Liquidity Ratios and Solvency Ratios

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Introduction

- to measure the short-term solvency of the business or the firm's ability to meet its current obligations
- analyzed by looking at the amounts of current assets and current liabilities in the balance sheet
- two ratios included in this category are current ratio and liquidity ratio

Current Ratio

- proportion of current assets to current liabilities
- Current Ratio = Current Assets : Current Liabilities or Current Assets /Current Liabilities
- Current assets include current investments, inventories, trade receivables (debtors and bills receivables), cash and cash equivalents, short-term loans and advances and other current assets such as prepaid expenses, advance tax and accrued income, etc.
- Current liabilities include short-term borrowings, trade payables (creditors and bills payables), other current liabilities and short-term provisions.

- provides a measure of degree to which current assets cover current liabilities
- excess of current assets over current liabilities provides a measure of safety margin available against uncertainty in realisation of current assets and flow of funds
- should neither be very high or very low
- A very high current ratio implies heavy investment in current assets which is not a good sign as it reflects under utilisation or improper utilisation of resources
- A low ratio endangers the business and puts it at risk of facing a situation where it will not be able to pay its short-term debt on time
- it is safe to have this ratio within the range of 2:1

Calulate Current Ratio from the following information:

Particulars	Rs.
Inventories	50,000
Trade receivables	50,000
Advance tax	4,000
Cash and cash equivalents	30,000
Trade payables	1,00,000
Short-term borrowings (bank overdraft)	4,000

Solution:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Current Assets = Inventories + Trade receivables + Advance tax + Cash and cash equivalents

= Rs. 50,000 + Rs. 50,000 + Rs. 4,000 + Rs. 30,000

= Rs. 1,34,000

Current Liabilities = Trade payables + Short-term borrowings

= Rs. 1,00,000 + Rs. 4,000

= Rs. 1,04,000

$$\text{Current Ratio} = \frac{\text{Rs. } 1,34,000}{\text{Rs. } 1,04,000} = 1.29 : 1$$

Quick Ratio

- It is the ratio of quick (or liquid) asset to current liabilities
- Quick ratio = Quick Assets : Current Liabilities or Quick Assets /Current Liabilities
- The quick assets are defined as those assets which are quickly convertible into cash
- While calculating quick assets we exclude the inventories at the end and other current assets such as prepaid expenses, advance tax, etc., from the current assets
- also known as 'Acid-Test Ratio
- The ratio provides a measure of the capacity of the business to meet its short-term obligations
- it is advocated to be safe to have a ratio of 1:1 as unnecessarily low ratio will be very risky and a high ratio suggests unnecessarily deployment of resources in otherwise less profitable short-term investments.

Calculate 'Liquidity Ratio' from the following information:

Current liabilities	=	Rs. 50,000
Current assets	=	Rs. 80,000
Inventories	=	Rs. 20,000
Advance tax	=	Rs. 5,000
Prepaid expenses	=	Rs. 5,000

Solution

$$\text{Liquidity Ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

Liquidity Assets = Current assets –(Inventories + Prepaid expenses + Advance tax)

= Rs. 80,000 – (Rs. 20,000 + Rs. 5,000 + Rs. 5,000)

= Rs. 50,000

$$\text{Liquidity Ratio} = \frac{\text{Rs. 50,000}}{\text{Rs. 50,000}} = 1:1$$

X Ltd., has a current ratio of 3.5:1 and quick ratio of 2:1. If excess of current assets over quick assets represented by inventories is Rs. 24,000, calculate current assets and current liabilities.

Solution:

Current Ratio	=	3.5:1
Quick Ratio	=	2:1
Let Current liabilities	=	x
Current assets	=	3.5x
and Quick assets	=	2x
Inventories	=	Current assets – Quick assets
24,000	=	3.5x – 2x
24,000	=	1.5x
x	=	Rs.16,000
Current Liabilities	=	Rs.16,000
Current Assets	=	3.5x = 3.5 Rs. 16,000 = Rs. 56,000.
Verification :		
Current Ratio	=	Current assets : Current liabilities
	=	Rs. 56,000 : Rs. 16,000
	=	3.5 : 1
Quick Ratio	=	Quick assets : Current liabilities
	=	Rs. 32,000 : Rs. 16,000
	=	2 : 1

Questions

- Current Ratio is 3.5:1. Working Capital is ₹ 90,000. Calculate the amount of Current Assets and Current Liabilities.
- Shine Limited has a current ratio 4.5:1 and quick ratio 3:1; if the inventory is 36,000, calculate current liabilities and current assets.
- Current liabilities of a company are ₹ 75,000. If current ratio is 4:1 and liquid ratio is 1:1, calculate value of current assets, liquid assets and inventory.
- Handa Ltd. has inventory of ₹ 20,000. Total liquid assets are ₹ 1, 00,000 and quick ratio is 2:1. Calculate current ratio.

Answers

- Current Assets Rs. 1,26,000 and Current Liabilities Rs. 36,000
- Current Assets Rs. 1,08,000, Current Liabilities Rs. 24,000
- Current Assets Rs. 3,00,000, Liquid Assets Rs. 75,000 and Inventory Rs. 2,25,000
- Current Ratio 2.4 : 1

Solvency Ratios

- Solvency ratios are calculated to determine the ability of the business to service its debt in the long run.
- The persons who have advanced money to the business on long-term basis are interested in safety of their periodic payment of interest as well as the repayment of principal amount at the end of the loan period
- The following ratios are normally computed for evaluating solvency of the business.

1. Debt-Equity Ratio;
2. Debt to Capital Employed Ratio;
3. Proprietary Ratio;
4. Total Assets to Debt Ratio;
5. Interest Coverage Ratio.

Debt-Equity Ratio

- measures the relationship between long-term debt and equity
- If debt component of the total long-term funds employed is small, outsiders feel more secure
- capital structure with less debt and more equity is considered favourable as it reduces the chances of bankruptcy
- it is considered to be safe if debt equity ratio is 2 : 1
- Debt-Equity Ratio = Long term Debts/Shareholders' Funds
- where:

  Shareholders' Funds (Equity) = Share capital + Reserves and Surplus + Money received against share warrants

  Share Capital = Equity share capital + Preference share capital

  or

  Shareholders' Funds (Equity) = Non-current assets + Working capital – Non-current liabilities

  Working Capital = Current Assets – Current Liabilities

- This ratio measures the degree of indebtedness of an enterprise and gives an idea to the long-term lender regarding extent of security of the debt.
- a low debt equity ratio reflects more security
- A high ratio, on the other hand, is considered risky as it may put the firm into difficulty in meeting its obligations to outsiders

Debt to Capital Employed Ratio

- refers to the ratio of long-term debt to the total of external and internal funds (capital employed or net assets)
- It may be noted that Debt to Capital Employed Ratio can also be computed in relation to total assets
- it shows proportion of long-term debts in capital employed
- Debt to Capital Employed Ratio = Long-term Debt/Capital Employed (or Net Assets)

Or

Total Debts Debt to Capital Employed Ratio = Total debt/Total Assets

- Capital employed is equal to the long-term debt + shareholders' funds
- Alternatively, it may be taken as net assets which are equal to the total assets – current liabilities
- Low ratio provides security to lenders and high ratio helps management in trading on equity

Proprietary Ratio

- expresses relationship of proprietor's (shareholders) funds to net assets
- Proprietary Ratio = Shareholder's Funds/Capital employed (or net assets)
- Higher proportion of shareholders funds in financing the assets is a positive feature as it provides security to creditors
- This ratio can also be computed in relation to total assets instead of net assets
- the total of debt to capital employed ratio and proprietory ratio is equal to 1
- Example: the debt to Capital Employed ratio is 0.25 : 1 and the Proprietory Ratio 0.75 : 1 the total is 0.25 + 0.75 = 1. In terms of percentage it can be stated that the 25% of the capital employed is funded by debts and 75% by owners' funds

Total Assets to Debt Ratio

- measures the extent of the coverage of long-term debts by assets
- Total assets to Debt Ratio = Total assets/Long-term debts
- The higher ratio indicates that assets have been mainly financed by owners funds and the long-term loans is adequately covered by assets
- indicates the rate of external funds in financing the assets and the extent of coverage of their debts are covered by assets

Interest Coverage Ratio

- measure of security of interest payable on long-term debts.
- It expresses the relationship between profits available for payment of interest and the amount of interest payable
- It reveals the number of times interest on long-term debts is covered by the profits available for interest.
- A higher ratio ensures safety of interest on debts.
- Interest Coverage Ratio = Net Profit before Interest and Tax/ Interest on long-term debts

From the following information, calculate Debt Equity Ratio, Total Assets to Debt Ratio, Proprietory Ratio, and Debt to Capital Employed Ratio:

Balance Sheet as at March 31, 2015

Particulars	Note No.	Rs.
I. Equity and Liabilities:		
1. Shareholders' funds		
a) Share capital		4,00,000
b) Reserves and surplus		1,00,000
2. Non-current Liabilities		
Long-term borrowings		1,50,000
3. Current Liabilities		50,000
		7,00,000
II. Assets		
1. Non-current Assets		
a) Fixed assets		4,00,000
b) Non-current investments		1,00,000
2. Current Assets		2,00,000
		7,00,000

Solution:

i) $$\text{Debt-Equity Ratio} = \frac{\text{Debts}}{\text{Equity}}$$

Debt = Long-term borrowings = Rs. 1,50,000

Equity = Share capital + Reserves and surplus

= Rs. 4,00,000 + Rs. 1,00,000 = Rs. 5,00,000

$$\text{Debt-Equity Ratio} = \frac{\text{Rs. } 1,50,000}{\text{Rs. } 5,00,000} = 0.3 : 1$$

ii) Total Assets to Debt Ratio $= \dfrac{\text{Total assets}}{\text{Long - term debts}}$

Total Assets = Fixed assets + Non-current investments + Current assets
= Rs. 4,00,000 + Rs. 1,00,000 + Rs. 2,00,000 = Rs. 7,00,000
Long-term Debt = Rs. 1,50,000

$$\text{Total Asset to Debt Ratio} = \frac{\text{Rs. 7,00,000}}{\text{Rs. 1,50,000}} = 4.67 : 1$$

iii) Proprietary Ratio $= \text{or } \dfrac{\text{Shareholders' Funds}}{\text{Total Assets}}$

$$= \frac{\text{Rs. 5,00,000}}{\text{Rs. 7,00,000}} = 0.71 : 1$$

iv) Debt to Capital Employed Ratio $= \dfrac{\text{Long - term debts}}{\text{Capital Employed}}$

Capital Employed = Shareholders' Funds + Long-term borrowings
= Rs. 5,00,000 + Rs. 1,50,000
= Rs. 6,50,000

$$\text{Debt to Capital Employed Ratio} = \frac{\text{Long - term debts}}{\text{Capital Employed}}$$

$$= \frac{\text{Rs. 1,50,000}}{\text{Rs. 6,50,000}} = 0.23 : 1$$

Thank You