

Economics, Management and Entrepreneurship
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Lecture - 19
Analysis of Financial Statements

Good morning. Welcome to the 19th lecture on economics, management and entrepreneurship. If you recall in our last 2 lectures we had very elaborately discussed financial statements. In that 2 mandatory financial statements are the balance sheet and the profit and loss statement. Also important is a statement of cash flows which although not mandatory many companies usually prepare and publish.

Now how to make a good analysis of these financial statements and what conclusions can be drawn and how to make interpretations of the numerical figures that appear in the financial statements that is the subject of today which we call Analysis of Financial Statements.

(Refer Slide Time: 01:39)

Analysis of Financial Statements

- information derived from the financial statements can be of great value to the stakeholders of the company.
 - Shareholders can decide whether to retain or sell the stocks.
 - General public can decide if it was the right time to buy the stocks.
 - Lending institutions can decide on the credit-worthiness of the company.
 - Managers can know the working capital requirement and how well they have used the company assets.
 - Government comes to know the health of a company.
- The principal tool of analyzing the financial statements is the financial ratio analysis.
- Here the ratios between different groups of items in the financial statements are computed to judge a company's performance.



Firstly, let us understand that the information obtained from the financial statements can be of great value to the stakeholders of any company. There are different types of stakeholders of the company shareholders of the owners can decide whether to retain or sell their stocks in the company. If the company is not doing very well the shareholder may decide to sell their stocks and if it is doing quite well. The shareholders may decide to retain their stocks.

The general public can decide whether it was the right time for them to invest in their money

in buying the stock. The lending institutions can decide on the credit worthiness of the company. If the company is not doing well the lending institutions may decide not to grant any more credit to this particular company when they sell their products. Managers can know the working capital requirement how well they have used the company assets.

The government comes to know the health of a company. Like this all types of stakeholders of the company benefit from the information given in the financial statements. Therefore, the question is whether it is possible to have a structure analysis of the financial statements. Usually to carry out this analysis the principle tool used is the financial ratio analysis that is analysis of ratios of different items.

They are called financial ratios and the analysis of the financial ratios is what is usually done to make an analysis the financial statements. Here the ratios between different groups of items in the financial statements are computed to judge how a company has performed in the last year. So basically it is the financial ratio analysis that is done on the financial statements to understand the meaning, to interpret the values and to understand the financial status of an organization.

(Refer Slide Time: 04:52)



Financial Ratio Analysis

We consider the following types of ratios:

- Liquidity ratios
- Leverage ratios
- Turnover ratios
- Profitability ratios
- Dividend ratios
- Expense ratios

Now there are different types of financial ratios liquidity ratio, leverage ratios, turnover ratios, profitability ratios, dividend ratios and expense ratios. So you can see that ratios can be categorized in at least 6 headings. So we will look at this plural number, plural form of the word ratios which means under liquidity ratios there are quite a few ratios under leverage ratios there are quite a few ratios like that.


So each category of ratios has got a number of ratios and let see one by one.

(Refer Slide Time: 05:49)

A. Liquidity ratios

These ratios indicate the ability of a firm to meet its short-run obligations, indicating short-term solvency.

A.1 Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$
$$= \frac{4,650,000}{2,500,000}$$
$$= 1.86$$


Thumb Rule: Should be	2
Public Utility Companies:	1
Wholesale Dealer:	2.5

First the liquidity ratios. These ratios indicate the ability of a firm to meet its short-term obligations indicating short-term solvency that is its liquidity condition whether it is having sufficient cash or cash equivalents. The very first ratio which is the most popular liquidity ratio is called the current ratio. Current ratio is the ratio of current assets to current liabilities. Now these figures are actually collected from the balance sheet values of current assets and current liabilities.

Just I would like to keep it open to refer to it whenever there is a need. Current assets is 4,650,000 rupees and current liabilities is 2,500,000 rupees. So the ratio of current assets to current liabilities is $4,650,000 / 2,500,000$ which comes to 1.86. A thumb rule which is used for the current ratio is that it should be close to 2. Of course for different types of companies they can differ.

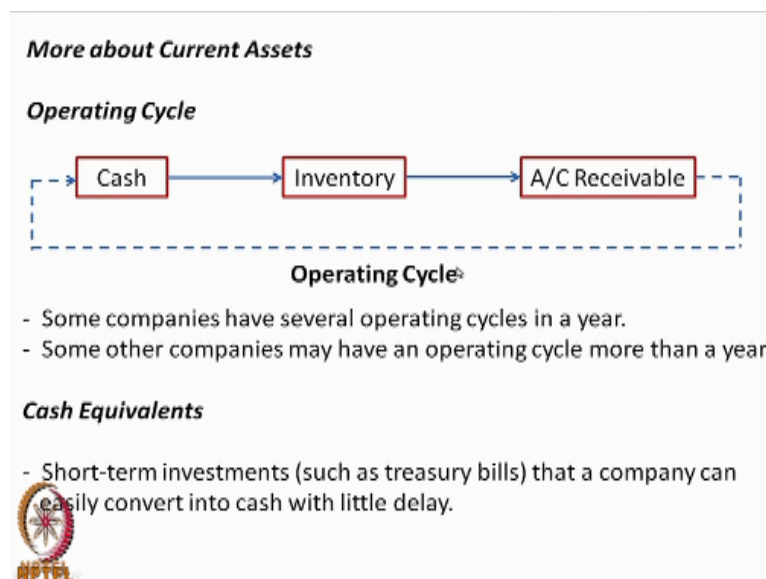
For public utility companies these ratios could be as low as only 1 whereas as for wholesale dealers the value is as large as 2.5. Now when it is 2 it means you should have much more current assets than current liabilities.

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Current Assets, Loans, and Advances		4,650,000
Cash and bank		950,000
Net receivables		2,000,000
Receivables (Debtors)	2,100,000	
Less: discounts and bad debts	100,000	
Inventories		1,500,000
Finished Products	600,000	
Work in Process	400,000	
Raw materials & Supplies	500,000	
Prepaid expenses, Loans, & Advances		200,000
		<u>9,700,000 Rs.</u>

Now try to recall what the current assets is look at the current assets have land this is fixed assets of course. Current assets have cash receivables or debtors, account receivables, inventories and prepaid expenses.

(Refer Slide Time: 08:55)



And if you look at these figure that I had given this cash is the most liquid of current asset. Inventory is the least liquid; account receivable is more liquid. We take the sum of cash, inventory account receivables and prepaid expenses as our current assets. So we are assuming that they are convertible to cash in this year. This is the meaning of current assets. Now the value for this company is 1.86 so it is close to 2 so it is not very bad.

(Refer Slide Time: 09:50)

A.2 Quick Assets (or Acid Test) ratio

This ratio considers the fact that inventories take longer time to be converted into cash and are therefore less liquid.

$$\begin{aligned}\text{Quick-Assets Ratio} &= \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}} \\ &= \frac{4,650,000 - 1,500,000}{2,500,000} \\ &= 1.26\end{aligned}$$

Thumb Rule: Should be 1



It considers the fact that *inventories* are less liquid. Often *prepaid expenses* are also excluded for the same reasons.

However, because inventories take longer time to be converted into cash and because they are less liquid not current assets, but if we subtract inventories from current assets and put that in the numerator then that ratio is the better indicator of the liquidity of the company because inventory is the least liquid of the 3 items that come under current assets. So inventories amount to 1,500,000 rupees this was obtained from the assets inventories.

All types of inventories add up to 1,500,000 rupees. So if we subtract 1, 500,000 rupees from the total current asset figure the value becomes something like 3,150,000 rupees/2,500,000 rupees and the ratio is 1.26. This is called quick assets ratio or acid test ratio because it does not consider the less liquid item of the current asset which is inventories and the thumb rule is that ratio this ratio, the acid test ratio should be about 1.

If it is 1, then the company is in a very good condition to meet its short-term obligations or working capital needs. For this company the value is 1.26 so it is in a very, very comfortable position to meet its short-term needs. Often prepaid expenses are also excluded for the same reason because inventory is less liquid similarly prepaid expenses are also less liquid they are sometimes also subtracted from the current assets to calculate the quick assets ratio.

(Refer Slide Time: 12:24)

A.3 Super-Quick Assets Test Ratio

It does not consider even *Accounts Receivable (Debtor)*.

$$\begin{aligned}\text{Super-Quick Assets Test Ratio} &= \frac{\text{Cash}}{\text{Current Liabilities}} \\ &= \frac{950,000}{2,500,000} \\ &= 0.38\end{aligned}$$



And sometimes even the account receivables of the debtors are also subtracted then it is called super quick assets test ratio only cash/current liabilities. So this is in this case only 0.38. This ratio is not very much used because as I told you most of the transactions today is on credit and therefore account receivables have to be or has to be there subtracting account receivables from current asset is not a very good proposition.

However, some accountants say that this super quick asset test ratio is a definite indicator of the liquidity or the liquidity position of the company.

(Refer Slide Time: 13:24)

A.4 Bank Finance to Working Capital Gap Ratio

Working Capital = current assets – current liabilities

Bank Finance to Working Capital Gap Ratio

$$\begin{aligned}&= \frac{\text{Short-Term Bank Borrowings}}{\text{Working Capital}} = \frac{850,000}{4,650,000 - 1,500,000} \\ &= 0.38\end{aligned}$$

This ratio, according to the Tandon Committee report, should not exceed 0.75.

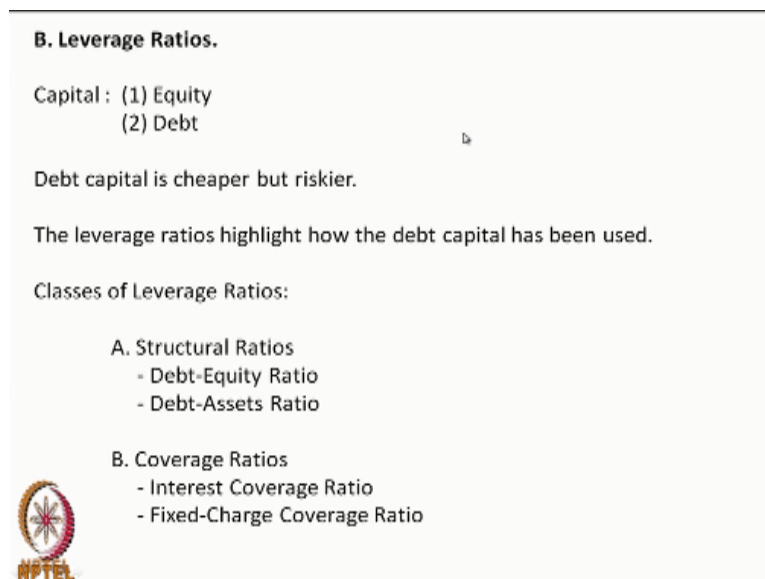


Another form of current ratio is bank finance to working capital gap ratio. Working capital is defined as current assets-current liabilities and we normally meet the difference by taking short term loans from the bank. So one would like to see to what extent this short term bank

borrowing relates to working capital. What is the fraction of working capital which is short term borrowing?

In this case the short term bank borrowings which comes from the liability side of the balance sheet which is 850,000 and the working capital is current assets-current liabilities then this ratio is 0.38. The Tandon committee report says that this ratio should not exceed 0.75. So this company short-term borrowing is much < 0.75 which means it is in a comfortable position as far as the borrowings from the bank is concerned to meet its working capital needs.

(Refer Slide Time: 14:52)



B. Leverage Ratios.

Capital : (1) Equity
(2) Debt

Debt capital is cheaper but riskier.

The leverage ratios highlight how the debt capital has been used.


Classes of Leverage Ratios:

A. Structural Ratios

- Debt-Equity Ratio
- Debt-Assets Ratio

B. Coverage Ratios

- Interest Coverage Ratio
- Fixed-Charge Coverage Ratio



The second type of ratio is known as leverage ratios. Then normally the source of capital of a company is either selling shares or taking loans. Usually debt capital is cheaper, but riskier and the leverage ratios highlight how this debt capital has been utilized. Now there are 2 classes of leverage ratios structural ratios and coverage ratios. Under structural ratios we have debt equity ratios and debt assets ratios.

Under coverage ratios we have interest coverage ratios and fixed charge coverage ratios. Let us see what they mean.

(Refer Slide Time: 16:00)

B.1 Debt -Equity Ratio

Thumb Rule: Should be 2:1
Capital-intensive Industries
Cement and Fertilizer: 4:1
Shipping : 6:1
Capital-rich Countries: 1:3

$$\begin{aligned} &= \frac{\text{Debt}}{\text{Equity}} \\ &= \frac{\text{Secured Loans} + \text{Unsecured Loans} + \text{Current Liabilities \& Provisions}}{\text{Share Capital} + \text{Resources \& Surplus}} \\ &= \frac{2,000,000 + 700,000 + 2,500,000}{2,800,000 + 1,700,000} = \frac{5,200,000}{4,500,000} = 1.16 \end{aligned}$$

- Share capital includes both equity and preference shares.
- Debt usually considers both long- and short-term loans.
- Often current liabilities are excluded in the computation of this ratio.



Debt equity ratio is your total amount of money that you have got how much of it is financed by your own shareholders and how much of it is through debt. So debt to equity is the debt equity ratio. So equity is both forms of equity that is common stock and preference stock plus other retained earnings and surpluses. In our case the share capital if you look at the liability side it came to 2,800,000.

Resource and surplus came to 1,700,000 this we can see if we look at this. Share capital equity capital is 2,000,000, preference capital is 800 together it is 2,800,000 and reserve and surplus in our case it was only accumulated retained earnings there was no surplus it came to 1, 700,000. So it is this that we are writing in the denominator this is the total capital invested and of this invested in the form of owner's equity.

Now how much capital we have got from through debt. This amount is secured loans, unsecured loans and current liabilities and provisions.

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Secured Loans		2,000,000
Debentures	1,500,000	
Loans from Financial Institutions	500,000	
Unsecured Loans		700,000
Fixed Deposits with XYZ	500,000	
Loans from Promoters	200,000	
Current Liabilities and Provisions		2,500,000
Accounts Payable (Creditors)	1,000,000	
Loans Payable	850,000	
Accrued Expenses Payable	200,000	
Provisions for Pension and Gratuity	100,000	
Income Taxes Payable	350,000	
		<u>9,700,000 Rs.</u>

So this also we can see from the liabilities secured loans, unsecured loans and current liabilities. So this totaling will give us the debt and this came to 5, 200,000 and the ratio is 1.16. Now in this case the share capital includes both equity and preference capital that already I said debt usually considers both long and short-term loans often of course current liabilities are excluded in the computation of these ratio because we are talking about long-term loans.

Sometimes this part is excluded Now normally thumb rule is that one should not go for very high value of equity because if the ownership base is increased then there are large number of owners which is sometimes not wanted. Companies want to have their ownership to a less number relying more on debt. So thumb rule is that this ratio should be 2:1, but it is seen that for capital intensive industries such as cement and fertilizer who require more capital.

They finance their capital by the instrument of debt. This ratio can be as high as 4:1 for shipping company or aero planes manufacturing. The company requires very high capital that can go even up to 6:1. Whereas it is seen that in capital rich countries such as USA and European countries they go for very little debt and they rely on more equity shares. So these are thumb rules, but basically the ratio should be close to 2:1 which is an average number for any industry, but of course depending on the type of companies it can differ.

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B.2 Debt-Assets Ratio

$$= \frac{\text{Debt}}{\text{Assets}} = \frac{5,200,000}{9,700,000} = 0.54$$

- Assets represent the Balance Sheet total.

$$\frac{\text{Debt}}{\text{Assets}} = \frac{\text{Debt/Equity}}{\text{Assets/Equity}} \sim \frac{\text{Debt/Equity}}{1 + \text{Debt/Equity}}$$



Debt assets ratios of the total assets what is the amount of debt in this case it is 0.54 debt is to assets is same as debt/equity/assets/equity. So debt/equity is the debt equity ratio and assets/equity because assets is equity+ debt/equity. We can write this as 1+debt/equity. Therefore, debt asset ratio is same as debt equity ratio/1+debt equity ratio.

(Refer Slide Time: 21:20)

B.3 Interest Coverage Ratio

$$= \frac{\text{Profit Before Interests \& Taxes}}{\text{Debt Interest}} = \frac{810,000}{135,000} = 6$$

- This ratio measures the margin of safety the firm has for the interest burden.
- A high value of this ratio means that the firm can comfortably meet its interest burden.
- An alternative measure of this ratio considers depreciation, as it is a source of cash flow:

$$= \frac{\text{Profit Before Interest\&Taxes} + \text{Depreciation}}{\text{Debt Interest}} = \frac{810,000 + 900,000}{135,000} = 12.67$$



Next we consider the interest coverage ratio. Interest coverage ratio is basically a ratio of PBIT profit before interest and tax and debt interest. This is the amount of interest that you are supposed to pay and how much you have got as profit before paying interest and taxes which is more than 135,000 because out of this the interest will be paid. To find out profits before tax.

In this case the value is quite high which is 6 which means that it is in a very comfortable

position to make its payment. The ratio measures the margin of safety the firm has to meet its interest burden. A high value of this ratio means the firm can comfortably meet its interest burden and an alternative measure of this ratio considers depreciation as it is a source of cash flow.

We will discuss about depreciation about 2, 3 lectures later and we shall show that depreciation actually reduces the tax and therefore it is an indirect source of cash flow and therefore depreciation is sometimes added to PBIT in its numerator. If it is considered, then the value is even higher which is 12.67. So in any case this company is doing pretty well as far as meeting its interest burden is concerned.


(Refer Slide Time: 23:15)

C. Turnover Ratios (or Activity ratios or Asset Management Ratios)

These ratios measure the efficiency with which the firm employs its assets.

It depicts the relationship between the level of activity represented by Sales (or COGS) and Assets level.

- Inventory Turnover Ratio
- Receivables (Debtors) Turnover Ratios
- Average Collection Period
- Fixed Assets Turnover Ratio
- Total Assets Turnover Ratio



Next we talk about the turnover ratios or activity ratios or asset management ratios. These ratios measure the efficiency with which the firm employs its assets. It depicts the relationship between the level of activity represented by sales or COGS and assets levels and there are 5 types of turnover ratios. Inventory turnover, receivables turnover, fixed assets turnover, total assets turnover ratios and an average collection period which is also calculated as a ratio, but the word ratio does not appear in this case.

Let us consider each one of these in detail.

(Refer Slide Time: 24:12)

C.1 Inventory Turnover Ratio

$$= \frac{\text{Net Sales}}{\text{Inventory}} = \frac{6,500,000}{1,500,000} = 4.33$$

- Often the numerator is taken as the cost of goods sold and the denominator is taken as the average of the beginning and the end inventory and.
- A high value of the ratio indicates a better management of inventory, but it also indicates the possibility of stock out, lost sale and loss of customer good will.



First the inventory turnover ratio. Basically it finds out in a year how much sales you have made and how much inventory you are having on an average of course this means this ratio means that so many times the inventory has turnover at this rate if you have sold 6.5 million rupees and if you are holding 1.5 million rupees' worth of things on an average it means that we will be able to make this sale 4 times the inventory has turnover is the meaning close to 4.33.

And a few things to know one is that net sales are not the main thing. The main thing is COGS because net sales is calculated at the rate of price whereas the cost of goods sold actually indicates the manufacturing cost. So instead of net sales quite COGS is taken and inventory is calculated not at the end of year inventory level. We have taken here end of the year inventory level as it appeared in the balance sheet.

For example, look at the balance sheet inventories it was 1,500,000, but this is only the end of the year inventory.

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Gross Sales		7,300,000
Less: Returns & Allowances	300,000	
Cash Discounts	250,000	
Estimated Loss on Uncollectible Accounts	<u>250,000</u>	800,000
Net Sales		6,500,000
Cost of Goods Sold		<u>5,300,000</u>
Stocks	900,000	
Wages & Salaries	3,000,000	
Depreciation	900,000	
Other Manufacturing Expenses	500,000	
Gross Profit (Margin)		1,200,000
Operating Expenses		500,000
General & Administrative Expenses	300,000	
Selling Expenses	200,000	
Operating Profit		700,000

And if you look at the income statement the net sales is 6,500,000 whereas the cost of goods sold correspondingly was less 5 300,000. Now what I am trying to say is that normally it should not have been net sales it should be COGS the cost of goods sold and it should be the end of the inventory which appear in the balance sheet, but it should be the average of the inventory held.

So how can you get the average of the inventory held? If you see the last year's inventory level that means if you consult the balance sheet of last year and see whatever amount of inventory was left with and at the end of this year whatever amount you are left with (()) (27:04) what you get is the average inventory held in this year. So division of cost of goods sold by the average inventory held could also be taken as the inventory turnover ratio. This is what I am trying to tell you.

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C.1 Inventory Turnover Ratio

$$= \frac{\text{Net Sales}}{\text{Inventory}} = \frac{6,500,000}{1,500,000} = 4.33$$

- Often the numerator is taken as the cost of goods sold and the denominator is taken as the average of the beginning and the end inventory and.
- A high value of the ratio indicates a better management of inventory, but it also indicates the possibility of stock out, lost sale and loss of customer good will.



A high value of this ratio indicates a better management of inventory. So if you are selling this amount, but you are having an inventory of let say 3,000,000 it means that you are holding much more inventory to be able to sell this much of amount. If instead you are holding only 500,000 then this value is close to 12 or 13 it means that your inventory management is much better because inventory is always an ideal stock.

So less it is the better it is. So this tells the high value of this ratio is always better of course it indicates the possibility of stock out lost sale and loss of customer goodwill. So there is a risk involved, but in any case the higher the value the better it is.

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C.2 Receivables Turnover Ratio

$$= \frac{\text{Net Sales}}{\text{Receivables}} = \frac{6,500,000}{2,000,000} = 3.25$$

C.3 Average Collection Period

$$= \frac{\text{Receivables}}{\text{Average sales per day}} = \frac{\text{Receivables}}{(\text{Net sales}/360)}$$

$$= 360 / (\text{Receivables Turnover Ratio}) = 360/3.25 = 111.13$$

- A value of average collection period higher than the credit terms of the firm means that the collection is slow.



Thus if the allowed credit period is 60 days, and the average collection period is 111 days, then it is a matter of concern for the firm.

And the same thing is done for receivables turnover ratio. Only thing the denominator is not the inventory, but receivables. In this case it is 3.25 which means that whatever amount is

receivable cash sales is much larger and credit sales is less. So the higher it is the better it is. Now average collection period. Account receivables is the amount that you are expecting to get from the customers /average sales per day is the average collection period and this is= receivables/average sales per day assuming 360 days it will be net sales/360. So 360 can go up receivables can come down. So it is 360/net sales/receivables.

Net sales/receivables is nothing, but receivables turnover ratio. So this is nothing, but 360/receivables turnover ratio. So 360/3.25 it is 111.13. It means that on an average the company is able to get its payments from its customers who have purchased their items in credit sales within 111 or after 111 days and 111 days means about 4 months 30 days in a month 4 months means 120 days.


A value of average collection period higher than the credit term of the firm means that the collection is slow. Thus if the allowed credit period is just 2 months 60 days and on an average you are getting the receipts in 4 months or 111 days it means that it is a matter of concern for the firm their cash position maybe affected because of this late payment.

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C.4 Fixed Assets Turnover Ratio

$$= \frac{\text{Net Sales}}{\text{Fixed Assets}} = \frac{6,500,000}{3,200,000} = 2.03$$

- A high value of this ratio indicates that the fixed assets are employed with high efficiency.
- There is however a danger that old, depreciated assets may show up high value of this ratio.




Fixed assets turnover ratio is net sales/fixed assets. This is 2.03 basically fixed assets is something like the capital that is invested and this is the amount you are getting. A high value of this ratio indicates that the fixed assets are employed with high efficiency. There is however a danger that old depreciated assets may show up high value because old depreciate assets meaning fixed assets will be less and they may give very high values of fixed assets turnover ratio.

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C.5 Total Assets Turnover Ratio

$$= \frac{\text{Net Sales}}{\text{Total Assets}} = \frac{6,500,000}{9,700,000} = 0.67$$

- This is similar to the fixed assets turnover ratio.
- This is similar to output-capital ratio used in the financial analysis.




Similarly, total assets turnover ratio is net sales/total assets and this is similar to output capital ratio which is used by the economists for their financial analysis. This is the capital invested and this is the output that the company is getting. So output capital ratio is something like 0.67 in this case.

(Refer Slide Time: 32:08)

D. Profitability Ratios

These ratios measure the profitability relative to sales and to investment

- Gross Profit Margin Ratio
- Net Profit Margin Ratio (Return on Sales)
- Return on Investment (ROI)
- Return on Equity (ROE)
- Earnings per Share
- Earnings Yield (or Earnings-Price Ratio)
- Price Earnings Ratio (P/E Ratio)



Then we come to the next set of ratios which is the profitability ratios. There are different types of profitability ratios. They measure the profitability relative to sales and to investment. So there are 7 types of profitability ratios been defined.

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D.1 Gross Profit Margin Ratio

$$= \frac{\text{Gross Profit}}{\text{Net Sales}} = \frac{1,200,000}{6,500,000} = 0.184$$

This ratio indicates the effect of cost of goods sold and of pricing.



First is gross profit margin ratio or just gross profit margin. It is gross profit by net sales. Net sales for us was 6,500,000 gross profit was 1,200,000 the ratio is 0.184 or 18.4%. It indicates the effects of cost of goods sold and of pricing. The company is able to get the gross profit of 18.4%.

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D.2 Net Profit Margin Ratio (Return on Sales)

$$= \frac{\text{Net Profit (after tax)}}{\text{Net Sales}} = \frac{325,000}{6,500,000} = 0.05$$

This ratio shows the effect of selling and administrative expenses and of taxes in addition to production cost of pricing.

D.3 Return on Investment

$$= \frac{\text{Profit before interest and taxes}}{\text{Total assets}} = \frac{810,000}{9,700,000} = 0.083$$



This ratio indicates how the investment in assets generates profits.

Net profit is however much less. It is the net profit after tax always net meaning after tax and net sales is this. So only 5% compared to 18% gross profit the net profit is 5%. It means how is net profit calculated gross profit-the interest and taxes. So naturally interest was much higher and therefore this has come down. Also gross profit-the operating expenses gives us operating profit-interest gives us the net profit.

So operating expenses like selling and administrative expenses are also considerably high and

therefore the net profit it has (()) (34:12). So one has to see how these expenses and interest expenses could be reduced. Return on investment also known as ROI. This is profit before interest and tax/total assets. Total asset is 9, 700,000. PBIT is 810,000. Return on investment is in our case 8.3%.


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D.4 Return on Equity

$$= \frac{\text{Profit after tax} - \text{Preference dividends}}{\text{Paid-in capital} + \text{reserves \& surplus}}$$

$$= \frac{325,000 - 50,000}{2,800,000 + 1,700,000} = \frac{275,000}{4,500,000} = 0.061$$

- Preference dividends are often ignored.
- Equity is often taken as average of the last year and the present year equity values.
- The profitability ratios have an upward bias at times of inflationary conditions, since the denominators represent historical values, whereas numerator represent present values.



Return on equity is equity is the shareholders money so their investment amount is paid in capital plus reserves and surplus is the total amount the owners equity which is coming as 4, 500,000 and what they are actually getting their owning. Preference dividends are actually to be give back always therefore PAT-Preference dividends gives only 275,000. So what owners say that it returns on the total amount that they are invested is only 6.1%.

Sometimes preference dividends are often ignored this amount is not subtracted just profit after tax/this. Equity is often as the average of the last year and the present year equity values just as inventory calculation was made and profitability ratio is have an upward bias at times of inflationary conditions. Since the denominator represents historical values whereas numerator represents present values.

Because paid in capital the shareholders may have paid that money 5 years ago where the price index was less, but profit after tax is much high today. And therefore this may give a higher value. This is a danger of the return on equity and in fact for all profitability ratios.

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D.5 Earnings per Share (EPS)

$$\begin{aligned} &= \frac{\text{Profit after tax} - \text{Preference dividends}}{\text{Number of Ordinary Shares (Common Stock)}} \\ &= \frac{325,000 - 50,000}{20,000} = \frac{275,000}{20,000} = 13.75 \text{ Rs/share} \end{aligned}$$

- Each common stock has a par value of Rs. 100, and there are 20,000 common stocks.



Earnings per share EPS is another very popular ratio. The numerator is same as return because this is from the shareholder's point of view and here we divide by the number of ordinary shares, number of normally ordinary share meaning common stock the real owners not the preference shareholders. So in this case it is assuming 20,000 at a par value of 100 that makes it 2,000,000 rupees that was the paid in capital. So 20,000 is a number of shares so the earnings per share now becomes 13 rupees 75 paisa.

(Refer Slide Time: 37:27)

D. 6 Earnings Yield (or Earnings-Price Ratio)

$$\begin{aligned} &= \frac{\text{Earnings per Ordinary Share}}{\text{Market Price per Share}} \\ &= \frac{13.75}{200} \\ &= 0.06875 \text{ (i.e., 6.875 \%)} \end{aligned}$$

D. 7 Price Earnings Ratio (P/E Ratio)

$$= \frac{\text{Market Price per Share}}{\text{Earnings per Ordinary Share}} = 14.5$$



Yet another ratio is calculated as earning per share per ordinary share/ market price per share which is called earning yield. Let us say the earnings per ordinary shares is just 13 rupees 75 paisa that we have just now calculated, but this share is selling at a price of 200 rupees in the share market. This ratio comes to something like 6.875%. This is known as earnings price ratio or EP ratio or earnings yield.


The reverse of it is known as PE ratio the price earnings ratio which is the market price/ earnings per ordinary shares which is 200/13.75. In this case it is 14.5 it is quite high.

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E. Dividend Ratios

These ratios show how the common stockholders get paid in the form of dividends compared to the amount earned by the company and the market price of the stock.

- Dividend Yield
- Dividend Payout



Then we will come to dividend ratios. These ratios show how the common stockholders get paid in the form of dividends compared to the amount earned by the company at the market price of this stock. There are 2 types of ratio dividend yield and dividend payout.

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E.1 Dividend Yield

$$\begin{aligned} &= \frac{\text{Dividend per Ordinary Share}}{\text{Market Price per Share}} \\ &= \frac{100,000/20,000}{200} \\ &= 0.025 \text{ (i.e., 2.5 \%)} \end{aligned}$$


Dividend yield is defined as dividend per ordinary share/market price per share. Dividend paid was 100,000 ordinary share was 20,000 and the market per share was 200 rupees 20,000 number of shares. Total amount of dividend paid was 100,000 therefore per share only 5 rupees was given. That divided by 200 comes to 2.5%. So the dividend yield of the share is


only 2.5%.

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E.2 Dividend-Payout Ratio

$$= \frac{\text{Dividends Paid to Common Stockholders}}{\text{Net Profit}} = \frac{100,000}{325,000}$$
$$= 0.308$$
$$\sim \frac{\text{Dividend per Common Stock}}{\text{Earnings per Share}}$$

It indicates that about 30.8 % of the net profit are distributed as dividends to common stockholders.



Next dividend payout ratio. This is the dividend paid to common stockholders /net profit. In this case it is 100,000/325,000 that comes to 0.308 and this is also approximately equal to dividend per common stock/earnings per share if you divide by the number of shares both in the numerator and in the denominator. In the denominator if you write net profit for number of shares it becomes earning per share and in the numerator if you divide it by number of shares it becomes dividend per common stock.

In this case it indicates that about 30.8% of the net profit are distributed as dividends to common stockholders.

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F. Expense Ratios

- COGS Ratio
- Operating Expense Ratio
- Administrative Expense Ratio
- Selling Expense Ratio


In each case the denominator is **Net Sales**.

COGS Ratio = 0.801 (i.e., 80.1 % of Net Sales)

Operating Expense Ratio = 0.077 (i.e., 7.7 % of Net Sales)

Administrative Expense Ratio = 0.046 (i.e., 4.6 % of Net Sales)

Selling Expense Ratio = 0.031 (i.e., 3.1 % of Net Sales)



Now the last set of ratios expense ratios. There are 4 of them cost of goods sold ratio COGS ratio, operating expense ratio, administrative expenses ratio and selling expense ratio. In each case the denominator is net sales that means COGS ratios is COGS/net sales. Operating expense ratio is operating expenses/net sales. Administrative expense ratio is administrative expense/ net sales and selling expense ratio is selling expenses.net sales.

In this case though the details are not shown here the COGS ratios comes as 0.801 that means of the total sales the cost of goods sold is 80.1%. The operating expense ratio is coming as there is a mistake here it should be 7.7%. 0.077 that is 7.7% of the net sales. Administrative expense ratio is coming as 4.6% of net sales and selling expenses ratio is coming as 3.1% of net sales.

Of these 3 you can see that the operating expense ratio that is general and administrative expense and selling expense together is the highest among these 3. Selling expense ratio of course is taken separately here meaning general administrative expenses, administrative expense ratio is 4.6%. So together they give 7.7%. So one can go in to the details to find out why this is so high could this be reduced further.

Now that we have defined a (()) (43:07) of different ratios. Now the question what information can be derived from out of these ratios for that we usually make 2 or even 3 types of comparison.

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USE OF FINANCIAL RATIOS

Comparing the ratios

1. With the company's own past (**Time-Series Comparison**)
2. With a general rule of thumb (**benchmark**)
3. With other similar companies (**Cross-sectional comparison**)

Statistical analysis can be made when comparing the ratios.

For example, the median and the interquartile range values can be determined for each ratio.

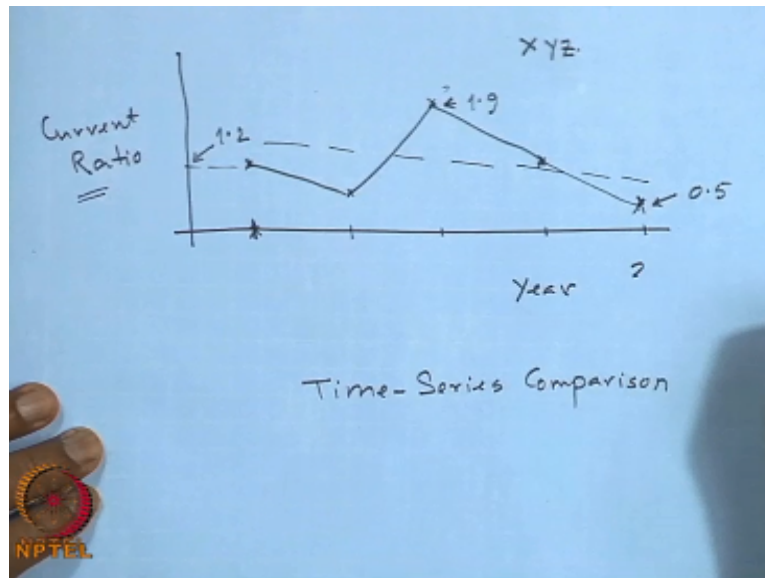
 Normally, a ratio analysis should be followed by analysis of company's performance and the forces influencing it.

That is what is listed here. One comparison is the company finds out the ratios and plots

ratios for various years with the company's own past is called the time series comparison or with a general rule of thumb. In a general rule of thumb meaning the thumb rule that I had give the benchmark suggested in the books or the industry average or similar such thing or it can compare with similar companies known as cross-sectional comparison.

Now for example in case of a company which has existed for the last 5 years it is possible.

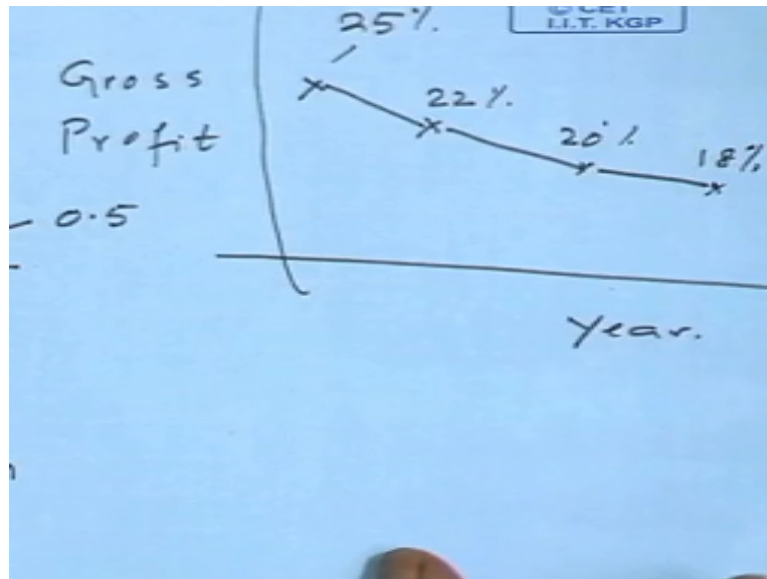
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So let us say we are drawing it here we can show year here and let say we plot current ratio here one of the ratios for the same company X, Y, Z company. So in one year the value was somewhere here. In another year the value fall, in another year the value is very large in the 4th year the value is close to this and let us say that this is the most recent year. In this year the value is less as this.

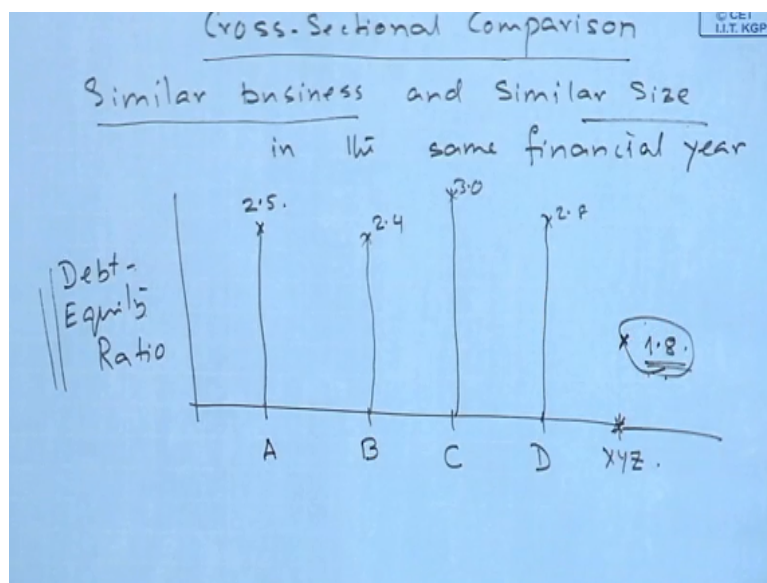
So this is called a time-series comparison. So in this time-series comparison you see there are suppose that this value was something like 1.2 this value was something like 1.9 this value is something like 0.5. So this indicates how with time the value of current ratio has changes as year have progressed. Now one can make an analysis as to why the current ratio is showing a downward trend.

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Similarly, profitability ratio for example one can show how the gross profit margin has changed over years. Gross profit margin probably was 25% at one time got down to 22% further down to 20% and today it stands at 18%. Now why this sliding down of the values of gross profit one can make the analysis. This is time-series comparison.

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One can make a cross-sectional comparison. In the cross-sectional comparison what is done is that companies with similar business and similar size. In the same year same financial year the values are plotted let say we plot debt equity ratio. If we plot debt equity ratio for one company A, company B, company C and company D and our company X, Y, Z. The debt equity ratio for our company.

Let us say stands at I do not remember the value let us say it is 1.8 and for similar companies

and similar size companies the values are 2.5:1, 2.4:1, 2.3:1, 2.8:1 and we stand somewhere at 1.8. Now an analysis could be made as to whether this is good enough a value for the company or whether it should go for more debt and less equity for the benefit of the company in the light of the fact that most other companies in the industry have gone for debt financing rather than equity financing.

Now this is called cross-sectional analysis or cross-sectional comparison. Finally, when we make this analysis it is possible to do a lot of statistical analysis like the mean value deviation around the mean so that is possible. And the other thing is that if the company size is differing considerably say for example a company has got 2000 employees and has a business of 6,000,000 a smaller company has got just about 500 employees with a business of only 500,000 rupees how can we compare?

Looking at it is not advisable to make a comparison between the 2. However, some suggest that it is possible to make a comparison if we write the balance sheet and the income statement in the form of percentages. In the balance sheet in the asset side we can write down of the total assets different items constitute how much percentage rather than the exact amount that should add up to 100%.

Similarly, the liabilities. Total liabilities if it is 100% then each item in the liability constitute how much of that total liability. In the income statement, the gross sales are taken as 100% and then from there different values is calculated and written down in the form of percentages. So it is possible to make a comparison between 2 companies of different sizes provided the balance sheet and the income statement are put in the form of percentages.

So friends, financial statements and their analysis constitute a very important aspect of any company. It gives a lot of information to a variety of stockholders and the principle tool of analysis of the financial statement is the financial ratio analysis that at a large number of ratios. And this should be properly analyzed to find out how policies of a company have informed, how efficiently the company people have actually worked to make their companies a success. Thank you very much.