

Assessing debt capacity using Interest coverage and Debt service coverage ratios.

- a. Interest coverage ratio is used to determine how easily a company can pay its interest expenses on outstanding borrowed amount or debt. The ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) by the company's interest expenses for the same period

Interest coverage ratio is equal to earnings before interest and taxes (EBIT) for a time period, often one year, divided by interest expenses for the same time period. The interest coverage ratio is a measure of the number of times a company could make the interest payments on its debt with its EBIT.

Formula

$$\text{Interest coverage ratio} = \text{EBIT during the period} / \text{Interest liability or interest burden of the period}$$

An investor would like to ensure to see that their company can pay its bills on time without having to sacrifice its operations and profits.

A lender or creditor uses the interest coverage ratio to identify whether a company is able to support additional debt. If a company cannot even pay the interest on its debt then it cannot possibly pay off the principal amount of debt due during the period indicating risk of the amount lent.

Analysis of Interest coverage ratio

- I. If the computation is less than 1, it means the company isn't making enough money to pay its interest payments. This type of company is risky and probably would never get bank financing.
- II. If Interest coverage is equal to 1, it means the EBIT is just sufficient to meet interest burden but not repayment of principal amount borrowed.
- III. If Interest coverage ratio is more than 1, preferably 1.5 or more it means the earnings before tax of the company sufficiently cover interest burden with additional earnings to take of the repayment of principal to some extent.

Demo.1

ABC firm has EBIT of Rs. 9, 00,000 and annual interest payment of 1, 50,000. The principal payment of Rs. 1, 00,000 is due at the end of the year. The tax rate is 40%. Calculate the Interest coverage ratio.

$$\begin{aligned} \text{Times interest earned} &= \text{EBIT} / \text{Interest} \\ &= 9, 00,000 / 1, 50,000 \\ &= 6 \text{ times} \end{aligned}$$

b. The Debt Service Coverage Ratio, usually abbreviated as DSCR

The debt service coverage ratio (DSCR) is defined as EBIT divided by total debt service (interest as well as repayment of installment due).

$$\text{DSCR} = \text{EBIT} / \{ \text{Interest} + \{ (\text{principal repayment}) / (1-t) \} \}$$

Caution: see the principal repayment is on before tax basis as repayment is out of EAT. If repayment amount is Rs. 100,000, and tax at 40% the before tax amount required for repayment is

$$100,000/(1-.4)= 166,666.6.$$

If interest burden was 50,000 then DSCR would be as under

$$\text{DSCR} = (\text{EBIT} / \{ \text{Interest} + \{ (\text{principal repayment}) / (1-t) \} \})$$

$$= (1,00,000 / \{ (50,000) + (1,00,000/1.4) \})$$

$$= 100,000 / (50,000 + 16666.6)$$

$$= 0.46$$

Meaning that EBIT only covers the service obligation towards interest and repayment only 0.46 times i.e. .46X

DSCR greater than 1.0 means there insufficient earnings to cover debt service. A DSCR below 1.0 indicates there are not enough earnings to cover debt service. However ability to pay it in cash would require us to make the assessment from the cash flow.

Normally a lender will require a debt service coverage ratio higher than 1.0x in order to provide a cushion in case something goes wrong. The typical DSCR minimum requirements usually range from 1.20 x to 1.50x.

Demo 2: use details in Demo 1 to arrive at DSCR

$$\text{DSCR} = 900,000 / [150,000 + (100,000 / .60)] = 2.84$$

Demo 3: How much could EBIT fall before it is insufficient to service the debt?

$$\text{EBIT needed to service debt} = 150,000 + (100,000 / .6) = 316667$$

$$\text{Maximum decline in EBIT before it is unable to service debt} = 900,000 - 316667 = \text{Rs. } 583,333$$

Home work:

AAA systems has an expected EBIT of Rs. 25, 00,000. Internal analyst believes that EBIT is normally distributed with standard deviation of Rs. 1500,000. AAA systems has interest charges of Rs. 850,000, principal repayment of Rs. 11,00,000 annually and tax rate of 40%

- i) What is the probability that AAA will have Times interest ratio of less than 1.
Hint: if Interest coverage ratio is less than 0, EBIT must be less than 850,000. Find z value and corresponding probability.
- ii) What is the probability that AAA will have DSCR of greater than 1?
If DSCR greater than 1, then EBIT must be greater than Interest plus repayment liability on before tax basis. Calculate z value and corresponding probability.