fixed costs involved in production – the overheads
- Keeping control over fixed costs is important – could be easy to overlook for example the amount of waste - paper, stationery, lighting, heating, water, etc.
 - e.g. – leaving a photocopier on overnight uses enough electricity to make 5,300 A4 copies. (1,934,500 per year)
 - 1 ream = 500 copies. 1 ream = £5.00 (on average)
 - Total cost therefore = £19,345 per year – or 1 person's salary



Profitability

- **Return on Capital Employed (ROCE) = Profit / capital employed x 100**

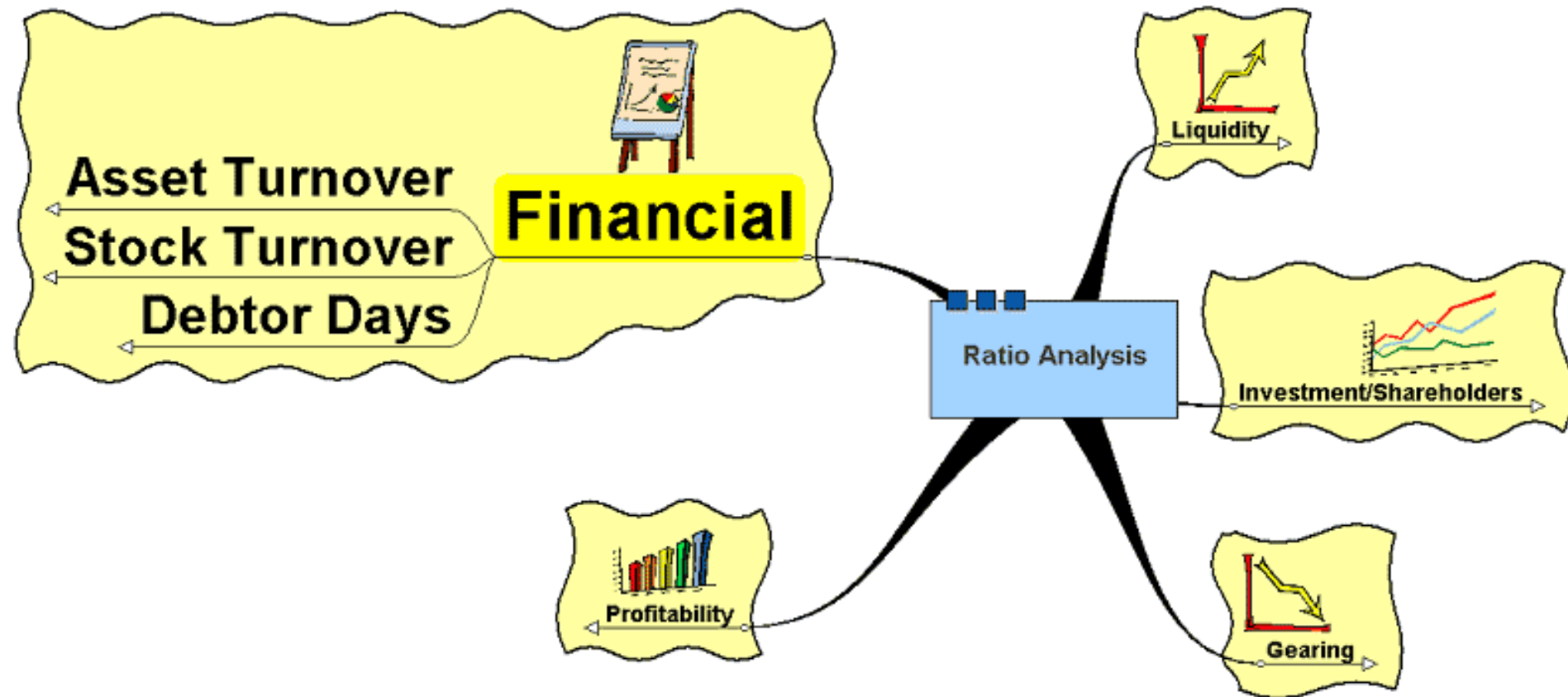


Profitability

- The higher the better
- Shows how effective the firm is in using its capital to generate profit
- A ROCE of 25% means that it uses every £1 of capital to generate 25p in profit
- Partly a measure of efficiency in organisation and use of capital



Financial





Asset Turnover

- **Asset Turnover = Sales turnover / assets employed**
- Using assets to generate profit
- Asset turnover x net profit margin = ROCE



Stock Turnover

- **Stock turnover = Cost of goods sold / stock expressed as times per year**
- The rate at which a company's stock is turned over
- A high stock turnover might mean increased efficiency?
 - But: dependent on the type of business – supermarkets might have high stock turnover ratios whereas a shop selling high value musical instruments might have low stock turnover ratio
 - Low stock turnover could mean poor customer satisfaction if people are not buying the goods (Marks and Spencer?)



Debtor Days

- **Debtor Days = Debtors / sales turnover x 365**
- Shorter the better
- Gives a measure of how long it takes the business to recover debts
- Can be skewed by the degree of credit facility a firm offers



Before looking at the ratios there are a number of **cautionary points concerning their use that need to be identified.**

- a. The dates and duration of the financial statements being compared should be the same. If not, the effects of seasonality may cause erroneous conclusions to be drawn.
- b. The accounts to be compared should have been prepared on the same bases. Different treatment of stocks or depreciations or asset valuations will distort the results.
- c. In order to judge the overall performance of the firm a group of ratios, as opposed to just one or two should be used. In order to identify trends at least three years of ratios are normally required.

SOME IMPORTANT NOTES

- Liabilities have Credit balance and Assets have Debit balance
- Current Liabilities are those which have either become due for payment or shall fall due for payment within 12 months from the date of Balance Sheet
- Current Assets are those which undergo change in their shape/form within 12 months. These are also called Working Capital or Gross Working Capital
- Net Worth & Long Term Liabilities are also called **Long Term Sources of Funds**
- Current Liabilities are known as **Short Term Sources of Funds**
- Long Term Liabilities & Short Term Liabilities are also called **Outside Liabilities**
- Current Assets are **Short Term Use of Funds**

SOME IMPORTANT NOTES

- Assets other than Current Assets are **Long Term Use of Funds**
- Installments of Term Loan Payable in 12 months are to be taken as Current Liability only for Calculation of Current Ratio & Quick Ratio.
- If there is **profit** it shall become part of **Net Worth** under the head Reserves and if there is **loss** it will become part of **Intangible Assets**
- Investments in Govt. Securities to be treated **current** only if these are marketable and due. Investments in other securities are to be treated **Current** if they are quoted. Investments in allied/associate/sister units or firms to be treated as **Non-current**.
- Bonus Shares as issued by capitalization of General reserves and as such do not affect the Net Worth. With Rights Issue, change takes place in Net Worth and Current Ratio.

EXERCISE 1



| LIABILITES | | ASSETS | |
|-----------------|-----|------------------|-----|
| Capital | 180 | Net Fixed Assets | 400 |
| Reserves | 20 | Inventories | 150 |
| Term Loan | 300 | Cash | 50 |
| Bank C/C | 200 | Receivables | 150 |
| Trade Creditors | 50 | Goodwill | 50 |
| Provisions | 50 | | |
| | 800 | | 800 |

- What is the Net Worth : $\text{Capital} + \text{Reserve} = 200$
- Tangible Net Worth is : $\text{Net Worth} - \text{Goodwill} = 150$
- Outside Liabilities : $\text{TL} + \text{CC} + \text{Creditors} + \text{Provisions} = 600$
- Net Working Capital : $\text{C A} - \text{C L} = 350 - 250 = 50$
- Current Ratio : $\text{C A} / \text{C L} = 350 / 300 = 1.17 : 1$
- Quick Ratio : $\text{Quick Assets} / \text{C L} = 200/300 = 0.66 : 1$

| LIABILITIES | 2005-06 | 2006-07 | ASSETS | 2005-06 | 2006-07 |
|------------------|-------------|-------------|----------------------|-------------|-------------|
| Capital | 300 | 350 | Net Fixed Assets | 730 | 750 |
| Reserves | 140 | 160 | Security Electricity | 30 | 30 |
| Bank Term Loan | 320 | 280 | Investments | 110 | 110 |
| Bank CC (Hyp) | 490 | 580 | Raw Materials | 150 | 170 |
| Unsec. Long T L | 150 | 170 | S I P | 20 | 30 |
| Creditors (RM) | 120 | 70 | Finished Goods | 140 | 170 |
| Bills Payable | 40 | 80 | Cash | 30 | 20 |
| Expenses Payable | 20 | 30 | Receivables | 310 | 240 |
| Provisions | 20 | 40 | Loans/Advances | 30 | 190 |
| | | | Goodwill | 50 | 50 |
| Total | 1600 | 1760 | | 1600 | 1760 |

1. Tangible Net Worth for 1st Year : $(300 + 140) - 50 = 390$

2. Current Ratio for 2nd Year : $(170 + 30 + 170 + 20 + 240 + 190) / (580 + 70 + 80 + 70)$

$820 / 800 = 1.02$

3. Debt Equity Ratio for 1st Year : $320 + 150 / 390 = 1.21$



Exercise 3.

| LIABILITIES | | ASSETS | |
|--------------------|-------------|---------------------------|-------------|
| Equity Capital | 200 | Net Fixed Assets | 800 |
| Preference Capital | 100 | Inventory | 300 |
| Term Loan | 600 | Receivables | 150 |
| Bank CC (Hyp) | 400 | Investment In Govt. Secu. | 50 |
| Sundry Creditors | 100 | Preliminary Expenses | 100 |
| Total | 1400 | | 1400 |

1. **Debt Equity Ratio** will be : $600 / (200+100) = 2 : 1$
2. **Tangible Net Worth** : Only equity Capital i.e. = 200
3. **Total Outside Liabilities / Total Tangible Net Worth** : $(600+400+100) / 200 = 11 : 2$
4. **Current Ratio** will be : $(300 + 150 + 50) / (400 + 100) = 1 : 1$



Exercise 4. contd...

| LIABILITIES | | ASSETS | |
|----------------------|------------|-------------------|------------|
| Capital + Reserves | 355 | Net Fixed Assets | 265 |
| P & L Credit Balance | 7 | Cash | 1 |
| Loan From S F C | 100 | Receivables | 125 |
| Bank Overdraft | 38 | Stocks | 128 |
| Creditors | 26 | Prepaid Expenses | 1 |
| Provision of Tax | 9 | Intangible Assets | 30 |
| Proposed Dividend | 15 | | |
| | 550 | | 550 |

Q. What is the Debtors Velocity Ratio ? If the sales are Rs. 15 Lac.

$$\begin{aligned}\text{Ans : (Average Debtors / Net Sales) } \times 12 &= (125 / 1500) \times 12 \\ &= 1 \text{ month}\end{aligned}$$

Q. What is the Creditors Velocity Ratio if Purchases are Rs.10.5 Lac ?

$$\text{Ans : (Average Creditors / Purchases) } \times 12 = (26 / 1050) \times 12 = 0.3 \text{ months}$$



Exercise 5. : Profit to sales is 2% and amount of profit is say Rs.5 Lac. Then What is the amount of Sales ?

$$\begin{aligned}\text{Answer : Net Profit Ratio} &= (\text{Net Profit} / \text{Sales}) \times 100 \\ 2 &= (5 \times 100) / \text{Sales} \\ \text{Therefore Sales} &= 500/2 = \text{Rs.250 Lac}\end{aligned}$$

Exercise 6. A Company has Net Worth of Rs.5 Lac, Term Liabilities of Rs.10 Lac. Fixed Assets worth RS.16 Lac and Current Assets are Rs.25 Lac. There is no intangible Assets or other Non Current Assets. Calculate its Net Working Capital.

Answer

$$\text{Total Assets} = 16 + 25 = \text{Rs. 41 Lac}$$

$$\text{Total Liabilities} = \text{NW} + \text{LTL} + \text{CL} = 5 + 10 + \text{CL} = 41 \text{ Lac}$$

$$\text{Current Liabilities} = 41 - 15 = 26 \text{ Lac}$$

$$\begin{aligned}\text{Therefore Net Working Capital} &= \text{C. A} - \text{C.L} \\ &= 25 - 26 = (-)1 \text{ Lac}\end{aligned}$$



Exercise 7 : Current Ratio of a concern is 1 : 1. What will be the Net Working Capital ?

Answer : It suggest that the Current Assets is equal to Current Liabilities hence the NWC would be **NIL** (since $NWC = C.A - C.L$)

Exercise 8 : Suppose Current Ratio is 4 : 1. NWC is Rs.30,000/-. What is the amount of Current Assets ?

Answer : $4a - 1a = 30,000$

Therefore $a = 10,000$ i.e. Current Liabilities is Rs.10,000

Hence Current Assets would be $4a = 4 \times 10,000 = \text{Rs.}40,000/-$

Exercise 9. The amount of Term Loan installment is Rs.10000/ per month, monthly average interest on TL is Rs.5000/-. If the amount of Depreciation is Rs.30,000/- p.a. and PAT is Rs.2,70,000/-. What would be the DSCR ?

$$\begin{aligned} \text{DSCR} &= (\text{PAT} + \text{Depr} + \text{Annual Intt.}) / \text{Annual Intt} + \text{Annual Installment} \\ &= (270000 + 30000 + 60000) / 60000 + 120000 \\ &= 360000 / 180000 = 2 \end{aligned}$$



Exercise 10 : Total Liabilities of a firm is Rs.100 Lac and Current Ratio is 1.5 : 1. If Fixed Assets and Other Non Current Assets are to the tune of Rs. 70 Lac and Debt Equity Ratio being 3 : 1. What would be the Long Term Liabilities?

Ans : We can easily arrive at the amount of Current Asset being Rs. 30 Lac i.e. (Rs. 100 L - Rs. 70 L). If the Current Ratio is 1.5 : 1, then Current Liabilities works out to be Rs. 20 Lac. That means the aggregate of Net Worth and Long Term Liabilities would be Rs. 80 Lacs. If the Debt Equity Ratio is 3 : 1 then Debt works out to be Rs. 60 Lacs and equity Rs. 20 Lacs. **Therefore the Long Term Liabilities would be Rs.60 Lac.**

Exercise 11 : Current Ratio is say 1.2 : 1 . Total of balance sheet being Rs.22 Lac. The amount of Fixed Assets + Non Current Assets is Rs. 10 Lac. What would be the Current Liabilities?

Ans : When Total Assets is Rs.22 Lac then Current Assets would be 22 – 10 i.e Rs. 12 Lac. Thus we can easily arrive at the Current Liabilities figure which should be Rs. 10 Lac



Exercise 12. From the following financial statement calculate (i) Current Ratio (ii) Acid test Ratio (iii) Inventory Turnover (iv) Average Debt Collection Period (v) Average Creditors' payment period.

| | |
|---------------|------|
| Sales | 1500 |
| Cost of sales | 1000 |
| Gross profit | 500 |

| | |
|-----------------------|-----|
| <u>C.Assets</u> | |
| Inventories | 125 |
| Debtors | 250 |
| Cash | 225 |
| <u>C. Liabilities</u> | |
| Trade Creditors | |

200

- (i) Current Ratio : $600/200 = 3 : 1$
- (ii) Acid Test Ratio : $\text{Debtors} + \text{Cash} / \text{Trade creditors} = 475/200 = 2.4 : 1$
- (iii) Inventory Turnover Ratio : $\text{Cost of sales} / \text{Inventories} = 1000/125 = 8 \text{ times}$
- (iv) Average Debt collection period : $(\text{Debtors}/\text{sales}) \times 365 = (250/1500) \times 365 = 61 \text{ days}$
- (v) Average Creditors' payment period : $(\text{Trade Creditors}/\text{Cost of sales}) \times 365$
 $(200/100) \times 365 = 73 \text{ days}$



Summary of Financial Ratios



- Ratios help to:
 - Evaluate performance
 - Structure analysis
 - Show the connection between activities and performance
- Benchmark with
 - Past for the company
 - Industry
- Ratios adjust for size differences



Limitations of Ratio Analysis



- A firm's industry category is often difficult to identify
- Published industry averages are only guidelines
- Accounting practices differ across firms
- Sometimes difficult to interpret deviations in ratios
- Industry ratios may not be desirable targets
- Seasonality affects ratios