

1 Solution

(a) Cash balances at the end of each month:

	December	January	February	March	April
Sales (units)	1,200	1,250	1,300	1,400	1,500
Selling price (NRs./unit)	800	800	840	840	
Sales (NRs. 000)	960	1,000	1,092	1,176	
Month received	January	February	March	April	
	December	January	February	March	
Production (units)	1,250	1,300	1,400	1,500	
Raw materials (units)	2,500	2,600	2,800	3,000	
Raw materials (NRs. 000)	500	520	560	600	
Month payable	January	February	March	April	
	December	January	February	March	
Production (units)	1,250	1,300	1,400	1,500	
Variable costs (NRs. 000)	125	130	140	150	
Month payable	December	January	February	March	

Monthly cash balances:

NRs. 000

	January	February	March
Receivables	960	1,000	1,092
Loan			300
Receipt	960	1,000	1,392
Raw materials	500	520	560
Variable costs	130	140	150
Machine			400
Payment	630	660	1,110
Net Cash Flow	330	340	282
Opening balance	40	370	710
Closing balance	370	710	992

(b) Calculation of current ratio

Inventory at the end of the three-month period:

This will be the finished goods for April sales of 1,500 units, which can be assumed to be valued at the cost of production of NRs. 400 per unit for materials and NRs. 100 per unit for variable overheads and wages. The value of the inventory is therefore

$$1,500 \times 500 = \text{NRs. } 750,000$$

Trade receivables at the end of the three-month period:

These will be March sales of $1,400 \times 800 \times 1.05 = \text{NRs. } 1,176,000$

Cash balance at the end of the three-month period:

This was forecast to be NRs. 992,000

Trade payables at the end of the three-month period:

This will be the cash owed for March raw materials of NRs. 600,000

Forecast current ratio

Assuming that current liabilities consists of trade payables alone:

Current ratio = $(750,000 + 1,176,000 + 992,000) / 600,000 = 4.9$ times

2 Solution

(a)

Average historical share price growth = $100 \times ((1,090/915)^{1/3} - 1) = 6\%$ per year

Future share price after 7 years = $1,090 \times 1.06^7 = \text{NRs. } 1,639$ per share

Conversion value of each loan note = $1,639 \times 8 = \text{NRs. } 13,112$

The investor is faced with the choice of redeeming the loan notes at their nominal value of NRs. 10,000 or converting them into shares worth NRs. 13,112. The rational choice is to maximize wealth by taking the conversion option.

Market value of each loan note = $(8 \times 5.033) + (13,112 \times 0.547) = 4,026 + 7,172 = \text{NRs. } 11,198$

(b)

The average price/earnings ratio (P/E ratio) of listed companies similar to XYZ Co has been recently reported to be 12 times and the most recent earnings per share (EPS) of XYZ Co is NRs. 62 per share. The share price calculated using the P/E ratio method is therefore NRs. 744 (12×62).

One problem with using the P/E ratio valuation method relates to the selection of a suitable P/E ratio. The P/E ratio used here is an average P/E ratio of similar companies and XYZ Co is clearly not an average company, as evidenced by its year-end share price being NRs. 1,090 per share, some 47% more than the calculated value of NRs. 744. The business risk and financial risk of XYZ Co will not be exactly the same as the business risk and financial risk of the similar companies, for example, because of diversification of business operations and differing capital structures. XYZ Co may be a market leader or a rising star compared to similar companies.

The P/E ratio method is more suited to valuing the shares of unlisted companies, rather than listed companies such as XYZ Co. If the stock exchange on which its shares are traded is efficient, which is likely as it is a large stock exchange, the share price of XYZ Co will be a fair reflection of its value and its prospects. As a listed company, XYZ Co would in fact contribute to the average P/E ratio for its business sector, used in valuing similar unlisted companies. Looking at the P/E ratio of XYZ Co, it can be seen that this is not constant, but has increased each year for four years, from 14.3 times in 2011 to 17.6 times in 2014. This raises questions about using a P/E ratio based on historical information as a way of valuing future activity.

Ideally, the P/E ratio method should use forecast maintainable earnings, but the calculated value of NRs. 744 has used the historical EPS of 2014. As this was the lowest EPS over the four years, forecasting future maintainable earnings may be a problem here.

3 Solution

(a) Cost of equity

Using the capital asset pricing model, $K_e = 4 + (1.15 \times 6) = 10.9\%$

Cost of debt of loan notes

After-tax annual interest payment = $600 \times 0.75 = \text{NRs. } 450$ per loan note.

NRs.

Year		5% discount	PV	4% discount	PV
0	(10,350)	1.000	(10,350)	1.000	(10,350)
1-6	450	5.076	2,284	5.242	2,359
6	10,600	0.746	7,908	0.790	8,374
			(158)		383

$K_d = 4 + [(1 \times 383)/(383 + 158)] = 4 + 0.7 = 4.7\%$ per year

Market values of equity and debt

Number of ordinary shares = $200\text{m}/50 = 4$ million shares

Market value of ordinary shares = $4\text{m} \times 585 = \text{NRs. } 2,340$ million

Market value of loan notes = $200\text{m} \times 10,350/10,000 = \text{NRs. } 207$ million

Total market value = $2,340 + 207 = \text{NRs. } 2,547$ million

Market value WACC

$K_0 = ((10.9 \times 2,340) + (4.7 \times 207))/2,547 = 26,479/2,547 = 10.4\%$

Book value WACC

$K_0 = ((10.9 \times 850) + (4.7 \times 200))/1,050 = 10,205/1,050 = 9.7\%$

Comment

Market values of financial securities reflect current market conditions and current required rates of return. Market values should therefore always be used in calculating the weighted average cost of capital (WACC) when they are available. If book values are used, the WACC is likely to be understated, since the nominal values of ordinary shares are much less than their market values. The contribution of the cost of equity is reduced if book values are used, leading to a lower WACC, as evidenced by the book value WACC (9.7%) and the market value WACC (10.4%) of Jaiswal Co.

4 Solution

		20X6	20X5
1	$\text{ROCE} = \frac{\text{PBIT}}{\text{Capital Employed}} \times 100$	$= \frac{340}{3,000} \times 100$	$= \frac{150}{1,200} \times 100$
		= 11.33%	= 12.50%
The company's ROCE has decreased in 20X6, i.e. for every NRs.100 of capital invested; the company earned NRs. 11.33 in 20X6 compared with NRs. 12.50 in 20X5.			
2	$\text{EPS} = \frac{\text{PAT}}{\text{No. of Shares}} \times 100$	$= \frac{190}{12} \times 100$	$= \frac{70}{5} \times 100$
		15.83	14
The EPS is an improvement on the prior year. It has grown by 13% (1.83/14*100). The rate of growth in EPS is slightly higher than the industry average			
3	$\text{PE Ratio} = \frac{\text{Share Price}}{\text{EPS}}$	$= \frac{130}{15.83}$	$= \frac{126}{14}$
		8.21	9
Investors are willing to buy shares in the company at 8.21 times the earnings compared with the previous year's position when they were willing to pay 9 times the earnings. This fall may be because the company is not expected to grow as much as in the previous year. The industry average PE increased year-on-year from 10 to 12, which may suggest that this company is expected to generate slower growth or carries more risk than the industry average.			
4	$\text{ROE} = \frac{\text{PAT}}{\text{Shareholders Fund}} \times 100$	$= \frac{190}{2000} \times 100$	$= \frac{70}{600} \times 100$
		9.5%	11.7%

The ROE is falling. What is more, it is falling at a time when the industry average has risen from 12% to 15%. This suggests that the company is failing to make the most of the shareholders' investment. This analysis accords with the findings of the ROCE and the PE ratio.

5	$\text{DPS} = \frac{\text{Dividend for the period}}{\text{No. of Share}} \times 100$	$= \frac{90}{12} \times 100$	$= \frac{50}{5} \times 100$
		7.5	10

The DPS is falling. This would usually be regarded as bad news by investors, although it is probably related to the share issue in 20X6. If it was a rights issue, e.g. the shareholders will now each own a greater number of shares.

5 **Solution**

	Days
Raw materials inventory holding period	21
WIP holding period	14
Finished goods holding period	28
Receivables' collection period	56
Less: suppliers' payment period	(42)
Operating Cycle	77

6 **Solution**

	Costs of factoring	Savings
Sales ledger administration $1\% \times 16\text{m}$	160,000	
Administration cost savings		100,000
Cost of factor finance $7\% \times 80\% \times 3.3\text{m}$	184,800	
Overdraft finance costs $8\% \times 80\% \times 3.3\text{m}$ saved		211,200
Total	344,800	311,200
Net cost of factoring	112,800	

Since cost of factoring has exceeded benefits to be derived it is not advisable to go for taking the factoring service at the current volume of transaction and under the given arrangement.

7 Solution

	Units of widgets produced	Material (@ 2 units per widget			
		December	January	February	March
December	50,000	100,000			
January	55,000		110,000		
February	60,000			120,000	
March	65,000				130,000
Increase in inventories		–	10,000	10,000	–
Total purchase quantities		100,000	120,000	130,000	130,000
Total purchase @ NRs. 3 per unit		300,000	360,000	390,000	390,000
Payment to Suppliers (NRs.)			300,000	360,000	390,000

8 Solution

Calculation of expected net present value

NRs.'000

Year	1	2	3	4
Revenue	4,524	7,843	13,048	10,179
Variable cost	(2,385)	(4,200)	(7,080)	(5,730)
Contribution	2,139	3,643	5,968	4,449
Overhead	(440)	(484)	(532)	(586)
Cash flow before tax	1,699	3,159	5,436	3,863
Tax	(510)	(948)	(1,631)	(1,159)
Depreciation benefits	338	338	338	338
Cash flow after tax	1,527	2,549	4,143	3,042
Scrap value				500
Project cash flow	1,527	2,549	4,143	3,542
Discount at 11%	0.901	0.812	0.731	0.659
Present values	1,376	2,070	3,029	2,334

NRs.000

PV of future cash flows	8,809
Initial investment	(5,000)
Expected net present value (ENPV)	3,809

The investment project has a positive ENPV of NRs. 3,809,000. This is a mean or average NPV which will result from the project being repeated many times. However, as the project is not being repeated, the NPVs associated with each future economic state must be calculated as it is one of these NPVs which is expected to occur. The decision by management on the

financial acceptability of the project will be based on these NPVs and the risk associated with each one.

Workings

Mean or average selling price = $(25 \times 0.35) + (30 \times 0.5) + (35 \times 0.15) = \text{NRs.}29$ per unit

Year	1	2	3	4
Inflated selling price (NRs. per unit)	30.16	31.37	32.62	33.93
Sales volume (units/year)	150,000	250,000	400,000	300,000
Sales revenue (NRs.'000/year)	4,524	7,843	13,048	10,179
Inflated overhead (NRs.'000/year)	440	484	532	586

Total tax-allowable depreciation = $5,000,000 - 500,000 = \text{NRs.} 4,500,000$

Annual tax-allowable depreciation = $4,500,000/4 = \text{NRs.} 1,125,000$ per year

Annual cash flow from tax-allowable depreciation = $1,125,000 \times 0.3 = \text{NRs.} 337,500$ per year

9 Solution

(a)

Cost of sales = $5,600,000 \times (100 - 25) \% = \text{NRs.} 4,200,000$

Purchases = $4,200,000 \times 50\% = \text{NRs.} 2,100,000$

		Days
Raw material inventory period	$\frac{\text{Raw Materials}}{\text{Purchase}} \times 365$ $= \frac{220,000}{2,100,000} \times 365$	38.2
Credit taken from suppliers	$\frac{\text{Payables}}{\text{Purchase}} \times 365$ $= \frac{210,000}{2,100,000} \times 365$	(36.5)
Work in progress	$\frac{\text{Work in Progress}}{\text{Cost of Sales}} \times 365$ $= \frac{250,000}{4,200,000} \times 365$	47.8
Finished goods	$\frac{\text{Finished Goods}}{\text{Cost of Sales}} \times 365$ $= \frac{350,000}{4,200,000} \times 365$	30.4

Credit allowed to receivables	$\frac{\text{Receivables}}{\text{Sales}} \times 365$ $= \frac{506,000}{5,600,000} \times 365$	33.0
		112.9

(b) The cash operating cycle can be reduced in the following ways

(i) Reduce raw material inventory

Arrangements can be made with suppliers so raw materials are only ordered when they are needed for production.

(ii) Credit taken from suppliers

GD & Co. could negotiate a longer credit period from suppliers.

(iii) Reduce work-in-progress

Work-in-progress might be reduced by using more advanced technology or improving production processes.

(iv) Reduce finished goods inventory

Finished goods inventory could be reduced by not holding as much safety inventory to guard against unexpected demands.

(v) Reduce receivables

Credit control procedures could be tightened, or incentives such as discounts be offered for early payment.

10 Solution

(a)

NRs.'000

	Debt finance	Equity finance	
Sales	56,000	56,000	$50,000 \times 1.12$
Variable cost of sales	(28,560)	(28,560)	$30,000 \times 85\% \times 1.12$
Fixed cost of sales	(4,500)	(4,500)	
Gross profit	22,940	22,940	
Administration costs	(14,700)	(14,700)	$14,000 \times 1.05$
PBIT	8,240	8,240	
Interest	(800)	(300)	Debt finance cost 10% of NRs. 5m = NRs. 500k in addition to existing NRs. 300k
Profit before tax	7,440	7,940	
Tax at 30%	(2,232)	(2,382)	
Profit after tax	5,208	5,558	
Dividends at 60%	(3,125)	(3,335)	
Retained earnings	2,083	2,223	

(b)

	Current	Debt finance	Equity finance
Financial gearing (Debt/equity ratio)			
Debt	2,500	7,500	2,500
Share capital and reserves	22,560	24,643	29,783
Debt/equity ratio %	11.1%	30.4%	8.4%
Operational gearing (Contribution/PBIT)			
Contribution	24,500	27,440	27,440
PBIT	6,000	8,240	8,240
Operational gearing	4.1	3.3	3.3
Interest coverage			
PBIT	6,000	8,240	8,240
Debt interest	300	800	300
Interest coverage	20	10.3	27.5
Earnings per share			
Profit after tax	3,990	5,208	5,558
Number of shares	25	25	50
EPS	159.60	208.32	111.16

The debt finance proposal increases EPS by the largest amount, but will reduce interest coverage and increase financial gearing. Whether these changes are acceptable depends both upon sector averages and the response of investors and managers. A decision to use equity finance would decrease financial gearing along with decrease in EPS but would increase interest coverage. A decrease in operational gearing would result from both proposals.

11 Solution

(a) Book Building

Book Building is defined as a process undertaken by which a demand for the securities proposed to be issued by a corporate body is elicited and built up and the price for such securities is assessed for the determination of the quantum of such securities to be issued by means of a notice, circular, advertisement, document or information memoranda or offer document.

(b) Random Walk Theory.

Many investment managers and stock analysts believe that the stock market prices can never be predicted because they are not a result of any underlying factors but are more statistical ups

and downs. This hypothesis is known as Random Walk Hypothesis which states that the behavior of stock market prices is unpredictable and that there is no relationship between the present prices of the shares and their future prices. Proponents of this hypothesis argue that stock markets prices are independent. A British Statistician, M.G. Kendell, found that changes in security prices behave as if they are generated by a suitably designed roulette wheel for which each outcome is statistically independent of the past history. In other words, the fact that there are peaks and troughs in the stock exchange prices is a mere happening- successive peak and troughs are unconnected. In the layman's language it may be said that the prices on the stock exchange behave exactly the way a drunkard would behave while walking in a blind lane, i.e., up and down with an unsteady gait going in any directions he likes, bending on one side once and on the other side the second time.

(c) Dividend Signaling

According to dividend signaling hypothesis, dividend changes provide an effective way of allowing management to convey believable information to the market about the firm's expected future cash flows. By conveying the favorable information in a believable way, the dividend decision is used to show effect on the value of firm. Firms are careful in announcing their dividend decisions. Most of the firms follow stable dividends or gradually increasing dividends. Many investors consider dividends as a part of regular income to meet their expenses. Hence, they prefer a predictable pattern of dividends rather than fluctuating pattern. A fall in the dividend income may lead to sale of some shares, on the other hand when the dividend income increases, an investor may invest some of the proceeds as reinvestment in shares, and thus the share price tends to increase. Moreover, the dividend policy of firms, convey a lot to the investors. Increasing dividends signal better prospects of the company. On the contrary, decreasing dividends signals bad earning expectations. In addition, stable dividends are signs of stable earnings of the company. On the other hand, varying dividends lead to uncertainty in the mind of shareholders.

(d) Financial restructuring

Financial restructuring is carried out internally in the firm with the consent of its various stakeholders. Financial restructuring is a suitable mode of restructuring of corporate firms that have incurred accumulated sizable losses for/over a number of years. As a sequel, the share capital of such firms, in many cases, gets substantially eroded/ lost; in fact, in some cases, accumulated losses over the years may be more than the share capital, causing negative net worth. Given such a dismal state of financial affairs, a vast majority of such firms are likely to have a dubious potential for liquidation. Can some of these firms be revived? Financial restructuring is one of such a measure for the revival of only those firms that hold promise/prospects for better financial performance in the years to come. To achieve the desired objective, such firms warrant / merit a restart with a fresh balance sheet, which does not contain past accumulated losses and fictitious assets and shows share capital at its real / true worth.

12 Solution

(a) Distinguish between Money market and Capital Market

The **capital Market** deals in financial assets. Financial Assets comprises of shares, debentures, mutual fund etc. The capital market is also known as stock market.

Stock market and money market are two basic components of Financial system. Capital market-deals with long and medium term instruments of financing while money market deals with short term instruments. Some of the points of distinction between capital market and money market are as follows:

SN	Money Market	Capital Market
1.	There is no classification between primary market and secondary market.	There is a classification between primary market and secondary market.
2.	It deals for funds of short-term requirement.	It deals with funds of long-term requirement.
3.	Money market instruments include interbank call money, notice money up to three months, commercial paper, 91 days treasury bills.	Capital Market instruments are shares and debt instruments.
4.	Money market participants are banks, financial institution, Central Bank and Government.	Capital Market participants include retail investors, institutional investors like Mutual Funds, Financial Institution, corporate and banks.

(b) Distinguish between Factoring and Forfaiting

Basis of Difference	Factoring	Forfaiting
Extent of Finance	Usually 80% of the value of the invoice is considered for advance	100% Financing
Creditworthiness	Factor does the credit rating of the counterparty in case of a non-recourse factoring transaction.	The forfeiting bank relies on the credibility of the availing bank.
Service Provided	Day to day administration of sales and other allied services are provided	No services are provided
Maturity	Advances are short-term in nature	Advances are generally medium- term

(c) Distinctions between hire purchase and lease financing are given below:

Basis of Difference	Hire Purchase	Lease Financing
Ownership	It passes to the user (hirer) on payment of last installment.	The lessor (finance company) is the owner and ownership never passes to the lessee.
Down payment	20% - 30% of the cost is paid as down payment.	There is no down payment in Lease Financing

Depreciation	Depreciation is charged in books of Hirer (User).	Depreciation is charged in the books of lessor.
Maintenance	Cost is borne by the hirer (user).	In operating lease it is charged to lessor (seller) and in case of finance lease it is charged to lessee.
Capitalization	It is done in the books of hirer.	It is done in the books of leasing company
Tax Benefits	Hirer is allowed to claim depreciation and claim finance charge.	Entire lease rentals are taxable for lessee.
Risk of Obsolescence	The risk of obsolescence is born by hirer.	In operating lease it is born by lessor (seller) and in case of finance lease it is borne by lessee.
Reporting	The asset is shown in balance sheet of hirer and the installment payable as a liability.	The asset is shown in the notes of the financial statement.

13 Solution

(a) CAPM rests on eight assumptions. The first five assumptions are those that underlie the efficient market hypothesis and thus underlie both modern portfolio theory (MPT) and the CAPM. The last three assumptions are necessary to create the CAPM from MPT. The eight assumptions are the following:

- i) The investor's objective is to maximize the utility of terminal wealth.
- ii) Investors make choices on the basis of risk and return.
- iii) Investors have homogeneous expectations of risk and return.
- iv) Investors have identical time horizon.
- v) Information is freely and simultaneously available to investors.
- vi) There is a risk-free asset, and investors can borrow and lend unlimited amounts at the risk-free rate.
- vii) There are no taxes, transaction costs, restrictions on short rates, or other market imperfections.
- viii) Total asset quantity is fixed, and all assets are marketable and divisible.

Similarly, the following list describes the logical consequences of these assumptions.

- i) Risk is the variance of expected portfolio returns.
- ii) Risk can be broken into two components: diversifiable (unsystematic) risk and non-diversifiable (systematic) risk.
- iii) Proper diversification can reduce unsystematic risk.
- iv) Beta is the relevant measure of risk for investors with diversified portfolios.
- v) Risk and return are linearly related by beta – that is, risk and return are in equilibrium.
- vi) Return is total return.
- vii) An investor holds portion of two portfolios. The risk-free asset and the market portfolio.

viii) The return that an investor actually receives is derived from only two sources: risk proportional market return plus nonsystematic random return. No other factor is consistent in its effect on security returns.

- (b) **Adjusted Present Value (APV):** It is an alternative to the weighted average cost of capital (WACC). With an APV approach, project cash flows are broken down into two components: un-levered operating cash flows; and those associated with financing the project. These components then are valued so that

$$\text{APV} = \text{Un-levered Value} + \text{Value of Financing}$$

The disaggregating of cash flows is undertaken so that different discount rates may be used. As operating cash flows are more risky, they are discounted at a higher rate.

More formally,

$$\text{APV} = \sum_{t=0}^n \frac{OC_t}{(1 + K_u)^t} + \sum_{t=0}^n \frac{Int_t(T_c)}{(1 + K_i)^t} - F$$

Where,

OC _t	=	after tax operating cash flow in period t
K _u	=	required rate of return in absence of leverage
Int _t	=	interest payment on debt in period t
T _c	=	Corporate Tax Rate
K _i	=	Cost of debt financing and
F	=	after tax floatation cost associated with financing

The first component on the right-hand side of the equation represents the net present value of operating cash flows discounted at the un-levered cost of equity capital. The second component is the present value of the interest tax shield on any debt employed to finance the project. The discount rate is the corporate cost of borrowing. Finally, any floatation costs are subtracted from the sum of the first two components.

14 Solution

(a) Working Capital Cycle

Every business undertaking requires funds for two purposes - investment in fixed assets and investment in current assets. Funds required to invest in stock, debtors and other current assets keep on changing shape and volume. For example, a company has some cash in the beginning. This cash may be paid to the suppliers of raw materials, to meet labour costs and other overheads. These three combined would generate work-in-progress which will be converted into finished goods on the completion of the production process. On sale, these finished goods get converted into debtors and, when debtors pay, the firm will again have cash. The cash will again be used for financing raw materials, work-in-progress etc. Thus there is a complete cycle when cash gets converted into raw materials, work-in-progress, finished

goods, debtors and finally again cash. This time period is known as the working capital cycle of the firm.

(b) Packing Credit:

Packing credit is an advance made available by banks to an exporter. Any exporter, having at hand a firm export order placed with him by his foreign buyer on an irrevocable letter of credit opened in his favour, can approach a bank for availing of packing credit. An advance so taken by an exporter is required to be liquidated within 180 days from the date of its commencement by negotiation of export bills or receipt of export proceeds in an approved manner. Thus Packing Credit is essentially a short-term advance.

(c) Tax consideration influencing the dividend policy of the firm

The firm's dividend policy is directed by the provisions of income-tax law. If a firm has a large number of owners, in high tax bracket, its dividend policy may be to have higher retention. As against this if the majority of shareholders are in lower tax bracket requiring regular income the firm may resort to higher dividend payout, because they need current income and the greater certainty associated with receiving the dividend now, instead of the less certain prospect of capital gains later.

(d) Bridge Finance

Bridge Finance refers, normally, to loans taken by a business, usually from commercial banks for a short period, pending disbursement of term loans by financial institutions. Normally, it takes time for the financial institution to finalise procedures of creation of security, tie-up participation with other institutions etc., even though a positive appraisal of the project has been made. However, once the loans are approved in principle, firms, in order not to lose further time in starting their projects, arrange for bridge finance. Such temporary loan is normally repaid out of the proceeds of the principal term loans. Generally the rate of interest on bridge finance is 1% or 2% higher than on normal term loans.

15 Solution

(a) Discuss the causes of capital rationing for investment purposes

In order to invest in all projects with a positive net present value a company must be able to raise funds as and when it needs them: this is only possible in a perfect capital market. In practice capital markets are not perfect and the capital available for investment is likely to be limited or rationed. The causes of capital rationing may be external (hard capital rationing) or internal (soft capital rationing).

Soft capital rationing is more common than hard capital rationing. When a company cannot raise external finance even though it wishes to do so, this may be because providers of debt finance see the company as being too risky. In terms of financial risk, the company's gearing may be seen as too high, or its interest cover may be seen as too low. From a business risk point of view, lenders may be uncertain whether a company's future profits will be sufficient to meet increased future interest payments because its trading prospects are poor, or because they are seen as too variable.

When managers impose restrictions on the funds they are prepared to make available for capital investment, soft capital rationing is said to occur. One reason for soft capital rationing is that managers may not want to raise new external finance.

For example, they may not wish to raise new debt finance because they believe it would be unwise to commit the company to meeting future interest payments given the current economic outlook. They may not wish to issue new equity because the finance needed is insufficient to justify the transaction costs of a new issue, or because they wish to avoid dilution of control.

Another reason for soft capital rationing is that managers may prefer slower organic growth, where they can remain in control of the growth process, to the sudden growth arising from taking on one or more large investment projects.

A key reason for soft capital rationing is the desire by managers to make capital investments compete for funds, i.e. to create an internal market for investment funds. This competition for funds is likely to weed out weaker or marginal projects, thereby channeling funds to more robust investment projects with better chances of success and larger margins of safety, and reducing the risk and uncertainty associated with capital investment.

(b) Discuss the reasons why different bonds of the same company might have different costs of debt

Risk

In general, the cost of a source of finance is related to its level of risk. The higher the risk, the greater the return expected by investors and therefore the higher the cost to the company. In this case, the bonds were issued at the same time by the company so business risk will not be a reason for the difference in cost of debt.

Security

Connected with the concept of risk and return is the amount of security offered. For example, a bond may be secured on a specific asset or group of assets. An unsecured bond will generally have a higher interest rate than a secured one. A lack of security therefore raises the cost of debt. There is no information to suggest a difference in security for Bond A and Bond B.

Time

The yield curve is normally upward sloping which means that long-term financial assets offer a higher yield than short-term assets. This is due to liquidity preference theory which states that investors prefer cash now to later and want compensation in the form of a higher return for being unable to use their cash now.

Longer dated bonds can therefore be expected to have a higher cost of debt than shorter dated bonds. Bond A has a greater time to maturity than Bond B so would therefore be expected to have a higher interest rate and cost of debt.

Size of debt

The amount of finance raised by Bond A is twice that of Bond B and that may have contributed to the higher cost of debt.

(c) Discuss the key factors to be considered when formulating a working capital funding policy

In order to understand working capital financing decisions, assets can be divided into three different types.

Non-current (fixed) assets are long-term assets from which an organization expects to derive benefit over a number of periods. For example, buildings or machinery.

Permanent current assets are the amount required to meet long-term minimum needs and sustain normal trading activity. For example, inventory and the average level of accounts receivable.

Fluctuating current assets are the current assets which vary according to normal business activity. For example due to seasonal variations.

Fluctuating current assets together with permanent current assets form part of the working capital of the business, which may be financed by either long-term funding (including equity capital) or by current liabilities (short-term funding).

Short-term sources of funding are usually cheaper and more flexible than long-term ones. However short term sources are riskier for the borrower as interest rates are more volatile in the short term and they may not be renewed.

The matching principle suggests that long-term finance should be used for long-term assets. A balance between risk and return might be best achieved by a moderate approach to working capital funding. This is a policy of maturity matching in which long-term funds finance permanent assets while short-term funds finance non-permanent assets. This means that the maturity of the funds matches the maturity of the assets.

A conservative approach to financing working capital involves all non-current assets and permanent current assets, as well as part of the fluctuating current assets, being financed by long-term funding. This is less risky and less profitable than a matching policy. At times when fluctuating current assets are low, there will be surplus cash which the company will be able to invest in marketable securities.

An organization may adopt an aggressive approach to financing working capital. Not only are fluctuating current assets all financed out of short-term sources, but so are some of the permanent current assets. This policy represents an increased risk of liquidity and cash flow problems, although potential returns will be increased if short-term financing can be obtained more cheaply than long-term finance.

Other factors that influence a working capital funding policy include previous management attitudes to risk; this will determine whether there is a preference for a conservative, aggressive or moderate approach.

Secondly, previous funding decisions will determine the current position being considered in policy formulation. Finally, the size of the organization will influence its ability to access different sources of finance. For example, a small company may have to adopt an aggressive working capital funding policy because it cannot raise additional long-term finance.

16 Solution

Computation of degree of Operating leverage, Financial leverage and Combined leverage companies

	NRs.	
	Company A	Company B
Output units per annum	60,000	15,000
Selling price / unit	30	250
Sales revenue (60,000 units × Rs.30) (15,000 units × Rs.250)	18,00,000	37,50,000
Less: Variable costs (60,000 units × Rs.10) (15,000 units × Rs.75)	6,00,000	11,25,000
Contribution (C)	12,00,000	26,25,000
Less: Fixed costs	7,00,000	14,00,000
EBIT	5,00,000	12,25,000
Less: Interest @ 12% on debentures	48,000	78,000
PBT	4,52,000	11,47,000

DOL = $\frac{C}{EBIT}$ (Rs.12,00,000 / Rs.5,00,000) (Rs.26,25,000 / Rs.12,25,000)	2.4	2.14
DFL = $\frac{EBIT}{PBT}$ (Rs.5,00,000 / Rs.4,52,000) (Rs.12,25,000 / Rs.11,47,000)	1.11	1.07
DCL = DOL × DFL (2.4×1.11) (2.14×1.07)	2.66	2.29

17 Solution

(a) Walter's model is given by

$$p = \frac{D + (E - D) \left(\frac{y}{ke} \right)}{ke}$$

Where,

P= Market price per share,

E= Earning per share – NRs. 5

D= Dividend per share- NRs. 3

Y= Return earned on investment- 15%

k_e = Cost of equity capital- 12%

$$p = \frac{3 + (5 - 3) \left(\frac{0.15}{0.12} \right)}{0.12}$$

$$= \frac{3 + 2 \times 1.25}{0.12} = \text{NRs. } 45.83$$

- (b) According to Walter's model when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend payout ratio in this case is Nil. So, at a payout ratio of zero, the market value of the company's share will be

$$= \frac{0 + (5 - 0) \times \left(\frac{0.15}{0.12} \right)}{0.12} = \text{NRs. } 52.08$$

18 Solution

- (i) Investment committed to each security would be:-

	A	B	C	Total
Portfolio X	1,500	2,000	1,500	5,000
Portfolio Y	600	1,500	900	3,000
Combined Portfolio	2,100	3,500	2,400	8,000
Thus, Stock Weights	0.26	0.44	0.30	

- (ii) The equation of critical line takes the following form:-

$$W_B = a + b W_A$$

Substituting the values of W_A & W_B from portfolio X and Y in above equation, we get

$$0.40 = a + 0.30b, \text{ and}$$

$$0.50 = a + 0.20b$$

Solving above equation we obtain the slope and intercept, $a=0.70$ and $b=-1$ and thus, the critical line is

$$W_B = 0.70 - W_A$$

If half of the funds is invested in security A then,

$$W_B = 0.70 - 0.50 = 0.20$$

Since $WA + WB + WC = 1$
 $WC = 1 - 0.50 - 0.20 = 0.30$

Therefore, allocation of funds to
 Security B $= 0.20 \times 8,000$
 $= \text{NRs. } 1,600$ and

Security C $= 0.30 \times 8,000$
 $= \text{NRs. } 2,400$

19 Solution

(a) Calculation of Maximum price

$$\begin{aligned} B_0 &= \text{NRs. } 11 \times \text{PVIFA (13\%, 3)} + \text{NRs. } 100 \times \text{PVIF (13\%, 3)} \\ &= \text{NRs. } 11 \times 2.361 + \text{NRs. } 100 \times 0.693 \\ &= \text{NRs. } 95.27 \end{aligned}$$

(b) Calculation of yield

At 12% the value will be

$$\begin{aligned} B_0 &= \text{NRs. } 11 \times \text{PVIFA (12\%, 3)} + \text{NRs. } 100 \times \text{PVIF (12\%, 3)} \\ &= \text{NRs. } 11 \times 2.402 + \text{NRs. } 100 \times 0.712 \\ &= \text{NRs. } 97.62 \end{aligned}$$

If the bond is selling at NRs. 97.60 which is more than the fair value, YTM of the bond would be less than 13%. This value is almost equal to the amount price of NRs. 97.60. Therefore, YTM of the bond would be 12%.

20 Solution

(a) Cost of Capital

Retained earning (45%)	NRs. 5 per share
Dividend (55%)	NRs. 6.11 per share
EPS (100%)	11.11 per share
P/E Ratio	8 times
Market price	NRs. $11.11 \times 8 = \text{NRs. } 88.88$

$$\text{Cost of equity capital} = \left\{ \frac{\text{Dividend}}{\text{Price}} \times 100 \right\} + \text{Growth \%}$$

$$= \left\{ \frac{\text{NRs. } 6.11}{\text{NRs. } 88.88} \times 100 \right\} + 15 \% = 21.87\%$$

(b) Market Price

$$= \left\{ \frac{\text{Dividend}}{\text{Cost of Capital (\%)} - \text{Growth Rate (\%)}} \right\}$$

$$= \text{NRs.} \frac{6.11}{(21.87 - 16)\%} = 104.08 \text{ per share}$$

- (c) Market value when cost of capital is 20% and anticipated growth rate is 19%

$$= \text{NRs.} \frac{6.11}{(20 - 19)\%} = 611.00 \text{ per share}$$

21 Solution

Evaluation of proposal to repair existing machine or buy a new machine
for M/s S. Engineering Company

- (i) **To repair existing machine:**

Present value of after-tax cash outflows	
Cost of repairs immediately net of tax Rs. 9,500 (50% of Rs. 19,000)	
Equivalent annual cost for 5 years = 9500/3.791	2,506
Running and maintenance cost per annum net of tax (50% of Rs. 20,000)	10,000
Total net equivalent cash outflows p.a.	12,506

- (ii) **To buy a new machine:**

Present value of after-tax cash outflows	
Purchase cost of new machine	49,000
Less: Sale Proceeds of old machine	5,000
	44,000
Equivalent annual cost for 10 years (44,000/6.145)	7160
Tax saving of depreciation (Rs. 49,000/10) X 50%	(2,450)
Running and maintenance cost p.a. net of tax (50% of Rs. 14,000)	7,000
Total net equivalent cash outflows p.a.	11,710

Since, net equivalent cash outflows p.a. for buying a new machine NRs. 11,710 is less than net equivalent cash outflows of Rs. 12,506 for repairing of an existing machine. Therefore, it is advisable that the company should go for buying a new machine.

22 Solution

Year	Dividend	Price $P_2 = D_2 \cdot (1+G) / (k_e - G)$	PV Factor @ 10%	PV of dividend & P2
1/ D_1	1.92	0	0.91	1.75
2/ D_2	2.304	0	0.83	1.90
2/ P_2	0	61.056	0.83	50.46
Value of shares today				54.11

For the current year,

We know, Dividend yield = $D_1 / P_0 = 1.92 / 54.11 = 3.55\%$

Capital gains yield = Ending Price - Beginning price / Beginning price

Now ending price for year 1 = $P_1 = D_2 \times \text{PV @ } 10\%, 1 \text{ year} + P_2 \times \text{PV @ } 10\%, 1 \text{ year}$
 $= (2.304 + 61.056) \times 0.91 = 57.60$

Therefore, Capital Gain Yield = $(57.60 - 54.11) / 54.11 = 6.45\%$

Alternatively, for calculation of CGY,

Given ROE (K_e) = 10%

Current/ Dividend Yield = 3.55%

We Know, ROE = DY + CGY

Or, ROE – DY = CGY

Thus, CGY = 10% - 3.55% = 6.45%

23 Solution

Net asset value (NAV) = 140m – 15m – 20m = 105m

Number of ordinary shares = 25m/100 = 0.25 m shares

NAV per share = 105m/0.25m = NRs. 420 per share

24 Solution

Project	A	B	C	D
Initial Cash Outflows	30 lakh	20 lakh	25 lakh	60 lakh
Present Value	36 lakh	25 lakh	40 lakh	78 lakh
NPV	6	5	15	18
PI	1.2	1.25	1.6	1.3

Ranking of the Project in Descending Order of Profitability Index

Project	A	B	C	D
PI	1.2	1.25	1.6	1.3
Rank	IV	III	I	II

- (i) Accept Project C in full and D in part (Rs 4,500,000) as it will maximize the NPV. A similar kind of exercise can be done using the IRR instead of the PI.
- (ii) Accept Project A & C to maximize the NPV if the projects are divisible.