

Financial Accounting
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Lecture – 74
6.5 Tutorial – Solvency Ratios


This is a tutorial on Solvency Ratios. We are going to look at the balance sheet and income statement and calculate the three indicators of solvency position of a business.

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6.5.1 Tutorial – Solvency Ratios

Assets			✓		
	2020	2019	Liabilities		
Non current assets			Equity	2020	2019
Plant and Equipment	4800	4700	Shareholder Capital	6500	5500
Investments	1000	800	Reserve and Surplus	2000	1500
Furniture	1200	150	Preference Capital	1500	430
			Non current liabilities		
			Debtentures	2000	1300
			Bank loan	120	100
Current assets			Current liabilities		
Cash & Bank	3000	2300	Creditors	300	200
Marketable investments	1000	50			
Prepaid expenses	950	300	Bills payable	450	400
Stock	500	400	Short term loans	30	20
Debtors	500	800	Bank overdraft	50	50
	12950	9500		12950	9500

SHF
10,000 7430
2950 2070




This is the balance sheet and in the balance sheet we are interested in the liability side because liability side shows the internal and external liabilities of the business.

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6.5.1 Tutorial – Solvency Ratios

Particulars	2020	2019
Incomes		
Sales	23000	20000
Cash	13000	12000
Credit	10000	8000
Expenses		
COGS (Purchase are 60% of COGS, all on credit)	15000	12000
Employee welfare expenses	600	400
Depreciation	120	100
Other expenses (80% operating expenses)	400	400
✓ EBIT	✓ 6880	✓ 7100
✓ Interest	150	50
EBT	6730	7050
Taxes	2692	2828
PAT	4038	4228
Preference Dividend	100	50
Net income available to equity	3938	4180
Equity Dividend	2000	1800
Retained earnings	1938	2380
No of shares	1000	800
MV per share	50.78	40.71



And, we have the income statement where we are interested in EBIT; we are interested in the interest amount as well.

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6.5.1 Tutorial – Solvency Ratios

$$1. \text{ Debt-Equity Ratio} = \frac{\text{External Liab}}{\text{Internal Liab}} = \frac{\text{NCL} + \text{CL}}{\text{SHF}} \quad \left\{ \begin{array}{l} \text{SHF} = \text{Share Cap} \\ + \text{R\&S} \end{array} \right.$$

	2020	2019
	$\frac{2950}{10,000}$	$\frac{2070}{7430}$
DER =	0.295	0.27

Let us get started. The first ratio, the first indicator that we are interested in, is called *Debt to Equity Ratio*. The debt-to-equity ratio is equal to external liabilities divided by the internal liabilities. The external liabilities consist of non-current liabilities plus the current liabilities and the internal liabilities consist of shareholders' funds. Shareholders' funds are equal to share capital plus the reserves and surpluses; practically, the first section on the liability side in the balance sheet.

Now, all we need to do is to go to the balance sheet and pick up these numbers and we know that there are two years' worth of data. Let us go to the balance sheet. In the balance sheet, on the liability side we have an equity section, where you have shareholder capital, preference capital and reserves and surpluses. We know that this section represents the shareholders' funds. Preference capital and the common shareholders' capital, both are the shareholders in the business. The total comes out to be 10000 in 2020 and you have 7430 in 2019. We also need the external liabilities, which is going to be this section; noncurrent liabilities plus the current liabilities. This comes out to be 2950 for 2020 and for 2019, this comes out to be 2070. So, we have the external liabilities and internal liabilities for both the years. 10000 is the shareholder funds and 2950 divided by 10000: external divided by the internal liabilities. Similarly, 2070 was divided by 7430. When calculated, debt to equity ratio is equal to 0.295 and 0.27. So, you have the debt-to-equity ratio for the 2 years; it goes up from 2019 to 2020, meaning the external liabilities in relation to internal liabilities are going up across these 2 years. And, if you look at the total of the external liabilities, we see that the number is going up. Even though the internal liabilities have also gone up, clearly the increase in the external liabilities is more than the increase in the internal liabilities. That is why this ratio is going up. This is how you calculate debt to equity ratio for a company.

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6.5.1 Tutorial – Solvency Ratios



$$2. \text{ Proprietary Ratio} = \frac{\text{SHF}}{\text{TL}} = \frac{\text{Share Cap} + \text{Res} + \text{Prof Cap}}{\text{TL}}$$

	2020	2019
	10000	7430
	12950	9500
PR =	0.77	0.78



The next indicator is proprietary ratio and proprietary ratio is calculated by dividing shareholders' funds with the total liabilities of the business. Shareholders' funds include the share capital plus the reserves and surpluses plus any preference share capital. This shareholders' funds is divided by the total liability.

We have already calculated shareholder funds in the previous ratio. So, 2020 and 2019, shareholder capital, shareholders' funds is 10000 and 7430. We need to just divide this by the total liabilities. Total liabilities are 12950 and 9500. Now, we just need to do the calculations and let me get the calculator here. So, I have 10000 divided by 12950 which is 0.77 and then I have 7430 divided by 9500 gives me 0.78. So, the proprietary ratio is going down; meaning, the contribution of the shareholders in the total funds invested in the business has gone down by 1 percent in this year.

Now, is this good? Is this bad? This is something that needs to be debated further. What is the policy of the company? Do you want shareholders to have a higher amount, higher contribution in the business or do you want it to come down? What are the competitors doing? What are the best practices? Are you going to be able to service the loan if the external liabilities are going up? There are different types of questions which need to be answered and we will answer those questions in the following videos. The purpose of this exercise is to help you calculate, get a feel of how we get these numbers. Where are these numbers placed and how do we do the calculations? Once you have these numbers, we will do a discussion on how to interpret these numbers as well.

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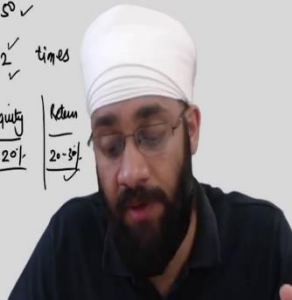
6.5.1 Tutorial – Solvency Ratios



$$3. \text{ Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

$\frac{6880}{150}$	$\frac{7100}{50}$
45.5	142
2020	2019

\checkmark ICR = 45.5 ← 142 times



Let us go to the third ratio which is interest coverage ratio and we know the interest coverage ratio is equal to EBIT which is Earnings Before Interest and Tax payment and divide this by the amount of interest payable in a given year. So, we will do this for 2 years, 2020 and 2019. The EBIT is here. I am going to the income statement. EBIT has been given 6880 and 7100. We divide this by the amount of interest which is equal to 150 and 50. Let us just do the calculations. So, 6880 divided by 150 gives you a 45.5 interest coverage ratio and 7100 divided by 50 gives you a 142. The unit is times. The interest coverage ratio is going down from 142 to 45.5. This indicates that your ability to meet the interest expenses was 142 times and now it is 45.5 times. It has reduced across these 2 years, but a very high ratio is also not desirable because it could indicate that you are under utilizing the debt capital. Let me talk a little bit about the debt capital. The debt is typically cheaper. When I say debt, I am referring to the loans that you can take from the bank. The other option is that shareholders bring in money: the equity section. Typically, debt is cheaper: you have to pay 10 to 12 percent interest rate on the loans that you take. Again, the numbers can vary, but equity typically demands somewhere around 18 to 20 percent return. Equity is a costlier way and you also block your money. So, if you can raise debt capital in the company, that is cheaper. The returns in the business for example, the business may have profitability potential of 20 to 30 percent. So, by investing your money you could earn 20 to 30 percent, but your money comes at high cost. You instead go to the bank and borrow at a very less rate which is only 12 percent and you make 20 percent return on that and remaining 8 percent is a margin. All I am trying to say is that there is a benefit, there is an advantage to raising external capital, to raising loans. Yes, you have to pay EMIs and the interest on that, but you make way more money in the business if the profitability potential of the business is good.

So, the ability of a business to service its debt is reflected by the interest coverage ratio. If you have an interest coverage ratio of 142 that means that you could easily take more loans and pay more interest. In 2019 you have earnings equal to 7100 and you are paying 50 as interest only. You can very well go to the bank and take more loans and increase the interest amount by multiple times. Again, look at the industry, what are the ideal ratios, what will be the ideal debt level, is a research question for a company. The ideal debt level is actually hypothetical, but companies have figured out at what levels they can operate, what kind of interest they can service and so on. So, too high ratio may not be desirable, too low ratio again may not be desirable because that may cause a concern to the lenders as well.

Let me stop the discussion here on the interest coverage ratio. So, in this video we have looked at the calculation of three ratios. We looked at debt to equity ratio then proprietary ratio and interest coverage ratio. These three ratios indicate the long term financial position of the business. I will see you in the next video.