



INSTITUTE OF ACTUARIAL
& QUANTITATIVE STUDIES

Subject : Business Finance II

Accounting Ratio Analysis

Types of Ratios

Profitability Ratios

Liquidity Ratios

Efficiency Ratios

Financial Structure Ratios (Share Info and Debt)

Sample Balance Sheet & Profit and Loss

Profit and Loss Statement (for a time period)	
Sales	100
(-) Cost of Goods Sold	60
Gross Profit →	40
(-) SG& A Exps	15
(-) Other Operating Exps	5
Operating Profit (EBIT) → BoD, Lenders, Crs	20
(+/-) Finance Exps (Interest)	10
Profit before Tax → Govt	10
(-) Tax	3
Profit After Tax attributable to Equity Shareholders → Shareholders	7

Balance Sheet (As on Date)	
<u>Assets</u>	
Non-Current Assets (Tangible and Intangible)	
Current Assets (Stock / Inventory)	
<u>Equity</u>	
Share Cap	
Reserves	
<u>Liabilities</u>	
Non-Current Liabilities	
Current Liabilities	

Risk Associated with Loan Capital

- ❑ The higher the ratio of profits to interest payments, the more scope there is for profits to deteriorate before a company will default on its loan capital interest payments
- ❑ Shareholders will normally regard loan capital as a mixed blessing. It is a cheap source of finance for the company because it normally carries a relatively low risk for the lender. But it comes with its set of risks – Market risk and Credit risk
- ❑ **Interest Cover** - the number of times that the company could pay its interest out of profit before tax and interest. The higher this multiple, the less likely that the company will run into difficulty.
- ❑ Interest Cover = PBIT / Interest of Loans

$$\text{Interest cover} = \frac{\text{profit on ordinary activities before interest and taxation}}{\text{annual interest payments due on that issue of loan stock + all prior loan stock}} \quad 2x$$

Example: Interest Coverage Ratio

Non Current Liab	Amount (Rs.)	Interest	Int. Coverage Ratio	Interest Priority Percentages	
9% Debentures	150	13.5	12.96x	0% to 7.71%	1 st 7.71%
12% Unsecured	100	12	$175 / (13.5+12) = 6.86x$	7.71% to 14.57%	2 nd 6.86%
14% Subordinated Loans	50	7	5.38x	14.57% to 18.58%	3 rd 4.01%
Debt and Interest	300	Rs. 32.5	<i>Profit = 5.38x of Interest Liability</i>		18.58% of your Op Profit to your Debt Holders
PBIT / EBIT (Op Profit) -- Assumed		Rs. 175	<i>Shareholders will get better returns as the Co is resorting to debt to finance their Ops</i>		

Interest Priority Percentages

- ❑ Interest priority percentages show the slice of profit on ordinary activities before interest and tax which covers the annual interest payments due on each issue of loan capital
- ❑ For each issue of loan capital there will be a lower and upper interest priority percentile.
- ❑ % of PBIT being used to service the Interest payment for a particular debt instrument. **Calculated as a range.**

Asset Cover

- ❑ This amount will usually represent a conservative estimate of the amount of money available to meet the loan stockholders' demands for repayment if the company were to wind up.

$$\frac{\text{total assets less current liabilities less intangible assets}}{\text{total loan capital}}$$

- ❑ The assumption is that assets other than intangibles will be converted into cash at their book values, while intangible items are likely to be worthless on winding up. This is, of course, dependent on the nature of the business and its assets. A valuable brand name or patent might well be worth more than all of the company's other assets put together.
- ❑ Current liabilities are assumed to be repaid before the debtholders even though they may rank below the loan capital.
- ❑ **Asset Priority Percentages**

Example: Asset Coverage Ratio

Non Current Liab	Amount (Rs.)	Interest	Asset Coverage Ratio	Asset Priority Percentages	
9% Debentures	<u>150</u>	13.5	$1000/150 = 6.67x$	0 to 14.9%	
12% Unsecured	100	12	$1000/(150+100) = 4x$	14.9% to 25%	
14% Subordinated Loans	50	7	$1000/(150+100+50) = \underline{3.3x}$	25% to 30.3%	
Debt and Interest	300	Rs. 32.5			
PBIT / EBIT (Op Profit) -- Assumed		Rs. 175	<i>Assets are 3.3x than the debt that the Co holds.</i>		
Assets	1000				

Assets are denominated / recorded at Book Values (Conservative Ratio). True Asset Coverage, the assets should have been valued at Market Price.

Gearing Ratios

❑ Gearing refers to the relative proportions of long-term debt and equity finance in a company. High gearing means that the company has a high level of debt financing.

❑ There are two commonly used definitions of asset gearing, either:

1. Debt + **PS** / Equity; OR
2. Debt / Capital (Debt + Equity)

B/S: Non Current Debt + Equity = Non Current Assets + Working Capital (CA – CL)

❑ The term 'debt or borrowings' will usually include all forms of long-term loan capital. The term 'equity' in this definition means the book value of the ordinary shares i.e. 'capital and reserves'. It is normal to deduct the amount of any intangible assets.

❑ The treatment of preference shares varies. Usually they are included as part of borrowings rather than as part of equity because they carry a fixed rate of dividend and because their holders are repaid before ordinary shareholders in the event of default.

Income Gearing

Post Tax PD = Rs. 100; Tax Rate – 30%

Pre Tax PD – 142.85 = 100/70%

100 – 70%

? – 100%

$$\frac{\text{interest on borrowings}}{\text{profit on ordinary activities before interest and tax}}$$

$$\frac{\text{interest on borrowings} + \frac{\text{preference dividends}}{(1 - \text{corporation tax rate})}}{\text{profit on ordinary activities before interest and tax}}$$

Ratios involving share information

❑ Earnings per Share (EPS) = PAT / No of Shares

PAT – 700K

Shares – 35K

EPS = 700/35 = Rs. 20 → Dividend – Rs. 5

❑ P/E Ratio = Mkt Price / EPS → Current MP Share = Rs. 150 → P/E = 150/20 = **7.5 times**

❑ Dividend Yield (Investor) = DPS / MP of Share → 5/150 = **3.33% of the Current Value as dividends**

❑ Dividend Cover = Pr. After Tax (EPS) / Dividend (DPS) → 20 / 5 = **Not Meaningful → Dividend is being completely financed by the previous years' retained earnings**

❑ Payout Ratio = DPS / EPS = 5/20 = **25%**

❑ **Net Asset Value per Share** = Book Value of Equity – Intangible Assets / No of Shares OR (FA {excl. Int. Assets} + WC – Debt) / No of Shares

Profitability Ratios

E&L		Assets	
Equity		Non Current Assets	
Non- Current Liab		W. Capital	

1. Whether profitable
2. Compare with previous years / targets for current year
3. Compare with peer group (competitors)
4. Understand profitability from each stakeholders perspective – Contributors of Capital → Shareholders and Lenders / Creditors

Net Profit Margin = Profit after Tax / Sales = xx%

Operating Profit Margin = **Operating Profit (Profit before Interest and Tax) / Sales**

Gross Profit Margin = **Gross Profit / Sales**

Return on Capital Employed (RoCE) {profits earned on money invested by both shareholders and creditors} =

PBIT / (Share Cap + Debt) OR PBIT / (Non-Current Assets + Wcap)

Return on Equity (RoE) {profits earned on money invested by Shareholders} = (Profit After Tax) or **PBT / Total Equity (Ordinary Shares)** * 100 = xx%

Profitability Ratios

1. Return on Capital Employed

Return on capital employed can be calculated for parts of a business. If a particular branch activity produces a very low (high) return on capital employed, then funds should be diverted away from (towards) that activity

The two main formulae for return on capital employed are:

$$\frac{\text{profit before tax and interest}}{\text{share capital} + \text{reserves} + \text{long-term debt}} \times 100$$

and

$$\frac{\text{profit before tax}}{\text{share capital} + \text{reserves}} \times 100$$

RoCE can be broken down into:

- a. Asset Utilisation Ratio –
- b. Profit Margin -

$$\begin{aligned} \text{ROCE} &= \frac{\text{profit before tax and interest}}{\text{share capital} + \text{reserves} + \text{long-term debt}} \\ &= \frac{\text{revenue}}{\text{share capital} + \text{reserves} + \text{long-term debt}} \times \frac{\text{profit before tax and interest}}{\text{revenue}} \\ &= \text{asset utilisation ratio} \times \text{profit margin} \end{aligned}$$

Liquidity Ratios

- While it is important for a company to have sufficient liquid assets available for liquidation.

Current Ratio:

- This ratio is used to measure a company's ability to pay its short-term liabilities with its current assets.

current ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

Quick Ratio:

- This is another ratio used to measure a company's ability to pay its short-term liabilities with its current assets, excluding inventory and other non-liquid assets.

quick ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}}$

CA:

Cash / Bank – 100
Debtors (TR) – 450
Stock – 300

CL:

Creditors (TP) – 200

Sales: 1500

Cost of Sales: 1200

Calculate:

Current Ratio – $1.83 = 550/300$

Quick Ratio – $1.167 = (550-200)/300$

DSO – 60.83 days

DPO – 91.25 days $(300/1200 \times 365)$

DIO – 60.83 days $(200/1200 \times 365)$

CCC - 30.41 days

Revised – $4.25 (850/200)$

Revised – $2.75 (550/200)$

Revised – 109.5 days

Revised – 60.83 days

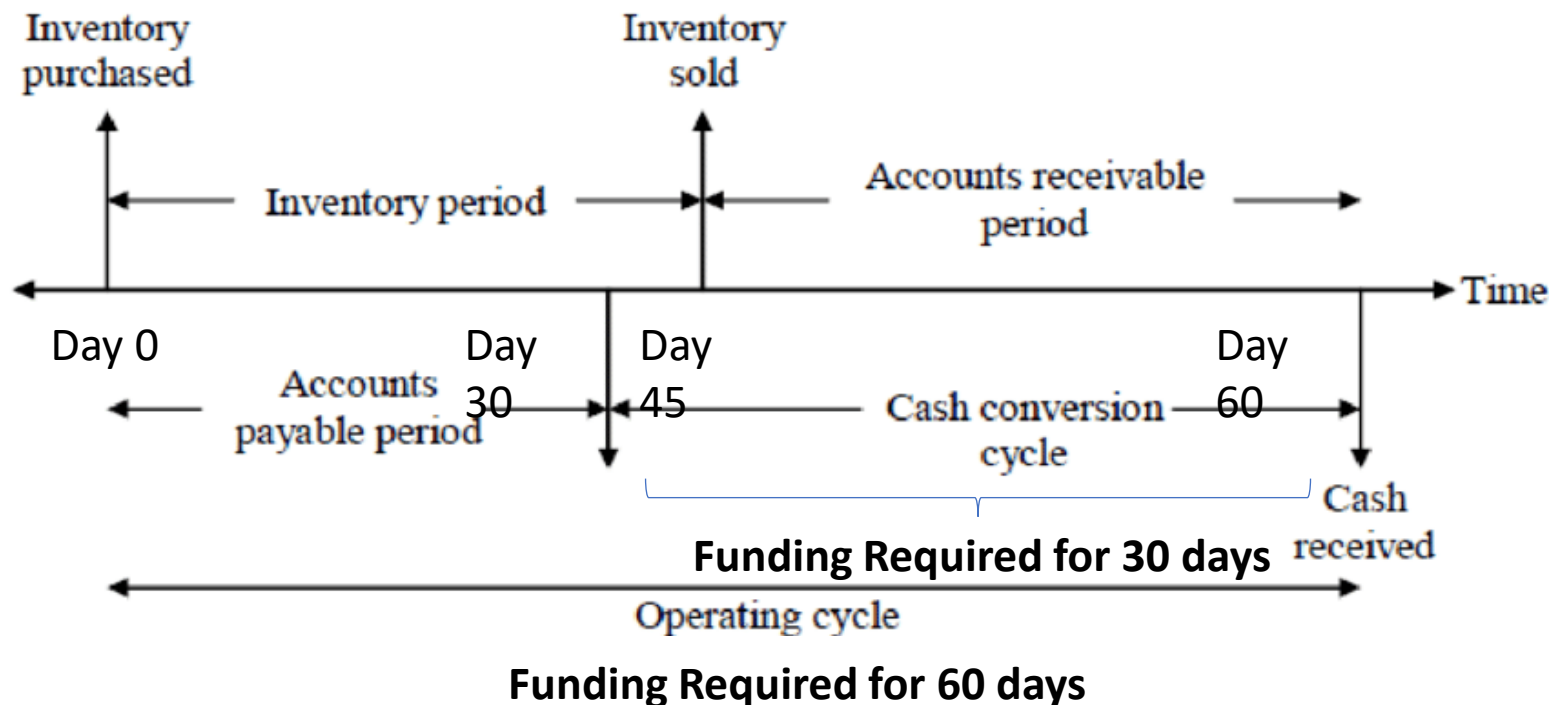
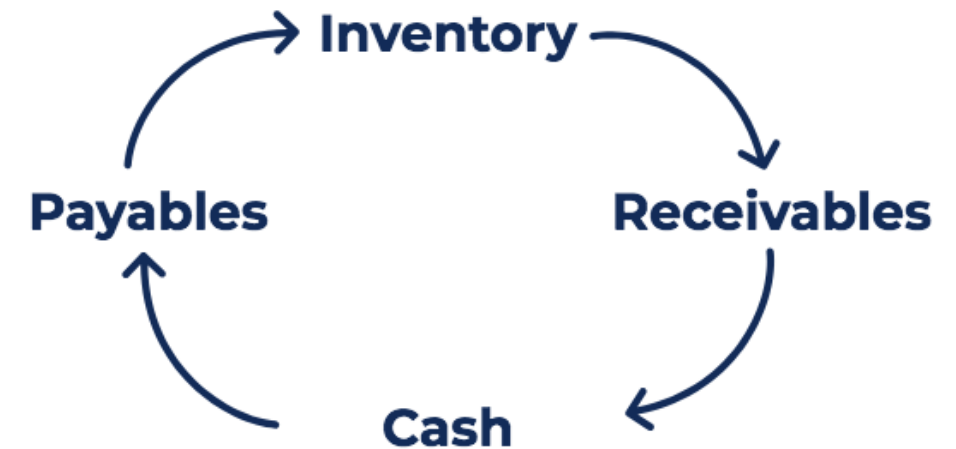
Revised – 91.25 days

Revised CCC – 140 days

Understanding Cash Conversion Cycle

$CCC = DSO (15 \text{ days}) + DIO (45 \text{ days}) - DPO (30 \text{ days}) = 30 \text{ days}$ (efficient way of managing my Working Capital)

Operating Cycle = $DSO (15 \text{ days}) + DIO (45 \text{ days}) = 60 \text{ days}$
(30 day buffer)



Efficiency Ratios

- ❑ The efficiency ratios are related to the liquidity ratios. They give an insight into the effectiveness of the company's management of the components of working capital (current assets less current liabilities).
- ❑ These ratios tend to be multiplied by 365 and so expressed as a period of time.

The inventory turnover period is defined as:

$$\text{Inventory turnover period} = \frac{\text{inventories}}{\text{cost of sales}} \times 365$$

DIO (Days of Inventory Outstanding) Inventory Turnover =
(Avg of Op Stock & Cl Stock)
(350+200/2) / 1500 * 365 = 66.9 days

Inventory T/o Period → Time taken to convert your inventory to Sales

$$\text{Trade receivables turnover period} = \frac{\text{trade receivables}}{\text{credit sales}} \times 365$$

TR T/o Period → Time taken to convert your receivables to Cash

CCC = Inventory T/o + TR T/o – TP T/o
Operating Cycle = Inventory T/o + TR T/o

$$\text{Trade payables turnover period} = \frac{\text{trade payables}}{\text{credit purchases}} \times 365$$

TP T/o Period → Time enjoyed to delay payments to your Creditors

Price to Earnings Ratio (P/E Ratio)

MoneyControl – by showing you the P/E ratio they are enticing you to buy a particular stock

$$P/E = MPS / EPS$$

$$37.95 = 3158 / EPS$$

$$\text{(Year 0) EPS} = \text{Rs. } 83.21$$

For every Rs. 1 of Earnings an investor is willing to pay Rs. 37.95 for the TCS share

$$\text{Estimate of Year 1 EPS} = 85 - ? \quad (85 * 37.95) = \text{Rs. } 3226$$

What should be my Market Price - 3158

Thank You