Financial Accounting
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Lecture – 79
6.9 Tutorial - Efficiency Ratios

Welcome to this tutorial on Efficiency Ratios. In this video we are going to take the same set of balance sheet and income statement and calculate the five indicators of efficiency of operations of the business.

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Let us look at the statement first. We have some new information. And this information is from 2018 balance sheet; imagine if there was another column for 2018. So, we have some selected information which we will need during the calculation of the efficiency ratios.

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Then, we have the same income statement which possibly is not going to be used in this exercise.

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So, let us start with the *Stock Turnover Ratio*.

Stock Turnover Ratio= COGS/ Average Stock

The stock turnover ratio is calculated by dividing the cost of goods sold by the average stock, average inventory that you maintain in the business. Now, we have two time periods: 2020 and 2019. For these two time periods, you need the cost of goods sold and you need average stock.

Average Stock = (Opening Stock + Closing Stock)/2

The average stock is equal to the opening stock, plus the closing stock and you divide this by 2 that is how you get an average stock for a given financial year. So, the cost of goods sold are given in the income statement; we have the cost of goods sold 15,000 and 12,000 for the 2 years.

So, the first component is done. We have the numerator that is required. The denominator is average stock for which we need opening stock and the closing stock. Now, how do we get the opening stock and the closing stock? For the year 2020, the closing stock is given here. In the balance sheet you have stock: this is the closing stock for 2020, this is the closing stock for 2019. The closing stock for 2019 is actually the opening stock for 2020. So, you have the opening stock and the closing stock: 400 plus 500 and you divide this by 2. Now, for the previous year for 2019, 400 is the closing stock, but what is the opening stock for 2019? The opening stock for 2019 is going to be the closing stock for 2018 and that number is 300. So, 300 plus 400 for 2019, divide this by 2 and you have the average stock for these two time periods. So, this comes out to be 900 so, 450 and this is 700 so 350. There you have it. You have both the numerator and the denominator; the stock turnover ratio is equal to 15,000 divided by 450 and you have 12,000 divided by 350. Here, I have the calculator 15,000 divided by 450 is 33.3 and 12,000 divided by 350 is 34.28. As we discussed earlier, this is expressed in times. This means that the stock turnover ratio is 33 times indicating that the average stock is converted into sales. The sales are 33 times the stock that you maintain. So, with the given stock how much sales are you able to obtain. Well, you are able to obtain a sale which is 33 times the stock that you maintain; in the previous year you were able to generate a sale which was 34 times the stock that you maintain. So, the efficiency with which you handle your stock has gone down slightly, it may not be a significant drop. But you compare to competitors, compare to the sector, to the industry, what are other players what is the efficiency at which your competitors are operating, should be taken as the benchmark.

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Let us go to the *Debtors Turnover Ratio*.

Debtors Turnover Ratio = Net Credit Sales/ Average Debtors

In the debtors turnover ratio we use the credit sales and we divide it by the average debtors during the year, we have 2 years worth of data. And for these 2 years, credit sale is something which is clearly stated. Credit sales is going to be in the income statement credit sales. So, this 23,000 is made up of these numbers 20,000 is made up of these two numbers. So, credit sale is 10,000 and 8,000 respectively. Now, you need to worry about average debtors, in order to figure out average debtors you need opening debtors and closing debtors.

Average Debtors = (Opening Debtors +Closing Debtors)/ 2

So, average debtors are equal to opening debtors plus the closing debtors divided by 2. What is opening and closing? In the balance sheet, the debtors are 500, this is the closing balance of the debtors in the past year. Also, the closing balance in the past year is the opening balance in this year. So, you have 500 and 800 you add these two and divide by 2. So, 500 plus 800 divided by 2 gives you the average debtors for 2020. For the previous year you have 800 as the closing balance and we have additional information here, debtors were 500 in 2018. Again, 800 plus 500 is going to be the opening and closing balances of debtors divided by 2. So, practically it comes out to be the same number. So, it is 1300 divided by 2 so, 650 and 650 are the average debtors. The debtors turnover ratio comes out to be 10,000 divided by 650 and 8,000 divided

by 650. So, I will just use a calculator to figure out the amount here: 10,000 divided by 650 gives me 15.6 times; on the other hand, 8,000 divided by 650 is 12.3 times. So, these are the two debtors turnover ratios for 2020 and 2019. The ratio has gone up in 2020. Now, how do you interpret this ratio? This means that your credit sales are 15.6 times the average debtors. So, you give some credit to the customers and use whatever money is outstanding to be recovered from the customers, your sales are 15.6 times that. Again, you want this number to be as high as possible, with the caveat that you have to look at the competitors as well. The other follow up of this, another step in this ratio, is to figure out the average collection period. The average collection period in this year is 365 divided by 15.6, in the previous year , and 365 divided by 12.3, the number comes out to be 23. So, every 23rd day you collect from your debtors. And for the previous year every 29th day you are collecting from your customers. So, in this year you have become more efficient in recovering money from the customers, you are collecting money from the customers more frequently, that is what this ratio means. So, the debtor turnover ratio tells us the efficiency with which the credit sales are being generated, using the credit period policy that the company extends to its clients, to its customers.

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Let us now look at *Creditors Turnover Ratio*, where we use net credit purchases from our vendors and divided by average creditors.

Creditors Turnover Ratio= Net Credit Purchases/ Average Creditors

Same format: the numbers are going to be different. The credit purchase can be taken from the income statement. Here you have the cost of goods sold and it says purchases are 60 percent of the cost of goods sold and all are on credit. So, 60 % of 15,000 is going to be 9,000 and 60 % of 12,000 are 7200 and this is the number for credit purchases. So, these are purchased on credit in the 2 years: you have the numbers 9,000 and 7,200. Now, all you need is average creditors during these two time periods. Average creditors can be looked up in the balance sheet. On the liability side we have creditors, this is the closing balance this year and the previous year's closing balance is the opening balance of this year. So, 300 plus 200 divided by 2 gives me the average creditors for 2019. I have this 200 and I have a balance of creditors 200. So, 200 plus 200 divided by 2, divided by 2 gives me 200 only and this gives me 250 as the average creditors. So, the creditors turnover ratio is 9,000 divided by 250 and 7,200 divided by 200. So, all I need to do is do a little bit of calculation: 9,000 divided by 250 gives me 36 times, this is the turnover ratio for creditors and 7,200 divided by 200 is 36 as well, 36 times. So, there is no change in both the years: you maintain the same creditors turnover ratio this means, your credit purchases are 36 times the average creditors that you have. And if you look at the average payment period; average payment period is going to be 365 divided by 36 and 365 divided by 36. Same for both the years: 365 divided by 36 gives you 10.13. So, 10.13, the number of days after which you pay your creditors. Now, if you compare these numbers… let me just use this pen. So, every 10th day you are paying to your creditors and with the previous slide, we had every 23rd day we were recovering from our customers. This is not a good situation to be in: your customers are paying you after 20 days and 23 days and you are paying your vendors every 10th day which means you have to put in more money, you are not able to recover from your customers before you have to pay to your suppliers. So, again these indicators can interact: you can compare these indicators as well to come up with some conclusions. We will do more of that as we move forward.

Let us do the fourth indicator which is the ***working capital turnover ratio***, we want to say how much sales, not credit sales, how much sales are we able to generate using the average working capital that we have in the business? So, sales is an easy number to pick, what we need to do is to calculate the working capital. So, average working capital. So, first of all you have to figure out the working capital. Working capital is made up of current assets and current liabilities in a given year. So, we need to figure out the opening balances and the closing balances of both current assets and current liabilities and in the both years as well. So, 2020 current assets is the total of all of these and this comes out to be 5950; current assets closing is 5950. What are the opening current assets? Opening current assets are going to be total on this side, which is equal to 3850. So, 3850 is the opening balance of the current assets. Now, the opening balance in this year is the closing balance of the previous year, 3850. And the opening balance in 2019 is the closing balance of 2018, do we have that number? We have that number here 4,000 was the balance in 2018. So, I am going to write 4000 here. Likewise, we will calculate the current liabilities here. The closing balance of current liabilities is the total of this in 2020. So, this comes out to be how much? This is 830 and the other amount good is going to be 670. So, the creditors in 2020 are 830, current liabilities in 2020 are 830 and in the previous year the number was 670 here. The opening balance of 2020 is the closing balance of 2019 and the opening balance in 2019 is the closing balance of 2018 which is given here.

Current liabilities in 2018 is 500. So, we have all the numbers that we need. We need to figure out the working capital. Working capital, as we know, is the difference between current assets

and current liabilities. So, there you go. You have 3180 and then you have 5120 here, you have 3500 you have 3180. So, this is the working capital that you have for these 2 years opening working capital and the closing working capital. Now, you need to figure out average working capital. Average working capital is 3180 plus 5120 divided by 2 3500 plus 3180 divided by 2 these are the calculations that we need to do. So, this comes out to be this number let me just double check it, 210 this is 3 yeah turns out to be correct 8 6 and 6 divided by 2. So, we just need to do this division which comes out to be 4150 and we have 3340.

So, these are the working capitals for average working capitals for the 2 years, there is a long complicated calculation and you have to think through opening and closing balances. But, once you have these numbers, the working capital turnover ratio is equal to…sales number we need to bring here sales is 23000 and 20000.

So, 23000 and 20000 divided by 4150 and 3340. Now, let me just pull up my calculator and through these numbers; this comes out to be 5.54 whereas, in the previous year this was 5.98, there you go. We have the working capital turnover ratios for these 2 years and the ratio is going down slightly. What does it mean? It means in the previous year we were able to generate a sale, which was about 6 times the amount of working capital investment that we had to do. And in this year in 2020, we are able to generate only 5.5 times our sales which is only 5.5 times the amount invested in the working capital. So, we have become slightly less efficient, in terms of using our working capital to generate sales: that is what this ratio means.

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Let us go to the final ratio which is *Fixed Asset Turnover Ratio*.

Fixed Asset Turnover Ratio = Sales/ Average Fixed Assets

We will take sales and we will divide it by the fixed assets during the year, again average fixed asset level during the year. So, in 2020 and 2019 we need to figure out the fixed assets' opening balance and closing balance and then we divide it, let me say, average fixed assets. So, the opening balance of fixed assets plus the closing balance of fixed assets needs to be divided by 2 and the same for both the years. Let us go back to our balance sheet and look at the balance of fixed assets, these are the noncurrent assets and the fixed assets that we have; for 2020 the closing balance is 7,000. And for 2019 the closing balance comes out to be 5650. So, 5650 and 7000 are the two balances. Let me just bring those balances here: 7000 was the closing balance here and 5650 was the opening balance, I just divide this by 2. The opening balance of this year was the closing balance of the previous year and I just need the opening balance of 2019, which is going to be the closing balance of 2018 which is given here 5000. So, 5000 was the closing balance of 2018 which is being used now as the opening balance for 2019. There you go. All you have to do is now figure out the average here; this comes out to be 12, 650 divided by 2. And this is 10,650 divided by 2. So, this comes out to be 6325 and this comes out to be 5325, you have the average fixed asset level.

Now, the fixed asset turnover ratio is equal to: sales 23000 and 20000, divide these by 6325 and 5325 and you have your numbers. I will use my calculator to do the math here, 3.63 and 3.75. There you go. So, these numbers tell me that my sales are 3.63 times my fixed assets, in the previous year my sales were 3.75 times my fixed assets. So, the performance has gone slightly down. The investment has been made in the fixed assets and sales has been generated, our ability to generate that sale using our fixed asset has gone down by a little bit.

So, that is how you figure out the efficiency with which the fixed assets are being managed in a given business. There you go. We have now discussed the tutorial on the efficiency ratios as well. I hope it makes sense and you now are familiar with using these indicators to draw some conclusions based upon the data presented in the financial statements of the company.